**1 . Date: 06-01-2023General1,500+ Drones Bought by Army of Drones ProjectURL: https://www.uasvision.com/2023/01/06/1500-drones-bought-by-army-of-drones-project/**

As part of the Army of Drones project, the government authorities of Ukraine have purchased 1,577 drones, 928 of which have already been handed over to the defenders of Ukraine, Deputy Prime Minister, Minister of Digital Transformation Mykhailo Fedorov has said.

“As part of the project, the Ministry of Defense, the State Service for Special Communications and Information Protection of Ukraine and other bodies have already purchased 1,577 drones. Hundreds of thousands of people from all over the world donated for each of them through UNITED24,”

Fedorov said on his Telegram channel.

According to him, 928 of the purchased Drone Army drones are already helping the defenders of Ukraine fight the Russian invaders.

The Army of Drones project was created with the participation of the General Staff of the Armed Forces of Ukraine and the Ministry of Digital Transformation on July 1, 2022. As part of the project, it is planned to purchase and repair drones at the expense of donations, as well as training courses on handling them.

**2 . Date: 06-01-2023MarketSwissDrones Secures Growth Funding from SeattleURL: https://www.uasvision.com/2023/01/06/swissdrones-secures-growth-funding-from-seattle/**

SwissDrones, a global manufacturer of long-range uncrewed helicopter systems for inspection, surveillance and public safety applications, announced that it has secured additional 7-figure funding in a round led by DiamondStream Partners, an aviation and aerospace venture capital firm, with participation from existing investors.

SwissDrones plans to use the funding to accelerate product development and expand global go-to-market activities.

“We see SwissDrones as leaders in bringing next-generation aviation technology to critical use cases in infrastructure inspection, aerial surveillance and public safety,” said David Spurlock, Managing Director of DiamondStream Partners. “The combination of the payload/range of the aircraft, a focus on customer service needs, and a platform that will enable high levels of asset utilization are set to bring disruptive economics to catalyze growth in these market segments. We are excited to support the company as it grows as a leader in this space and brings tremendous value across the sector.”

Designed to replace crewed helicopters, SwissDrones provides a safe and cost-effective aerial intelligence solution for a wide range of applications, including infrastructure inspection, surveillance and public safety missions beyond visual line of sight (BVLOS). SwissDrones aircraft emit up to 95 percent fewer CO2 emissions than crewed helicopters at significantly reduced operating costs and without putting flight crews at risk. The systems allow for the integration of high-end sensor payloads of up to 40 kg (88 lbs) and enable long-range missions day and night with a flight endurance of multiple hours. SwissDrones’ aircraft are currently in operation across Asia, Europe, and North America.

“We are very happy to have DiamondStream Partners as a new investor,” said Ulrich Amberg, CEO of SwissDrones. “Our team looks forward to leveraging their vast entrepreneurial and operational experience in the aviation and aerospace industries as we strive to transform the way aerial intelligence is gathered in crucial applications worldwide.”

To expand its capabilities and meet customer demand, SwissDrones collaborates with civil aviation authorities worldwide to secure regulatory approvals and flight authorizations, allowing for enhanced mission-specific operations.

The company is among the first organizations that have obtained a European drone operator license, the European Union Aviation Safety Agency (EASA) Light UAS Operator Certificate (LUC). The certificate allows SwissDrones to self-authorize flight operations of its aircraft across EASA countries, including BVLOS operations, within the limits of the certificate. It is the highest authorization achievable under current European drone regulations.

The SwissDrones SDO 50 uncrewed helicopter platform has also received a Special Airworthiness Certificate (SAC-EC) from the FAA in the US. Additional regulatory approvals will be announced in the coming months.

About SwissDrones

SwissDrones manufactures and operates long-range uncrewed helicopter systems for missions beyond visual line of sight (BVLOS). Its unique twin-rotor aircraft are designed to replace crewed helicopters at significantly reduced costs and lower carbon emissions. They can operate in challenging conditions, day and night, without exposing crews to risk.

SwissDrones was founded in 2013 and headquartered in Zurich, with manufacturing facilities in Buchs. The company has been named a Top 50 Global UAV Enterprise by the World UAV Federation and a Top 40 Civil Drone Platform Manufacturer by Drone Industry Insights.

**3 . Date: 09-01-2023GeneralWalmart Now Operates Drone Delivery in 7 States, Completes 6,000 Drone DeliveriesURL: https://www.uasvision.com/2023/01/09/walmart-now-operates-drone-delivery-in-7-states-completes-6000-drone-deliveries/**

Walmart

’s drone delivery program is soaring into the new year, having successfully completed its intended expansion plans for 2022. The company now operates, with its vendors, 36 drone delivery hubs across seven states, including Arizona, Arkansas, Florida, North Carolina, Texas, Utah and Virginia.

“I’m incredibly proud of our team for creating the largest drone delivery footprint of any U.S. retailer and providing customers with an incredibly fast – and innovative – option for delivery,” said Vik Gopalakrishnan, vice president, innovation & automation, Walmart U.S., “We’re encouraged by the positive response from customers and look forward to making even more progress in 2023.”

Over the past year, Walmart has safely completed more than 6,000 deliveries to customers in as little as 30 minutes. The top five items delivered via drone from Walmart were, in order, Great Value Cookies and Cream Ice Cream 16 oz, 2lb Bag of Lemons, Freshness Guaranteed Hot Rotisserie Chicken, Red Bull 8.4 fl. oz, and Bounty Select-a-Size Paper Towels. Currently 85% of items in a Walmart Neighborhood Market meet the 10 lb. weight and volume requirements for drone delivery.

Walmart is uniquely positioned to offer drone delivery at scale with its 4,700 stores located within 90% of the U.S. population, and this ability to scale will provide even more customers with the convenient opportunity to receive items via drone in the years ahead.

**4 . Date: 10-01-2023General - SurvivabilityBayraktar Hints at Kill Switch in Combat DronesURL: https://www.uasvision.com/2023/01/10/bayraktar-hints-at-kill-switch-in-combat-drones/**

The senior executive of Turkish defense manufacturer Baykar dismissed concerns that as it increases exports, its attack drones may one day be used against Ankara, saying that all required measures had been taken to prevent the military technology from slipping into the hands of a prospective adversary.

Selcuk Bayraktar, chairman and chief technology officer of Baykar, stated in an earlier this week interview with TV100 that the company, first and foremost, only sells combat drones to nations that have “close relations” or a “strategic alliance” with Türkiye and does not “expect” a stab in the back.

He noted, but didn’t elaborate,

“you also know that these are high-tech devices, and you equip high-tech devices with software. Only those who develop that technology dominate the software.”

The CTO stated that Baykar has taken precautions to stop hackers from commandeering and damaging its UAVs. Bayraktar claimed to presenter Candas Tolga Isik, “Of course, we have special measures regarding information security.” Noting that, “now you know that in this era, states are also hacked. We are taking special measures against all these, and this is also a race.”

“We can take control of all UAVs sold by us to other countries and deploy them in the air against them; they work on our software,”

said Selcuk Bayraktar.

Drone control systems are apparently connected to satellites or can be controlled via medium waves. Information on this subject was voiced in an interview with journalists by the technical director of the Turkish company Baykar Makina Selçuk Bayraktar.

Previously, such a feature of Turkish drones has never been disclosed, which can seriously affect the interest in Turkish drones. However, which is very remarkable, this may mean that during the conflict in Ukraine, it was Turkey that could be involved in controlling the strikes of Ukrainian drones, especially those drones that can be controlled via satellite communication channels.

**5 . Date: 11-01-2023Armed ISR / ISTAR - MALE - ContractGA-ASI Gets $75M US Army Gray Eagle Support ContractURL: https://www.uasvision.com/2023/01/11/ga-asi-gets-75m-us-army-gray-eagle-support-contract/**

General Atomics Aeronautical Systems Inc., Poway, California, was awarded a $75,074,676 cost-plus-fixed-fee contract for contractor logistics support for Gray Eagle Block 0.

Bids were solicited via the internet with one received. Work will be performed in Poway, California, with an estimated completion date of June 28, 2025. Fiscal 2023 operation and maintenance, Army funds in the amount of $10,000,000 were obligated at the time of the award.

U.S. Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity (W58RGZ-23-C-0010).

**6 . Date: 12-01-2023Armed ISR / ISTAR - MALE - ContractNorthrop Grumman Gets $16M US Navy MQ-8 Fire Scout Logistics ContractURL: https://www.uasvision.com/2023/01/12/northrop-grumman-gets-16m-us-navy-mq-8-fire-scout-logistics-contract/**

Northrop Grumman Systems Corp

., San Diego, California, is awarded a $16,220,882 cost-plus-fixed-fee contract. This contract provides for engineering investigations, fleet operations, issues surrounding supportability/reliability, cyber security activities and capabilities, software design and system integration, qualification testing, logistical support as well as training services in support of the MQ-8 Fire Scout System.

Work will be performed in San Diego, California, and is expected to be completed in December 2023. Fiscal 2023 operations and maintenance (Navy) funds in the amount of $4,291,628; and fiscal 2023 aircraft procurement (Navy) funds in the amount of $448,688 will be obligated at the time of award, $4,291,628 of which will expire at the end of the current fiscal year.

This contract was not competitively procured pursuant to 10 U.S. Code 2304(c)(1).

The Naval Air Systems Command, Patuxent River, Maryland, is the contracting activity (N0001923C0002).

**7 . Date: 13-01-2023General - GCSH3 Dynamics Announces Mobile Hydrogen Station for Hydrogen Drones & UAVsURL: https://www.uasvision.com/2023/01/13/h3-dynamics-announces-mobile-hydrogen-station-for-hydrogen-drones-uavs/**

H3 Dynamics

has announced the global launch of H2FIELD-1, a new mobile hydrogen station capable of producing hydrogen in the field for unmanned aerial vehicles of all shapes, sizes and configurations.

Now hydrogen-powered airships, multi-rotors, vertical take-off and landing UAS and various fixed wing systems will be able to benefit from 24/7 hydrogen supply anywhere, anytime.

H2FIELD’s rugged IP-65 trailer-based solution brings hydrogen production to different drone operation locations. It can also be dismounted as a permanent installation and connect to solar panel arrays. H3 Dynamics can supply various configurations, with slow or fast charge options down to minutes per fill – depending on client requirements. H3 Dynamics’ system is extremely compact and can produce hydrogen on site – not just dispense it from other storage forms.

For hydrogen drone operators, H2FIELD-1 solves fundamental hydrogen accessibility in remote areas, unlocking a major logistical barrier for a growing base of hydrogen drone operators in industrial, defense, or even academic sectors. The only feedstock input is water.

H3 Dynamics has been working on a first transatlantic hydrogen-electric flight using liquid hydrogen storage systems currently being tested in France with ISAE-SUPAERO in Toulouse. Last week H3 Dynamics announced its hydrogen propulsion partnership with French airship maker HyLight, and the week prior with Australian VTOL UAV producer Carbonix whose airframes are made by Quickstep – Australia’s leading aerospace composites producer.

2023 will see more of these announcements as H3 Dynamics continues to transition battery-UAS manufacturers to hydrogen technologies. Compared to batteries, hydrogen electric systems increase battery-drone flight durations by several orders of magnitude, opening to many new possibilities in a market that is expected to grow five-fold to $100B by 2030.

H2FIELD-1 marks the start of H3 Dynamics’ foray into hydrogen infrastructure solutions for small, unmanned and increasingly large aircraft, from airfields to airports – with increasingly large output power and hydrogen storage capabilities.

“We are the evolutionary starting point to increasingly large hydrogen powered flight platforms, where testing, certification and regulatory approval challenges vary based on aircraft weight. We want to mature hydrogen technology in today’s existing uncrewed aviation market – and that includes working out hydrogen logistics and refueling systems,”

says Taras Wankewycz, CEO and co-Founder at H3 Dynamics.

About H3 Dynamics

H3 Dynamics is on a mission to decarbonize aviation. While the commercial opportunities around passenger-scale hydrogen aviation propulsion will take many more years to mature, the company is following a “start small” product and services roadmap that solves safety, technical, regulatory challenges by adding scale, weight and complexity over time. The company employs 94 team members from its 3 regional headquarters in Toulouse, Austin and Singapore. H3 Dynamics is a member of the Alliance for Zero Emission Aviation under the European Commission, Sustainable Aero Lab, the Lufthansa Cleantech Hub, the Paris Advanced Air Mobility Alliance, and Aerospace Valley in Toulouse.

**8 . Date: 18-01-2023ISR / ISTAR - Small - General - PlatformBayraktar DIHA VTOL Drone Completes Flight Test at 8,000 ftURL: https://www.uasvision.com/2023/01/18/bayraktar-diha-vtol-drone-completes-flight-test-at-8000-ft/**

Turkey’s Bayraktar vertical-landing unmanned aerial vehicles (DIHA) have successfully completed 8,000 feet operational altitude flight test, drone maker Baykar announced recently.

Turkish defense company Baykar shared footage on Twitter showing the Bayraktar DIHA rising straight up into the air, soaring above the clouds, and vertically descending back down.

The Bayraktar DIHA is a mini-tactical UAV-class aircraft capable of functioning in reconnaissance and intelligence missions.

The drone features automatic cruise, autonomous take-off, autonomous landing, and semi-autonomous cruise flight capabilities.

With a communication range of up to 150 kilometers (about 93 miles), the Bayraktar DIHA’s low-fuel-consumption gasoline engine offers a long flight duration.

**9 . Date: 19-01-2023N/A - N/A - General - PlatformGreece to Build New Advanced Drone Called ‘the Griffin’URL: https://www.uasvision.com/2023/01/19/greece-to-build-new-advanced-drone-called-the-griffin/**

On January 12th at the Ministry of Finance, in the presence of the Minister of Finance Mr. Christos Staikouras and the Minister of National Defense Mr. Nikolaos Panagiotopoulos, the memorandum of cooperation was signed between the management of the Hellenic Aviation Industry (EAB) and the rector’s authorities of the Aristotle University of Thessaloniki , of the University of Patras, the Democritus University of Thrace and the University of Thessaly for the design and industrial production of a second, more complex unmanned aerial vehicle (drone) for a variety of uses.

According to the Ministry of Finance, the implementation of the new program, which bears the name “Grypas” – after the mythological being, which was a symbol of power – began on Monday, January 16, taking advantage of the consistent course of work and the know-how acquired by the “Archytas” program for the research, development and industrial production of the first Autonomous Multi-Purpose Aerial Vehicle by entities of the wider public sector.

The Ministry of Finance, as the main shareholder of EAB, supports and finances this program in various ways, as it did for the “Archytas” program, aiming at the further development of domestic know-how in innovative fields, in order to strengthen the competitiveness of the company and the country as a whole . The “Grypas” program is expected to bring multiple benefits for the involved bodies and, more broadly, for the scientific community, the Greek economy and, overall, our country.

At the signing event of the memorandum of cooperation between the EAB and the four Universities, the following participated: From EAB, the President of the company Mr. Ioannis Koutras, the Managing Director Mr. Dimitrios Papakostas, the member of the Board of Directors and coordinator of the “Grypas” program Mr. Michael Koronaios, the member of the Board of Directors Mr. Nikolaos Kaliorakis, the General Production Manager Mr. Theodoros Rizos, the General Manager of Strategy and Development Mr. Georgios Stamelos, the Director of Program Management Ms. Dimitra Vrouha, the R&D Director of New Products Mr. Nikolaos Koklas, the Director of the Electronics Factory Mr. Aithon Narlis and the supervising engineer Mr. Anastasios Makrikostas. From the Aristotle University of Thessaloniki, the Rector, Professor Mr. Nikolaos Papaioannou. From the University of Patras, the Vice Chancellor of Academic and International Affairs, Professor Mr. Dionysios Mantzavinos and the person responsible for the project, Professor Mr. Vassilis Kostopoulos. From the Democritus University of Thrace, the Rector, Professor Mr. Fotios Maris, the member of the Board of Management of the University of Athens, Professor Ms. Maria Michalopoulou and those responsible for the project, Professor Mr. Antonios Gasteratos, Professor Mr. Georgios Syrakoulis and Associate Professor Mr. Nikolaos Papanikolaou. From the University of Thessaly, the Rector, Professor Mr. Zisis Mamouris and the person responsible for the project, the Dean of the Polytechnic School, Mr. Georgios Stamoulis. The collaborators of the Minister of Finance in matters of Research and Innovation, Professor Mr. Konstantinos Tsamadias and Assistant Professor Mr. Christos Christodoulou. The Service Secretary of the Ministry of Finance Ms. Penelope Pagoni and the Head of the Privatizations, Securities Management and Business Planning Unit (MADKAES) Mr. Sotirios Anastasopoulos.

The Minister of Finance, Mr. Christos Staikouras , in his presentation on the signing of the memorandum of cooperation, pointed out the following:

“For more than 2 years now, the Ministry of Finance has set a goal for the wider public sector to become a designer and producer of multi-purpose drone systems.

In order to achieve the goal, we started an effort to establish cooperation between the Ministry of Finance, the supervised Hellenic Aviation Industry (EAB), the Aristotle University of Thessaloniki, the Democritus University of Thrace and the University of Thessaly – “Archytas” program”.

Its goal is the design and industrial production of multi-use and multi-type unmanned aerial vehicle (drone – UAV) systems.The implementation of the “Archytas” program began on September 1, 2021.

To date, this collective, national effort is progressing as planned.

After the successful test flights of the scale aircraft, both in the conventional way and in the vertical take-off-landing mode, its final design is being completed.

At the same time, the supply of necessary materials and devices continues at the EAB, the configuration of a special space for the industrial production line is progressing, and the construction of the molds begins. In the quarter that started, the construction of the prototype vehicle will proceed.

After the completion of its construction, there will be test flights, checks, certifications, costing of alternative types of vehicles and taking over by EAB orders for the manufacture of aircraft from users.

The smooth progress of the work of the “Archytas” program and the development of a constructive cooperation with the Universities gave us the basis, in order to:

First. To call on Greek entrepreneurship, which produces or wishes to produce the necessary materials and devices for aircraft, with international competitiveness in terms of quality and prices, to coordinate its action with the EAB.

Second. Let’s take the next ambitious step. We set as our goal the design and industrial production of a second, much more complex unmanned aerial vehicle, named “Grypas”.

We also strengthened our partners with the University of Patras.

We discussed this specific issue at length with the Minister of National Defense.

Our will and estimates coincided.

The harmonious cooperation with highly qualified officers of the Armed Forces of the country allows us to be more optimistic about the outcome of the new, important and demanding undertaking. In this direction, I call on all those involved to work with honesty, consistency, reliability, productivity, efficiency and with absolute respect for the last euro of the Greek taxpayers.

In this national effort, I call upon all concerned to work to the best of their ability.

To prove that Greece has the strength and potential for significant achievements, which will strengthen, from all sides, the power of our Motherland.

To realize that they participate in writing a good page of Greek history. Assuming that they will fully respond to our prompts, I thank them for their cooperation. I wish us good success in our new joint effort.”

The Minister of National Defense, Mr. Nikolaos Panagiotopoulos , in his statement on the signing of the memorandum of cooperation, emphasized:

It is a fact that for the last two years, or so, we have been in consultation with the Ministry of Finance, the supervisory body of the ODA, to develop the project of creation, construction and use in the end (great benefit in the end, as I hope it will be, for the Armed Forces of the country), an unmanned vehicle or several types.

Today I am in the very happy position together with the Minister of Finance, my dear friend Mr. Christos Staikouras, to be present at the signing of this memorandum of cooperation between, on the one hand, the body that will implement this program and the other necessary bodies that are the academic institutions of the country, which are represented by the present Chancellors, have shown a first sample of what they can do in terms of the design and prototype development of such an element.

I got a personal taste, when in October 2019 in a warehouse of the Aristotle University of Thessaloniki laboratories I saw a prototype UAV, unmanned, which had been designed by a working group at Aristotle and the next phase was about to be put into test flights. It was just a sample of the work that can be done by the talented and qualified human resources that are the researchers, the academics, the working groups under the Professors and it is not only Aristotle, it is the University of Thessaly, the Democritus University of Thrace and the University of Patras .

Therefore, we have very positive writing samples, but we had to solve a specific exercise. In order for the country to develop through the domestic Defense Industry a type of unmanned aerial vehicle or several types of unmanned aerial vehicles, the following would have to happen:

– To link the original product of academic research or a design initiative such as that developed in ODA, to the operational requirements and specifications as designed by the Armed Forces, who know better than anyone the operational needs of such an element (the non- manned in this case), and, at the same time, to connect these two elements to the core manufacturing phase, which is the connection with industry in order to move from the design to the phase of manufacturing the prototype and testing it and finally to the phase of industrially manufactured, now in greater numbers for distribution to end users.

We tried to solve this exercise together with the Minister of Finance and I am glad that the ODA also joined this exercise as a key participant. Because ODA is a key component of the domestic Defense Industry, it faces some challenges but nevertheless has talent in the form of manpower that can design such systems, know-how and the industrial infrastructure to develop a UAV as it ultimately needs to be developed as a final product. So this was the exercise we solved. Of course, the decision is shared with the Ministry of Finance, which had the opportunity to take the initiative to finance this project.

We, as the Ministry of Defense, first provide all the necessary information on the operational missions of all three Branches of the Armed Forces. The missions of one Branch differ from the other, but certainly all will contribute in terms of their own requirements. We will determine the characteristics of the UCAV design so that the mission requirements are met. We will allocate specialized personnel, an Air Force officer has already been allocated to this project, so that he can contribute with his special knowledge, as requested by the EAB. Therefore, we will participate in the development and design of the UCAV.

We will contribute to the certification of the external loads, the writing of the operational specifications, of course also the requirements of the various users. We will provide, through the specialized staff, special consulting services, of course, and we will participate in the execution of the standard and service tests.

We will participate in the writing of the flight manuals, both for training and use by future pilots, we will perform the operational checks and special tests, a series of tasks necessary in the development of this product and the contribution, of course, of officers of the Armed Forces, of course under the prompting, agreement and assistance of the Ministry of National Defence.

Therefore, I emphasize that today is an important day, because today this project is made public with the co-signing of the parties to this memorandum. It will not be received, nor will a final result occur in a year or a few months. You know that our neighboring countries spent a lot of time, more than ten years, in order to develop their own products. We, however, can, I think, go faster, as long as an organized and coordinated beginning is made. There is infrastructure, talent, contribution of the academic institutions and I think there are the conditions with the help of the Armed Forces to have a final product.

In the meantime, in order to meet the needs, as you understand, we are doing our own planning to have the Unmanned Vehicles, where they need to be and as we want them, of course, but it is a wishful project for Greece to develop its own product in this level and not only for missions directly related to the needs of the National Defense, but multiple missions, as the Minister of Finance very correctly explained.

Let today be the day of an important beginning. This important project, with undeniable and self-evident national benefit, enters the tracks of implementation with the signing of this memorandum that unites the different pieces of the puzzle and makes us look ahead with optimism, something that will be implemented because there is every mood and every support to be done.

There is, as we said, the contribution of the academic community at the design level. There is a contribution of the industrial infrastructure in design but also the possibility to produce at the level of industrial production. There is a given contribution of the Armed Forces in order to satisfy the demands and needs and there is of course support in this way, that is, in principle, the financing of the planning phase, by the Ministry of Finance, which supervises the ODA. I am glad that together, dear Minister, dear friend Christos, in complete agreement and cooperation without fanfare, without announcements, but with specific work and timetables we will be able to start something good which I believe has already started to produce some first results, we see planned prototype,

However, we have already started to travel this road and I think that today a more solid basis of conditions is being laid that we will travel to the final product, for the benefit, as I said, of both the Armed Forces, and National Security, but also other elements who will benefit from the usefulness of these aircraft’.

On behalf of EAB, the managing director of the company, Mr. Dimitrios Papakostas , underlined, among other things, the following:

“Today is another milestone in the course and development of the Greek Aviation Industry, because once again we are given the opportunity to collaborate very closely with the Universities, to produce a product for the benefit of our country.

I sincerely thank the Minister of Finance Mr. Christos Staikouras for his undivided support in this particular program, and in the “Archytas” program that we started 1.5 years ago, but also for his general support to our company, which really proved itself valuable over the past three years. I also thank the Minister of National Defense Mr. Nikolaos Panagiotopoulos for his support for the “Grypas” program.

ODA has turned the page, is entering new chapters and is finally starting to show off its skills, know-how and all that it can do.”

The Rector of the Aristotle University of Thessaloniki, Professor Mr. Nikolaos Papaioannou stated, among other things:

“1.5 years ago, at the signing of the memorandum of cooperation for the “Archytas” program, we said that we were looking forward to creating the first unmanned aerial vehicle, in cooperation. Today, the extroversion of Greek public universities is proven in practice, but also the confidence with which the state supports such efforts for the last three years. We have come to the point of saying that what we have planned has become a reality, and after it has become a reality, we go to the next step.

On the part of the Aristotle University of Thessaloniki, we will contribute with all our powers, so that this new, more complex, more modern unmanned aerial vehicle will really benefit all aspects of the activity of our country”.

The Vice Chancellor of Academic and International Affairs of the University of Patras, Professor Mr. Dionysios Mantzavinos said:

“It is a great pleasure for the University of Patras to be present today at the signing of this memorandum of cooperation. It is a strategic choice of the University of Patras to participate in projects of great scientific, technological and national importance, such as “Grypas”.

Collaborative action by partnerships like this, involving academia, industry, and government, through the Departments of Finance and Defense, looks like it won’t just be additive, it’ll be multiplicative, and that’s the payoff.

I want to thank the Department of Mechanical and Aeronautical Engineering of the Polytechnic School of the University of Patras, which participates in this project and will give its best, with its expertise and zeal.”

The Rector of the Democritus University of Thrace, Professor Mr. Fotios Maris noted:

“The University of Thrace was very happy to take on the role assigned to it by the Ministries, and first of all the Ministry of Finance. Initially, with the “Archytas” program. We provided the best manpower available to us and whatever else was required.

We will continue this very successful model and the collaboration with notable and important colleagues from the other Universities with the “Grypas” program. A demanding program that you can be sure will succeed. Such programs give us the opportunity to highlight the work of Greek academic institutions, fulfilling with the greatest possible responsibility the role assigned to them by the Greek state”.

The Rector of the University of Thessaly, Professor Mr. Zisis Mamouris stated:

“I want to thank the management and executives of the EAB, the Ministry of Finance and the Minister for their undivided dedication to this program, the support they show to the University of Thessaly and the honor that made them trust it, once again, with a big project.

The University of Thessaly is constantly at the forefront of innovation. He wants to achieve extroversion in every way and is at the disposal of any body that wants his services, let alone the State, the Ministry of Finance and the Ministry of National Defense, so that we can implement projects that strengthen our country”.

**10 . Date: 05-01-2023Armed ISR / ISTAR - MALE - ContractKyrgyzstan Procures 4 Types of UCAVs Produced by TurkeyURL: https://www.uasvision.com/2023/01/19/kyrgyzstan-procures-4-types-of-ucavs-produced-by-turkey/**

Kyrgyzstan has purchased Turkish Aerospace Industries (TAI)-made Anka unmanned combat aerial vehicle (UCAV), said the Central Asian country’s Presidential Press Service head, Daiyrbek Orunbekov.

Known to have supplied Baykar-made Bayraktar TB2 and Akıncı UCAVs along with TAI-made Aksungur UCAV before, Kyrgyzstan, with the latest procurement, will now have in its inventory all types of UCAVs produced by TAI and Baykar.

“Kyrgyzstan bought modern military equipment such as Bayraktar TB2, Aksungur, Akıncı and Anka,” said Orunbekov.

The Bayraktar TB2 is currently actively used by the Kyrgyz Army.

Akıncı’s procurement was made public in a statement made in October 2022 by the Chairperson of the Kyrgyzstan National Security Committee Kamchybek Tashiev. However, the information that Kyrgyzstan has procured Anka and Aksungur UCAVs was not confirmed until the recent statement by Orunbekov. It is not yet disclosed how many UCAVs have been supplied to Kyrgyzstan by Türkiye.

Turkey has already signed agreements with more than 30 countries for the export of its domestically developed UCAVs, with the battle-proven Bayraktar TB2 leading the way.

Kyrgyzstan becomes the second country after Turkey to use the four different UCAVs manufactured by the Turkish defense industry.

**11 . Date: 23-01-2023PartnershipKorea Aerospace Industries and Northrop Grumman Sign MOA for VTOL UAV Technical CooperationURL: https://www.uasvision.com/2023/01/23/korea-aerospace-industries-and-northrop-grumman-sign-moa-for-vtol-uav-technical-cooperation/**

Korea Aerospace Industries

announced on January 19th that it had signed a memorandum of agreement (MOA) with Northrop Grumman for technical cooperation in the business of vertical take-off and landing drones at its headquarters in Sacheon on the 18th.

The signing ceremony was attended by key officials, including KAI Ji-Hong Kim, Director of the Future Convergence Technology Institute, Richard J. Sullivan, Vice President of NG, and Ha Dong-Jin, Head of Korea Branch.

The key to this MOU is mutual cooperation for the domestic development of vertical take-off and landing UAVs that can be mounted on and operated by naval destroyers.

Vertical take-off and landing UAVs for maritime missions are expected to be used for territorial defense missions such as constant surveillance, reconnaissance, and target acquisition in vast sea areas and operation areas by being mounted on ships such as navy destroyers and coast guard patrol ships.

KAI expects to greatly reduce development risk and required period based on NG’s proven development experience.

NG is a developer of the MQ-8 Fire Scout vertical take-off and landing UAV currently operated by the US Navy, and has vertical take-off and landing UAV development technology optimized for maritime missions.

KAI Future Convergence Technology Director Kim Ji-hong said,

“We are concentrating on developing next-generation UAV technology with the goal of leading the future unmanned era.” said.

NG Vice President Richard Sullivan said,

“Northrop Grumman has consistently led the market in the field of advanced unmanned aerial vehicles, and we expect that cooperation with KAI will dramatically improve the ROK Navy’s maritime surveillance and reconnaissance capabilities.”

Meanwhile, KAI has secured various UAV technologies through its own preceding research, starting with the development of the RQ-101, a corps-level UAV successfully deployed for the first time in Korea, and is currently developing the next corps-level UAV.

Through its own prior research and government R&D, it has introduced various UAVs, such as a scaled-down unmanned fighter model, a long-endurance multipurpose UAV, and a tiltrotor-type technology demonstration machine.

Going forward, KAI plans to internalize future cutting-edge technologies such as AI and big data, and expand its scope to new businesses such as future manned and unmanned complex systems to prepare for the era of advanced unmanned aerial vehicles.

**12 . Date: 30-01-2023Armed ISR / ISTAR - HALE - General - PlatformTurkey’s Jet UCAV Kızılelma Passes System Identification TestURL: https://www.uasvision.com/2023/01/30/turkeys-jet-ucav-kizilelma-passes-system-identification-test/**

Turkey’s first indigenously designed and produced unmanned fighter aircraft successfully passed the system identification test during its second flight.

Selçuk Bayraktar, the Chief Technology Officer (CTO) at Baykar directed the test flight of the National Unmanned Combat Aerial Vehicle System (MIUS), named Kızılelma (“Red Apple”), in Çorlu district, northwestern Tekirdağ province.

Bayraktar, also shared a statement on his social media account that read,

“Bayraktar #KIZILELMA successfully completed its second flight test. Godspeed.”

Having completed its maiden flight in December last year, the fast drone fighter jet, Kızılelma, represents a significant expansion of capabilities for slow-moving reconnaissance and missile-carrying drones.

It will be capable of taking off from and landing on short-runway aircraft carriers, including Turkey’s flagship-to-be Anadolu amphibious assault ship. The autonomously maneuvering Kızılelma will be capable of operating in tandem with piloted aircraft and may carry air-to-air missiles.

The uncrewed fighter jet is projected to conduct a multitude of military actions, such as strategic offensives, close air support (CAS), missile offensives, suppression of enemy air defenses (SEAD) and destruction of enemy air defenses (DEAD).

It is projected to be capable of flying for five hours and reaching speeds of up to 800 kph (500 mph or Mach 0.64).

**13 . Date: 31-01-2023Armed ISR / ISTAR - HALE - General - PlatformFuture US Combat Drone Completes Ground Engine TestURL: https://www.uasvision.com/2023/01/31/future-us-combat-drone-completes-ground-engine-test/**

Blue Force Technologies

and the Air Force Research Laboratory have successfully completed a ground test for a novel carbon fiber composite propulsion flowpath system for BFT’s Fury uncrewed fighter under the AFRL Bandit program.

As announced in Mar 2022 BFT, an agile aerospace and defense company based in North Carolina, is maturing a high-performance uncrewed 5th generation fighter design that provides replication of pacing threats at a fraction of the cost of a crewed fighter. The air vehicle technology developed under Bandit supports uncrewed adversary air training objectives relevant to the Air Force, Navy and Marine Corps and can be adapted for other Autonomous Collaborative Platform (ACP) mission areas. The Bandit program further demonstrates the impact that small businesses can have in the defense industrial base.

Red Medium adversary simulator drone

AFRL, in collaboration with BFT, is exploring the value of digital engineering to expedite ground and flight test by harnessing the artifacts generated through digital analysis as proof of capability. This ground test provided high-fidelity data that will be used in validation of computational methods over the coming months.

“On an uncrewed fighter like Fury, proper integration of the propulsion flowpath is the most significant design driver for the overall vehicle. It was crucial to us to demonstrate, prior to building flight test aircraft, that we could correctly predict the interaction between the propulsion flowpath components and the Williams International engine,”

said Scott Bledsoe, President of Blue Force Technologies.

Leading into testing, the BFT and AFRL team performed time-accurate computational fluid dynamics (CFD) analysis which leveraged the extensive computational resources of AFRL and Army Engineer Research and Development Center. The purpose of the test was to validate the analysis to gain confidence by the team in using the CFD tool in other portions of the flight envelope. “With AFRL’s help, we are further building out our digital engineering toolchain to enable future ACP variants to be designed quickly,” said Bledsoe.

“The Bandit program is about demonstrating ever tighter model-to-hardware prototype development cycles for autonomous collaborative platforms, and this integrated propulsion flowpath test is indicative of that approach. After making the engine selection in June 2022, the AFRL and Blue Force Technologies team worked to finalize test objectives and procedures concurrently with Blue Force’s hardware build to ensure this full-scale test came together in under six months,”

said Alyson Turri, AFRL Bandit Program Manager.

**14 . Date: 03-02-2023Armed ISR / ISTAR - MALE - PitchGA-ASI Offered Ukraine UAS at $1 per System – CEO Linden Blue Issues StatementURL: https://www.uasvision.com/2023/02/03/ga-asi-offered-uas-to-ukraine-at-1-per-system/**

Linden Blue, CEO of General Atomics Aeronautical Systems has issued the following statement on the Ukraine conflict:

For nearly a year, the full might of the Russian military has battered — but not beaten — Ukrainian forces fighting for their very existence.

The world has reacted in almost unanimous support for the Ukrainian cause, but those efforts have overlooked one of the most obvious and force-multiplying technologies of modern warfare: Long-range and enduring, stand-off sensing, unmanned aircraft systems.

General Atomics Aeronautical Systems is dedicated to providing information dominance to its partners. From the outset of the Russian invasion, we began looking for options to respond to the requests of Ukrainian forces with our products, including the MQ-9 Reaper and MQ-1C Gray Eagle. Both systems have been used to devasting effect in combat by U.S. and partner nations for more than two decades and remain the gold standard for high-quality, medium-altitude UAS in the world.

We have delivered more than 1,000 aircraft over 30 years and flown nearly 8 million flight hours, most of them in hostile areas around the world. This is all we do. We know that introducing these systems to the battlefield will provide an immediate impact.

We have offered to train Ukrainian operators on these systems at no cost to U.S. taxpayers or the Ukrainian government. We have offered flexible options and recommendations for delivery. We have discussed the situation endlessly at every level of the U.S. federal government, and with many international partners.

Recently, we offered to transfer two of our own, company-owned training aircraft, plus the ground control station and other hardware required to operate them, for the symbolic price of $1, and reiterated our offer to train the first cadre of pilots and maintainers at our expense.

Many of the additional costs associated with readying these aircraft for combat, outfitting them with the necessary equipment, transporting them to Ukraine, setting up operations in that country, obtaining satellite bandwidth and providing additional supporting labor, are outside of our control. Our estimates for launch and ongoing operations do not include one penny of profit to our company.

Factoring in hardware and training that is essentially free, the offer is a remarkable deal with no strings attached. All that is required is approval from the U.S. government. Our goal is now, and has always been, to help the Ukrainian armed forces defend and protect their homes and families, and help bring a rapid closure to this conflict before more lives are lost.

There are limits to what an American defense company can do to support a situation such as this. From our perspective, it is long past time to enable Ukrainian forces with the information dominance required to win this war.

Linden Blue Chief Executive Officer General Atomics Aeronautical Systems, Inc.

**15 . Date: 03-02-2023Target Drone - Tactical - ContractKratos Gets $49M BQM-177A Targets ContractURL: https://www.uasvision.com/2023/02/03/kratos-gets-49m-bqm-177a-targets-contract/**

Kratos Unmanned Aerial Systems Inc.

, Sacramento, California, is awarded a $49,568,200 firm-fixed-price contract for the production and delivery of 55 full rate production Lot 4 BQM-177A Surface Launched Aerial Targets, to include associated 55 Rocket-Assisted Takeoff Attachment kits, 277 mission kits, as well as associated technical and administrative data for the Navy, and the governments of Canada and Australia.

Work will be performed in Sacramento, California (50%); Dallas, Texas (20%); Fort Walton Beach, Florida (5%); Blacksburg, Virginia (4%); Santa Ana, California (2%); Newton, Kansas (2%); Concord, California (2%); Milwaukie, Oregon (2%); Chatsworth, California (2%); and various locations within the continental U.S. (11%), and is expected to be completed in April 2024.

Fiscal 2023 weapons procurement (Navy) funds in the amount of $48,753,523; and fiscal 2021 weapons procurement (Navy) funds in the amount of $814,677 will be obligated at the time of award, $814,677 of which will expire at the end of the current fiscal year.

This contract was not competitively procured pursuant to Federal Acquisition Regulation 6.302-1.

The Naval Air Systems Command, Patuxent River, Maryland, is the contracting activity (N0001923C0021).

**16 . Date: 06-02-2023Cargo - Tactical - General - PlatformMightyFly’s eVTOL Cargo Drone Carries 100 lb for 600 milesURL: https://www.uasvision.com/2023/02/06/mightyflys-evtol-cargo-drone-carries-100-lb-for-600-miles/**

Just 21 months after receiving $5.1M seed funding and with only 9 months from concept to first flight, MightyFly is ready to unveil the next generation of its aircraft, the MightyFly Cento.

Aircraft Specs & Cargo Logistics Platform Capabilities The Cento, previously referred to as the MF-100, is a hybrid, electric Vertical Takeoff and Landing (VTOL) aircraft with a cargo capacity of 100 lbs (45 kg), a range of 600 miles (965 km) and a max speed of 150 mph (240 km/hr).

With eight electric vertical lift fans, one forward propulsion propeller, and a high wing carbon fiber airframe, the fully loaded Cento weighs just 355 pounds (161 kg).

It measures 13.1 ft by 16.7 ft (4 m by 5 m) taking up a total area that is less than two compact cars – meaning the ground transfer stations required onsite can simply be two car spots in an existing parking lot.

Cento is equipped with a 6 ft by 1 ft by 1 ft (1.8 m by 0.30 m by 0.30 m) internal cargo bay able to carry 96 small USPS packages. Cargo is loaded and unloaded by a conveyor belt that operates autonomously, so no human handling other than dropoff and pickup is required at the ground stations.

The aircraft are operated and maintained by MightyFly, which will manage the end-to-end process of its express shipping services making the customer experience convenient and seamless. Because Cento is equipped with a hybrid powertrain, it does not require recharging between flights. An internal combustion engine recharges the aircraft’s battery while in the air, enabling it to perform multiple consecutive deliveries, with up to 600 miles range.

“The traditional hub-and-spoke distribution model can still serve businesses that have centralized warehousing and shipping systems in place and that have experienced few logistics issues,” said Manal Habib, MightyFly CEO and co-founder. “But if there is one lesson we’ve learned from supply chain bottlenecks and logistics over the past few years, it’s that we need flexibility – to be able to adapt to various cargo volumes and expedited timing or urgencies. Medical companies, just-in-time manufacturing, and the 51% of all retailers that now provide same-day delivery need a faster and more affordable way to get their goods and perishables to the final destination.”

FAA Grants Special Airworthiness and Certificate of Authorization for Long Range Flight

After undergoing an extensive study of all safety standards and testing results of MightyFly’s end-to-end system, inclusive of aircraft hardware, software and its ground infrastructure, the Federal Aviation Administration (FAA) has granted the MightyFly Cento a Special Airworthiness Certificate and a Certificate of Authorization (COA) for long-range flights.

This means that MightyFly can start demonstrating the long-range flight capabilities of Cento. Demonstrating autonomous eVTOL flights up to 600 miles of range with 100 pounds of cargo is unprecedented in the industry.

With this COA in place, the company will be able to accelerate development of its autonomous aircraft, with a larger airspace (230 sq miles) in which to test the transition from hover to forward flight at medium and high altitudes (up to 5000 feet).

Awarded a Small Business Innovation Research (SBIR) Grant MightyFly’s integrated, high-throughput aerial logistics system is ideally suited for retail, medical, automotive and manufacturing businesses, but it has also attracted government-level interest, specifically in defense, from the United States Air Force.

The SBIR award is given to small businesses working on innovative technology with the potential to benefit the Department of Defense (DoD), such as delivery of medical supplies to a team in the field or other missions like communication relays where long-range capacity is critical. The US Air Force has recognized the agility of MightyFly’s platform (e.g., no required ground charging infrastructure and long-range capability, both afforded by its hybrid propulsion) and is supporting further development of its technology.

MightyFly began autonomous flight testing of the Cento in December 2022. Meanwhile, it is planning to develop a larger vehicle that can carry 500 pounds of cargo.

**17 . Date: 08-02-2023Armed ISR / ISTAR - MALE - GeneralUS Navy Sustains 10 of 38 Operational MQ-8C Fire Scouts – Rest in StorageURL: https://www.uasvision.com/2023/02/08/us-navy-sustains-10-of-38-operational-mq-8c-fire-scouts-rest-in-storage/**

The U.S. Navy is operating and sustaining 10 MQ-8C Fire Scout unmanned aerial vehicles (UAVs), having place the rest in storage, from which the service can easily restore them to service. The Navy also has retired its fleet of smaller MQ-8B versions of the Fire Scout.

According to information provided by the Navy’s Program Executive Office for Strike and Unmanned Aviation, the Navy will keep in service 10 MQ-8Cs in service of the 38 procured and keep the remaining MQ-8Cs in Level 2 preservation.

Last year the Navy moved to keep all MQ-8Cs on the West Coast, operated by Helicopter Sea Combat Squadrons 21 and 23. The decision is congruent with the stationing on the West Coast of the Independence-class littoral combat ships on which the Navy will deploy the Mine Countermeasures Mission Package. The MQ-8C, built by Northrop Grumman, is an integral module of that mission package.

“As Fire Scout’s mission sets continued to evolve, an MQ-8C Endurance Upgrade Rapid Deployment Capability (RDC) effort was approved in Feb 2012,” the Navy said. “The larger MQ-8C, based on the Bell 407 airframe, incorporates the same control avionics as the MQ-8B but with an increased payload capacity and increased endurance. The air vehicles share a common mission control system, which is integrated with the ship’s combat systems. Additionally, the MQ-8 can be controlled by the Mobile Mission Control Station from land-based and larger ship-based sites and has developed a “portable” MCS (MCS-P) that is host platform agnostic.

“Designed to operate from the Littoral Combat Ship (LCS) and Suitably Equipped air-capable Ships, the MQ-8C Fire Scout system is capable of more than eight hours of operations providing coverage out to 150 nautical miles from the host ship,” the Navy said. “A baseline payload that includes electro-optical/infrared sensors and a laser designator enables Fire Scout to find, track and designate tactical targets, accurately provide targeting data to strike platforms and perform battle damage assessment. The system provides a significant improvement to organic surveillance capability.”

The Navy will add an optical mine countermeasures payload to the MQ-8C in the future.

The first deployments of the MQ-8C began in 2022 on USS Milwaukee in the 4th Fleet and USS Jackson in the 7th Fleet during 2022.

The Navy retired its fleet of MQ-8Bs by October 2022 after 13 years of operations, including operations from frigates off Libya and two years of operations inside Afghanistan. The MQ-8B deployed on board an LCS for the first time in 2014. The Navy procured a total of 30 MQ-8Bs from Northrop Grumman.

**18 . Date: 09-02-2023ISR / ISTAR - Mini - ContractSpanish Navy Acquires Marine Instruments M5D-Airfox DroneURL: https://www.uasvision.com/2023/02/09/spanish-navy-acquires-marine-instruments-m5d-airfox-drone/**

The Spanish Navy has closed with Marine Instruments, a Spanish company developing and manufacturing marine technology, the purchase of three M5D-Airfox UAV systems. This acquisition, valued at 1 million euros, represents the culmination of the national and international exercises that the maritime UAV system has been carrying out with the Navy since 2021 and which, phase by phase, it is successfully completing.

The delivery will be carried out in two parts, the first one has taken place this December 2nd, in which Marine Instruments has delivered all the systems to the Navy; while, in a second phase, scheduled for 2023, the Galician company will carry out all the operational installation of the systems in the ships, as well as the training of the military personnel.

These three systems (each comprising an aircraft, radio link and on-board control station) will be specifically at the service of the Mine Action Force (MCM), to monitor the sea and the coast, as naval mines continue to be a lethal and low-cost weapon capable of collapsing maritime traffic and, consequently, land traffic. In this case, the MCM did not so far have its own air support tools to provide a free zone for transit and subsequent disembarkation, hence its interest in this type of technological solution based on unmanned aircraft.

Proven experience in tests with NATO, the US Navy and the Navy

The Navy’s purchase is the result of numerous ISR mission support exercises, as the great versatility of the M5D-Airfox allows it to effectively take on military surveillance, tracking and detection operations of targets and objectives.

For example, as part of the RAPAZ programme, promoted by the Directorate General for Armaments and Material (DGAM), the drone has successfully completed the first two phases and will begin a third phase in 2023. Through this programme, several improvements have been made to the product, as well as several flight campaigns both on board Navy ships and at the EA’s UAS school at the Matacán Air Base. Some of these improvements have already been implemented experimentally during the participation in the 22nd edition of the REP MUS that took place in Portugal last year, where the M5D-Airfox was installed and operated from the Navy’s BAM AUDAZ during its participation in the DYNAMIC MESSENGER 22 exercise, organised by NATO. The embarkation was done simultaneously with other national remotely manned surface systems, previously integrating the systems into the ship’s own combat system, the SCOMBA.

In addition, in February 2022, the M5D-Airfox participated in the Cutlass Express 2022 international exercises at the direct invitation of the US Navy and successfully completed the various tests proposed in the Red Sea. Similarly, in 2022, the M5D-Airfox successfully completed various tests during the Esp Minex-22 exercise, also organised by the Navy, contributing to the detection and deactivation of simulated naval mines around the ports of the Balearic Islands and their approaches.

The RPAS M5D-Airfox also carried out different operational deployments on ships of the Navy (in this case, the Segura minehunter), Guardia Civil (Río Miño oceanic patrol boat) and Customs Surveillance (Petrel).

In the civilian sphere, Marine Instruments has signed a two-year coastal surveillance contract with the Ministry of Agriculture, Fisheries and Food for the detection of illegal fishing. The company, based in Nigrán (Pontevedra), was awarded the contract to deploy a MRVP service using a drone over national territory.

A drone suitable for ISR missions

The M5D-Airfox is a solar-powered unmanned aircraft, specifically designed for use from naval platforms and to operate from the sea. It has a range of up to 10 hours and a range of 18 nautical miles. Its features also include a maximum speed of up to 45 knots and a full HD video camera.

This innovative UAV, with great performance and autonomy, is stealthy and lightweight, weighing only 4kg and with a wingspan of 2.5 metres. It can be hand-launched or launched by shuttle and landed by net, both with the ability to land while the ship is moving. The solar panels not only give it a zero-carbon footprint, but also allow it to achieve an autonomy of more than 10 hours of maximum sunshine. Moreover, the system itself is simple to operate and has a high degree of automation.

Marine Instruments also has special authorisation from the Spanish Aviation Safety Agency (AESA) to carry out UAS surveillance operations out of visual range and without the need to request approval for each flight.

Innovation and sustainability, its main strategic pillars

Marine Instruments is a world leader in the development and manufacture of electronic equipment adapted to the marine environment, always from a responsible point of view with the protection and conservation of the oceans. For this reason, the design and industrialisation of its products is carried out 100% in-house, without outsourcing any production process, which reduces the environmental impact to a minimum.

The Galician company is strongly committed to research and development in order to offer the most advanced products to its clients. In fact, the company has a continuously growing workforce, of which approximately 42% are engineers working in the R&D department.

**19 . Date: 15-02-2023Loitering Munition - Small - General - PlatformUkraine Unveils New Kamikaze DroneURL: https://www.uasvision.com/2023/02/15/ukraine-unveils-new-kamikaze-drone/**

Video footage has surfaced online showing the first successful launch of a new type of Ukrainian suicide drone.

The drone was reportedly developed by the National Aviation University in Kiev. In the footage, the drone, which is powered by a back propeller, can be seen taken off from an improvised launcher mounted in the back of a mini truck with help from a rocket booster.

Military experts noted that the suicide drone is similar in design to the RZ60 aerial target, which was first unveiled by the Ukrainian firm Ramsay in 2021.

The RZ60 has an operational range of 300 kilometers and can carry a payload weighing up to three kilograms. The new Ukrainian suicide drone will likely have similar specifications, if it was indeed built around the aerial target.

Kiev forces have been using suicide drones since the start of the Russian special military operation in Ukraine last year. While some of the suicide drones employed by Kiev were built from commercially-avilable drone kits and off-the-shelf electronics, others were built around Soviet-made Tu-141 and Tu-143 jet-powered reconnaissance drones.

In addition to these suicide drones, Kiev forces received hundreds of small loitering munitions from its Western allies, including Polish-made Warmate as well as American-made Switchblade 300/600 and Phoenix Ghost.

Ukrainian suicide drones pose a real threat to Russian military and civilian targets. The threat covers the special military operation zone as well as nearby Russian territory.

Kiev’s drone program is thought to be supported by its Western allies, who are apparently determined to improve Ukrainian long-range strike capabilities. In the face of this threat, Russia will likely reinforce its early warning and air defense network within and beyond the special military operation zone.

**20 . Date: 16-02-2023RegulationSenators Introduce Legislation to Support Integration of Drones into AirspaceURL: https://www.uasvision.com/2023/02/16/senators-introduce-legislation-to-support-integration-of-drones-into-airspace/**

U.S. Sens. Mark R. Warner (D-VA) and John Thune (R-SD) introduced the Increasing Competitiveness for American Drones Act of 2023, comprehensive legislation to streamline the approvals process for beyond visual line of sight (BVLOS) drone flights and clear the way for drones to be used for commercial transport of goods across the country – making sure that the U.S. remains competitive globally in a growing industry increasingly dominated by competitors like China.

Currently, each aircraft and each BVLOS operation that takes flight requires unmanned aerial system (UAS) operators to seek waivers from the Federal Aviation Administration (FAA), but the FAA has not laid out any consistent set of criteria for the granting of waivers, making the process for approving drone flights slow and unpredictable. The bipartisan Increasing Competitiveness for American Drones Act will require the FAA to issue a new rule allowing BVLOS operations under certain circumstances.

“Drones have the ability to transform so much of the way we do business. Beyond package delivery, drones can change the way we grow crops, manage disasters, maintain our infrastructure, and administer medicine,” said Sen. Warner. “If we want the drones of tomorrow to be manufactured in the U.S. and not in China, we have to start working today to integrate them into our airspace. Revamping the process for approving commercial drone flight will catapult the United States into the 21st century, allowing us to finally start competing at the global level as technological advancements make drone usage ever more common.”

“Drones have the potential to transform the economy, with innovative opportunities for transportation and agriculture that would benefit rural states like South Dakota,” said Sen. Thune. “I’m proud to support this legislation that provides a clear framework for the approval of complex drone operations, furthering the integration of these aircraft into the National Airspace System.”

Specifically, the bill requires the FAA to establish a “risk methodology,” which will be used to determine what level of regulatory scrutiny is required:

In addition, the Increasing Competitiveness for American Drones Act would create the position of “Associate Administrator of UAS Integration” as well as a UAS Certification Unit that would have the sole authority to issue all rulemakings, certifications, and waivers. This new organizational structure would create central rulemaking body for UAS, allowing for a more uniform process.

“Commercial drone operations provide valuable services to the American public and workforce – but significant regulatory hurdles are hampering these benefits from reaching their fullest potential and jeopardize U.S. global leadership in aviation. The regulatory challenges are not driven by safety, they are hampered by bureaucracy. We accordingly have urged Congress to prioritize drone integration, and we are grateful for the support of Senators Warner and Thune in this cause. AUVSI is proud to endorse this legislation, and we urge Congress to include it as part of their critical work this year to pass a multi-year FAA Reauthorization,”

Michael Robbins, Chief Advocacy Officer of the Association for Uncrewed Vehicle Systems International (AUVSI), said.

“The Coalition is grateful for the leadership of Senators Thune and Warner, and this bill comes at a pivotal time for the drone industry. Since 2012, Congress has worked to progress the law and regulation around commercial drone use, but now, in 2023, this progress has slowed as regulations and approvals continue to be delayed. With reauthorization of Federal Aviation Administration (FAA) programs required by September 30, this year is a critical time for the drone industry,”

said The Small UAV Coalition.

“The Commercial Drone Alliance applauds the introduction of the Increasing Competitiveness for American Drones Act of 2023, and we commend and thank Senator Warner and Senator Thune for their leadership on these important issues. While the U.S. has lagged behind other countries in developing and deploying uncrewed aircraft systems (UAS), this legislation provides the U.S. with the opportunity to reestablish its prominence as a global leader in advanced aviation and compete more effectively in the global economy,”

said The Commercial Drone Alliance.

Senator Warner has been a strong supporter of research and investment in unmanned systems, including driverless cars, drones, and unmanned maritime vehicles. He previously introduced legislation designed to advance the development of UAS and build on the FAA’s efforts to safely integrate them into the National Airspace System. Virginia is home to one of seven FAA-approved sites across the country where researchers are testing the safest and most effective ways to incorporate UAS into the existing airspace – including the first-ever package delivery by drone to take place in the United States.

Last October, Senator Warner visited the headquarters of DroneUp, a leader in independent drone delivery contracting, in Hampton Roads, Virginia.

Full text of the legislation is available here.

**21 . Date: 20-02-2023Solar - HALE - General - PlatformGaruda Aerospace Unveils SURAJ Solar-Powered DroneURL: https://www.uasvision.com/2023/02/20/garuda-aerospace-unveils-suraj-solar-powered-drone/**

Chennai-based Garuda Aerospace unveiled a model of an unmanned solar-powered high-altitude pseudo satellite (HAPS) intelligence, surveillance, and reconnaissance (ISR) aerial J-Glider platform named Suraj at the Aero India 2023 show.

The HAPS unmanned aerial vehicle (UAV) is being developed by the company under the guidance of India’s National Aerospace Laboratories (NAL) and the Defence Research and Development Organisation (DRDO).

The Suraj model unveiled at Aero India 2023 featured two pod-like structures that accommodate a propulsion system driving two-bladed propellers in tractor configuration, high-mounted wings that have a span of 26 ft, and twin tails incorporating control surfaces.

The upper surface of the wings is equipped with an array of solar cells. The UAV also has an auxiliary battery for further thrust and has an estimated flight endurance of 12 hours.

Suraj is capable of carrying payloads up to 10 kg. The payloads can include light detection and ranging (LIDAR) and thermal imaging sensors. It has a bionic chip, artificial intelligence, and machine learning for real-time processing.

“SURAJ will have ISR capability and will be equipped with Artificial Intelligence, machine learning and bionic chip for advanced real-time processing,’‘

said Agnishwar Jayaprakash, founder and CEO, Garuda Aerospace.

Satheesh Reddy, former DRDO chairman and current Principal Scientific Adviser to the Defence Minister, unveiled the drone. Garuda Aerospace was guided by NAL, DRDO, and scientists on the development of the SURAJ drone.

Garuda Aerospace recently raised $22 million in funding to develop a 1:1 prototype of SURAJ, which would be ready to fly by August 2023.

**22 . Date: 21-03-2023ISR / ISTAR - Mini - ContractUkraine to Get 35 Danish RQ-35 Heidrun DronesURL: https://www.uasvision.com/2023/02/21/ukraine-to-get-35-danish-rq-35-heidrun-drones/**

As part of the United24 initiative, the Ukrainian government will purchase a Danish RQ-35 Heidrun drones for the Armed Forces of Ukraine.

This was announced by the Minister of Digital Transformation, Mykhailo Fedorov, on his Telegram channel. The Heidrun drone is an amazing unmanned platform, designed to perform Low Altitude Close Range ISR missions.

The RQ-35 Heidrun drone will be bought for 6.1 million hryvnias (15.5 thousand euros). According to the minister Mykhailo Fedorov, the unmanned aerial vehicle will allow Ukrainian defenders to carry out aerial reconnaissance tasks without risking their own lives and fearing Russian electronic warfare systems.

Mykhailo Fedorov stressed that the American actor Mark Hamill, who played Luke Skywalker in the movie Star Wars, is collecting funds for ten more RQ-35 Heidrun drones.

<span data-mce-type="bookmark" style="display: inline-block; width: 0px; overflow: hidden; line-height: 0;" class="mce\_SELRES\_start">&#65279;</span>

The RQ-35 Heidrun is a fixed-winged drone that performs ISR (Intelligence, surveillance and reconnaissance) missions – it monitors the environment and collects data for military purposes. Heidrun has a camera on its belly, but it also features IR capabilities. Heidrun flies at a low altitude, helps to spot targets, and transmits that information to the operator in real-time.

The RQ-35 Heidrun drones are produced by the Danish company Sky Watch. It is a reasonably light aircraft and can be launched by hand, meaning no catapults, tarmac, or other means are required.

Heidrun can fly autonomously following a predetermined route while operators carefully monitor the image transmitted by the camera. The manufacturer of the Heidrun also offers special software and a tablet for manual drone control.

The developers claim that the RQ-35 Heidrun can fly under the influence of electronic warfare systems – it is basically immune to jammers. They emit radio interference that usually breaks down communication between the drone and the pilot and causes the aircraft to crash. Russia (and Ukraine) also have drone hunters that allow soldiers to take control of enemy’s drones. Heidrun, according to the manufacturer, is resistant to such attacks.

RQ-35 Heidrun specs:

Drones like the RQ-35 Heidrun are extremely important for Ukraine at the moment. All autonomous systems are. Russia is significantly larger and has a much larger army. Russia is trying to overwhelm Ukrainian defenses with numbers and Ukraine needs systems like this to reduce the cost of this war on the lives of its people.

**23 . Date: 23-02-2023Armed ISR / ISTAR - HALE - General - PlatformIran to Convert ‘F-35 Replica’ Fifth-Gen Stealth Fighter Jet into a UAVURL: https://www.uasvision.com/2023/02/23/iran-to-convert-f-35-replica-fifth-gen-stealth-fighter-jet-into-a-uav/**

Over a decade ago, Iran claimed rolling out its “fifth-generation” Qaher-313 stealth fighter jet, projected as the country’s most advanced warplane. An Iranian defense ministry now says the country is ready to convert this stealth fighter into an Unmanned Aerial Vehicle (UAV).

The managing director of the Iran Aviation Industries Organization (IAIO), a subsidiary of the Defense Ministry, said on television that the Qaher fighter jet project had reached full technological maturity, Tasnim News Agency reported.

General Afshin Khajefard announced in his address that the Defense Ministry is focusing on the diversity of the finished product, emphasizing that the Qaher fighter jet will eventually become a pilotless aircraft.

The announcement comes after the extensive deployment of Iran’s Shahed-class kamikaze drones in Ukraine, which have successfully struck Kyiv’s energy and military infrastructure. In addition, Iran has ramped up its UAV industry in recent years, a feat that it takes great pride in.

The Iranian official also stated that in the next Iranian year, which starts on March 21, the country would introduce several Qaher iterations. He highlighted in his speech that the Defense Ministry had modified the stealth aircraft.

The announcement is ambitious as the country still operates a fleet of American F-14 Tomcats, F-5 Tigers, and F-4 Phantoms which are at least four decades old, in addition to the MiG-29 purchased from Moscow in the 1990s.

Iran’s fighter jet fleet has been aging rapidly, which it has been able to maintain without US assistance.

However, despite the strides made in domestic military manufacturing and maintenance of old aircraft, doubts have been cast on Tehran’s ability to produce a stealth aircraft of the fifth generation indigenously.

Western military commentators have gone so far as to say that the country unveiled the stealth aircraft to compensate for its outdated fighter fleet and was merely a propaganda exercise.

When Iran unveiled the prototype of this aircraft, which has been under development since 2013, aviation experts across the globe dismissed it with the argument that Iranian construction of the jet would be impossible due to a lack of analytical and sensor technologies in Iran.

The jet first met with suspicion, quickly gained notoriety among military aficionados who mocked it as a crude mock-up and a publicity ploy meant to dazzle the home market, as previously noted by EurAsian Times.

However, despite the global skepticism and dismissal of its homegrown “stealth aircraft,” Iran has continued to work on the program and decided to convert the small airframe into a drone instead, which comes against the backdrop of a burgeoning UAV manufacturing capability and global interest in its combat UAVs.

What Do We Know About The Iranian ‘Qaher’?

Iran’s presumed stealth fighter ‘Qaher’ was rolled out almost a decade ago at a staged event in February 2013. The country first presented the jet prototype four years later, in 2017.

At the time, Iranian officials claimed that the aircraft could carry a 2,000-kilogram bomb or at least six air-to-air missiles.

Yet, the slim, single-engine, single-seat aircraft with the anhedral wingtips and non-stealthy front canards seemed somewhat uncanny. Experts suggested that the subsequent video evidence of a purported “test flight” merely showed a small drone. It is noteworthy, thus, that Tehran is converting Qaher into a drone.

According to reports from the time, single-engine aircraft had too many engineering problems. They were too small to be considered a fourth-generation jet, let alone a fifth-generation stealth aircraft. Experts joked that Qaher-313 resembled a movie prop more than a jet fighter from the twenty-first century.

An analysis of the earlier jet published highlighted that the Iranian ‘Qaher’ had sharp edges and recognizable angles and edges of the American F-22, besides a twin tail form quite similar to that of the F-35 Lightning II.

Further, it sported large fixed canards, with the external section of the little wings canted downward.

After studying the photos and videos of the supposed stealth aircraft, military and aviation experts opined that the aircraft’s cockpit appeared very peculiar, with fundamental and non-‘fifth-gen’ instrumentation, no wiring on the front panel, and a setup resembling that of a small private plane.

The nose part of the Qaher-313 was designed to be so small that hardly any radar could fit inside it. The air intakes, the most crucial component, were comparable to those of small drones. Most importantly, it was observed that the jet did not have a nozzle which would lead to the entire aircraft being melted by the engine’s afterburners.

Iran also tried to reinforce confidence in the global military community by releasing a video that showed the fighter jet flying. However, it was busted as a lousy attempt at photoshop within hours.

Iran has been denied essential equipment and technology needed to modernize its military due to the years-long arms embargo enforced by the US and its allies. Although the nation made quick strides in developing missiles, creating a fifth-generation fighter jet that could contend with its competitors’ better air superiority has been labeled a pipe dream.

However, it may be pertinent to highlight the Iranian official’s statement that the Qaher has since been modified. It would be interesting to see the outcome, in the form of a drone which seems apt given the Qaher’s size, when it is finally unveiled next month.

**24 . Date: 24-02-2023Loitering Munition - N/A - ContractSerbia to Purchase Kamikaze Drones from UAEURL: https://www.uasvision.com/2023/02/24/serbia-to-purchase-kamikaze-drones-from-uae/**

Serbian President Aleksandar Vucic announced on Tuesday that Serbia will sign a contract with the United Arab Emirates within two days on the purchase of suicide drones.

Vucic’s remarks came in Abu Dhabi, where he was attending the International Defense Exhibition and Conference (IDEX).

“Within 48 hours, we will sign the first contract with the UAE on the purchase of their suicide drones, and they will arrive in the territory of the Republic of Serbia very soon,” he said.

Speaking about Serbia’s exports of military products, Vucic said that 30% of everything produced domestically must stay in Serbia.

“Our army and our country must come first. At least 30% of everything made in Serbia must stay in Serbia,” he said. “We can only sell what we can spare. Everyone wants to fight. Everyone is getting ready for war.”

“Our army has a priority. We have not started any war. We will not go to war unless we are attacked, and as far as weapons are concerned, I am most interested in our army and then how much we will earn,” he said.

He also said that they are continuing negotiations with the French for the purchase of Rafale warplanes.

He added that by the end of the year, 40 tanks at the disposal of the armed forces will be modernized.

According to Vucic, an escalation of the conflict in Ukraine will further complicate Serbia’s position in the political and military sense.

**25 . Date: 27-02-2023Armed ISR / ISTAR - MALE - SafetyTaiwan’s Teng Yun 2 Skids off Runway on Test FlightURL: https://www.uasvision.com/2023/02/27/taiwans-teng-yun-2-skids-off-runway-on-test-flight/**

A prototype of Taiwan’s homegrown Teng Yun 2 drone, developed by the National Chung-Shan Institute of Science and Technology (NCSIST), had an accident on February 22 after it spun out of control and ended up beside the runway at Hualien Air Base.

The Teng Yun 2 is a medium-altitude long-endurance (MALE) unmanned combat aerial vehicle (UCAV), which is said to resemble the American MQ-1 Predator.

The drone is said to have a range of 1000 kilometers, an endurance of 24 hours, and a service ceiling of 25,000 feet. It features advanced electronic surveillance and interference systems than the Teng Yun drone.

It is compatible with the AGM-114 Hellfire air-to-ground, laser-guided, subsonic missile with anti-tank capacity. However, the missile can also be an air-to-air weapon against helicopters or slow-moving fixed-wing aircraft.

It can also perform intelligence, surveillance, and reconnaissance (ISR) missions during the day and night.

The Teng Yun 2 performed a 10-hour flight around Taiwan’s air defense identification zone (ADIZ) in June 2022. The mass production of the drone was expected to start this year.

However, the Taiwanese newspaper Liberty Times said the recent accident had become a “great shock” to the Taiwanese Air Force.

The drone was being tested before noon on February 22. During the taxing and take-off process, certain mechanical parts of the drone performed erratically, which prompted the cancellation of the flight as per the standard operating procedures.

However, while decelerating, the aircraft slid off the runway before reaching a standstill. A preliminary investigation found that the landing gear and the propeller had sustained damage in the accident.

The NCSIST transported the drone back to Jiashan Air Base, where the software and hardware components are reportedly being inspected.

Taiwan Boosting Drone Development

The military-owned NCSIST is a leading organization in Taiwan’s push for the development of drones, inspired by the lessons learned from the ongoing war between Ukraine and Russia, where Ukraine, even after one year into the war, continues to resist a numerically superior force.

Earlier this month, the Taiwanese Defense Ministry spokesperson Sun Li-fang said that the island nation is speeding up the development and production of drones.

“Responding to the present enemy threat and using the general experience of drones in the Ukraine-Russia war to construct an asymmetric combat power for our country’s drones, the defense ministry is speeding up research, development, and production of various drones,” Sun said.

Taiwan wants to reduce its reliance on foreign suppliers and has developed its industry, investing US$1.6 million to produce drones.

“Military drones have played an important role in the Ukraine-Russia war as both Russia and Ukraine are using them to locate enemy targets and guide artillery fire towards them,” said Shu Hsiao-Huang, a warfighting concepts analyst at Institute for National Defense and Security Research, Taiwan’s government think tank.

They will also be effective for Taiwan when it comes to locating enemy targets and guiding the attacks,”

he said, adding that it would be equally important to have precise intelligence about the movements of China’s People’s Liberation Army (PLA).

In the event of a Chinese amphibious invasion, if the PLA forces manage to land on the island, the Taiwanese artillery units could destroy the temporary lodgements before they become permanent with the help of “precise intelligence” about the PLA movements and drone-assisted artillery fire.

**26 . Date: 28-02-2023Armed ISR / ISTAR - MALE - SafetyMQ-9 Crashed in Al-Qaeda’s Region of MaliURL: https://www.uasvision.com/2023/02/28/mq-9-crashed-in-al-qaedas-region-of-mali/**

An American-made MQ-9 Reaper combat UAV has crashed in West Africa. This happened on February 18 this year. Officially, the information has not yet been confirmed, but a Telegram account reported the incident. He refers to the remains of the drone, which is believed to be an MQ-9.

The drone crashed in territory controlled by the Jamaat Nusrat Al-Islam Wal-Muslimeen group. This group is linked to the declared terrorist organization al-Qaeda. According to the author of the post in Telegram, the place where the drone crashed is 200 km from Timbuktu. The author does not mention the exact location of the incident.

The author claims that al-Qaeda-linked fighters took the remains of the drone. Residents, however, managed to take pictures before parting with the remains. The photos show components and parts from two American companies – General Atomics and L3 Communications. The surviving remains of the landing gear also closely resemble that of the MQ-9.

At the moment, no country operating this drone has announced its absence. France, which still has a military presence in the region, operates the MQ-9. The French are particularly active in using their American drone in the Sahel region.

**27 . Date: 06-03-2023RegulationFAA Issues Special UAS Waiver to AlaskaURL: https://www.uasvision.com/2023/03/06/faa-issues-special-uas-waiver-to-alaska/**

Alaska is the first state to be able to grant permission for unmanned aircraft systems (UAS) to operate and test with the aim of securing certification for national airspace flight. The Federal Aviation Administration (FAA) granted the waiver last week, which was requested by the Alaska Department of Transportation & Public Facilities (DOT&PF) in late 2020.

Alaska is now the only state with the ability to allow UAS operations classified as research or development, including aircraft under 300 pounds, to be conducted in our UAS test-site airspace.

“This officially establishes Alaska as the leader in research for Unmanned Aircraft Systems,” said Governor Mike Dunleavy. “I am looking forward to seeing how Alaskans support and grow this developing economic sector.”

The waiver enables UAS manufacturers to utilize Alaska’s airspace for certification purposes, a move that will support new economic activity. The Alaska Center for UAS Integration (ACUASI), at the University of Alaska Fairbanks, is the manager of Alaska’s UAS test site. As part of the FAA’s Beyond program, ACUASI has been granted the authority to oversee the waiver’s implementation.

ACUASI will evaluate the safety of an operator’s unmanned aircraft and related procedures, using their internal processes to ascertain whether a UAS operation can be safely conducted. Previously, individuals who wanted to undertake such operations had to apply for a special airworthiness certificate and request exemption from several regulations, which proved to be a resource-intensive and time-consuming process for both the applicant and the FAA.

“We were just handed a tool to help aircraft manufacturers get their drones certified for use,” ACUASI Director Cathy Cahill said. “The FAA is allowing the test site to test and evaluate larger drones under real-world conditions,” she said. “This will allow us to support the development of a strong drone economy in Alaska and across the nation.”

Ryan Marlow, UAS Program Manager for the State of Alaska, reiterated that the waiver allows Alaska to use its largest natural resource as a new economic driver, its airspace.

“This is a massive leap forward for UAS integration on a national level, and we look forward to supporting enhancement in airspace safety through advanced air mobility.”

**28 . Date: 09-03-2023Cargo - MALE - PartnershipKaman and Phi Aviation Announce Commercial AgreementURL: https://www.uasvision.com/2023/03/09/kaman-and-phi-aviation-announce-commercial-agreement/**

Kaman Corporation

and PHI Aviation LLC announced at the 2023 HAI Heli-Expo that Kaman’s subsidiary, Kaman Aerospace Corporation (“Kaman”) and PHI have entered into a master commercial agreement for the promotion, sales and support of a commercial version of Kaman’s KARGO UAV unmanned aerial system, including collaboration relating to its ongoing design and certification.

In connection with that agreement, Kaman and PHI entered into a Non-Binding Memorandum of Understanding that outlines PHI’s intent to purchase 50 units of Kaman’s commercial KARGO UAV. Kaman and PHI expressed their commitment to work together to bring KARGO UAV to the broader commercial market and offer field support in the future.

KARGO UAV is a purpose-built autonomous medium-lift logistic vehicle that is being developed for military and civilian use to meet real-world requirements for today and into the future. It is designed to be capable of carrying 800 lbs., flying 500 miles, and hover for an extended period without the requirement to transition to forward flight. These capabilities make the KARGO UAV ideal for PHI and its core customers. PHI takes on some of the most challenging assignments in aviation to deliver high-quality support for energy providers, hospitals, air medical organizations, and government and military organizations.

“PHI is one of the most respected vertical lift suppliers in the energy, air medical and MRO industries,” said Carroll Lane, President of the Kaman Precision Products Segment. He added, “We are delighted they have chosen KARGO UAV to meet the anticipated needs of their customers. PHI’s reputation for excellence, commitment to safety, and innovation leadership made them the most fitting launch customer for Kaman.”

“We look forward to working together with Kaman to augment our present fleet offering for our customers. With the addition of KARGO UAV to our fleet, we will be expanding our capabilities and adding value in a way that complements our core business. Kaman’s long history in heavy-lift rotorcraft systems and our shared commitment to safety makes them the perfect partner for PHI Aviation,”

said Keith Mullett, Managing Director of PHI Aviation.

PHI has been a market leader and pioneer in the aviation industry for more than 74 years, partnering with customers to bring new technology to market. With a fleet of more than 200 helicopters spanning six continents, PHI embraces innovation to drive strategic growth and create new opportunities to better serve its customers.

**29 . Date: 09-03-2023General - SoftwareUS Air Force Drones Can Now Recognize Faces – UAS VISIONURL: https://www.uasvision.com/2023/03/09/us-air-force-drones-can-now-recognize-faces/**

The U.S. Air Force now has the capability to use facial recognition on drones that could target specific people. Special operations forces can use the drones to gather intelligence and to aid in other missions, according to a contract first spotted by New Scientist. It’s part of a growing movement to develop automated weaponry that raises legal and ethical questions.

The drone software maker, Seattle-based firm RealNetworks, claims the uncrewed craft will use artificial intelligence (AI) to fly itself and discriminate between friend and foe. The company has said that its software can also be used for rescue missions, perimeter protection, and domestic search operations.

The new Air Force drone system isn’t the only drone system to try to use facial recognition. An Israeli company is working on a drone that uses AI to help a drone find the best angles for facial recognition.

In Dubai, police are even using drones equipped with facial recognition to track reckless drivers. But in the U.S., police efforts to use facial recognition systems are meeting resistance from privacy advocates.

In 2021, the Portland City Council adopted one of the nation’s strictest bans on facial recognition technology. The New York Civil Liberties Union noted that drones could be equipped with various surveillance capabilities, including facial recognition, gait recognition, emotion recognition, or behavior detection. The group says that such systems can be inaccurate and lead to false arrests.

Drones are becoming a part of standard military hardware in conflicts. Armed drones became a fixture in the U.S. effort in the war on terror. And Russia recently lost three drones it was using to defend its front line against Ukrainian advances.

Future drones may aid human pilots. The Air Force is studying whether to field a fleet of drone wingmen flying alongside piloted fighter aircraft. The fleet of collaborative combat aircraft, or CCA, as the service calls the concept, could be guided from nearby airplanes and accompany the future Next Generation Air Dominance (NGAD) fighter, and perhaps also the F-35.

As automated weapons like drones proliferate, they are increasingly the subject of debate. Some military experts say drones reduce casualties by putting fewer soldiers in harm’s way. But other observers argue that drones remove the crucial human element when using lethal force.

**30 . Date: 10-03-2023Partnership - SoftwareBoeing, Shield to Collaborate on Artificial Intelligence, Autonomy for Defense ProgramsURL: https://www.uasvision.com/2023/03/10/boeing-shield-to-collaborate-on-artificial-intelligence-autonomy-for-defense-programs/**

Boeing and Shield AI have signed a memorandum of understanding to explore strategic collaboration in the areas of autonomous capabilities and artificial intelligence on current and future defense programs. The agreement, signed at the Air Force Association Warfare Symposium, will be managed by Boeing Phantom Works.

“Boeing continues to leverage talent from across the enterprise to make great strides in autonomous capabilities and programs in recent years,” said Steve Nordlund, vice president and general manager for Boeing’s Air Dominance organization. “Collaborating with Shield AI, the leader in AI pilots, will accelerate our ability to deliver these capabilities to the warfighter.”

Shield AI created Hivemind, an artificial intelligence pilot that has flown a variety of aircraft. According to Shield AI, the AI pilot can also enable swarms of drones and aircraft to operate autonomously without GPS, communications or a human pilot in the cockpit.

“AI pilots are the most strategic deterrent technology since the introduction of stealth aircraft and have proven successful in flying air-combat scenarios” said Brandon Tseng, president and co-founder of Shield AI and a former Navy SEAL. “Integrating Boeing aircraft with our AI pilot would redefine what large aircraft, crewed or uncrewed, could do. As the world leader in aerospace technology, Boeing has been exceptionally easy to engage with, so we are excited to expand our scope of work to co-develop, productize and bring to market the world’s best AI pilot for large aircraft.”

**31 . Date: 10-03-2023ISR / ISTAR - Small - RegulationFAA Grants Textron Special Airworthiness Certificate to Operate Aerosonde UAS in Civil OperationsURL: https://www.uasvision.com/2023/03/10/faa-grants-textron-special-airworthiness-certificate-to-operate-aerosonde-uas-in-civil-operations/**

Textron Systems Corporation

announced that it has been issued a special airworthiness certificate from the Federal Aviation Administration (FAA) to conduct civil unmanned aircraft operations at its Unmanned Systems Service and Support Center located in Blackstone, Virginia, adjacent to the Allen C. Perkinson Blackstone Army Airfield (KBKT).

The company received the special airworthiness certificate in the experimental category, abbreviated SAC-EC. The rarely granted authority allows Textron Systems to operate its Aerosonde® MK 4.7G unmanned aircraft system (UAS) within the National Airspace System (NAS) as part of initial and recurring proficiency training missions and research and development (R&D) operations. The SAC-EC represents increased flexibility and convenience for the company’s customers, as well as cost savings that result from the ability to train steps away from the classroom at the Unmanned Systems Service and Support Center.

“This is a significant achievement because of what it says about the safety of operating unmanned systems in the NAS,” said Wayne Prender, Senior Vice President of Air Systems. “We’ve shown that our Aerosonde system achieves an equivalent level of safety compared to conventional aircraft. We’ve backed that up with more than 600,000 hours of flight time and over 3,000 aeronautical research flights conducted at KBKT airfield to support integration in the NAS.”

To grant a SAC-EC, the FAA must determine the company’s proposed operations will have no adverse impact on public safety. Obtaining the approval required the company to submit an in-depth Program Letter, Safety Checklist, operating manuals, an approved Maintenance Inspection program, and to host a comprehensive on-site safety evaluation of every component of the aircraft, the ground station, and the aircraft’s launch and recovery equipment.

Textron Systems’ Aerosonde UAS is a small, high endurance, expeditionary unmanned aircraft. It is powered by a high performance, heavy fuel, direct injection, reciprocating engine and has a broad operational flight envelope. The certification allows the company’s aircraft operators to conduct Visual Line of Sight training and R&D operations in Class D, E, and G airspace.

**32 . Date: 14-03-2023General - Detect & AvoidDrone Delivery Canada Adopts Detect and Avoid System for Medical Delivery RouteURL: https://www.uasvision.com/2023/03/14/drone-delivery-canada-adopts-detect-and-avoid-system-for-medical-delivery-route/**

Drone Delivery Canada Corp

. has announced that it has purchased from Canadian UAVs the first Sparrowhawk radar ground based detect and avoid system for deployment on DDC’s Care by Air delivery route. Sparrowhawk has been previously approved by Transport Canada to support beyond visual line of sight operations.

The Care by Air route utilizes DDC’s patented drone delivery solution and runs from the logistics facility of DSV Air & Sea Inc. Canada (DSV) in Milton, Ontario to the Oakville Trafalgar Memorial Hospital, for the purpose of delivering medical isotopes.

DDC has integrated Sparrowhawk at the DSV facility in Milton to support the Care by Air route initially, with plans to expand the use of Sparrowhawk to additional delivery routes in the future. Sparrowhawk has also been integrated into DDC’s proprietary FLYTE software, which will allow for all operations to be conducted in accordance with the Canadian Aviation Regulations and Transport Canada flight authorizations. Flights will continue to be remotely monitored by DDC from its Operations Control Centre located in Vaughan, Ontario.

DDC plans to work with Canadian UAVs and Transport Canada to obtain BVLOS approval for the Care by Air route initially and then seek to expand the approval to cover the entire range of the Sparrowhawk to support multiple routes developed in partnership with DSV and Air Canada.

“We are continually looking to partner with leaders in the UAV industry and as such we are excited to work with Canadian UAVs and their Sparrowhawk system. Canadian UAVs are recognized as a leader in this space, and we look forward to leveraging their technology on the Care by Air route initially and then potentially expanding to other routes in the future.”

said Steve Magirias, CEO of DDC.

“From a single Sparrowhawk Radar, over 650km2 become available for coordinated drone operations. As our premier launch customer, DDC has wisely applied this technology for drone delivery, opening the possibility for wide area urban package delivery. This is an exciting time for our industry and for Canada.”

said John Molberg, VP Innovation of Canadian UAVs

**33 . Date: 15-03-2023Component - GeneralBMT Gets Patent for ‘SPARROW’, an Autonomous ‘Air-Ground Payload Transfer Device’URL: https://www.uasvision.com/2023/03/15/bmt-gets-patent-for-sparrow-an-autonomous-air-ground-payload-transfer-device/**

BMT, an international design, engineering, science, and risk management consultancy, has announced that it has been granted a patent by the U.K. Intellectual Property Office for a novel concept called ‘SPARROW’, an autonomous ‘air-ground payload transfer device’ with truly disruptive capabilities for drone delivery applications.

Phil Metcalfe, Regional Business Director for UK and Europe, commented:

“BMT’s patent signals a new type of suspended robotic device: a device that takes over responsibility for the final moments of payload delivery, and better suited to challenging and sensitive environments. This small, highly-ruggedised robotic device could even autonomously collect packages as well as deliver them without the need for infrastructure on the ground.

“With the development of this autonomous and highly-versatile concept the project team have delivered a great example of how BMT actively applies its innovation to solve its customers’ complex problems,” added Metcalfe.

“Further, we were super excited to participate in the British Army’s “Army Warfighting Experiment” (AWE) 23, with our rugged technology demonstrating the potential to feed into the army’s plans for a future ‘digital backbone,” concluded Metcalfe.

This month, the AWE 23 independent Product Assessment Report cited the following:

“As the system is developed further, it will provide a capability unlike anything else known to Defence. It would enable the use of UAS to deliver payloads in the most challenging terrain, reducing risk to both the airframe, the payload and personnel on the ground.”

With SPARROW, BMT has addressed the inherent problem of large, noisy, and potentially hazardous delivery drones having to land or hover low over the payload destination, potentially close to people in unpredictable, sensitive and cluttered environments.

SPARROW is fundamentally different to winch systems commonly used in current trials for delivery drones. On a winch, the payload swinging at the bottom end of a line is raised or lowered by the cable drum attached to the underside of the fuselage, and moved horizontally by subtle movements of the drone above. This provides poor control of the payload, especially in windy conditions and limits the maximum height of the drone. In comparison, SPARROW is located at the bottom end of the line with the payload with its own power, sensors and actuators; it has autonomous control of its descent using an internal drum, while making precise and immediate horizontal adjustments to counter wind effects using 4 small, quiet pusher fans. SPARROW takes responsibility of the delivery allowing the larger delivery drone to remain much, much higher at the destination, relatively unheard and unobtrusive at ground level.

Being much smaller than the drone and without the need for powerful, lift-generating rotors, SPARROW is perfect for safe, precise and quiet delivery in challenging or sensitive environments.

BMT’s development partner, Dr Steve Wright from Wright Airborne Computing, commented:

“During 30 years of working in aerospace, I have not seen anything like the surge in new aircraft, systems, and applications that has happened in the last five years. SPARROW is a perfect example of this revolution, fuelled by a happy convergence of 21st century technologies harnessed together by computers and software that engineers like me could only dream about 30 years ago.”.

Background

The SPARROW concept was initially developed by a team at BMT for defence applications where drones are being trialled to resupply troops and deliver items such as sterilised medical equipment to dispersed, unpredictable, and potentially hostile locations. Still early in its development, SPARROW was selected by the UK Ministry of Defence for the highly competitive annual flagship innovation event called the ”Army Warfighting Experiment”. The world-first demonstration took place in HM Naval Base Portsmouth, UK, in November 2022 with the associated ”Exploitation Event” in February 2023.

Problem solved

A logistics drone with any significant carrying capacity must also carry heavy, high-capacity batteries to provide the required range, and have powerful rotors to generate the required lift. The drone unavoidably becomes large, noisy and potentially dangerous. In drone delivery trials, the drone itself has to descend and fly amongst the buildings and ground clutter to land at the destination or winch the payload down from a low hover. This produces high levels of noise and requires predictable open spaces, clear of people, animals and obstructions or risks damage to the drone and anything that comes into contact with it. In a military context, limiting delivery to open spaces in a hostile environment also increases the vulnerability of both the drone and receiving personnel due to enemy action. The only alternative, dropping the payload by parachute, is unacceptably hazardous, inaccurate and risks getting caught on trees, wires and buildings.

The ideal solution would offer the full payload capacity of a large, powerful drone without the associated noise and risk to people on the ground, while also offering a precise, safe, reliable delivery.

BMT’s solution

Replacing a traditional drone-mounted winch, BMT’s novel robotic device solves this problem by using a ‘system of systems’ approach. The autonomous SPARROW lowers both itself and the payload at the bottom end of a long, low-profile, weight-bearing line, with the top end of the line attached to the drone above. To provide autonomy of movement, SPARROW has an internally powered cable drum to silently control height, four small side-facing pusher fans for horizontal adjustments, and all the necessary sensors, power, and processing.

Benefits to the end-user/operator

The SPARROW concept enables the large, noisy, vulnerable drone to remain much higher above the complex ground environment at the destination. Just how high depends on the use case; safe controlled delivery is possible using this approach from 200ft in windy conditions, and 500-1000 ft in light winds, with additional options for higher drops. In comparison to using a traditional winch from a low hover, a SPARROW delivery offers a much smaller, quieter physical presence and a safer, more precise delivery to a wider variety of locations, including confined spaces close to vertical surfaces and urban infrastructure.

What next for BMT’s solution

Alongside applications in Defence, the approach may also offer value to manned helicopter operations and across other sectors such as Maritime Ship-Shore deliveries, support to maintenance engineers on tall structures, Emergency Services, and e-commerce deliveries to domestic addresses. The project is looking to partner for further Research and Development and licence the technology to a range of leading established operators.

If development of the experimental platform proves successful, BMT is offering a glimpse of an alternative future in which the environment is not filled by the incessant noise of drones buzzing around at low level in close proximity to people, but one where drones remain safely at height, out of sight, out of earshot and out of mind.

**34 . Date: 16-03-2023Cargo - Tactical - MarketAnimal Dynamics’ Stork Parafoil UAV Selected for Royal Navy’s UAS Heavy Lift Challenge -Phase 2URL: https://www.uasvision.com/2023/03/16/animal-dynamics-stork-parafoil-uav-selected-for-royal-navys-uas-heavy-lift-challenge-phase-2/**

Animal Dynamics

– a UK technology company specialising in autonomous heavy-lift uncrewed aerial vehicles (UAVs) – has been selected to participate in the next phase of the Royal Navy’s Uncrewed Aerial Systems Heavy Lift Challenge (UASHLC) with its Stork STM parafoil UAV.

The Stork STM is an autonomous aerial logistics vehicle, capable of beyond visual line of sight (BVLOS) operations and carrying payloads weighing 135 kg over a 400 km distance (the equivalent of flying from Oxford to Paris). This payload capacity has been chosen as it is an optimum weight to resupply an eight-person section for a two-day period.

UASHLC Phase 2 is a joint effort between Defence Equipment & Support’s (DE&S) Future Capability Group and the Royal Navy’s Office of the Chief Technology Officer and 700X Naval Air Squadron. It aims to explore potential use cases for uncrewed technologies to deliver supplies and equipment intra-theatre (ship-to-ship) and inter-theatre (ship-to-shore and vice versa), which would free up crewed assets like helicopters to perform more specialist tasks.

Being able to carry a 135 kg payload up to 400 km means that Stork STM is unique in meeting the Royal Navy’s requirements for both intra- and inter-theatre resupply tasks.

Animal Dynamics successfully demonstrated the Stork STM’s ability to carry significant payloads over a large distance as part of a pre-selection flying competition that took place last year. Despite strong competition from a number of world-class UAV providers, the Stork STM scored very highly and was awarded a coveted place on the UASHLC.

The Stork STM will now continue to the next round of UASHLC testing, with flight trials planned to take place in Cornwall.

As part of UASHLC, Animal Dynamics will also be marinising the Stork STM by integrating secure satellite communications (SATCOM) that demonstrates the vehicle can be operated anywhere in the world. The Stork STM will also be fitted with a sonobuoy dispenser – showcasing that the UAV’s payload space can be used for a number of mission types – as well as go through additional wing development work that includes a retraction capability making it safe for deck operations.

The Stork STM’s ground-breaking parafoil design overcomes many of the challenges associated with heavy-lift multirotor and hybrid VTOL designs, which are often range limited due to the need for significant power during take-off and landing. And unlike traditional fixed-wing aircraft, the Stork STM can take-off and land in short distances on unprepared ground.

Adrian Thomas, CEO, Animal Dynamics, said:

“We are very excited to have won a place in the UASHLC through our performance in the fly-offs against strong competition from established UAV and aerospace companies. Selection by the UK Ministry of Defence (MoD) and the Royal Navy reflects the fantastic capabilities the Stork STM has to offer, and the strength and experience of the team in terms of engineering, flight ops and certification. We look forward to the next stage of flight trials when we can demonstrate the continuing performance and capability enhancements of the Stork STM and the clear path to commercialisation.”

Chris Roberts, Head of Engineering Operations, Animal Dynamics, said:

“Our success in being selected for the next phase of the UASHLC has validated that our design concept can meet challenging customer requirements at a live demo. Our operations team relished the opportunity to conduct a live demo, during which the Stork STM performed fantastically, showing to the MoD the potential that our technology could play in naval resupply roles.”

**35 . Date: 17-03-2023ISR / ISTAR - HALE - ContractNorthrop Grumman Gets $57M US Navy MQ-4C Triton Support Contract for AustraliaURL: https://www.uasvision.com/2023/03/17/northrop-grumman-gets-57m-us-navy-mq-4c-triton-support-contract-for-australia/**

Northrop Grumman Systems Corp.

, San Diego, California, is awarded a $57,403,706 cost-plus-fixed-fee modification (P00017) to a previously awarded contract (N0001921C0060).

This modification exercises options to provide continued sustainment, engineering, logistics, and test support for MQ-4C Triton air vehicles, mission control and operator training systems; continued field service representative’s technical support to ensure that the MQ-4C Triton Unmanned Aerial System (UAS) aircraft are mission-capable for intelligence, surveillance and reconnaissance missions supporting aircraft early operational capability and initial operating capability; and continued reach-back engineering support for both the Navy and the government of Australia MQ-4C Triton UAS assets.

Work will be performed in Patuxent River, Maryland (36.5%); San Diego, California, California (22.5%); Jacksonville, Florida (7.7%); Mayport, Florida (6.5%); Baltimore, Maryland (5.3%); various location within the continental U.S. (CONUS) (8.8%); and various location outside CONUS (12.7%), and is expected to be completed in March 2024.

Fiscal 2023 operation and maintenance (Navy) funds in the amount of $51,124,242; fiscal 2023 research, development, test and evaluation (Navy) funds in the amount of $1,000; fiscal 2021 aircraft procurement (Navy) funds in the amount of $5,280,677; and Foreign Cooperative Project funds in the amount of $997,787 will be obligated at the time of award, $56,404,919‬ of which will expire at the end of the current fiscal year.

The Naval Air Systems Command, Patuxent River, Maryland, is the contracting activity.

**36 . Date: 21-03-2023MarketMore Job Cuts Planned at AeroVironment Plant in San Francisco Bay AreaURL: https://www.uasvision.com/2023/03/21/more-job-cuts-planned-at-aerovironment-plant-in-san-francisco-bay-area/**

The AeroVironment plant in Petaluma, Sonoma County, California, that builds aerial drones for an East Coast defense and law enforcement contractor plans to trim its local workforce further than cuts disclosed earlier this year.

In a March 6 state filing, AeroVironment said that it plans to permanently lay off 62 from its Petaluma location by May 6. This includes the 17 job cuts noted in a WARN Act filing last month would come by April 25, a spokesperson for the Arlington, Virginia-based company confirmed.

The March 2nd statement reads:

“With the recent shifting of U.S. DOD funding away from medium UAS company-owned, company-operated (COCO) operations, AeroVironment made the difficult decision to reduce the number of employees directly operating these sites located outside the U.S., along with some support staff. Approximately 80 employees were impacted across the organization, in both Petaluma, CA, and within our MUAS Field Service Organization.

“The outlook for the rest of AV’s business – including for our MUAS business outside of COCO services – remains strong with the recent selection of AV as one of the providers for FTUAS increment 2 program, and the award of a sale of systems as part of the U.S. Military Aid package to Ukraine.”

Altogether, the reductions include 30 drone operators, 22 mechanics, four on-site managers and one each for these roles: flight operations, field safety manager, program scheduler and standards operator, according to the filing.

These job cuts will reduce the Petaluma workforce to about half the 120 employees that a spokesperson said it had as of February.

As the company told the Business Journal in a statement about the first round of local cuts last week, the layoffs result from a recent shift by the Department of Defense away from funding company-owned, company-operated (known in the federal contracting world as COCO) medium-sized unmanned aerial systems, or MUAS, outside the U.S. That led to around 80 jobs being cut in Petaluma and in the company’s MUAS field service group.

The company early this month reported that MUAS revenue in its fiscal third quarter, ended Jan. 28, declined by $5.8 million from a year before, while quarterly sales of small UAS jumped $45 million.

In 2021, AeroVironment acquired Petaluma’s Arcturus UAV, a privately held provider of unmanned aircraft systems and services, for $405 million, including $355 million in cash and $50 million in AeroVironment stock. Founded in 2004, Arcturus had about 270 employees at the time.

Arcturus Jump 20

Some of AeroVironment’s drones are being used in Ukraine in it defense against Russia. AeroVironment is also the maker of the helicopter being used by NASA on Mars.

On March 6, the publicly traded drone maker reported a loss of $676,000 for the third quarter, but it was in the black for the same period last year.

Revenues for this period were $134.4 million. AeroVironment expects annual revenues to range between $510 million and $525 million.

AeroVironment continues to be a favorite vendor of the federal government, which is a key reason the company moved its headquarters in 2021 from Southern California to be closer to the Washington, D.C., area.

The Army’s selection of AeroVironment for the second part of the Future Tactical Unmanned Aircraft System program includes the Jump 20 vertical take-off and landing medium-sized UAS. Earlier this month, the company touted the use of the Jump 20 drone in the Ukraine–Russia conflict.

**37 . Date: 22-03-2023Cargo - Small - SafetyBell APT Cargo Drone Crashes in TexasURL: https://www.uasvision.com/2023/03/22/bell-apt-cargo-drone-crashes-in-texas/**

One of Bell’s Autonomous Pod Transport (APT) cargo drones crashed on March 14 in a field near Mineral Wells, Texas, in what is being categorized as a “loss of control” accident by the FAA.

The APT 70 experimental aircraft, with registration number N314AL, first flew in 2019. The aircraft has a range of 22 miles (35 kilometers) with a 100-pound (45 kilograms) payload and a maximum speed of 86 knots. The battery-powered aircraft is designed to fly in winds up to 30 mph (48 kph) at temperatures up to 125 degrees Fahrenheit (52 degrees Celsius). Damage to the 300-pound (136 kg) vehicle is unknown.

Bell has long-promoted its line of APT aircraft as a practical solution for the delivery of urgent military and civil cargo including medical supplies. The aircraft was selected by NASA’s Systems Integration and Operations program to perform test flights to validate uncrewed aerial vehicle (UAV) safety and control infrastructure. The company aims to develop and certify a production model that can carry 100 pounds of payload at speeds up to 100 knots.

The aircraft has the ability to be manually off-loaded and can automatically drop loads at a fixed point or fly over and airdrop payloads. The APT has been tested in beyond-visual-line-of-sight (BVLOS) operations and in highly-controlled and congested airspace, including the area around Dallas-Fort Worth International airport (KDFW).

Bell is part of the Textron eAviation group, which is also working on a four-passenger eVTOL aircraft called Nexus. The division includes Europe-based electric aviation specialist Pipistrel, which Textron acquired in 2022.

**38 . Date: 24-03-2023Cargo - ContractDrone Delivery Canada Gets Government Contract for Heavy-Lift Drone TrialsURL: https://www.uasvision.com/2023/03/24/drone-delivery-canada-gets-government-contract-for-heavy-lift-drone-trials/**

Drone Delivery Canada Corp.

has announced that, with the assistance of its sales agent Air Canada, it has signed a contract with the Canadian Government to work with Transport Canada in operating and evaluating DDC’s proprietary drone delivery platform using DDC’s heavy-lift Condor remote piloted aircraft, the largest drone currently being developed by DDC.

The Contract, with a value up to approximately $1.2 million is with the Canadian government’s Innovative Solutions Canada program. Under the terms of the Contract, DDC will provide Transport Canada with a Condor drone, and collaborate with Transport Canada in operating, testing and evaluating the capabilities of the Condor drone solution until December 2023.

The contract consists of 3 phases:

The multi-package payload compartment of the Condor is designed to carry approximately 20 cubic feet of cargo. The Condor measures 22 feet long, 5 feet wide and 7 feet tall. It has a rotor diameter of approximately 20 feet and is capable of vertical takeoff and landing. The Condor is equipped with the Company’s proprietary FLYTE management system which is the same platform used in all the Company’s cargo delivery drones. The turnkey solution is expected to be marketed in a managed service SaaS business model in Canada and potentially as a licensed managed service internationally, subject to applicable regulation.

Subject to all required regulatory approvals, the increased size and payload capacity of the Condor is expected to unlock a significant number of new potential use case opportunities, including in sectors such as mining, oil and gas, inspection, and emergency preparedness.

“We are extremely excited to provide Transport Canada with our Condor drone and to be involved in the Innovation Solutions Canada program. We look forward to working with Transport Canada to display the full capabilities of the Condor and to potentially offer the Condor platform to all interested government of Canada parties,” said Steve Magirias, CEO of DDC. “This contract is made possible through the talent and effort of the DDC team which has worked tirelessly to get our Condor drone developed to achieve this milestone along with potential future milestones.”

**39 . Date: 27-03-2023Armed ISR / ISTAR - MALE - General - PlatformEx-Microsoft Execs Weaponizing Crop-Dusting Drones in UkraineURL: https://www.uasvision.com/2023/03/27/ex-microsoft-execs-weaponizing-crop-dusting-drones-in-ukraine/**

AeroDrone

, which made crop-dusting drones prior to the war and now supplies Ukraine’s armed forces, makes unmanned aircraft that can carry up to 300 kilograms or fly up to several thousand kilometres in certain configurations.

As Ukraine seeks to narrow the yawning gap between its own military capabilities and Russia’s, Kyiv says it is expanding its drone programme for both reconnaissance and attacking enemy targets over an increasing range. It is hoping that domestic drone makers like AeroDrone will help it meet its ambitious goals.

The government is now working with more than 80 Ukraine-based drone manufacturers, Ukraine’s Defence Minister Oleksii Reznikov told Reuters. He said Kyiv needs hundreds of thousands of drones, many of which it is looking to source from a rapidly-expanding domestic industry. Currently, the military operates dozens of models of domestic and foreign drones that fulfil a “wide spectrum” of roles, Reznikov said, in written responses to questions.

“Drones are potentially a game-changer on the battlefield in the same way that precise Western MLRS became last year,”

Reznikov said, referring to Multiple Launch Rocket System weapons.

Unmanned aerial vehicles (UAV) and other drones are only one element of a war that is currently dominated by artillery, infantry and missiles. Moscow has been able to pound targets across Ukraine with long-range missiles, which Kyiv lacks.

“It is not worth expecting parity in the near future,” Reznikov said on closing the armament gap. He added: “Russia is also working on improving its UAVs.”

For cash-strapped Ukraine, whose economy has been decimated by the war and whose government is now reliant on international financing, drones represent a relatively inexpensive way to fight back against Russia’s vast military. Ukraine has said it will spend nearly $550 million on drones in 2023 and has set up drone assault units within its armed forces.

The secretary of Ukraine’s National Security and Defence Council, Oleksiy Danilov, told Reuters unmanned vehicles that crash into their target and detonate – so-called kamikaze drones – will be a particular focus for Ukraine in 2023.

Drone warfare specialist James Rogers, a professor at the University of Southern Denmark, said Ukraine’s UAV capability still lags behind Russia and its Iranian-made Shahed-136 kamikaze drones, which have been used by Moscow to target Ukrainian energy facilities for months.

Ukraine has received significant supplies of UAVs from its partners, from Turkey’s missile-equipped Bayraktar TB2 to the Norwegian-made Black Hornet reconnaissance drone, which weighs less than 33 grams.

Kyiv is now ramping up its own production. Taras Chmut, a Ukrainian defence specialist, says the country’s domestic production of aerial drones has grown by three or four times since the start of last year’s invasion. His assessment was that the country’s production of such drones capacity was “several thousand” a year if funding and parts supplies are steady.

Chmut heads a non-governmental organisation called Come Back Alive that says it has raised tens of millions of dollars of crowdfunding to supply equipment to the military, including aerial drones. He added that the size of Ukraine’s overall drone fleet had increased by “tens of times” since February 2022 due to new supplies from both abroad and Ukraine, as well as those donated by organisations such as his.

Reznikov said Ukraine had increased its drone production capacity by “several times” since Russia’s invasion in February last year and that it was now able to make drones that work in the air, on land and in the sea. The defence ministry declined to provide drone-production figures.

LONGER RANGE

One area of focus is on developing airborne drones that can travel longer distances, said Reznikov. Kyiv has been seeking longer-range missiles from allies that could hit targets several hundred kilometres away, but has so far been rebuffed.

AeroDrone says one of its models, called Enterprise and based on the frame of a light aircraft, can fly over 3,000 kilometres in certain circumstances.

The company is run by Dmytro Shymkiv and Yuriy Pederiy, who met while working at Microsoft’s Kyiv offices, where Shymkiv rose to be country manager and Pederiy was responsible for a major department.

They said their military contracts strictly limit what the company can disclose, but they said the Enterprise and another model called Discovery can be used for a wide variety of tactical purposes thanks to payloads of 300 kilograms and 80 kilograms, respectively. One of the company’s aircraft can cost between $150,000 to $450,000 depending on the model and configuration, which can include features such as an anti-jamming system to counteract Russian signal interference.

During a late February visit to AeroDrone’s workshop, engineers in blue coats bustled around the metal carcass of a light aircraft that forms the skeleton of the Enterprise drone. “It can carry 200 kg for 1200 km,” Shymkiv said of the Enterprise.

Pointing to the cockpit that was designed to house a pilot, he said: “Now, it’ll be the payload.”

The defence ministry said AeroDrone has contracts for the supply of two types of long range drones, but declined to disclose further detail.

The ministry declined to specify the maximum range of Ukraine’s current drone fleet, but a major state-owned Ukrainian arms company announced in December it had conducted successful tests for an assault drone with a 75 kg warhead and a 1,000 km range.

But challenges for expanding domestic production remain. Chmut, the defence specialist, said one barrier to mass production was the reliance on foreign-supplied parts such as engines and communications systems. He and AeroDrone also said getting parts through customs can be challenging.

The process for obtaining certification for military use has also been an issue. Reznikov said the ministry has streamlined the process, reducing it to a few weeks whereas previously it had taken up to two years.

AeroDrone’s Shymkiv said a separate government ruling loosening regulations on dual-use item imports, including drones and drone parts, has made life easier for manufacturers. However, he added there remains room for improvement in removing bureaucratic hurdles generally.

The defence ministry said it was working with domestic drone manufacturers to both increase production capacity and standardise output in order to simplify servicing and training.

Danilov, the national security council head, acknowledged Ukraine’s reliance on other countries for more high-tech drone components.

“We are trying to fulfil our needs in this sector with domestic production, but we realise that it’s unlikely we will be able to fulfil everything,” he said.

**40 . Date: 30-03-2023Armed ISR / ISTAR - MALE - General - PlatformBaykar Unveils Bayraktar TB3 Ship-Based UAVURL: https://www.uasvision.com/2023/03/30/baykar-unveils-bayraktar-tb3-ship-based-uav/**

The TB-3 drone is described as a more capable version of the famous TB-2, and will operate alongside the “unmanned fighter jet” Bayraktar Kizilelma.

It will be deployed on the Turkish Navy’s flagship TCG Anadolu amphibious assault ship, planned to be converted into a drone carrier.

More extensive testing will be conducted later this year to evaluate the drone’s performance in naval warfare.

The TB-3 drone’s wings can be folded to sit on aircraft carriers, saving space for other aerial platforms.

It can perform intelligence, reconnaissance, and surveillance missions and support combat operations with smart weapons attached to its wings.

The company says the new system will be the world’s first loitering munition that can take off and land from short runways, including that on the TCG Anadolu.

Line-of-sight and beyond-line-of-sight communications also allow the TB-3 to be operated from distant locations.

Compared to the TB-2, which has a cruise speed of 120 knots (222 kilometers/138 miles per hour), the new drone can travel at 160 knots (296 kilometers/184 miles per hour).

**41 . Date: 06-04-2023Loitering Munition - RequirementFrance Races for Small Suicide DronesURL: https://www.uasvision.com/2023/04/06/france-races-for-small-suicide-drones/**

After years of reticence about the use of small, cheap suicide drones in combat, the Ukraine conflict has convinced the French military it’s a capability troops cannot do without in a future conflict.

Earlier this month the French Ministry of the Armed Forces announced it had narrowed down a competition for the production of such UAVs from 19 competitors down to two in its Colibri (Hummingbird) project. Colibri was launched last May by the nation’s Defense Innovation Agency (AID) in partnership with the French DGA procurement agency.

France hopes to have a “base of 1,800” of the remotely-controlled munitions, Armed Forces Minister Sébastien Lecornu told Le Figaro last month. In late January, he told French lawmakers that France had “fallen behind” in developing the new type of weapon that is clearly here to stay. He said the plan was to have “thousands” of these types of munitions by 2030. “That’s part of the lessons learned from Ukraine,” he explained.

The two teams moving on in the Colibri competition are MBDA/Novadem’s proposal based on a rotor-blade drone bigger than the NX70 that Novadem has already delivered to the French Army, and Nexter with a drone-manufacturer, whose name was not released at its request, with a fixed-wing drone solution.

MBDA/NOVADEM Sphynx

The idea is that both consortia will fly demonstrators before the end of this year so that the AID and the DGA can “evaluate the pertinence of these industry proposals vis-à-vis the operational requirement,” according to a statement issued by the AID.

The MBDA/Novadem proposal, called Sphinx, would be most useful in urban or more enclosed spaces while the Nexter project based on a surveillance drone is better suited for use in more open environments, the AID said. Nexter’s munitions unit, Nexter Arrowtech, will develop the munition that will be carried by a drone made by the anonymous drone-manufacturer. Nexter Arrowtech proposed a “product that is absent today from the French arsenal. This innovative operational concept will carry a new, controlled fragmentation warhead,” Nexter said in a statement.

**42 . Date: 06-04-2023Armed ISR / ISTAR - MALE - General - ArmamentTurkish Aerospace to Arm Aksungur UAV with TorpedoURL: https://www.uasvision.com/2023/04/06/turkish-aerospace-to-arm-aksungur-uav-with-torpedo/**

Turkish Aerospace

has been working on outfitting Aksungur with a sonobuoy monitoring and launching system for about 2 years in order to increase Aksungur’s efficiency in ASW.

The project is divided into three phases. Aksungur is expected to gain sonobuoy monitoring capability in the first phase, which means it will be able to collect data from sonobuoys and relay it to the control station without processing. The second phase involves processing the data collected from the sonobuoys. In the third phase, it will be able to launch a real sonobuoy, monitor and process the data, and relay it to the other naval units.

Aksungur is a high-capability drone developed by Turkey’s defense industry and currently used by the Turkish Armed Forces. Since October 2021, the Turkish Navy has been operating Aksungur. Its long endurance in the air, which exceeds 60 hours, makes it useful not only for ISR missions but also for anti-submarine warfare.

<span data-mce-type="bookmark" style="display: inline-block; width: 0px; overflow: hidden; line-height: 0;" class="mce\_SELRES\_start">&#65279;</span>

The most surprising development about Aksungur is the addition of a torpedo to the drone. Naval News learned that Turkish Aerospace is working on mounting a very light torpedo on the drone. Turkish Aerospace officials claim that after fitting sonobuoys and torpedoes to Aksungur, it will be able to conduct Maritime Patrol Aircraft efficiently. The officials didn’t reveal details about the project but claimed that they are exercising the options for the details of the new capability.

Derived from TAI’s combat-proven ANKA UAV, AKSUNGUR is a Medium Altitude Long Endurance (MALE) class UAV System, capable of performing day and night Intelligence, Surveillance and Reconnaissance (ISR) and strike missions with EO/IR, SAR and SIGINT payloads, and a variety of air to ground weapons. ANKA-AKSUNGUR is powered by two PD-170 twin-turbocharged diesel engines enabling long-endurance operations up to 40,000ft.

Thanks to the know-how gained from ANKA, TAI developed the Aksungur in 18 months. It made its maiden flight in 2019 and has reached 1000 flight hours since then. During trials, it carried out the live firing at 20,000ft altitude and hit the naval target successfully with a KGK-SIHA-82 guided munition at a range of 30km in the Black Sea on 25 April.

Technical Information:

Weapons package:

Aksungur has 3 hardpoints on each wing with 500 kg, 300 kg and 150 kg capacities.

**43 . Date: 10-04-2023GeneralGeneral Atomics Plans 376 Job Cuts in the San Diego RegionURL: https://www.uasvision.com/2023/04/10/general-atomics-plans-376-job-cuts-in-the-san-diego-region/**

General Atomics Aeronautical Systems

plans to lay off 376 workers from its Poway and San Diego facilities.

The company filed a Worker Adjustment and Retraining Notification Act (WARN) documentation with local and state employment officials this week detailing the job cuts, which become effective June 5. California law requires companies to give 60 days advanced notice of a pending workforce cut.

In a statement, General Atomics Aeronautical Systems confirmed “a reduction in force involving a small number of its employees. These reductions were made to balance resources with business requirements.”

According to the WARN filings, 216 of the positions eliminated were at the company’s Poway facilities. Another 160 laid-off workers were based at General Atomics’ nearby San Diego factories in Carmel Mountain. The job cuts represent 3.5 percent of the company’s local workforce, said a spokesperson.

The company said it expects the workforce reduction to be permanent but added that none of its facilities in the San Diego region are closing.

According to the WARN notices, many of the jobs lost at General Atomic Aeronautical’s Poway and Carmel Mountain facilities were centered on manufacturing, including composite technicians, machinists and quality control personnel.

**44 . Date: 11-04-2023ISR / ISTAR - Tactical - ContractEMSA Drone Patrols Support Italian Coast GuardURL: https://www.uasvision.com/2023/04/11/emsa-drone-patrols-support-italian-coast-guard/**

EMSA

has started the deployment of its remotely piloted aircraft services in support of the Italian Coast Guard to gain increased maritime awareness over the Gulf of Genova until the summer.

Leveraging on the successful campaign of last year, EMSA services will continue to enhance general maritime safety and security in the area, as well as to assist in search and rescue missions. Protection of the marine environment is another important aspect of the operation and flights will be used to monitor whale migration within the Pelagos Sanctuary, a protected area for marine mammals.

This multipurpose operation continues to support the Italian Coast Guard in further integrating these innovative services as part of their standard operating procedures to give enhanced situational awareness. The flights can be followed remotely from four locations including the Sarzana base from where the aircraft is deployed, Imperia, Genova and Rome.

The aircraft being used is an AR-5 Evo unmanned fixed wing aircraft and it is under contract to EMSA from the REACT consortium, comprising CLS (maritime analytics) and Tekever (RPAS). It has several features making it suitable for this service including optical and infrared cameras, a maritime radar, an AIS receiver and an emergency position-indicating radio beacon (EPIRB) antenna. Using satellite communications, the aircraft also has the capability of performing both day and night operations.

ABOUT RPAS

Remotely Piloted Aircraft System (RPAS) services are offered free to all EU member states by EMSA. They have been developed to assist in maritime surveillance operations and ship emission monitoring and can operate in all seas surrounding the European Union. RPAS services can provide support to traditional coast guard functions, including search and rescue and pollution prevention and response. The services are offered to member states individually and as part of EMSA’s regional RPAS strategy, which allows multiple coast guard functions in several EU member states to be supported by one or more RPAS services. Further expansion of RPAS regionally is planned during 2023.

ABOUT EMSA

The European Maritime Safety Agency (EMSA) is a decentralised agency of the EU, based in Lisbon, Portugal. EMSA serves the EU’s maritime interests for a safe, secure, green and competitive maritime sector, delivering value for member states through support for pollution prevention and response, maritime surveillance, safety and security, digitalisation and the provision of integrated maritime services, and technical assistance.

**45 . Date: 11-04-2023General - Engine / PowersourceLaser Wireless Power Transmission with Improved Non-Imaging OpticsURL: https://www.uasvision.com/2023/04/11/laser-wireless-power-transmission-with-improved-non-imaging-optics/**

In an article recently published in the journal Solar Energy, researchers discussed the enhancements of photovoltaic (PV) receivers in laser wireless power transmission (LWPT) by using non-imaging optics.

In the area of wireless energy transmissions, such as space control in orbit, spacecraft sensor networks, satellite-to-satellite communication and power transmission, ground-to-ground, ground-to-air, ground to unmanned aerial vehicle (UAV), etc., LWPT systems have a wide range of potential applications. Until now, concentrated photovoltaics (CPV) has been employed in solar energy as a way to reduce photovoltaic size while still increasing efficiency. Lenses and concentrators are crucial to reshaping and guiding the laser beam towards the photovoltaics, and in case of misalignment, laser beam spots often display a Gaussian distribution, and the laser somehow must match the size of the PV cell or array.

The use of renewable energy sources to replace coal plants and achieve zero emissions has raised interest in electrical energy in recent years. The concept of beamed power transmission, also known as LWPT, describes how to transmit energy from one location to another without using physical conduits like copper cables or optical fibers and only employing light amplification using laser technology. Depending on its intensity, a laser beam can travel large distances before losing coherence and eventually losing its fringes. High energy flux density, improved performance in specific directivity, increased conversion efficiency, longer transmission distance, etc. are all benefits of LWPT.

The key technical challenge for LWPT systems is the development of highly effective receivers employing particular PV panels, which are frequently paired with optical concentrators to increase optical efficiency after the laser passes through the atmosphere. Low laser beam reception efficiency is another challenge for LWPT systems, thus it relies on photovoltaic technology and the advancements it brings.

In this study, the authors used a common non-imaging optical device called a cross-compound parabolic concentrator (CCPC), which helped increase the transmission of laser beams from various incident directions, to improve the output performance of LWPT receivers. Based on parameters from non-linear regression and experimental study, the multi-field characteristics of the CPV module under laser power were solved. Similar to LWPT receivers, the multi-field performances of CPV modules and single solar cells were also examined. Important references for LWPT system design and optimization were also provided.

The team proposed a novel non-imaging optical device to enhance the optical efficiency of LWPT receivers at various laser beam incidences since the receiving radiation and vectors substantially fluctuate during long-distance beam transmission. An experimental platform was created to extract coefficients from a multivariable parameter regression model of a single diode PV cell, which was used to solve the I-V characteristics of the CPV module under irregular receiving laser irradiance. Then, the optical-heat-electrical performances of the CPV module and the single PV cell were thoroughly examined and compared.

The effects of crucial structural factors for the LWPT system, such as the transmission distance, divergence half-angle, rotation angle, and misalignment distance, were also studied. Using computational and experimental methodologies, the current study examined the multi-field performance of CPV receivers for LWPT applications. Multivariable parameter regression was carried out using the LWPT experimental platform to extract many parameters from a PV cell with a single diode equivalent circuit.

As per the observations, the most crucial variables for multi-field performances and LWPT conversion are the transmission distance, divergence half-angle, rotation angle, and misalignment distance. The effectiveness of the system was impacted by any laser beam reflection or obstacle, such as clouds, water drops, and dust, among others. If there was a misalignment between the laser and the receiver for whatever reason, the divergence of the laser beam, with no adequate collimation and huge distances, could influence the energy conversion. In the worst-case scenario, the efficiency could go to zero.

The efficiency of PV panels could be increased and the amount of energy produced by each PV array could be multiplied by several orders of magnitude with the help of CPV technology. The regression parameters used to fit the I-V data, which ranged in intensity from 2365.08 W/m2 to 3468.79 W/m2, closely matched the test data. The fitting’s root mean square value was only 0.00432, which demonstrated the effectiveness of the simulation modeling approach. In comparison to the most widely utilized convex lenses in front of the PV cells, CCPC achieved higher optical efficiency that was more stable over a wide range of rotation angles. At all possible transmission distances and rotation angles, it was discovered that the optical efficiency of a CPV module using CCPC was significantly higher than that of a bare PV cell.

Due to the PV cell’s bus bar and emitter’s asymmetrical structure, which served as a key component for energy harvesting in LWPT systems, the varying trends of optical efficiency were not the same. Also, the misalignment distance was examined, which demonstrated how misalignment would undoubtedly affect the received optical power. According to the heat transfer data, the temperature distribution directly complied with the optical irradiance trend. The rays’ convergence was made possible by the CCPC’s internal reflections, which also increased the local peak temperature. Due to the great thermal conductivity of solid materials, temperature changes in all circumstances were quite small.

Both the voltage/current distribution and the I-V curves were examined in relation to electrical performance. It was discovered that the non-uniformity of optical irradiance, which was based on a linear and a log-linear relationship by semiconductor photoelectric response, had a significant impact on the distribution of current and voltage. Without the concentrator, when the distance or rotation angle increased as more rays radiate outside, the short current and conversion power decreased. Short-circuit current (Isc), power (Pm), and fill factor (FF) significantly improved for a CPV receiver, especially when the rotation angle was not greater than 30°.

In conclusion, this study elucidated a helpful guide for the CPV receiver in the LWPT system when deciding on an appropriate transmission distance, rotation angle, misalignment, etc.

The authors mentioned that the multi-field coupling properties of various geometric dimensions and focusing modules, as well as series-parallel complicated CPV receivers, would be studied in more detail in the future, and they would be applied to the load.

This work was supported by the National Natural Science Foundation of China (No. 52176205), Foundation Strengthen Project (2021-JCJQ-JJ-0328). and the Innovation Capacity Support Plan in Shaanxi Province of China (Grant No. 2023-CX-TD-19).

Xian-long, M., Yi-Chao, H., Bei, L., et al. Improvements of PV receiver in laser wireless power transmission by non-imaging optics. Solar Energy, 255, 157-170 (2023). https://doi.org/10.1016/j.solener.2023.03.016https://www.sciencedirect.com/science/article/abs/pii/S0038092X23001688

**46 . Date: 11-04-2023Tanker - HALE - GeneralMQ-25A Stingray IOC Pushed to 2026 Following Manufacturing DelaysURL: https://www.uasvision.com/2023/04/11/mq-25a-stingray-ioc-pushed-to-2026-following-manufacturing-delays/**

Production delays to manufacture Boeing’s MQ-25A Stingray pushed its initial operational capability by a year, the head program executive in charge of Navy unmanned aerial systems announced recently.

The MQ-25A Stingray, the first major unmanned aerial vehicle to deploy on U.S. aircraft carriers, will serve as an aerial refueling tanker on a carrier starting in 2026, Rear Admiral Stephen Tedford, program executive officer, Unmanned Aviation and Strike Weapons said during a presentation at the Navy League Sea Air and Space symposium. IOC had been set for 2025, with the first deployment slated for 2026 aboard USS Theodore Roosevelt (CVN-71), USNI News previously reported.

The hang-up is developing the production line for the aircraft, Tedford said.

“We are experiencing some production maturity challenges with the MQ-25. People don’t realize how big the actual MQ-25 is,” he said. “It’s as long as an F-18 with the wingspan of an E-2. It’s not a small UAV.”

MQ-25A builder Boeing in a Monday statement to USNI News said the company has been upfront about the manufacturing delays.

“We have been very transparent with the quality issues faced and notices of escapes in the past associated with coatings applied to metal components. We have owned the challenges that have occurred early in development. Quality escapes combined with the lingering impacts of COVID-19 throughout our teams and supply base have impacted our schedule, but we believe we are turning the corner,” reads the statement.

Boeing won an $805 million contract in 2018 to build the first four Stingrays in a competition that also included General Atomics and Lockheed Martin. In 2020, the Navy exercised an $84.7 million contract to buy three more, with a goal of a fleet of 76 for $1.3 billion.

Boeing’s bid was strengthened by a prototype the company built in 2014 for the abandoned Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) program.

The Navy conducted an early round of refueling experiments with the T-1 prototype that wrapped with a series of deck handling tests aboard USS George H.W. Bush (CVN-77) last year.

When the Stingrays get to the carriers in 2026, the Navy will start a battery of tests to integrate the tanker with the rest of the air wing.

USNI News previously reported that the Navy’s notional concept for the aircraft would push the MQ-25A out to 500 nautical miles from the carrier with about 15,000 pounds of fuel to free up the Super Hornet fleet for other missions.

Anywhere from 20 to 30 percent of Super Hornet sorties have been in support of the tanking mission, USNI News has previously reported.

Following the cancellation of the UCLASS program, the Navy crafted a slim list of requirements for the Stingrays.

“The first step is what we call ‘Stingray to the Fleet’,” Tedford told USNI News. The Navy will field “anywhere from three to five platforms in a permissive environment only providing and taking over the taking roles away from the F-18s so that they can get back to the fight.”

The next phase after basic carrier integration is the “Stingray to the Fight” scheme that will open up more capabilities inherent in the Boeing design, including an internal mission bay. The PEO is also keen on expanding the capability for the aircraft to operate in more difficult environments with limited communications.

“’Stingray to the Fight’ is a non-permissive environment solution set. How are we going to get everything from deck control, launch and recovery with [low probability of intercept/low probability of detection (LPI/LPD)] waveforms? How are we going to control it airborne? How can I also use it as a common network node once it’s on station with other platforms? It has to be operationally adaptive to multiple environments and be able to work with multiple operating systems,” Tedford said. That will include expanding who can control the aircraft.

“MQ-25 needs to have the ability to talk and be managed by any airborne platform, including those of our allies and partners. That’s that open architecture piece that we need to be able to get after… We need the industry’s help, to help us figure out how best to do that and to be able to do it quickly,” Tedford said.

The Navy included $220.4 million for three aircraft in the Fiscal Year 2024 budget, with a planned acquisition of 22 airframes through 2028.

**47 . Date: 13-04-2023Armed ISR / ISTAR - MALE - GeneralTurkey Sent 50 Bayraktar TB2 Drones to Ukraine – Russia Downed 100 ?URL: https://www.uasvision.com/2023/04/13/turkey-sent-50-bayraktar-tb2-drones-to-ukraine-russia-downed-100/**

The Commander of the Russian Air Defense Forces, Lieutenant General Andrey Demin recently claimed that over 100 Turkish-supplied Bayraktar TB2, drones were shot down over Ukraine. The fact is that these drones abruptly disappeared from the sight of observers in the fall of last year.

The fact is that their performance is not the same as when they flew over Libya and Syria and destroyed Russian military equipment.

It also has another fact – according to official data, Turkey has not delivered more than 50-60 drones of this type. Of course, 50 drones are said to have been delivered, but according to some sources, there may have been a dozen more delivered before the war. However, there is no information about them whether they are operationally ready.

There were also donations in the past year in Europe. Civil initiatives were buying Turkish drones. But how many have been bought by citizens so far? Five, ten? General Demin’s number still does not appear. Over 100 drones mean 101, 107, or 111 for example. There were of course claims in some Russian media that Ukraine had received dozens of Bayrakt TB2 drones illegally supplied by Turkey. Illegally understand as unreported, unofficially declared, etc. However, Turkey and the manufacturer Baykar deny such claims.

The adaptation of Russian air defense against Turkish drones in Ukraine is a fact. One of the latest news in the networks was an attempt by a Russian fighter jet to shoot down a Turkish TB2 drone over the Black Sea. However, it is still a mystery why the drone was not shot down by a missile when Russia and Turkey claimed it was Ukrainian.

Su-27 tried to take down a Bayraktar TB2 with a jet-wind effect

Experts are looking for an answer to the question of how Moscow found an effective way to deal with Bayraktar TB2. According to some, this is a complex achievement. I.e. improved air defense in the area of military operations, which, however, also includes improved electronic warfare capabilities. I.e. Russian jamming, known as “burning out electrical systems,” of drones has improved. This is precisely the opinion expressed by Samuel Bennett, a military expert on electronic warfare.

He says there is a joint operational action of at least two systems against Ukrainian drones. First, the powerful radars of the air defense systems are used. They identify the target and relay it to electronic warfare systems. Of course, the use of machine guns, or the TOR missile system, also comes into play.

There are claims that Moscow has deployed a powerful radar in the war zone. There is talk of the Niobium radar. This is a radar station, self-contained. This station has a radius range of 500 km. It scans the sky and tracks hundreds of targets simultaneously.

In 2022, Ukraine’s desire to build a production base for Turkish Bayraktar TB2 drones was repeatedly mentioned. However, this desire was supported by Turkey as well. Against the background of “these Russian successes”, however, it remains questionable whether the plans will be realized. They may be postponed until after the war when construction will enjoy clear skies.

However, there is another theory about the absence of Bayraktar TB2 in recent months. Diplomacy between Russia and Turkey may be the reason why no more drones are flying. I.e. Turkey does not supply because it continues to enjoy huge energy supplies [gas, oil, petroleum] from the Russian Federation.

**48 . Date: 14-04-2023Loitering Munition - Small - General - PlatformIran Unveils Meraj-532 Car-Launched Suicide DroneURL: https://www.uasvision.com/2023/04/14/iran-unveils-meraj-532-car-launched-suicide-drone/**

As kamikaze drones become increasingly instrumental in modern combat, Iran has unveiled another one-way Unmanned Aerial Vehicle dubbed ‘Meraj-532’ for Iran Revolutionary Guards Ground Forces (IRGC).

On April 9, a video released by Iran and published on state media showed the unveiling of the Meraj-532 drone by the IRGC. According to publicly available information, the Meraj-532 is a piston-engine drone with a one-way range of 450 kilometers.

https://youtu.be/TWQokze1\_2s

The head of the Research and Self-Sufficiency Jihad Organization of the IRGC Ground Force, Ali Kouhestani, stated that the drone could fly up to 12,000 feet for three hours after taking off from a vehicle and has exceptional precision, thanks to its 50-kilogram warhead, Iran International reported.

General Kouhestani also stated that Meraj-532 could be assembled and prepared for flight easily and rapidly, emerging as a suitable option for rapid reaction. The drone was seen launching from a Toyota pickup truck. Some military commentators said on Twitter that it looked like a missile with wings launching from a car.

In addition, some military watchers also pointed out that Meraj-532’s tail design appeared to have been influenced by Russia’s Lancet drone. However, the Iranian drone can carry a much heavier payload of 50 kilograms and deal a devastating blow to the target.

On his part, Kouhestani bragged that domestic drone production is advancing quickly and that more combat, training, and suicide drones will be unveiled soon. The Iranian media could not independently verify the production of the suicide drone.

Moreover, the unveiling of the Meraj-532 drone comes months after Iran unveiled a very small drone of the Meraj family known as the Meraj-521. Meraj is typically described as a light-class unmanned aerial vehicle that can carry a warhead weighing 500, 700, and 1000 grams.

EurAsian Times had previously reported that the Meraj-521 has a range of five kilometers and was very similar to the US Switchblade 300 UAS manufactured by US company AeroVironment.

The Meraj-521 can hover in the air for up to 15 minutes. Three types of warheads, ranging in weight from 500 grams to one kilogram, can be added as an option.

However, the Meraj-532 drone manufactured for the ground forces goes way over and above these capabilities with its 50-kilogram payload capacity and 3 hours (120 minutes) of endurance.

**49 . Date: 28-04-2023Armed ISR / ISTAR - MALE - ContractArmy National Guard Gets Congressional Funding for 12 Gray Eagle 25MsURL: https://www.uasvision.com/2023/04/28/army-national-guard-gray-eagle-drones/**

General Atomics Aeronautical Systems, Inc. announced that the Army National Guard (ARNG) has received fiscal year 2023 Congressional funding for 12 new Gray Eagle 25M (GE-25M) Unmanned Aircraft Systems (UAS).

The funding comes after Army National Guard States, which make up 45 percent of the U.S. Army’s combat divisions, requested GE-25Ms to make ARNG Divisions Multi-Domain Operations (MDO) capable, deployable, and better able to team with newly formed Division Artillery Brigades (DIVARTY). They will also be available to support domestic missions, such as homeland defense and disaster response, as needed.

“The GE-25M UAS is a very versatile aircraft,” said GA-ASI Vice President of DoD Strategic Development Patrick Shortsleeve. “Gray Eagle is a valuable tool that gives the ARNG capabilities that match the organizational and doctrinal Reconnaissance, Surveillance, and Target Acquisition (RSTA) requirements of active Army divisions with up to 40 hours of continuous flight.”

GE-25M is equipped with the new Eagle-Eye multi-mode radar and electro-optical/infrared sensors, and can host a wide range of additional kinetic and non-kinetic payloads. Equipping ARNG Divisions with organic GE-25Ms makes possible the necessary mission planning, targeting, communications, detailed coordination, and realistic training needed to employ the systems successfully in combat. GE-25M will allow ARNG Divisions to have Divisional ISR for the first time.

The Gray Eagle UAS has a proven record of performance with millions of hours of safe operations, including automatic takeoff and landing capability. The aircraft excels as an enabler for Fires, Maneuver, Network, and Intelligence operations. It is also an integral part of the Army Aviation team, working closely with manned rotary-wing systems to achieve overmatch against pacing threats.

Delivery of GE-25M capability to the ARNG will deepen the skill and experience of the whole force. Not only will the aircraft enhance the lethality of the United States’ strategic reserve, but it will also spread the operational burden more broadly. ARNG Gray Eagle companies will be able to deploy to operational theaters and conflicts where, to date, only Regular Army Gray Eagle units have been supporting deployments.

**50 . Date: 01-05-2023MarketBaykar, Azerbaijan Sign Joint UAV Development ProtocolURL: https://www.uasvision.com/2023/05/01/baykar-azerbaijan-sign-joint-uav-development-protocol/**

Turkish drone manufacturer Baykar and Azerbaijan signed a goodwill protocol Thursday April 27 on the joint manufacturing of unmanned aerial vehicles (UAVs).

Haluk Bayraktar, the CEO of Baykar, and Deputy Defense Minister of Azerbaijan Agil Gurbanov signed the protocol during Teknofest, Türkiye’s premier aerospace and technology festival held at Istanbul’s Ataturk Airport.

Haluk Bayraktar, the CEO of Baykar, and Deputy Defense Minister of Azerbaijan Agil Gurbanov

Ramiz Tahirov, the commander of Azerbaijan’s Air Force, also attended the ceremony.

Speaking at the ceremony, Bayraktar pointed out that today there is very close and strong cooperation between Azerbaijan and Türkiye in UAV technology with the understanding of “one nation, two states.”

“We are here today with Deputy Defense Minister of Azerbaijan Agil Gurbanov and Azerbaijan to further this cooperation. Together with Air Force Commander Ramiz Tahirov, we signed a joint goodwill protocol, and our goal is to further the strong cooperation between our countries,” he said.

Bayraktar said that Bayraktar Technologies Azerbaijan was established by Baykar in the capital Baku to develop advanced generation technologies, autonomous technologies and artificial intelligence that support new generation technologies.

**51 . Date: 02-05-2023MarketUkraine Signs Three New Contracts with Turkish Drone Manufacturer BaykarURL: https://www.uasvision.com/2023/05/02/ukraine-signs-three-new-contracts-with-turkish-drone-manufacturer-baykar/**

On 29 April, Ukraine signed three new contracts with Baykar, a Turkish drone manufacturer, at the Teknofest 2023 international aviation technology exhibition in Istanbul, according to Ukrainian Minister of Strategic Industries Oleh Kamyshev.

he wrote on Telegram on 30 April.

The Ministry said that two Ukrainian companies were signatories on the Ukrainian side, not disclosing their names.

“The Ministry of Strategic Industries is ready to help resolve all difficulties and eliminate bureaucratic bottlenecks to further expand cooperation with Baykar Avia Ventures. Ukrainian enterprises need this cooperation today as an opportunity to further increase capacity and produce critical equipment for our army,” Kamyshin added.

Last year, the Ukrainian Ambassador to Türkiye announced that Baykar was planning to build a plant in Ukraine and had already purchased a land plot for this purpose. Despite the ongoing war, Baykar continues to pursue its plans to build a plant in Ukraine.

**52 . Date: 05-05-2023Cargo - Small - General - PlatformToyota Unit Funds Japanese Startup for ‘Flying Minitruck’ DroneURL: https://www.uasvision.com/2023/05/05/toyota-unit-funds-japanese-startup-for-flying-minitruck-drone/**

Toyota Motor-affiliated supplier Jtekt has funded a venture developing a drone for airlifting cargo to hard-to-reach areas and disaster sites.

Prodrone, based in Nagoya, is working on a “flying minitruck” slated to carry 50 kilograms for 50 kilometers. The size of Jtekt’s capital infusion was not disclosed.

The duo will develop aircraft equipped with Jtekt lithium-ion capacitors — miniature power storage devices offering fast recharging and discharging as well as a long service life.

**53 . Date: 09-05-2023Armed ISR / ISTAR - Tactical - General - PlatformIranian Army Unveils Jammer DroneURL: https://www.uasvision.com/2023/05/09/iranian-army-unveils-jammer-drone/**

The Iranian Army recently unveiled its first locally-built jammer drone, called Mahajer 6. It has been designed to disrupt communication between hostile unmanned aerial vehicles (UAVs) and their controllers.

Equipped with a high-tech system capable of transmitting interfering radio signals, it was inaugurated at a ceremony in presence of Army chief Abdolrahim Mousavi and a number of senior ground force commanders.

The jammer drone is the Army’s first UAV with the capability to operate and support electronic warfare and electronic offense against the enemy’s communication networks, Press TV reported.

Mohajer 6 jammer drone, along with 1,084 types of new military equipment and weapons, upgraded, reproduced and produced by the ground force, joined the operational units.

The newly-joined military equipment cover the fields of armor, artillery, rockets, drones, helicopters and electronic warfare.

Other items were “Kian-800” tank transporter, pontoon bridges, a grenade launcher simulator, “Arash” electronic warfare system, tactical command and control vehicles, transportation vehicles used to set up portable telecommunication stations, a tactical cellular system providing mobile network coverage, and “Majid” air defense system, Tasnim reported.

Some other products unveiled on Tuesday included “Almas” missiles, “Qaem” bombs, “Dehlaviyeh-2” anti-tank missiles, three night-vision optical systems, “Shafaq” chaff and flare countermeasure systems and missiles paired with Cobra attack helicopters, “Fath-360” missile systems, smart shells with pinpoint accuracy, and various artillery weapons.

**54 . Date: 10-05-2023Loitering Munition - Mini - GeneralRussian Privet-82 Kamikaze Drones Soon to appear in UkraineURL: https://www.uasvision.com/2023/05/10/russian-privet-82-kamikaze-drones-soon-to-appear-in-ukraine/**

The newest Russian kamikaze drones “Privet-82” will soon begin to perform their tasks on the front line. According to RIA Novosti Vadim Zhernov, CEO and co-owner of Oko Design Bureau, responsible for the development of the device, drones will be launched from single rear hubs.

Operators will be able to join the control of drones already at the forefront, and then direct them to enemy targets.

Due to the long range of the drone (about 30 km), its deployment is possible not on the line of contact, but in a safe rear. Zhernov noted that this approach allows one launch point to serve several units at once. As a result, there is no need to store drones and a catapult on the front lines. It is enough to have glasses, a control panel and an operator who connects to the drone in flight and uses it to hit the selected target.

From a single hub, it is possible to send from one to several drones to a specific unit. Depending on the number of operators, they can be used alternately or for a coordinated strike against the same or different targets. The developer also pointed to the possibility of transferring control of the drone from one operator to another if necessary.

Zhernov stressed that during the transition flight from the launch site to the front line, the drone is in radio silence to prevent interception by the enemy.

According to Zhernov, tests of the drones and the Podkhvat system have already been completed, and the first batch of dozens of drones will go to the front lines within a month. During the first sorties, the developers will be close to the operators to receive operational feedback.

The Privet-82 UAV is capable of carrying a warhead weighing more than five kilograms over a distance of up to 30 km and costs about one hundred thousand rubles. This makes it a highly effective and affordable tool for various combat missions.

The introduction of Hi-82 kamikaze drones into the Russian armed forces is an important step in the development of modern technologies and combat tactics. Thanks to their use, the effectiveness of strikes against the enemy can increase, and the risks for operators and units on the front line are reduced.

The use of Hi-82 kamikaze drones implies the possibility of rapid adaptation to changing combat conditions, which is an important factor in modern armed conflicts. It is likely that in the future such technologies will complement and possibly, in some cases, replace traditional means of warfare.

According to the developer, the tests of the new kamikaze drones have already been completed, and the first batch of about ten Privet-82 UAVs will be sent to the front line within a month.

**55 . Date: 11-05-2023MarketRussia Seeks to Manufacture Iranian Drones in BelarusURL: https://www.uasvision.com/2023/05/11/russia-seeks-to-manufacture-iranian-drones-in-belarus/**

Russia is exploring the possibility of setting up production of Iranian-designed Shahed kamikaze drones in Belarus, Ukraine’s National Resistance Center reported on May 8.

According to Belarusian resistance sources, a work group of Iranian engineers, accompanied by the Russian and Belarusian security services, visited the Homel Radio Plant in south-eastern Belarus. During the visit, they discussed potentially producing combat drones domestically.

The message suggests that Russia continues to exert considerable influence over Belarus’ defense sector. Manufacturing drones in Belarus could help Moscow solve logistical issues with transporting Shaheds from Iran.

Russia relies on Iranian-made drones for sustained attacks on Ukrainian cities: on May 8, as many as 35 Shahed UAVs were shot down over Kyiv, attempting to strike the capital from several directions.

**56 . Date: 12-05-2023Armed ISR / ISTAR - Small - General - PlatformGreece’s SAS Technology Unveils Talos 2 UASURL: https://www.uasvision.com/2023/05/12/greeces-sas-technology-unveils-talos-2-uas/**

SAS Technology

, a Greek company participating in DEFEA 2023, is showcasing armed UAVs including the new Talos II for the Greek Armed Forces.

One of their noteworthy exhibits is the Talos II unmanned system (UAS), which is currently in development. The MALE UAS can remain in flight for over 20 hours and is suitable for both offensive operations and ISR missions.

The company behind the Talos II also developed the Talos I, a relatively large drone with impressive characteristics including a length of 4.4 meters, a speed of 180 km/h, and an action radius of about 500 km.

The Talos I Unmanned Aerial System began its trial flights in December 2022 during a short test flight to study the aerodynamics of the small drone.

Spirit Aeronautical Systems Ltd. (SAS) was established in July 2020 by SPIRIT WORLD GROUP due to the increasing potential and dynamics in the global market for unmanned systems and their applications. SAS’s focus is on developing competitive and innovative unmanned systems with a primary emphasis on aeronautical applications.

**57 . Date: 16-05-2023PartnershipAustralia’s Carbonix Partners with ArgenTech Solutions for US MarketURL: https://www.uasvision.com/2023/05/16/australias-carbonix-drones-partners-with-argentech-solutions-for-us-market/**

Sydney-based drone developer Carbonix has struck a partnership with New Hampshire-based ArgenTech Solutions in a move that will drive the company’s ambitious expansion into the US defence sector.

Carbonix, a company founded by Dario Valenza in 2012 initially to design advanced composite structures for America’s Cup racing boats, had been working with ArgenTech for almost a year before cementing the official partnership agreement.

The US company will provide services such as flight operations, maintenance and pilot training using Carbonix’s new generation unmanned aerial vehicles (UAV).

The partnership comes on the heels of an active 2022 for Carbonix which expanded drone production after securing a manufacturing agreement with Quickstep Holdings (ASX: QHL), Australia’s largest independent aerospace engineering company, to produce 40 of the company’s latest UAV over the next 12 months.

“We’ve been working with ArgenTech Solutions for just under a year, collaborating on an ad hoc basis,” Carbonix CEO Philip van der Burg tells Business News Australia.

“This agreement now formalises that relationship because we see a lot of synergies between our companies. They are an operator with significant experience, and this will give us a foothold in the US and the Americas.”

Carbonix shifted focus five years ago from boat designs to drones, with Valenza’s eye for design and composite manufacturing establishing Carbonix as an innovative developer of vertical take-off and landing aircraft. The company’s Volanti and Domani fixed-wing designs offer high-speed, long-range performance to tackle challenging missions.

“These craft are designed for long endurance and stability of flight, allowing for safer and more cost-effective missions and better quality data,” van der Burg says. “All the missions we are doing are completely pre-programmed and while there is a pilot near the controls they are not on the controls.”

Carbonix largely focuses on delivering aerial surveying services in Australia, working with companies such as SA Power Networks, The ACT Rural Fire Service and geo-data specialist Fugro.

Carbonix is also one of the few drone companies to receive Beyond Visual Line of Sight (BVLoS) approval in Greater Sydney, which has allowed the company to undertake BVLoS testing and missions with sophisticated payloads such as surveying LiDar scanners and photogrammetry cameras.

ArgenTech Solutions is a veteran-owned business that provides unmanned services support for the US military, while also specialising in technology development. As a UAV subcontractor to Boeing-Insitu, ArgenTech says its staff are ‘embedded with the troops’ flying missions for the US Department of Defence, NATO, and foreign military customers.

“We are deeply familiar with the regimen of military operations and we’ve developed an expertise in precision operations, procedures, and process management,” ArgenTech CEO Brian Veroneau says. “As we grow ArgenTech’s commercial business, we have expanded our worldwide capabilities and services to include wildfire monitoring for the US Bureau of Land Management, training and subject matter expertise for commercial systems. We see partnering with Carbonix and the strength of their systems as advantageous in expanding our capabilities throughout the Americas.”

Van der Burg notes that the partnership will offer an engineering collaboration with ArgenTech that he says will drive Carbonix to develop new drones for specialised uses across the military, non-government organisations and humanitarian sectors in which the US company operates.

“This will really allow us to scale on the front end of our business by winning larger contracts, particularly in the US,” van der Burg says.

Carbonix has already made inroads into the Americas after selling 10 UAV to Anduril, a US-based military technology company that specialises in monitoring risks and enhancing surveillance.

“Anduril is taking a very entrepreneurial and disruptive approach to defence procurement,” van der Burg says. They’re using our drones as part of their Lattice OS system where effectively they are looking to build mission autonomy. One drone controlled through an autonomous system will communicate with other drones without a pilot intervening to create an advanced situational awareness system. Without human intervention the system is able to make decisions more rapidly.”

Van der Burg has revealed that another contract in the US midwest has led to the sale of five drones this year, which will increase to 10 next year and 40 the year after that.

“Without ArgenTech we wouldn’t have been able to achieve this,” he says.

Van der Burg highlights sovereign capabilities as an important factor in maintaining an Australian manufacturing base through the current contract with Quickstep, which has a small shareholding in Carbonix.

“We see Quickstep as an Australian partner that will help us grow in the international markets we’re focused on,” he says.“I see Australia significantly punching above its weight internationally,” van der Burg says. “There’s a lot of talent here and the country lends itself to be an international test bed. The approach that CASA (Civil Aviation Safety Authority) has around BVLoS for example really enables us to push forward even beyond even where our US colleagues are pushing it.”

**58 . Date: 16-05-2023General - Engine / PowersourceBritish Company Launches World’s Most Advanced Electric Jet Engines for Commercial DronesURL: https://www.uasvision.com/2023/05/16/british-company-launches-worlds-most-advanced-electric-jet-engines-for-commercial-drones/**

Whilst the commercial drone industry continues to expand, key issues surrounding the safety, integration and noise pollution of unmanned aircraft are failing to be addressed. Founded in 2022, British company Greenjets Limited is capitalising on these industry shortcomings with their family of breakthrough electric jet engines.

On May 10th, Greenjets launched its first propulsor to market, named IPM5. Designed to power the next generation of small unmanned aircraft, the engine has an all-up weight of 750g/1.6lb and provides a maximum thrust of 5kgf/11.0lbf at an efficiency of 360W/kgf.

IPM5 is engineered around a ducted fan architecture, which offers both a reduction in noise and an increase in safety over open bladed propellers. Greenjets has also patented several features that overcome weight and efficiency challenges traditionally faced by ducted fans. Alongside the development of IPM5,Greenjets is using this technology to produce propulsors for eVTOL and regional aircraft.

‍Anmol Manohar, Greenjets’ CEO, added,

‘‘With a team that combines decades of knowledge in traditional jet engines from Rolls-Royce, expertise in volume production of automotive engines from Cosworth and expertise in electrification from the UK Motorsport Valley, Greenjets is uniquely positioned to be a world leader in this space with ultra-quiet and ultra-efficient engines.’’

‍Guido Monterzino, Greenjets’ CTO, concluded,

‘‘Moving forwards, we have a very different business model. Unlike our rivals who only offer off-the-shelf products, Greenjets can offer product as well as quickly create bespoke engines that match their customers’ precise requirements for weight and thrust, thanks to our proprietary design systems and manufacturing methods.’’

**59 . Date: 18-05-2023ISR / ISTAR - Small - ContractAeroVironment to Supply Jump 20 Tactical Drones for UkraineURL: https://www.uasvision.com/2023/05/18/aerovironment-to-supply-jump-20-tactical-drones-for-ukraine/**

AeroVironment has begun producing the latest Jump 20 tactical drones for Ukraine. The company’s CEO, Wahid Nawabi, said the drones, which are the company’s most advanced technology, will be sent to the Ukrainian Armed Forces as soon as the government is ready.

The company has already sent more than a thousand Switchblades and other Puma-type drones to Ukraine by order of the US government.

The general director of the company, Wahid Nawabi, says that Switchblade kamikaze drones are one example of how inexpensive, mobile, but smart weapons can stand up to large armies.

“The war in Ukraine is the most incredible example of how a much smaller country or military force can fight a superpower. First is the spirit of the people, of course. But second is the weapons and resources they have to accomplish the mission. Namely smaller systems , which are so effective in terms of cost and flexibility, and adapted for a major conflict with one of the world’s three superpowers – Ukraine has proven to the world that it can win,” Navabi notes.

Wahid believes that in the future the Ukrainian-Russian war may turn into a war of drones. Therefore, technology will play a decisive role in the results.

Nawabi says he doesn’t know of any newer technology in the world than Switchblade. Iranian Shaheds and Russian Lancets are a more primitive generation of drones.

The company is preparing to send an order to Ukraine for even more powerful drones, which have currently become the most advanced technology of the company – Jump 20 drones.

The company says that they are not just carrying out the orders of the American government, helping Ukraine is a special mission in overthrowing authoritarianism. And here they will do everything possible to contribute to victory. Ukraine is asking to increase the number of drones in the aid package to the maximum.

**60 . Date: 23-05-2023Armed ISR / ISTAR - MALE - PitchUK Royal Navy to Trial General Atomics Mojave STOL Drone on Aircraft CarrierURL: https://www.uasvision.com/2023/05/23/uk-royal-navy-to-trial-general-atomics-mojave-stol-drone-on-aircraft-carrier/**

The Royal Navy, part of the UK Ministry of Defence, intends to award a Single Source Non-Qualifying Defence Contract valued at up to £1,500,000 (ex VAT) with General Atomics Aeronautical Systems Limited for a period of [7] months for the delivery of work to undertake trials/experiments in order to demonstrate a threshold capability for a Short Take off and Landing Uncrewed Air Vehicle (UAV).

General Atomics unveiled the Mojave drone with STOL capability in December 2021, which is likely to be employed for the demonstration. The Mojave is based on the company’s MQ-1C Gray Eagle-ER unmanned aircraft, featuring the avionics and flight control system of the MQ-9 Reaper.

https://youtu.be/U1dzYOsr-2Y

In accordance with regulation 4 of The Defence and Security Public Contracts (Amendment) (EU Exit) Regulations 2019 (SI 2019/697) this procurement falls to be regulated under the provisions of the Defence and Security Public Contracts Regulations 2011 as amended (in particular by SI 2019/697 and SI 2020/1450). Prior publication of a contract notice in the Official Journal of the European Union is no longer appropriate.

It is considered that the award of the contract without prior publication of a contract notice in the UK e-notification service (as required by the relevant legislation) is lawful in accordance with regulation 16(1)(a)(ii) because the works, supplies or services can be supplied only by General Atomics Aeronautical Systems Limited as competition is absent for technical grounds.

The contract will enable work to be undertaken as a proof of concept utilising existing technology/services provided by General Atomics Aeronautical Systems Limited in order to carry out experiments that will determine the future scope to address a number of capability problem sets and will support future investment decisions.

In addition and in the alternative, the contract is for research and development services within regulation 16(1)(c).

**61 . Date: 24-05-2023ISR / ISTAR - MALE - RequirementCzech Republic: 200 Smaller Drones Instead of Three HeronsURL: https://www.uasvision.com/2023/05/24/czech-republic-200-smaller-drones-instead-of-three-herons/**

The Armed Forces of the Czech Republic have announced a change in priorities regarding the procurement of unmanned aerial vehicles (UAV). Instead of three large tactical drones, Prague will prioritize the purchase of over 200 smaller unmanned aircraft of various types.

The decision by the Armed Forces of the Czech Republic may come as a surprise. Just halfway through last year, the Czech Ministry of Defence announced that it had decided to acquire three Heron 1 unmanned aerial vehicles produced by the Israeli defence giant, Israel Aerospace Industries (IAI).

However, the agreement for the purchase of Heron 1 systems has not been signed yet, and it is now uncertain when that may happen. The Czech armed forces have only stated that it will happen at a later time.

The decision to change priorities by the Armed Forces of the Czech Republic is justified by the lessons learned from the ongoing combat operations in Ukraine. The Czechs emphasize the importance of enhancing their reconnaissance and intelligence capabilities on tactical level to to provide ISR support to ground operations. The acquired drones will be integrated into the equipment of the Czech land forces.

Prague has not yet announced the specific type of unmanned aircraft it will purchase. It is only known that they will be drones of various types suitable for reconnaissance operations. Most likely, the Czech Republic will acquire several different drone models.

The Armed Forces of the Czech Republic stated in a communication that the total cost of purchasing more than 200 smaller drones will be lower than the planned acquisition of three Heron 1 unmanned aircraft from Israel.

**62 . Date: 25-05-2023Armed ISR / ISTAR - MALE - Contract - ArmamentNetherlands to Arm its Reaper UAVsURL: https://www.uasvision.com/2023/05/25/netherlands-to-arm-reaper-its-uavs/**

The Dutch defence ministry will buy bombs and missiles worth between €100 million and €250 million to arm its MQ-9A Reaper drones, state secretary for defence Christophe van der Maat announced on Tuesday. The decision was taken by the government in The Hague and follows a general trend seen in other EU countries, though notably not yet in Belgium.

The Dutch air force (KLu) currently has four MQ-9A Reaper drones, which the military calls Remotely Piloted Aircraft Systems (RPAS). These were intended for reconnaissance missions as they are not armed. However, the air force has another four aircraft on order from the US company General Atomics Aeronautical Systems Inc (GA-ASI), which are expected in 2026.

The new drones will be armed, van der Maat said in a letter to the second chamber (the lower house of the Dutch parliament) on Tuesday. In addition, the four existing aircraft will be adapted to carry weaponry.

“When the Ministry of Defence started the project for the MQ-9 Reaper in 2011, there was no need to arm the aircraft,” the Ministry of Defence (MoD) said. “However, the threat picture has changed significantly since then. The aircraft must now be able to protect the safety of its own troops.”

The MoD aims to have the first ammunition in stock and ready for an initial weapons capability by 2025. Full operating capability is scheduled for 2028.

As noted in the announcement, while the four Reapers so far received by the Royal Netherlands Air Force (RNLAF) need to be upgraded to carry GBU-12 precision-guided bombs and AGM-114 Hellfire II air-to-surface missiles, the six that are scheduled to be delivered in 2026 do not.

The Dutch Ministry of Defence explained that the decision comes in light of an increased threat, with the geopolitical stakes having changed significantly since 2011 when the MoD launched the project to buy the first Reapers. The aircraft must now be able to protect its own troops.

Furthermore, it stated that in time-pressured operations, there is a “clear advantage” if the same drone that has collected information can strike immediately, rather than transferring that information to another weapon system.

The weapons will be acquired from the United States via the Foreign Military Sales (FMS) programme and are estimated to cost between EUR 100 million (USD 108 million) and EUR 250 million (USD 270 million).

Several countries using drones of the same category (Germany France, Italy, Spain, the Netherlands…) have already decided to arm them.

In Belgium, the question of arming the future MQ-9B SkyGuardian drones – a more advanced version of the Reaper – is a matter of debate. Four of the seven parties in the government coalition (the socialist and ecologist families) are opposed to it, while MP Jasper Pillen (Open Vld), has introduced a motion calling on the government to commission a study on the arming of the Belgian SkyGuardians, in the wake of a favourable opinion expressed by the Defence Staff.

**63 . Date: 02-06-2023Armed ISR / ISTAR - HALE - Partnership - Detect & AvoidHENSOLDT Equips Eurodrone with Detect and Avoid RadarURL: https://www.uasvision.com/2023/06/02/hensoldt-equips-eurodrone-with-detect-and-avoid-radar/**

The Eurodrone, an ambitious European collaboration project, is scheduled to take off in 2029. As an unmanned aerial system, it must be able to independently detect the air traffic around it and avoid other flying objects. With its “Detect and Avoid” radar, HENSOLDT is making safe airspace of the future possible.

In the future, the European MALE RPAS (Medium-Altitude Long-Endurance Remotely Piloted Aircraft System) drone system, known as the Eurodrone, will perform all tasks of airborne imaging and signal-gathering reconnaissance and surveillance. Close air support of ground forces is also planned. Thus, the Eurodrone will strengthen European sovereignty with independent competence in the field of unmanned aviation.

As a lighthouse project of the European Defence Fund, the Eurodrone is being developed under German leadership together with France, Italy, and Spain, thus underlining Germany’s role as a responsible foreign and security policy player in NATO and the EU. After the second implementation agreement for the Eurodrone is signed in 2022, the first examples are expected to be delivered in 2029. The Eurodrone must then be able to detect other aircraft independently and avoid them. HENSOLDT is working on the technology required for this.

With its “Detect and Avoid” (DAA) system, consisting of several radar sensors and collision avoidance software, HENSOLDT is already creating the technical prerequisites for integrating drones into the airspace of the future. The company is thus serving a dynamically growing market: Unmanned aerial systems are playing an increasingly important role in both military and civilian applications. For civilian uses alone – for example, rescue missions, terrain mapping, or logistics applications – it is estimated that more than 2.5 million drones will be in use worldwide by 2025. Around 100 nations are already using drones in military applications.

HENSOLDT’s DAA main radar uses the Active Electronically Scanning Array (AESA) technology, which covers a span of 220 degrees up to a distance of 20 kilometers. The technology combines ultra-high-resolution surveillance of the entire airspace with fast automatic detection and tracking of other airborne systems. In addition, it can sense the ground, thus improving navigation, and even be used as a landing aid. With additional features such as weather detection, it supports drone navigation through turbulence in the vicinity of storms.

Dietmar Klarer, Head of Novel Radar Systems and Concepts at HENSOLDT, says:

“Its scalability makes HENSOLDT’s DAA radar suitable for small, civilian aircraft such as helicopters and unmanned aerial cabs as well as large military drones. In military use, it also offers increased resistance to jamming attempts. Thus, HENSOLDT’s DAA radar replaces the pilot’s perception with a technical system that is far superior to the human eye – both in range and in accuracy and probability of detection.”

In cooperation with the German Aerospace Center (DLR), HENSOLDT has integrated its DAA radar into a research aircraft and has already tested it several times. Under the supervision of a safety pilot, it demonstrated its capabilities. The result: The DAA radar reliably detected other aircraft taking part in the test and successfully initiated evasive maneuvers. At a distance of up to 20 kilometers, it was able to successfully detect and track the aircraft.

As an integrated component, the DAA radar can be combined with other components of HENSOLDT’s comprehensive DAA system: optical sensors, transponders, a collision avoidance system, and command and control data systems. All data is then merged in the DAA computer, providing an all-encompassing information base.

HENSOLDT is also involved in the joint development of DAA systems in several national and European projects. Among others, HENSOLDT provides the DAA radar for EUDAAS (European Detect and Avoid System) – a project to develop a European standard for detection and avoidance for safe use in large military remotely piloted air systems in European air traffic. The first flight tests are planned for 2024.

In addition to the DAA system, HENSOLDT is developing sensor equipment that can be integrated into a pod to give the Eurodrone a signal reconnaissance capability. The contract to implement and test a demonstrator worth approximately 15 million euros was awarded by the German Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support at the end of 2022.

In addition, HENSOLDT is involved in initiatives such as ACAS X (Airborne Collision Avoidance System) with the aim of designing and defining European standards for this technology and then bringing them into line with other international standards – in particular those of the US Federal Aviation Administration.

Due to the growing demand for DAA systems, development of the next generation of technology is in full swing at HENSOLDT. A new DAA system with a multiple-input multiple-output (MIMO) radar is expected to provide 360-degree coverage when mounted in the nose of the aircraft and will also be able to detect obstacles in limited visibility and smaller drones. In military applications, it could additionally indicate enemy attacks. Significantly smaller than the current DAA radar, it can also be combined with a second, even smaller radar mounted on the side of an aircraft to provide additional coverage of the immediate area.

As part of the air research programme of the German Ministry of Economic Affairs, HENSOLDT is already investigating the application of MIMO technology for aerial cabs and helicopters in urban environments as well as in wider airspace. This will include developing and testing the linking of the system’s DAA capabilities with other radar systems for tracking, data transmission, and control. The first flight tests in collaboration with the German Aerospace Center are also planned for 2023.

**64 . Date: 07-06-2023Loitering Munition / Swarm - RequirementUS Marine Corps Wants Air-Launched Loitering Munitions with Swarm CapabilityURL: https://www.uasvision.com/2023/06/07/us-marine-corps-wants-air-launched-loitering-munitions-drones-with-swarm-capability/**

The US Marine Corps has begun experimenting with a family of loitering, swarming munitions for attack helicopters that will give the service extra reach for future operations in the Indo-Pacific, according to the Corps’ latest update to its ongoing modernization efforts.

The project — called the Long-Range Attack Munition — was revealed Monday in the annual update to Force Design 2030, which is an initiative spearheaded by Commandant Gen. David Berger to pivot the Marines away from their post-9/11 emphasis on counterinsurgency land wars in the Middle East and instead focus on potential conflicts in the Indo-Pacific against advanced adversaries such as China.

“With the support of the Office of the Under Secretary of Defense for Research and Engineering, we will begin the Long-Range Attack Munition project to rapidly develop and field a low-cost, air launched family of loitering, swarming munitions,”

the annual update stated.

Also sometimes referred to as kamikaze drones, loitering munitions are designed to fly around for extended periods of time until they identify a target and attack it by crashing into it. While the weapons are often intended for one-time use and suicide missions, they can also be equipped with sensors in order to conduct intelligence, surveillance and reconnaissance operations.

As it develops the new swarming and loitering munitions, the Marine Corps is approaching the effort from “an evolutionary and a revolutionary” perspective, Brig. Gen. Stephen Lightfoot, director of the the service’s capabilities development directorate, said during a call with reporters Friday to discuss the Force Design 2030 update ahead of its release.

The service plans to design the Long-Range Attack Munition so that it can be launched from attack helicopters, such as the AH-1 Cobra, he noted.

The next-generation kamikaze drones will have a longer reach and be far better suited for Indo-Pacific operations than some of the munitions that are currently in the inventory, Lightfoot said. He noted that the Hellfire missiles currently fired from AH-1 attack helicopters only have ranges of up to 8 kilometers in many cases, which is not ideal for littoral environments.

“This Long-Range Attack Munition which we’re experimenting with now — and we would like to bring into the force within the next few years — that is a capability that brings hundreds of kilometers,” Lightfoot said. “And that allows us to be able to use a current platform to be able to do things that we never thought that it would be able to do.”

The Marine Corps is also interested in developing a ground-launched variant of the loitering munition so Marines can use them even when helicopters aren’t flying, he added. The service plans to develop a common launcher for the entire family of ground-based loitering munitions, according to the Force Design 2030 annual update.

“Aviation platforms as a whole are fantastic when they are airborne, but they’re not always airborne and they can’t always be airborne,” Lightfoot said. “And so we need to bring that Long-Range Attack Munition also to the ground side, so that it can be fired from the ground [and] so it’s ready 24/7.”

No later than Sept. 1, officials will “identify options to accelerate the procurement and training of organic precision fires – infantry (OPF-I) and organic precision fires – mounted (OPF-M) (loitering munitions),” per the Force Design 2030 update. “We are moving too slow in OPF.”

**65 . Date: 12-06-2023Loitering Munition - Mini - GeneralIndian Air Force Inducts Indigenous ALS-50 Kamikaze DroneURL: https://www.uasvision.com/2023/06/12/indian-air-force-inducts-indigenous-als-50-kamikaze-drone/**

The Indian Air Force (IAF) has officially welcomed into service its new domestically-built loitering munition dubbed the ALS-50.

Developed by the Mumbai-based Tata Group, the unmanned system is expected to enhance the service’s precision strike capability on complex missions. It features a vertical take-off and landing (VTOL) capability that suits operations in any terrain.

The ALS-50 loitering munition is an advanced weapon system with a unique vertical take-off and landing (VTOL) capability, versatility, and adaptability, which allow it to engage air defense systems, ground and naval targets. The ALS-50’s induction demonstrates the ability of India’s domestic defense industry to integrate sophisticated indigenous technologies into the country’s armed forces.

TATA s ALS-50 Loitering Munition has a range of 1,000 Km and can carry 23 Kg payload.

The development and procurement of next-generation loitering munitions constitute a key component of the modernization drive undertaken by the IAF. With the increase in complexities and threat levels on the battlefield, the induction of loitering munitions is aimed at improving the effectiveness of the military’s engagement during sensitive operations.

Harpreet Sidhu, Aerospace and Defense Associate Analyst at GlobalData, comments:

“ALS-50 will provide the IAF with a new capability to conduct precision strikes against enemy targets. The procurement of ALS-50 demonstrates India’s dedication to military modernization by attaining self-reliance in defense procurement. It will help to strengthen India’s air power and deter aggression from its adversaries.”

The recent global conflicts, including the Russia-Ukraine war, have demonstrated the evolving role of loitering munition in modern warfare, with countries procuring them in significant numbers for augmenting the identification and destruction of potential threats. The geopolitical tensions in the Asia-Pacific region are driving countries like Taiwan, Japan, India, and Australia to invest in acquiring loitering munitions to assert their technological dominance over their adversaries.

Sidhu concludes:

“The ALS-50’s unique attributes set it apart from other loitering munitions in the market. Its smaller size and cost-effectiveness make it a preferred choice. While it may have a relatively shorter range and endurance compared to some other systems, its affordability, ease of use, and versatility make it an ideal solution for the IAF. Additionally, the domestically produced ALS-50 offers cost advantages over available imported alternatives, while its design emphasizes ease of operation, reducing the training burden for the IAF.”

**66 . Date: 13-06-2023MarketPercepto Raises $67M Series C FundingURL: https://www.uasvision.com/2023/06/13/percepto-raises-67m-series-c-funding/**

Percepto

, the autonomous inspection and monitoring solution provider, announced a combined $67M Series C in equity and debt funding, led by Koch Disruptive Technologies (KDT), alongside new investors Zimmer Partners and one of the largest U.S. energy companies.

The round includes participation from existing investors U.S. Venture Partners, Delek US Holdings, Atento Capital, Spider Capital and Arkin Holdings, bringing the total investment in the company to more than $120 million, reflecting Percepto’s strong performance and confidence in its robust offering.

Percepto recently received an unprecedented, nationwide Beyond Line of Sight (BVLOS) waiver from the FAA, allowing the company to provide any US critical infrastructure site with remotely-operated automated drones without the need for site specific approvals from the FAA. A game changer for the industry, this waiver removes logistical and cost barriers, such as the need for radars or people on the ground, fueling the adoption of autonomous drone technology.

“KDT’s reinvestment underlines their confidence in our ability to make companies more profitable by keeping infrastructure operational in the face of the unpredictable,” said Percepto Co-founder and CEO Dor Abuhasira. “Organizations are increasingly discovering the benefits of autonomous and remote drone operations to automate facility inspections and data analysis across their sites. With this new round of funding, new strategic investors, and the new regulations that significantly increase the access to using autonomous drones, the conditions are ripe for the autonomous drone market to expand, and for Percepto to meet the growing demand for automated drone inspections and monitoring at industrial sites.”

Heavy industry confronts major challenges to operate efficiently, maintain reliable critical infrastructure, meet high productivity expectations, and increase safety levels – all in the face of complex, hazardous and often aging infrastructure assets. Percepto helps industrial companies save seven-figure amounts and meet these challenges by allowing real-time visibility into their facility’s infrastructure integrity, and finding failures before they escalate into incidents. In one instance, an oil & gas customer using Percepto’s Air Max OGI drone detected within hours a methane gas leak that could have gone unnoticed for months using conventional methods, saving the company millions of dollars, minimizing safety risks to workers, and preventing environmental damage.

“Percepto is a powerful force in boosting the accessibility of automated drones for industrial inspection and monitoring,” said Chase Koch, Founder and CEO of Koch Disruptive Technologies. “Having deployed Percepto’s technology across various Koch companies, we are experiencing first-hand how its innovative R&D improves inspection and monitoring. Their work to create a clear regulatory path for this technology puts it in a strong market position, firmly stationed at the forefront of the industry. We look forward to continuing our journey with Percepto as it sets the new standard for making industrial operations safe, efficient and sustainable.”

Percepto Autonomous Inspection & Monitoring (AIM), the company’s end-to-end visual inspection solution powered by autonomous drones, robots and AI, enables critical infrastructure sites to increase the frequency and quality of inspections via automation. The solution automates the entire visual inspection workflow, from data collection to AI-powered analysis and insights. With Percepto AIM, problems such as gas leaks, overheating and infrastructure deterioration are detected faster so companies, such as Siemens Energy, can take preventative measures to make sites more productive while minimizing the risk of environmental and safety incidents to meet their environmental, social and corporate governance (ESG) goals.

“Percepto’s unique AI technology provides heavy industry with a path to maximize their efficiency and ensure smooth operations both in terms of providing a safe environment for workers and generating high productivity levels,” said Siemens Energy Venture Partner Illai Gescheit. “We are impressed with Percepto’s growth within a turbulent market, and look forward to working with them as they continue to pioneer drone regulations and innovations that will help deliver commercial value to our customers while fulfilling their environmental responsibilities.”

**67 . Date: 13-06-2023Armed ISR / ISTAR - MALE - GeneralRussia’s ‘Sirius’ Prototype Heavy Attack Drone Caught on CameraURL: https://www.uasvision.com/2023/06/13/russias-sirius-prototype-heavy-attack-drone-caught-on-camera/**

A Russian motorist near Ryazan (southeast of Moscow) recorded a video earlier this year of an unusually large, low-flying drone with a V-shaped tail and wings spanning a whopping 23 meters from tip to tip.

This was a rare sighting of a “heavy attack” drone that was developed by Russian drone-maker Kronshtadt prior to Russia’s invasion of Ukraine. It’s called the Sirius, named after the brightest start in the sky. Sirius was intended as a higher-performance, twin-engine successor to the single-engine the Orion UCAV, which saw combat use earlier during the invasion.

Samuel Bendett, an expert on Russian uncrewed systems and AI at the Center for Naval Analyses and the CNAS think tank, wrote to Pop Mech:

“Sirius is a pre-war legacy system, along with Helios long-range ISR drone and other Kronstadt projects. This is supposed to be one of the flagship projects to propel Russia into the rank of drone superpowers on the air with the US, Israel and China. Sirius is supposed to be a significant upgrade of Orion in practically all capabilities.”

A mockup of Sirius was displayed at the 2019 MAKS airshow, while construction of a flying prototype began November of 2021. While originally planned to enter service in 2023, it instead made its first flight on February 27, according to a leaked Pentagon report.

Key changes include much greater range, and support for a satellite communications (SATCOM) antenna that will allow for remote control over huge distances.

It also can carry heavier, harder-hitting bombs and missiles ordinarily reserved for manned warplanes. That supposedly includes 1,100-pound class RBK-500U cluster bomblet dispensers and destructive ODAB-500PMV fuel air explosives. The drone also benefits from a ground-mapping Synthetic Aperture Radar that can help generate terrain maps, as well locate ground-vehicle and artillery targets.

Sirius will supposedly come in three variants—one for attack, one for reconnaissance only, and one for maritime patrol. The last submodel, operated by Russia’s navy, is intended to have payloads for anti-submarine ops, search-and-rescue, maritime reconnaissance, and signal-repeater duties.

Production will begin at a facility in Dubna (55 miles north of Moscow).

**68 . Date: 14-06-2023Loitering Munition - Mini - PartnershipUVision USA and Axxeum Launch Hero 120 Loitering Munition System from An Airborne HelicopterURL: https://www.uasvision.com/2023/06/14/uvision-usa-and-axxeum-launch-hero-120-loitering-munition-system-from-an-airborne-helicopter/**

UVision USA

, the US subsidiary of UVision Air, in collaboration with Axxeum, a full-service aviation integration facility, has announced the successful launch of its Hero 120 loitering munition system from an airborne helicopter.

The capability was demonstrated during the EDGE 23 event in May 2023 at Yuma Proving Ground in Yuma, Arizona.

The trial showcased the system’s ability to complete a sensor-to-shooter cycle by launching the Hero 120 from a Bell 412EP helicopter to strike a ground target. The Hero 120 demonstrated safe separation, successfully launching from the helicopter while it was airborne. Several parameters were tested and proven successful during the trial, including launching from a safe altitude without endangering the helicopter, transferring tactical control between the on-board operator and the ground operator six times, pursuing the munition to a forward location, controlling the system within a 30-kilometer range from the helicopter, and effectively attacking a ground target over a 50-kilometer flight.

The successful launch was made possible through the cooperation between UVision USA and Axxeum. Axxeum designed a fully mechanical docking system for the single canister launcher, conducted all structural and load analysis, established safe flight envelopes, and operated Axxeum’s Bell 412 helicopter. This accurate modeling and integration allowing for electrically-triggered launches without the need for integration with the helicopter’s electrical systems or flight controls. This revolutionary solution enables safe launch and installation in any helicopter or aerial platform.

https://youtu.be/DNGveEBP-gA

Major General (Ret.) Avi Mizrachi , CEO of UVisionAir Ltd, the parent company of UVIsion USA , expressed pride in the successful demonstration of the Hero 120’s advanced capabilities.

The company conducted extensive mechanical and aerodynamic analyses over five months to ensure the system’s performance and its impact on the helicopter were thoroughly tested. UVision works closely with various defense forces in the U.S., and this successful demonstration reaffirms confidence in the company’s advanced solutions.

Oleg Sirbu, CEO of Axxeum, echoed the sentiments of Mr. Truxel. Sirbu was on board the Bell 412 during the first ever aerial launch of the Hero 120. Following the trial, he said,

“I am excited that Axxeum could play a key role in this collaborative program with UVision USA. The combined efforts brought forward a capability in five months that not many other companies could have completed. Axxeum’s experience in supporting major OEMs in rapid prototyping programs showcases our future together with UVision USA. I look forward to the ongoing success of the UVision platform and working with the US Government customer in future demonstrations for added capability of this tremendous system.”

The Hero 120 Loitering Munition System is a mid-range, anti-tank system designed to meet the demands of the modern battlefield. It employs high-precision strikes against anti-armor, anti-material, and anti-personnel targets, including tanks, vehicles, and soft targets in urban areas.

With minimal collateral damage and a range of multi-purpose warheads, the Hero 120 provides operational users with an effective engagement solution.

**69 . Date: 15-06-2023ISR / ISTAR - Small - General - Engine / PowersourceOrbital Delivers Upgraded Engine Prototypes for Textron AerosondeURL: https://www.uasvision.com/2023/06/15/orbital-delivers-upgraded-engine-prototypes-for-textron-aerosonde/**

Orbital Corporation Ltd advised that it has delivered the first new engine prototypes for the second engine program with Textron Systems, one of the world’s largest suppliers of tactical unmanned aerial vehicles (‘TUAVs’).

Orbital UAV was contracted by Textron Systems for the development of upgrades to existing engines for the company’s Aerosonde unmanned aircraft system (UAS). The upgrades have targeted increased take-off power and improved real-time engine health monitoring and diagnostics capability.

“Having identified and agreed the optimal upgrade pathway for the engine program, we are pleased to provide these initial prototype engines for evaluation,”

said Todd Alder, CEO and Managing Director of Orbital UAV.

“The Aerosonde platform is one of the most recognisable UAS in operation and we are incredibly proud that the Textron Systems team has chosen Orbital UAV to conduct this upgrade program,” said Mr Alder.

Textron Systems’ Aerosonde UAS is field-proven with more than 600,000 flight hours. Providing intelligence, surveillance and reconnaissance (ISR) capabilities for land and maritime operations, the Aerosonde UAS is equipped for day/night full-motion video, communications relay, signals intelligence and customer-selected payloads in a single flight.

Evaluation of the prototype engines is now being conducted by Textron Systems. Subject to customer acceptance, the program is anticipated to enter production in the first half of financial year 2024, dependent on customer demand.

In addition to this engine upgrade program, Orbital UAV is also progressing the integration of a new engine design into Textron Systems’ Aerosonde Hybrid Quad UAS, incorporating the Company’s proprietary fuel and control systems.

**70 . Date: 16-06-2023Armed ISR / ISTAR - MALE - ContractTunisian Air Force Receives 2 Additional ANKA UAVs from TAIURL: https://www.uasvision.com/2023/06/16/tunisian-air-force-receives-2-additional-anka-uavs-from-tai/**

Bertan Kurt, Head of Corporate Marketing and Communications at Turkish Aerospace Industries (TAI), recently answered questions about the company’s export operations during the Langkawi International Maritime and Aerospace Exhibition (LIMA 2023) in Malaysia.

Bertan Kurt stated that the company, which has had a consistent growth plan since 2018, received one billion dollars in orders last year with the introduction of its original products to the market, and has signed contracts totaling 3.3 billion dollars with 13 countries in the last five years.

The details of the orders were provided by the Corporate Marketing manager in the statement’s continuation. According to Kurt, ANKA UAVs were sold to 6 countries, AKSUNGUR UAVs to 2 countries, ATAK helicopters to 3 countries, HÜRKUŞ basic training and light attack aircraft to 2 countries, and ŞİMŞEK (High Speed Target Aircraft System) to 1 country, with some deliveries completed.

Among the systems delivered were four ATAK helicopters to the Philippines, three ANKA drones to Kazakhstan, two AKSUNGUR drones to Kyrgyzstan, three HÜRKUŞ aircraft and two ANKA drones to Chad, two HÜRKUŞ aircraft to Niger, and five ANKA drones to Tunisia. Although most of the information provided by Bertan Kurt had previously been made public by the company or the countries who placed the purchase, it was the first time that a senior official verified that Tunisia ordered and received additional Anka drone systems.

As previously reported, bilateral negotiations for the procurement of ANKA Unmanned Aerial Vehicles began in 2019 between the Tunisian Ministry of Defense and Turkish Aerospace Industries (TAI). Following the start of the process, UAV training and financing issues were clarified in the first months of 2020, and progress was made in the negotiations, until TAI surpassed its competitors from the United States, France, Italy, and China, and an export agreement worth approximately $80 million was signed with the Tunisian Air Force.

The contract in question involved the supply of three ANKA-S unmanned aerial vehicles and three ground control stations to the Tunisian Air Force, as well as the training of 52 Tunisian pilots and maintenance personnel. The training of Tunisian Air Force maintenance personnel was finished in May 2021, and the company delivered the first two ANKA drones to the Tunisian Air Force in the second half of 2021. The third drone is thought to have been delivered to Tunisia in 2022.

Throughout this process, claims that Tunisia wanted to acquire a large number of additional ANKA UAVs and that negotiations for the transfer of technology between the two countries were ongoing were regularly discussed in both countries’ local press.

TAI Deputy General Manager for Unmanned Aerial Vehicles Ömer Yıldız announced in an interview with Defence Turkey during the SAHA EXPO 2022 Fair in Istanbul in October last year that negotiations with Tunisia on the sale of an additional two ANKA drones were ongoing, and that the additional aircraft would be of the same configuration as the previous three aircraft.

The additional order was verified by Bertan Kurt, TAI’s Head of Corporate Marketing and Communications, months after this announcement, bringing the total number of ANKA-S UAVs delivered to Tunisia to 5.

**71 . Date: 19-06-2023Cargo - Regulation - PayloadDrone Delivery Canada Gets Approval for BVLOS Flights for Transportation of Dangerous GoodsURL: https://www.uasvision.com/2023/06/19/drone-delivery-canada-gets-approval-for-bvlos-flights-for-transportation-of-dangerous-goods/**

Drone Delivery Canada Corp.

announced that it has achieved official approval for Beyond Visual Line-of-Sight (“BVLOS”) flights in tandem with the transportation of dangerous goods for its Care by Air drone route, marking a significant milestone in the development of its drone delivery capabilities in the healthcare market segment.

The approval from Transport Canada marks a significant milestone for DDC and signifies the government’s recognition of the Company’s cutting-edge technology, rigorous safety standards, and commitment to advancing the field of drone logistics. With the BVLOS flight authorization, DDC’s drones will be able to operate beyond the visual range of operators, expanding the reach and capabilities of their autonomous fleet, while achieving a significant improvement in operational efficiencies.

The Care by Air project is the Company’s longest commercial route to date at 13.4km and involves the transportation of medical radioisotopes by drone and is the first of its kind within Canada. The Company has worked in collaboration with McMaster University, DSV Canada Inc., Air Canada Cargo, Halton Healthcare and the Oakville Trafalgar Hospital on this project.

Transport Canada has approved DDC to conduct BVLOS flights in the Golden Horseshoe/Southern Ontario area while transporting Class 7 dangerous goods. The Company’s procedures, practices and personnel were audited by both the Canadian Nuclear Safety Commission (“CNSC”) and Transport Canada to ensure that the Company met the strict safety requirements needed to both operate BVLOS flights and to transport medical radioisotopes.

All operations will be conducted in accordance with the CNSC regulations, Transportation of Dangerous Goods Regulations, the Canadian Aviation Regulations and Transport Canada special flight operations certificates.

The approval for dangerous goods transportation is a testament to DDC’s stringent safety protocols and demonstrates its ability to handle and transport a wide range of medical supplies and hazardous materials securely. This development will allow DDC to further support the healthcare industry by delivering time-sensitive and life-saving products with increased speed and reliability.

“We are extremely proud to have received these crucial approvals from Transport Canada for our Care by Air project,” said Steve Magirias, CEO of Drone Delivery Canada. “This is a significant achievement not only for our company but for the entire drone delivery sector. With BVLOS flights and dangerous goods transportation authorization, we can now take a giant leap forward in transforming the way healthcare supplies are transported, ensuring faster delivery times and enhancing overall patient care.”

DDC’s advanced drone delivery platform utilizes a combination of proprietary software and cutting-edge hardware to ensure safe and efficient operations. The Company’s innovative technology has been widely recognized, earning it numerous accolades and partnerships with leading organizations in the healthcare and logistics industries.

DDC’s CEO, Steve Magirias, added,

“Achieving BVLOS status on our Care by Air drone route is a major step forward in our mission to provide safe, reliable and efficient drone delivery services to communities across Canada. We believe that drone delivery has the potential to revolutionize the way we deliver essential goods and services, and we are proud to be at the forefront of this exciting industry.”

**72 . Date: 21-06-2023Loitering Munition - Mini - ContractFrench Army Selects Nexter to Develop Anti-Tank Kamikaze DronesURL: https://www.uasvision.com/2023/06/21/french-army-selects-nexter-to-develop-anti-tank-kamikaze-drones/**

The French military has selected Nexter Arrowtech to develop new drones equipped with anti-tank warheads for the army, with a goal to demonstrate the new capability by the end of 2024, the company announced June 19.

The French Defense Innovation Agency – an agency similar to the U.S. Defense Advanced Research Projects Agency (DARPA) – signed a contract with Nexter on June 16 to build a new medium-range, remotely operated munition under the “Larinae” project, which was launched in early May. Larinae is Latin for seagull.

Nexter and its partners’ proposed solution includes an unmanned aerial system (UAS) manufactured by French vendor EOS Technologie, along with core-generating charge technology produced by Nexter, and a GPS-independent navigation system capable of operating in contested environments from startup TRAAK. It’s intended to have a range of at least 80 kilometers (nearly 50 miles) and to remain autonomous for three hours.

The French defense ministry declined to give a price tag for the project.

Nexter – which is part of the European land defense systems group KNDS alongside Germany’s Krauss-Maffei Wegmann – touted the munition’s proposed ability to “thwart” active defenses of armored vehicles before piercing their armor. It will also contain an optronic ball capable of detecting vehicles 15 kilometers away by day, three kilometers by night, and which allows operators to observe terrain from afar.

The French Armed Forces have put a premium on developing a low-cost unmanned solution that can target and neutralize an armored vehicle between 5 and 50 kilometers away. Larinae focuses on the higher end of that distance, and a second project, “Colibri” – or Hummingbird – focuses on the lower end.

Loitering munitions have received renewed attention from militaries since being used by both Azerbaijan and Armenia in the Nagorno-Karabakh conflict in 2020, and for their use by Ukraine in their ongoing defense against Russian forces.

France first announced an interest in procuring U.S.-built loitering munitions in 2022 as a transitional capability while the Larinae and Colibri projects move forward. This past April, U.S. unmanned systems manufacturer Aerovironment announced it had received a $64 million contract to provide its Switchblade 300 drone to the U.S. Army, and that the contract included foreign military sales for the capability to France “for the first time,” as well as to “another allied nation.” Those drones are scheduled to be delivered in 2024. Aerovironment has supplied the Switchblade 300 to the U.S. Army for over a decade.

The French government’s proposed military budget for the 2024-2030 period includes €5 billion ($5.5 billion) for unmanned systems. The budget is currently being deliberated by the French Senate, and has already been passed by the government’s lower body, the General Assembly.

**73 . Date: 22-06-2023Successful First Technical Flight for Air Barrow Fuel CellURL: https://www.uasvision.com/2023/06/22/successful-first-technical-flight-for-air-barrow-fuel-cell/**

The most important milestone in the Air Barrow Fuel Cell development project has now been reached. On June 6th, 2023, the drone successfully took off for the first time with hydrogen propulsion.

This makes the Air Barrow Fuel Cell the first UAV in Europe with a fuel cell drive. And in the process, a really purely European product was created: a flight carrier from Germany, a fuel cell from England, storage tanks from Italy and the connection technology from Poland. The project was therefore rightly funded with European funds.

The most difficult phase in flight is take-off and hovering. The highest level of performance is required. The fuel cell has to deliver 8 kW of power to lift the 25-kilo device into the air. In the later forward flight, only 900 watts are required. Therefore, the successful take-off and the knowledge of the energetic behavior are the most important intermediate steps in the development. These have now succeeded.

https://youtu.be/PPFBaavH0og

The values simulated and expected in advance using the test facility have now been confirmed, and the transition from theory to practice has been successful. During this flight, which lasted about 40 seconds, about 25,000 readings were recorded. Every small movement that can be seen on the video changes the energy requirement. The engineers now have to evaluate this and derive any adjustments from it.

This hovering is now repeated under different wind and temperature conditions. The cooling must be sufficient even at an outside temperature of 40°, the system must not ice up even at sub-zero temperatures.

All necessary components for the hydrogen propulsion are installed

When the practical test series for the energy supply have been completed, the transition to the transition phase will be tested. However, no problems are to be expected here, as the device itself has been flying in the battery version for some time.

AeroDCS would like to thank the team, which has been driving development for two years now. And of course also with those responsible for research funding in the state of Rhineland-Palatinate.

Thanks also to Thomas Strieker from StriekAir for the day and night-long support during development and testing. Without his experience in lightweight construction and the development and production of aircraft, we would not have been able to handle the development.

And of course many thanks to the English manufacturer of the fuel cell Intelligent Energy. The product proved to be very robust and was able to meet the specifications and performance data in all phases of the project.

The core elements of the project were thus completed on schedule and within budget. All that is now missing for marketable commissioning is the regulatory framework. The technology for flying beyond visual range (BVLOS) could also be installed, tested and put into operation. This allows the device to be remotely controlled in flight via a control station. The technology is ready – just the regulatory issues around EASA and LBA not yet. But it is being worked on and our association (UAV-DACH) is confident.

**74 . Date: 23-06-2023Component - General - Engine / PowersourceSky Power’s Best Selling Two Stroke UAS Engine now has Increased PowerURL: https://www.uasvision.com/2023/06/23/sky-powers-best-selling-two-stroke-uas-engine-now-has-increased-power/**

Sky Power International

offers one of their bestselling two-stroke engines, the SP-210 FI TS ROS, with more power.

“From now on we offer the SP-210 FI TS ROS in run-in condition, with 14kW. But customers, who are using this engine already, can have the possibility to upgrade their engines too”,

explains Karsten Schudt, CEO of Sky Power GmbH.

All SP-210 FI TS ROS, which were produced until the beginning of May 2023, were equipped with 11kW. If a power upgrade of these propulsion units is necessary, Sky Power can offer this service.

After a run-in and with some additional system upgrades, even older SP-210 FI TS ROS engines will perform 14kW.

That is a power increase of 27%. System upgrades to the previous engine include technical adjustments and a different engine mapping. The engine weight remains the same.

**75 . Date: 26-06-2023Loitering Munition - Mini - ContractAeroVironment Gets $19M US Army Switchblade Modification ContractURL: https://www.uasvision.com/2023/06/26/aerovironment-gets-19m-us-army-switchblade-drone-modification-contract/**

AeroVironment Inc.

, Simi Valley, California, was awarded an $18,861,420 modification (P00030) to contract W31P4Q-20-C-0024 for Switchblade Weapon System procurement.

Work will be performed in Simi Valley, California, with an estimated completion date of Nov. 30, 2023. Fiscal 2023 Foreign Military Sales funds in the amount of $18,861,420 were obligated at the time of the award.

U.S. Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity.

**76 . Date: 26-06-2023ISR / ISTAR - HALE - GeneralNorthrop Grumman Delivers Fourth Triton to US Navy for Initial Operational CapabilityURL: https://www.uasvision.com/2023/06/26/northrop-grumman-delivers-fourth-triton-drone-to-us-navy-for-initial-operational-capability/**

Northrop Grumman Corporation

delivered the fourth multi-intelligence MQ-4C Triton to the U.S. Navy ahead of initial operational capability (IOC) this year.

The delivery completes the set of aircraft for Unmanned Patrol Squadron (VUP) 19’s establishment of the first operational orbit, while a second orbit is preparing for delivery this summer. With three orbits planned around the globe, the Triton multi-intelligence uncrewed aircraft will provide 24/7 unprecedented maritime awareness.

**77 . Date: 27-06-2023ContractGeneral Atomics Gets $8M US Air Force Off Board Sensing Station Modification ContractURL: https://www.uasvision.com/2023/06/27/general-atomics-gets-8m-us-air-force-off-board-sensing-station-modification-contract/**

General Atomics Aeronautical Systems

, Poway, California, has been awarded an $8,348,999 modification (P00016) to contract FA8650-22-C-2200 for the off board sensing station, bringing the total cumulative value of this contract to $58,110,985.

This contract modification increases the cost ceiling to provide for a cost overrun in support of the design, development, and flight demonstration in an open architecture aircraft concept to achieve the goals of rapid time-to-market and low acquisition cost.

Work will be performed in Poway, California, and is expected to be completed April 26, 2024.

Fiscal 2023 research, development, test and evaluation funds in the amount of $1,801,168 are being obligated at the time of award. Air Force Research Laboratory, Wright-Patterson Air Force Base, Ohio, is the contracting activity.

**78 . Date: 27-06-2023Loitering Munition - Mini - ContractIsrael Aerospace Industries to Supply Rotem Loitering Munition Systems to 3 NATO CountriesURL: https://www.uasvision.com/2023/06/27/israel-aerospace-industries-to-supply-rotem-loitering-munition-systems-to-3-nato-countries/**

Following the recent announcement that NATO member Estonia has purchased long-range loitering munitions from Israel Aerospace Industries (IAI), the company has signed separate contracts with three additional NATO countries worth several millions of dollars to supply Rotem loitering munitions.

Rotem is a unique combat-proven Vertical Takeoff and Landing (VTOL) tactical loitering munition, intended for use by customers’ special forces and can also serve for test and evaluation purposes.

Rotem is part of IAI’s family of loitering munitions which includes Harpy, Harop and Mini-Harpy, and has been proven in different combat situations since 2019.

Avi Elisha, MBT Missile Division VP and General Manager:

“This announcement follows the decision of another NATO member, Estonia, to purchase IAI’s long-range loitering munitions. Acquisition of Rotem by three different NATO members reflects the high and growing global demand for tactical loitering munitions. IAI has extensive experience in loitering munitions, having invented this type of munition almost 40 years ago. Rotem’s unique capabilities include Vertical Takeoff and Landing making it a perfect choice for close combat scenarios, including urban combat.”

Rotem is effective up to a range of ten kilometers and was designed for deployment by an individual soldier at the infantry or small unit/special forces level. Its simple operation and robust design make it highly cost-effective.

IAI’s loitering munitions have emerged as a disrupting new weapons category following many deployments in recent conflicts. This weapon has reshaped the battlefield and inflicted damage on a scale far beyond its physical size. As a result, armed forces worldwide are interested in the offensive and defensive aspects of this type of weapon as they realize the unique capabilities they enable.

Lightweight, compact, and affordable, Rotem is specially designed and proven to perform in urban warfare environments. It allows individual soldiers to gain an elevated view of the area around them, look over hills or within an urban environment and beyond the line of sight. The soldier can then strike the enemy as soon as targets appear.

Rotem carries both day and night electrooptical sensors to give tactical field units an advantage against adversaries, acting as a sensor and a weapon of opportunity. Unlike missiles or rockets, it can be launched to seek a target, but is disarmed if authorization to attack is not received. If this occurs, Rotem can fly back to be retrieved safely, have its battery replaced, and be deployed immediately on a new mission.

With a flight endurance of 30 minutes, or with an ability to loiter for up to nine hours, Rotem can hover above a high building or hill, with an open camera and datalink – while waiting for the target to emerge. Once the target is detected Rotem can then attack instantly.

**79 . Date: 27-06-2023Armed ISR / ISTAR - MALE - General - PayloadMQ-9 Reaper Lands on Remote Dirt Strip for the First TimeURL: https://www.uasvision.com/2023/06/27/mq-9-reaper-lands-on-remote-dirt-strip-for-the-first-time/**

U.S. Air Force MQ-9 Reaper drone has conducted a landing on a remote dirt strip for the first time. Connected with the landing, the service also demonstrated the MQ-9’s ability to carry small, but critical cargoes.

This comes as the Air Force and others look for new ways to utilize the Reaper amid concerns about its vulnerability in higher-end conflicts, namely with a near-peer competitor like China or Russia.

The dirt strip landing took place on June 15 at the Nine Mile Training Center, just south of Fort Stockton, Texas, according to a recent Air Force press release. Members from 2nd Special Operations Squadron, 727th Special Operations Aircraft Maintenance Squadron, and 311th Special Operations Intelligence Squadron teamed up with airmen from 26th Special Tactics Squadron, for the test.

Historically, General Atomic’s MQ-9s have been launched and recovered via split operations. This involves a crew piloting the aircraft from a ground station in the continental United States, while another, more specialized crew, launches and recovers the drone via line-of-sight control links. Those specialist crews would also be required to electronically mark reference points on the runway using an actual Reaper.

As such, MQ-9s were unable to self-deploy to airstrips where data hadn’t been collected beforehand, and which did not have other supporting infrastructure setup. But this has changed in recent years and the MQ-9 now has the ability to operate from impromptu locations without its past localized control footprint.

The test at Nine Mile Training Center demonstrated how MQ-9s can be launched and piloted remotely entirely via beyond-line-of-sight satellite links. This capability – known as Automatic Takeoff and Landing Capability (ATLC) – is one the Air Force has been proving out for years now, with a milestone test taking place back in 2021. With the ATLC system, MQ-9s use their targeting pods and other sensors to generate reference points for automatic landing and takeoff capabilities from the air.

A MQ-9 Reaper rests inside a hangar at Cannon Air Force Base, New Mexico, June 7, 2023. The attached travel pod allows combatant commanders to use the MQ-9 Reaper to deliver vital supplies in a confined area instead of relying on a cargo aircraft. U.S. Air Force photo by Maj. Doniell Mojazza

As part of the dirt strip landing test, the Air Force also exercised the MQ-9’s ability to perform ‘off the menu’ options, too. Here, the ‘Reaper Express’ operational concept was tested, by which a travel pod was utilized to execute a critical resupply of the 26th Special Tactics Squadron on the dirt landing zone.

“We call it ‘Reaper Express’, which is essentially just using a travel pod to develop an operational concept of delivering critical items to austere locations using the MQ-9,” said Col. Brian Flanigan, 2nd SOS director of operations. “It may not be able to carry much, but what it can hold might be the difference between getting that critical aircraft part to an isolated airfield or bringing in a blood supply for casualties sustained during a base attack.”

Of course, alternative means of resupply of critical spare parts, medical supplies, or even small arms amunition to austere locales is something the U.S. military has been looking into for years, and could be especially important during distributed future operations. Moreover, as The War Zone has noted in the past, transporting small payloads might prove critical in those, and other, contexts. Small drone shipments of 30 pounds or less are often enough to deliver critical emergency rations or, as Flanigan indicates, blood supply, which is perishable.

The Navy has also claimed that when ships encounter problems as a result of logistics-related issues that leave them partially mission-capable or non-mission-capable, 90 percent of the time this can be resolved by the delivery of a component weighing 50 pounds or less. The exact weight of the travel pod the MQ-9 carried during the Nine Mile Training Center test remains unclear, however.

In order to access the remote dirt strip, 12th Aircraft Maintenance Unit from the 727th Special Operations Aircraft Maintenance Squadron supported the test using Agile Combat Employment, or ACE, tactics, techniques, and procedures, the Air Force’s press release notes. Broadly, ACE is designed to ensure that the Air Force is able to perform irregular deployments quickly from an expanded number of airbases around the globe. This includes remote locations, in the event that conventional airbases are put out of operation or otherwise held under threat. Rapidly moving from location to location is also part of this overall concept.

“This initiative was significant in terms of refining maintenance ACE capabilities because it provided insight into how the aircraft handles landing in an austere environment,” said Maj. Doniell Mojazza, 727th SOAMXS director of operations. “This scenario both challenged and empowered 12th AMU maintainers to assess risk utilizing their expertise and innovation to ensure aircraft air worthiness and mission success.”

In another recent validation of the drone’s ability to operate from varied locales with ACE in mind, the Air Force operated an MQ-9 from a highway remotely during Exercise Agile Chariot. Landing the Reaper on the highway was conducted by the 2nd Special Operations Squadron (2nd SOS), part of the 919th Special Operations Wing at Duke Field, Florida. The MQ-9’s takeoff and return flight from the highway was handled by the 65th SOS from Hurlburt Field, Florida. While specific details on the type of mission the MQ-9 took part in were not provided, Air Force officials underscored the drone’s growing ability to “launch and recover from remote locations.”

An MQ-9 Reaper lands on Highway 287 during Exercise Agile Chariot, April 30, 2023. U.S. Air Force photo by Tech. Sgt. Carly Kavish U.S. Air Force photo by Tech. Sgt. Carly Kavish

Being able to operate MQ-9s from remote locations, particularly those without usable runways or adequate stretches of roads, would likely be significant during the distributed operations of the kind the U.S. could face in a conflict with a near-peer state like China or Russia. As the Air Force doesn’t see the MQ-9 as being survivable in high-risk environments in future conflicts, expanding where these drones can operate from – and exploring new roles for them – is of high priority.

“This capability [remote dirt strip landings] will be critical in ‘tomorrow’s fight’ and nests perfectly with the Air Force’s Agile Combat Employment concept that focuses on smaller footprints, distributed operations and increased survivability while generating combat power,” said Flanigan. “We are demonstrating what is possible when you leverage Citizen Air Commandos and our diverse backgrounds to take an existing capability like [Satellite Launch and Recovery] and apply it to the future fight.”

As we outlined previously, there would be huge potential benefit for having MQ-9s being able to access multiple Forward Arming and Refueling Point (FARP)s in the Pacific without the need to transport specialized launch and recovery elements. This is particularly true in terms of fueling and rearming the drones from austere locales without runways or roads, rather than having them return to a fixed base. Indeed, the ability to quickly land and execute an engine running offload from remote locales could become a secondary or tertiary mission.

“This provides options compared to waiting multiple weeks until intra-theater airlift can support [forward-deployed forces],”

Flanigan notes. Of course, using MQ-9s in this way doesn’t remove the need for logistic chains, particularly given concerns over the drone’s survivability.

Being able to support ACE-focused operations from austere locales, particularly in an ‘island hopping’ conflict in the Pacific, would be extremely valuable, too. Providing communications relay, collecting localized multi-intelligence, as well as kinetic defense for remote locations would also prove significant in the Pacific context. Here, the MQ-9’s ability to provide long-endurance, medium-altitude surveillance – for which it was primarily designed – as well as its ability to have various types of podded systems bolted on could be used to even greater effect from very hard-to-reach island outposts.

How far the MQ-9’s ability to operate from very remote locations, as well as transport small critical supplies, affects arguments over its operational relevance will only be revealed in time. While the MQ-9 seems to be entering the twilight of its career with the Air Force, the drone has received a number of critical upgrades of late – including new air-launched drone capabilities, additional sensors, self-defense pods, and other mission payloads.

Yet even as the Air Force pivots to new forms of uncrewed aircraft with high degrees of autonomy, demonstrating the ability to operate MQ-9s from remote locations has wider significance, as new types may also be called upon to operate from austere locales during a major conflict. This could help inform more general concepts of operation in the future, filtering out to other services.

The MQ-9 is certainly making a case for itself as more advanced types are on the horizon, now adding cargo hack to its repertoire.

**80 . Date: 28-06-2023ISR / ISTAR - Tactical - Partnership - PayloadUMS SKELDAR and Hydronalix Announce Co-Operation AgreementURL: https://www.uasvision.com/2023/06/28/ums-skeldar-drones-and-hydronalix-announce-co-operation-agreement/**

UMS SKELDAR and Hydronalix have announced a co-operation agreement at the Modern Day Marine event, due to be held between June 27th and 29th, 2023, in Washington DC, USA.

The agreement will feature UMS SKELDAR’s SKELDAR V-200 Unmanned Aerial Vehicle (UAV) equipped with one of Hydronalix’s groundbreaking Unmanned Surface Vehicle (USV) systems. The purpose of the new joint platform is to offer solutions to emerging operational challenges within, for example, complex, contested littoral areas where supporting networks of manned – unmanned systems are required for efficient, resilient operations.

Hydronalix’s USV, which will for the first time be attached to UMS SKELDAR’s V-200 platform, can be employed as a communications link between the different users in all domains. This combined system will provide the Marine Corps and Navy the capability to adapt to complex littoral environments rapidly thanks to its ability to be quickly deployed day or night over sea. Additionally, the Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) benefits offered by launching USVs teamed with UAVs in conflict zones, greatly broadens the operational picture for users.

Ted Ackerstierna, UMS SKELDAR’s Vice President for the USA market, explains:

“At UMS SKELDAR, we are constantly working to broaden the capabilities of our UAV platforms, not only in terms of sensor-based payloads, but also with technologies like Hydronalix’s USVs that we can employ from our UAV systems. The USVs offered by Hydronalix are such versatile pieces of technology, which we saw a great many uses for including supporting covert surveillance missions and acting as a critical communications link. Attached to our SKELDAR V-200, which has an endurance of over six hours with significant payload weight, the complete system will be able to provide a wide range of enhanced capabilities for Marine Corps and Navy war fighters across their operational domains.”

Anthony Mulligan, CEO for Hydronalix, adds:

“The possibility of launching Hydronalix’s USVs from UMS SKELDAR’s V-200 UAVs is a potential gamechanger for Marine Corps and Navy war fighters who seek unmanned technologies that can enhance their operational capabilities. The future distributed force concepts require innovative solutions that can provide the domain awareness for effective decision making. From rescue to weapon assignment, the UMS SKELDAR UAV / Hydronalix USV platform combination with advanced mesh networking promises to serve Expeditionary and Special Forces under new distributed force designs.”

The Modern Day Marine event is aimed at the expeditionary and special force missions. The purpose of the event is to assist the Marine Corps to identify and procure the best products and services to help their war fighting efforts and to promote the Marine Corps stakeholders. It is being held between June 27th and 29th, 2023, at the Walter E. Washington Convention Center in Washington DC., USA.

**81 . Date: 29-06-2023Armed ISR / ISTAR - MALE - General - PlatformChina Unveils Wing Loong-X UCAVURL: https://www.uasvision.com/2023/06/29/avic-unveils-wing-loong-x-ucav/**

Aviation Industry Corporation of China (AVIC) has unveiled a new variant of Wing Loong series of medium-altitude long-endurance (MALE) unmanned aerial vehicles (UAVs) at the Paris Air Show 2023, held from 19 to 25 June.

The company presented a 1:10 scale model of the (WL-X) unmanned combat aerial vehicle (UCAV) with four underwing hardpoints under each mid-mounted wing surface ending in upswept wingtips.

The UCAV features a bulged nose for the provision of satcom, radars, a ventral electro-optic/infrared (EO/IR) turret, a V-tail, two canted ventral fins, and a rear-mounted turboprop engine driving a five-bladed propeller, among others. No further information on specifications has been released by the company.

According to Janes’ analysis, the wingspan of WL-X is about 14.5 m and its length is 26.1 m, suggesting a longer fuselage and lower aspect ratio wings compared with that of Wing Loong-10A (WL-10A). The wing features straight wings spanning till mid-section followed by tapering towards the outboard section. The shortening of the wingspan with straight wings till mid-section is suitable to carry heavier payloads.

**82 . Date: 30-06-2023MarketRussian Government Approves Strategy for Development of Unmanned Aircraft Until 2030URL: https://www.uasvision.com/2023/06/30/russian-government-approves-strategy-for-development-of-unmanned-aircraft-until-2030/**

the government said in a statement.

The strategy covers five areas, among which is the stimulation of demand for domestic products and their development and mass production, a statement read.

Other areas are the development of such infrastructure objects as airfields, heliports and drone ports; training of personnel for unmanned aircraft; as well as fundamental and advanced research in the field of unmanned aerial systems, the government noted.

The government added that it is also completing the formation of a national project for the development of unmanned aerial systems that will become the main management mechanism for the implementation of the adopted strategy.

**83 . Date: 03-07-2023Armed ISR / ISTAR - HALE - ContractGeneral Atomics Gets $82M DARPA LongShot Program ContractURL: https://www.uasvision.com/2023/07/03/general-atomics-gets-82m-darpa-longshot-program-contract/**

General Atomics Aeronautical Systems Inc.,

Poway, California, has been awarded an $82,582,131 cost-plus-fixed-fee contract, excluding unexercised options, for Phase III of the LongShot program.

Work will be performed in Poway, California (62%); Adelanto, California (15%); Mukilteo, Washington (6%); Detroit, Michigan (5%); Tucson, Arizona (4%); Tulsa, Oklahoma (3%); Buffalo, New York (2%); Yuma Proving Grounds, Arizona (1%); Dugway Proving Grounds, Utah (1%); and Sedro-Woolley, Washington (1%), with an estimated completion date of October 2025.

Fiscal 2023 research and development funds in the amount of $24,459,077 are being obligated at the time of award. This contract is a competitive acquisition in accordance with the original Broad Agency Announcement HR001122S0037.

The Defense Advanced Research Projects Agency, Arlington, Virginia, is the contracting activity (HR001123C0087).

**84 . Date: 04-07-2023ISR / ISTAR - Small - ContractInsitu Gets $32M US Navy ScanEagle ContractURL: https://www.uasvision.com/2023/07/04/insitu-gets-32m-us-navy-scaneagle-drone-contract/**

Insitu Inc.

, Bingen, Washington, is awarded a $31,955,872 firm-fixed-price modification (P00004) to a previously awarded indefinite-delivery/indefinite-quantity contract (N0001922D0038).

This modification adds scope to procure hardware in support of the RQ-21A Blackjack and ScanEagle unmanned air systems platforms for the Navy, Marine Corps, and Foreign Military Sales customers to include four RQ-21A air vehicles; 20 ScanEagle air vehicles; and 62 ScanEagle payloads and turrets; as well as various support equipment, spares and sustainment spares.

Work will be performed in Bingen, Washington (88%); and various locations outside the U.S. (12%), and is expected to be completed in June 2026. No funds will be obligated at the time of award; funds will be obligated on individual orders as they are issued.

The Naval Air Systems Command, Patuxent River, Maryland, is the contracting activity.

**85 . Date: 10-07-2023Cargo - HALE - GeneralChina’s Large UAV Makes Night Flight Between Two AirportsURL: https://www.uasvision.com/2023/07/10/chinas-large-uav-makes-night-flight-between-two-airports/**

A large civil unmanned aerial vehicle (UAV), the FH-98, made its first night flight and transited between two airports featuring UAV testing in the early morning of June 20, making it China’s first drone to transit at night.

It is said that the transition has laid the foundation for the normal operation of branch logistics and promoted the development of unmanned systems and the general aviation industry.

The UAV took off from Mahe Town, Yulin City, northwest China’s Shaanxi Province, and landed at an airport some 100 kilometers away after 40 minutes’ flight, achieving a flight beyond the visual line of sight of the country’s largest UAV for logistics.

With a wingspan of 18.2 meters and a fuselage of 12.7 meters, the drone has a maximum takeoff weight of 5.25 tonnes and a maximum range of 1,200 kilometers.

China approved the building of 16 civil unmanned aviation test bases in two batches since 2020. Among them, Yulin City opened two air routes and obtained the country’s first airport use license for branch logistics.

**86 . Date: 10-07-2023Target Drone - Tactical - ContractKratos Gets $95M US Army Target Systems ContractURL: https://www.uasvision.com/2023/07/10/kratos-gets-95m-us-army-target-systems-contract/**

Kratos Unmanned Aerial Systems Inc.

, Sacramento, California, was awarded a $95,000,000 firm-fixed-price contract for fixed-wing, subscale, jet-propelled aerial, unmanned target systems.

Bids were solicited via the internet with one received. Work locations and funding will be determined with each order, with an estimated completion date of July 6, 2028.

U.S. Army Contracting Command, Orlando, Florida, is the contracting activity (W900KK-23-D-0015).

**87 . Date: 12-07-2023GeneralBAE Systems Unveils FalconWorks Innovation DivisionURL: https://www.uasvision.com/2023/07/12/bae-systems-unveils-falconworks-innovation-division/**

BAE Systems

has launched a new division within its Air Sector called FalconWorks. It is a new centre for advanced and agile research and development designed to deliver a range of cutting-edge combat air capabilities to the UK and its allies.

Governments around the world are acutely aware of the increasing pace of technological change and the need to strengthen and adapt their security and defence to manage the evolving threat.

Specialists at FalconWorks will assess emerging trends and deliver solutions with speed and efficiency, increasing the use of digital technologies such as artificial intelligence, quantum sensing and robotics. They will also collaborate with partners in areas such as autonomy, synthetic environments and electrical powered air systems.

FalconWorks, which was officially launched on July 10, is focused on the rapid design of “generation after next” capabilities in the air domain, BAE Systems officials told media at the company’s assembly plant in Warton, Lancashire last week.

According to the new unit’s managing director, Dave Holmes, FalconWorks will be more suited to UK and European air domain business, unlike more classified, “near peer” organizations like Skunk Works and Phantom Works.

“If we think about how Skunk Works and Phantom Works were formed, both those two organizations were stood up in a complete veil of secrecy. They were stood up to be wholly independent and hidden away and were certainly not engaged with the media to discuss how they were seeking to do their business,” Holmes said.

“They’re very good at it, by the way and this is by no means saying their [business] model doesn’t work. I just don’t think that model works in a UK/European setting. We operate on a different scale. We have a very principled customer — the [UK] MoD — which clearly has a different level of budgeting.

“And this for me is about how do we turn this into a team sport rather than running multiple programs which are secret for a reason and then picking out one which gets to the solution in the most effective manner? This is about backing the right resources and being more effective at what we do.”

According to Holmes, FalconWorks will bring together small/medium enterprises, academia and government agencies to collaborate, innovate and “set trends and solve problems at pace” across physical and non-physical environments. Again, he emphasized, that will be a more open model than what is traditionally seen from the Boeing and Lockheed equivalents.

“FalconWorks is looking at all things that fly across armed forces and para-public organizations,”

he added, highlighting agile engineering, autonomy, AI, electric products, quantum sensing and robotics.

Another major difference between the new office and the US equivalents: greater ability to work internationally. The unit will bring together BAE Systems’ locations around the world, including Australia, Brazil, Saudi Arabia, Slovenia, the UK and US, he said.

Efforts will include focus on developments beyond the UK’s sovereign, sixth-generation fighter program — Future Combat Air System (FCAS) — with Holmes saying “If FCAS is next, how do we move beyond FCAS and think wider as to what will come in the 2060s, ‘70s and ‘80s and turn of the century? How will that look in terms of novel vehicle configurations and shapes?

BAE Systems has a long history of working with leading academic institutions and industry to harness knowledge in the defence sector. In the past three years, the Company has invested £800m of its own money in research and development.

BAE Systems is at the heart of the UK’s sovereign combat air capability, delivering combat air readiness to air force customers around the world. FalconWorks will be a vital part of BAE Systems, exploring market opportunities in the UK and international air sector.

**88 . Date: 20-07-2023Armed ISR / ISTAR - Small - ContractNigerian Army Operating Chinese Ziyan Blowfish UASURL: https://www.uasvision.com/2023/07/20/nigerian-army-operating-chinese-ziyan-blowfish-uas/**

The Nigerian Army has taken delivery of the Chinese-made Ziyan UAS Blowfish, a miniature unmanned aerial vehicle (UAV) that is designed for intelligence, surveillance, and reconnaissance (ISR) missions. The Blowfish was recently showcased by the NA Command Engineering Depot (CED) at the just concluded Nigerian Army Day Celebration 2023.

The Ziyan UAS Blowfish, manufactured by the Chinese defense technology company Ziyan UAV, is a highly versatile unmanned aerial vehicle designed for a wide range of military applications.

The Blowfish is a small, lightweight UAV that can be easily transported and deployed. It has a range of up to 100 kilometers and can stay in the air for up to 6 hours. The UAV is equipped with a variety of sensors, including a high-resolution camera, an infrared camera, and a laser range finder.

The Nigerian Army has been using UAVs for a number of years, but the Blowfish is another Chinese-made UAV to be operated by the military. The UAV is expected to be used for a variety of ISR missions, including monitoring the activities of terrorist groups, tracking illegal arms shipments, and providing early warning of potential attacks.

The addition of the Blowfish to the Nigerian Army’s UAV fleet is a significant boost to the military’s capabilities. The UAV’s small size and long range make it ideal for operating in difficult terrain and in areas where there is a high risk of detection. The UAV’s sensors will also provide the military with valuable intelligence that can be used to plan and execute operations.

The deployment of the Blowfish is a sign of the Nigerian Army’s commitment to modernizing its equipment. The UAV is a versatile and capable platform that will be a valuable asset to the military.

This Chinese-made drone provides the NA with a range of strategic advantages, including enhanced surveillance, reconnaissance, target acquisition, and force protection capabilities. As the Nigerian military continues to modernize and adapt to evolving security challenges, the Ziyan UAS Blowfish will undoubtedly prove to be an invaluable asset in maintaining peace, protecting borders, and countering threats to national security.

The Ziyan UAV is small and lightweight, easy to transport and deploy. It has a range of up to 100 kilometers, and Endurance of up to 6 hours.

It is equipped with high-resolution camera, infrared camera, and laser range finder, and is ideal for ISR missions in difficult terrain and areas where there is a high risk of detection.

The potential application of the Ziyan Blowfish UAV is monitoring the activities of terrorist groups, tracking illegal arms shipments, providing early warning of potential attacks, conducting reconnaissance missions, evaluating damage after an attack, and supporting ground troops in combat operations.

Recently, the Nigerian Army took delivery of three Aerosonde 4.7 Fixed Wing UAS from AAI Corp., a subsidiary of Textron Systems.

The contract for the three Aerosonde VTOL drones was signed on May 8, 2020, between Nigeria, the Pentagon, and Textron Systems.

The Nigerian Army is gearing up to be a major operator of fixed-wing aerial assets, despite the role being primarily domiciled within the domain of the air force. The Army in the year 2020 established its own UAV Command under a new ORBAT 2016 (Order of Battle). The command will deliver responsive, persistent and precise UAV capabilities to achieve the NA’s mission. Also, the new UAV command will raise, train and sustain a UAV force which will ensure task competency to deliver precise and timely Air Imagery Intelligence.

For now, it is not yet certain if the new Nigerian Army UAV command will operate alongside the Nigerian Air Force Combat Reconnaissance Group (203 CRG) in Gombe state. The Nigerian Army has been known to operate several commercial-grade drones sourced from the civilian market.

**89 . Date: 24-07-2023ISR / ISTAR - Mini - ContractAeroVironment Gets $12M US Army RQ-20B Puma AE3 UAS ContractURL: https://www.uasvision.com/2023/07/24/aerovironment-12m-us-army-rq-20b-puma-ae3-uas-contract/**

AeroVironment Inc

., Simi Valley, California, was awarded a $12,051,941 firm-fixed-price contract for RQ-20B Puma AE3 UAS systems.

Bids were solicited via the internet with one received. Work will be performed in Simi Valley, California, with an estimated completion date of Sept. 30, 2024. Fiscal 2023 other procurement, Army funds in the amount of $12,051,941 were obligated at the time of the award.

U.S. Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity (W58RGZ-23-C-0039).

**90 . Date: 24-07-2023Armed ISR / ISTAR - MALE - General - PayloadUS Air Force Flew MQ-9A with Angry Kitten Jamming PodURL: https://www.uasvision.com/2023/07/24/us-air-force-flew-mq-9a-with-angry-kitten-jamming-pod/**

The U.S. Air Force flew a remotely piloted aircraft equipped with an Angry Kitten ALQ-167 Electronic Warfare Countermeasure Pod for the first time on April 27, 2023. General Atomics Aeronautical Systems, Inc. integrated the pod onto the aircraft.

The Angry Kitten EW Pod is supplied to the U.S. Air Force by the Georgia Tech Research Institute (GTRI) and has flown on other Department of Defense systems, including F-16s. GA-ASI integrated the EW pod in less than nine months at no cost to the U.S. Air Force by using a Cooperative Research and Development Agreement.

The 556th Test and Evaluation Squadron completed the first round of MQ-9A Reaper ground and flight testing with the Angry Kitten ALQ-167 Electronic Countermeasures (ECM) Pod at Creech Air Force Base, Nevada Apr. 10-28, 2023. (U.S. Air Force photo by Mr. Robert Brooks – Edited by The Aviationist)

“It was great to see the Angry Kitten Pod on an Air Force platform for the first time,” said GA-ASI Vice President of DoD Strategic Development Patrick Shortsleeve. “Flying this EW capability on an MQ-9A demonstrates its possible use on future aircraft.”

The Air Force plans to continue flying with Angry Kitten Pods over the next 12 to 24 months to develop the best Tactics, Techniques, and Procedures (TTPs) to leverage EW capabilities in support of the Joint Force and partner nations.

**91 . Date: 25-07-2023ISR / ISTAR - Tactical - General - NavigationESEN GöRDES Vision Based Navigation System Successfully Demonstrated on Schiebel CAMCOPTER S-100URL: https://www.uasvision.com/2023/07/25/esen-gordes-vision-based-navigation-system-successfully-demonstrated-on-schiebel-camcopter-s-100-uas/**

ESEN GöRDES

Vision Based Navigation (VBN) System was successfully demonstrated on the Schiebel CAMCOPTER S-100 Unmanned Air System (UAS). Equipped with GöRDESTM, the CAMCOPTER S-100 UAS proved it can successfully operate in a GPS-denied environment.

ESEN General Manager Cem Uğur and SCHIEBEL Chairman Hans Georg Schiebel welcomed the successful trials and stated their joint aim is to integrate GöRDESTM Vision Based Navigation (VBN) System into the CAMCOPTER S-100 UAS to offer customers globally a jam and spoofing resilient platform for challenging missions.

GöRDES, which can be integrated into various (rotorcraft, multi-copter and fixed wing) platforms, from mini Unmanned Air Vehicles (UAV) to MALE UAVs, has proved its capability to provide accurate navigation data under GNSS-denied environments. GöRDESTM was specifically developed to provide a solution for GNSS jamming and spoofing. As conflicts around the world increase, GNSS jamming is more frequently used to prevent rival UAS operations.

Furthermore, GNSS jamming is increasingly becoming a problem for civilian users of GNSS. UAS that are subject to jamming, generally depend on inertial navigation methods, that drift due to their nature. In such circumstances, GöRDES is an effective alternative solution to continue a safe flight.

**92 . Date: 01-08-2023Patent - PayloadAeroVironment Files Patent for UAV Payload Module Retraction MechanismURL: https://www.uasvision.com/2023/08/01/aerovironment-files-patent-for-uav-payload-module-retraction-mechanism/**

AeroVironment

has filed a patent for a UAV payload module retraction mechanism. The mechanism includes a payload that can be stowed and deployed, with a biasing member to deploy the payload and a winch and flexible drawing member to retract it back into the UAV.

The patent also describes a method for installing and operating the payload module.

A recently filed patent (Publication Number: US20230202678A1) describes a method and apparatus for deploying and retracting a payload in a UAV (Unmanned Aerial Vehicle). The method involves installing a payload module in the UAV, which contains a payload that can be stowed within the UAV and deployed out of it. The payload is biased out of the UAV into a deployed position and can be retracted using a flexible means capable of supporting tension. This retraction is achieved by causing the payload to retract into the UAV from the deployed position while still being biased out of the UAV.

The flexible means used for retracting the payload can be a cable or a belt, preferably made of a corrosion-resistant material such as KEVLAR. The biasing of the payload involves providing sufficient force to keep it stable when deployed in an airstream. Additionally, the patent claims include locking the payload in the deployed position to secure it and using a winch for retracting the payload.

**93 . Date: 02-08-2023PitchIran to Export Drones to BoliviaURL: https://www.uasvision.com/2023/08/02/iran-to-export-drones-to-bolivia/**

In a visit to Tehran last week, Bolivia’s Defense Minister Edmundo Novillo Aguilar clinched a deal with his Iranian counterpart that is expected to include the delivery of Iran-made drones to La Paz.

At a joint press briefing in Tehran, Iran’s Defense Minister Mohammad Reza Ashtiani expressed Tehran’s readiness to provide the Bolivian military with “the equipment it needed to combat drug trafficking and secure its borders.” Such cooperation, the Iranian brigadier general said, “could serve as a model to our friends in South America,” according to a report by the state-run Fars News.

Upon his return to La Paz, the Bolivian defense minister spoke of his government’s interest in receiving Iranian drones. While details as to what types of Iranian drones are to be shipped remain murky, the Tehran agreement has already drawn concern from the United States.

“We urge all nations … to carefully consider before they enter into defense arrangements with a nation like Iran,”

said John Kirby, director of strategic communications for the US National Security Council, in an interview with Voice of America.

The worry has been graver in neighboring Argentina, which has had simmering tensions with Iran since a 1994 deadly bombing of a Buenos Aires Jewish center blamed on the theocratic state in Tehran. The Argentine government has called on Bolivia to clarify details of its military cooperation with the Islamic Republic. Yet the Bolivian defense minister has said his government is not looking to buy war weapons from Tehran, dismissing the concerns as “exaggeration.”

Hard-line loyalists of the Islamic Republic found a moment of triumph in the Iran-Bolivia deal, celebrating how a drone program developed by Iranians was paving the way for Tehran’s influence in Latin America. They were following the same pattern that has held for Iran’s controversial drone deliveries to Russia, which the West says are being used in the war against Ukraine. While the Islamic Republic officially denies such shipments, its hard-line supporters and ideologues have not shied away from expressive praise for the policy.

Iran has long considered Latin America as “the US backyard” where it could “deepen its strategic influence.” Last month, President Ebrahim Raisi visited Venezuela, Nicaragua and Cuba to sign multiple agreements with the three leftist states, with which Tehran is proud to share an anti-American agenda. In its stated foreign policy, the Raisi administration insists that cooperation with non-Western allies could salvage Iran from international isolation and remedy its battered economy.

In the wake of the Tehran-Bolivia military cooperation deal, reports have also come out indicating that Venezuela is already using Iranian fast-attack boats. Expert military platforms monitoring drills focused on a recent Venezuelan navy exercise where they specifically detected Iranian Zolfaghar boats on which Iran-made Nasr-1 cruise missiles were mounted.

**94 . Date: 03-08-2023ISR / ISTAR - Mini - ContractGermany to Provide Ukraine with RQ-35 Heidrun DronesURL: https://www.uasvision.com/2023/08/03/germany-to-provide-ukraine-with-rq-35-heidrun-drones/**

According to information released by the German Chancellor’s Office, Germany will supply a large batch of RQ-35 Heidrun reconnaissance drones to the Armed Forces of Ukraine.

The RQ-35 Heidrun unmanned aerial vehicle (UAV) is designed for conducting low-altitude intelligence, surveillance, and reconnaissance (ISR) missions. It is produced by the Danish drone maker, Sky-Watch company. An unspecified number of these drones were delivered to Ukraine by the government of Denmark in 2022, allowing the Armed Forces of Ukraine’s drone operators to become familiar with the equipment.

Reports from the Ukrainian army indicate that the RQ-35 Heidrun has shown high effectiveness in real combat scenarios. However, based on experiences gathered during operations, engineers from Sky-Watch company have implemented several technical improvements into the UAV.

“Based on our experiences from Ukraine, our skilled engineers have configured the RQ-35 Heidrun to be highly EW resistant and capable of flying in GNSS denied airspace,” the company said on its website.

The German government has not provided any additional details regarding the future deliveries of RQ-35 Heidrun to the Armed Forces of Ukraine.

However, the well-recognized and trusted German website, Soldat und Technik, reports that the drones will be delivered to Ukraine by the German defence company, Dynamit Nobel Defence (DND). The website states that DND has established a strategic partnership with the Danish company Sky-Watch.

The cooperation between the two companies aims to integrate the RQ-35 Heidrun drone with DND-developed sensor-to-shooter digital technologies. Furthermore, DND will play the role of a distribution partner for Sky-Watch.

**95 . Date: 03-08-2023Armed ISR / ISTAR - MALE - ContractIndonesia to Buy 12 TAI Anka Drones for $300MURL: https://www.uasvision.com/2023/08/03/indonesia-to-buy-12-tai-anka-drones-for-300m/**

Indonesia on Tuesday announced it had bought drones from a prominent Turkish defense manufacturer, marking the latest in a series of purchases aimed at modernizing the country’s aging military equipment.

The deal with Turkish Aerospace Industries (TAI) for 12 new unmanned aerial vehicles (UAVs) is worth some $300 million, Indonesia’s defense ministry said in a statement.

The agreement comes after Indonesian President Joko Widodo in July warned his Cabinet to maintain a “healthy” budget as he highlighted outsized spending by the country’s security agencies, including the Defense Ministry.

In January, Defense Minister Prabowo Subianto sealed an $800-million deal to buy 12 Mirage 2000-5 fighter jets, which drew criticism as they were considered too old. Indonesia in February also bought 42 Rafale fighter jets for $8.1 billion, which will be disbursed in phases over several years.

At 134.3 trillion rupiahs ($8.89 billion), the Defense Ministry has the biggest allocation from the country’s total budget this year, according to government data.

The deal with Ankara-based TAI was finalized in February and the drones are expected to be delivered within 32 months of the signing. It also includes training and flight simulators, the Defense Ministry said in a statement.

The statement did not clarify which drones have been agreed on, but media reports cited TAI General Manager Temel Kotil as saying that the agreement would cover the company’s Anka combat UAVs.

Indonesia earlier expressed its interest in the medium-altitude long-endurance (MALE) class drone, with all-weather day and night reconnaissance abilities, target detection and identification, and intelligence missions, featuring autonomous flight capability, including automatic takeoff and landing.

It can remain in the air for up to 30 hours and boasts a 250-kilometer (155.34-mile) firing range capacity.

Kotil last month said six of the drones would be manufactured in Türkiye and delivered in August. The remaining six, along with technology transfer, will be produced in Indonesia, said the official.

TAI currently produces five Ankas per month but plans to boost the capacity in the coming period to meet growing foreign demand. The drone has already been sold to Tunisia, Kazakhstan, Malaysia, Algeria and Chad.

TAI has been expanding efforts to ensure a greater presence in the Asian market in new-generation technologies, particularly in the field of the defense industry and aviation.

It already has an office in Indonesia and opened an engineering and design office in Malaysia back in November 2021 to explore opportunities for defense and aviation projects, including UAVs, jet trainers and helicopter development.

TAI in May announced it had signed a deal worth some $100 million for three of its Anka drones.

TAI meanwhile is also engaged in the development of a flying-wing, deep-strike stealth unmanned fighter jet, Anka-3. It is also manufacturing the Aksungur combat drone.

Its project portfolio also includes Hürjet, Türkiye’s domestically developed advanced jet trainer and light attack aircraft, and close air support and the training aircraft, Hürkuş.

The Hürjet project initially kicked off in 2017, and the jet made its maiden flight in late April.

The T129 Tactical Reconnaissance and Attack Helicopter, or Atak, as well as the indigenous multirole helicopter, the T625 Gökbey, are also among its pioneering projects.

Development of Atak’s successor, Atak 2, which marks Türkiye’s first domestically developed heavy-class attack helicopter, is also underway. The chopper became operational in late April.

Türkiye’s first home-grown 5th-generation fighter jet is TAI’s most important project. Named KAAN, the warplane made a runway debut and completed its first taxi test after becoming operational in mid-March.

The aircraft, seeking to perform its maiden flight soon, has been developed to replace the F-16s in the Air Forces Command’s fleet and are planned to be phased out starting in the 2030s.

**96 . Date: 04-08-2023Loitering Munition - Mini - General - PlatformRussia is Already Making Iranian Drones with Slight DifferencesURL: https://www.uasvision.com/2023/08/04/russia-is-already-making-iranian-drones-with-slight-differences/**

The Russian Federation already uses kamikaze drones of its own production based on Iranian Shahed for strikes on Ukraine: we will explain what is known about them…

At the beginning of July of this year, after one of the night attacks of the occupiers by Iranian kamikaze drones of the Shahed type, it became known that the Russians began to use a “new type” of these attack drones for attacks on Ukraine, which were assembled or even manufactured on the territory of the Russian Federation , on which, in particular, was hinted at by the combat part of one of the Soviet or Russian-made UAVs.

At the same time, Defense Express recently received a number of photos from its own sources that allow us to analyze, and what differences can be found, if we compare the “new” attack drone, probably manufactured in the Russian Federation (for convenience, we will call it “Geran-2”) and the Iranian sample (we will call it Shahed).

The first thing to note is that “Geranium-2” has indeed received a new marking (previously a photo with an atypical designation “Ы” was distributed on the network), which can be seen in the photo below and which differs from the Shahed marking with the letter “K”.

Markings of the “new” version of the kamikaze drone (top) and the “old”, the serial numbers are painted over for security reasons

Now let’s move on to the basic differences. A number of changes in the “new” kamikaze drone concern its body. Thus, the analysis of images of the Geran-2 kamikaze drone shows that the new version received a slightly different body, which consists of interconnected elements, while in Shahed it was one-piece.

Markings of the “new” version of the kamikaze drone (top) and the “old”, the serial numbers are painted over for security reasons

As you can see, one of the fragments of the kamikaze drone tail of the “new” Geran-2 drone (photo above) has holes for connecting parts of this drone, which were missing in the “old” version.

The type of material used in the body of these Kamchkadze drones has also changed – if in the old Shahed it was printed “honeycombs”, then in the new “Geran-2” something similar to “foam”.

“Foam” in the “new” drone (above) and “honeycomb” in the “old” version (below)

As we mentioned earlier, the new “Geranium-2” also received a new warhead, which is marked in Cyrillic instead of Latin and equipped with tungsten balls.

New combat unit of the Geran-2 kamikaze drone

The Geran-2 UAV has also changed its battery – previously it was made of Li-Ion 18650 batteries, while the “new” drone has a gel battery, and from the Russian brand Delta Battery.

After all, the “new” “Geranium-2” is also equipped with antennas with the “Comet” block, which provides protection against interference and was not used in Shahed before.

New helium battery in Geran-2 kamikaze drone

In view of the facts listed above, we once again record the fact that the Russian Federation really began to use kamikaze drones of its own production and with its own components for strikes on Ukraine. It is currently unclear whether we are talking about some individual samples or whether the occupiers managed to establish production on a larger scale.

**97 . Date: 09-08-2023Solar ISR / ISTAR - Mini - General - PlatformSolar UAV Breaks Endurance Record with Three-Day FlightURL: https://www.uasvision.com/2023/08/09/solar-uav-breaks-endurance-record-with-three-day-flight/**

A California start-up has broken the endurance flight record for small uncrewed aerial vehicles (UAVs), with its test aircraft remaining aloft for three days and surpassing the previous milestone by nearly double.

Kraus Hamdani Aerospace (KHA), which develops all-electric UAVs for defence and commercial applications, said on 2 August that its K1000 Ultra-Long Endurance (ULE) vehilce successfully completed a flight of 75h 53m – establishing a new record in its class.

“The K1000ULE flew through rain, clouds, strong winds and a range of ambient temperatures and atmospheric conditions,” KHA says.

The K1000 is a so-called “pseudo satellite”, designed to provide persistent surveillance and signal re-transmission. The type’s onboard solar panels and fully electric propulsion enable its long-endurance flight capability.

KHA says the recent 75h flight, which took place at the Pendleton UAS test range in Oregon, has established a new world record for uncrewed aircraft in the Group 2 fixed-wing category, which includes UAS ranging from 9.5-25kg (21-55lb) using the Pentagon’s classification system.

The previous endurance flight record for a Group 2 UAS was held by Lockheed Martin’s Stalker VXE, which completed a 36h 17m non-stop flight in 2022. That feat was accomplished using a specially configured wing-mounted fuel tank.

The Kraus Hamdani Aerospace K1000 Ultra-Long Endurance UAS completed a record-setting 75h 53m flight in Pendleton, Oregon

KHA’s solar-electric approach eschews consumable fuel and allows the company to target what it calls the “perpetual flight” of an orbiting satellite “at a fraction of the cost”.

“The surveillance abilities of the K1000ULE could make satellites redundant,” KHA says. “Without the constraints of an orbit, this UAV offers the benefits of a satellite-like platform with faster deployment and without the associated infrastructure or cost.”

The company appears to be making rapid progress in expanding the endurance threshold of the platform. In November 2022 at the US Army’s Project Convergence series of technology experiments, KHA co-founder Stefan Kraus told FlightGlobal the K1000 had an operational ceiling of 20,000ft and 26h of flight endurance.

Less than a year later, the recent Oregon flight nearly tripled that duration.

In addition to military applications, KHA says the K1000’s record-breaking endurance capability will be relevant to a range of non-defence missions, including disaster response, conservation, agriculture and oil and gas exploration.

**98 . Date: 15-08-2023PatentAeroVironment Gets Patent for VTOL UAV with GPS Antenna SwitchURL: https://www.uasvision.com/2023/08/15/aerovironment-gets-patent-for-vtol-uav-with-gps-antenna-switch/**

AeroVironment

has been granted a patent for a system that improves the performance of vertical take-off and landing (VTOL) aerial vehicles. The system includes two GPS antennas and a flight controller that utilizes the GPS signal from the antenna that is not being used for navigation when the vehicle is at a certain pitch level. The system also detects errors in the GPS antennas and adjusts the pitch level to minimize the use of the antenna with the error.

A recently granted patent (Publication Number: US11686859B2) describes a system for a vertical take-off and landing (VTOL) aerial vehicle that utilizes GPS signals from multiple antennas to improve flight control. The system includes an aerial vehicle flight controller with a processor and addressable memory. The flight controller receives the pitch level of the VTOL aerial vehicle from sensors during vertical flight and determines if the pitch level is at a set rotation from vertical. If the pitch level is at or above the set rotation, the system utilizes a GPS signal from either a first GPS antenna or a second GPS antenna, using a GPS antenna switch.

The system also detects errors in the GPS antennas and adjusts the set rotation to minimize the use of the antenna with the error. This prevents inadvertent switching between the antennas during various VTOL aerial vehicle maneuvers such as ascent, descent, evasive action, and banked turns. The first GPS antenna is located in the nose of the VTOL aerial vehicle, while the second GPS antenna is positioned distal from the first antenna. The area between the first GPS antenna and the exterior surface of the nose is clear of any carbon-based or metallic material.

The first GPS antenna has a center field of view that is oriented vertically when the VTOL aerial vehicle is in a nominal steady state hover attitude or a nominal steady state attitude for vertical flight. The second GPS antenna has a center field of view that is oriented vertically when the VTOL aerial vehicle is in a nominal pitch attitude for horizontal flight. The flight controller is in communication with the GPS antenna switch and the aerial vehicle sensors, allowing it to utilize the GPS antenna signal via the switch.

Additionally, the system includes a primary GPS receiver and a secondary GPS receiver in communication with the flight controller. The flight controller can switch between the receivers based on factors such as signal quality and the number of satellites in the visible constellation of each receiver.

Overall, this patented system enhances the flight control of VTOL aerial vehicles by utilizing multiple GPS antennas, detecting errors, and adjusting the set rotation to optimize GPS signal usage.

**99 . Date: 16-08-2023Tanker - HALE - ContractBoeing Gets $115M Contract to Enhance Readiness of MQ-25A Stingray AircraftURL: https://www.uasvision.com/2023/08/16/boeing-gets-115m-contract-to-enhance-readiness-of-mq-25a-stingray-aircraft/**

Boeing has been granted a $115 million contract by the US Navy’s Naval Air Systems Command (NAVAIR) to furnish spare parts and repair equipment for the MQ-25A Stingray aircraft, ensuring its operational readiness and maintainability during its inaugural deployment.

The undertaking is projected to conclude by July 2026, with 80% of the work to be conducted in St. Louis, Missouri, and the remaining 20% in Indianapolis, Indiana.

Boeing aims to improve the MQ-25A Stingray aircraft’s preparedness, maintainability, and dependability by supplying crucial spare parts and repair equipment, thereby supporting the aircraft’s operational capabilities.

Initially awarded by the US Navy, the original contract to Boeing, valued at $805.3 million, encompassed the engineering and production of the MQ-25A Stingray unmanned aerial refueler, which entailed delivering four drones. A subsequent agreement was granted in 2020 worth $84.7 million to augment the US Navy’s inventory with an additional three MQ-25A Stingray unmanned in-flight refueling tankers.

**100 . Date: 21-08-2023Armed ISR / ISTAR - MALE - ContractGeneral Atomics Gets $12.5M US Army Aircrew Services ContractURL: https://www.uasvision.com/2023/08/21/general-atomics-gets-12-5m-us-army-aircrew-services-contract/**

General Atomics Aeronautical Systems Inc.,

Poway, California, was awarded a $12,568,468 cost-plus-fixed-fee contract for aircrew launch and recovery services.

Bids were solicited via the internet with one received. Work will be performed in London, United Kingdom, with an estimated completion date of Aug. 19, 2024. Fiscal 2023 operation and maintenance, defense-wide funds in the amount of $12,568,468 were obligated at the time of the award.

U.S. Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity (W31P4Q-23-F-0248).

**101 . Date: 21-08-2023PartnershipHungary to Produce Combat Drones in Cooperation with Israel and GermanyURL: https://www.uasvision.com/2023/08/21/hungary-to-produce-combat-drones-in-cooperation-with-israel-and-germany/**

Hungary has signed an agreement to manufacture combat drones in cooperation with Israeli and German companies as part of an effort to grow and modernize its military and defense industry, Prime Minister Viktor Orban announced.

“If I heard about a country that produces and develops military technology together with Germans and Israelis, I would think twice about messing with them, and that’s good news for every Hungarian,” Orban said.

The combat vehicle factory that opened Friday in Zalaegerszeg, in which the Hungarian government has a 49 percent stake, is majority-owned by German military technology company Rheinmetall. The investment is part of increasing efforts by Orban’s government to enlarge its fighting forces and increase production of military equipment.

Orban said Friday that operations would soon begin at another Rheinmetall investment in Central Hungary, which he said would be “one of Europe’s most modern ammunition factories.”

He also pointed to an Airbus factory in Hungary that opened last year which produces components for modern combat helicopters, and the acquisition by a Hungarian company in 2021 of Czech aircraft manufacturer Aero Vodochody, which produces military and training aircraft.

The growth of Hungary’s military industry comes as it has consistently advocated for an immediate cease-fire and peace talks between Russia and Ukraine. The Hungarian government has refused to provide Kyiv with weapons or to allow their transfer across the two countries’ shared border.

Orban has portrayed himself as being “on the side of peace” in the war, but on Friday said that “for peace, you must have strength.”

“We have not given up building an independent Hungarian defense industry, nor have we given up on putting Hungarian innovation and technology at the forefront of the world,” he said, adding that the war in Ukraine had “only strengthened our determination.”

Hungary, a NATO member, will this year achieve the alliance’s expectations that member nations spend at least 2 percent of their GDP on defense, Orban said.

**102 . Date: 22-08-2023General - NavigationNew Method for Dynamic Target Tracking in GPS-Denied EnvironmentsURL: https://www.uasvision.com/2023/08/22/new-method-for-dynamic-target-tracking-of-uas-in-gps-denied-environments/**

A study published in Engineering introduces a novel image-based visual servoing (IBVS) method for unmanned aerial vehicles (UAVs) to track dynamic targets in GPS-denied environments.

Titled “Dynamic Target Tracking of Unmanned Aerial Vehicles Under Unpredictable Disturbances,” the research article presents a comprehensive approach that addresses the challenges of estimating target velocities, image depth estimation, and tracking stability in the presence of external disturbances.

The proposed method utilizes a constructed virtual camera to derive simplified and decoupled image dynamics for underactuated UAVs. By considering the uncertainties caused by unpredictable rotations and velocities of dynamic targets, the researchers have developed a unique image depth model that extends the IBVS method to track rotating targets with arbitrary orientations. This model ensures accurate image feature tracking and smooth trajectory of the rotating target.

To estimate the relative velocities between the UAV and the dynamic target, a velocity observer has been designed. This observer eliminates the need for translational velocity measurements and mitigates control chatter caused by noise-containing measurements. Additionally, an integral-based filter has been introduced to compensate for unpredictable environmental disturbances, thereby enhancing the anti-disturbance ability of the UAV.

The stability of the velocity observer and IBVS controller has been rigorously analyzed using the Lyapunov method. Comparative simulations and multistage experiments have been conducted to illustrate the tracking stability, anti-disturbance ability, and tracking robustness of the proposed method with a dynamic rotating target.

Key contributions of this study include:

In conclusion, this study presents a dynamic IBVS method that significantly improves the tracking performance of UAVs in the presence of unpredictable disturbances. By utilizing a velocity observer, a novel image depth model, and an integral-based filter, the proposed method demonstrates enhanced tracking stability, anti-disturbance ability, and robustness.

The stability of the method has been thoroughly analyzed using Lyapunov theory, and simulations and experiments have been conducted to verify its effectiveness.

The full study can be accessed here.

**103 . Date: 24-08-2023Loitering Munition - Small - General - PlatformTaiwan’s Chien Hsiang Kamikaze Drone in ActionURL: https://www.uasvision.com/2023/08/24/taiwans-chien-hsiang-kamikaze-drone-in-action/**

Taiwan’s Ministry of Defense has offered a rare look at one of its Chien Hsiang loitering munitions swooping down on a target during a test.

Authorities on the island rightfully state that the value of uncrewed aerial systems, especially ones that can offer asymmetric capabilities, has been underscored by the current conflict in Ukraine. For Taiwan, relatively low-cost loitering munitions, also often called kamikaze drones, would offer very valuable additional capacity to strike Chinese forces during any future major conflict across Taiwan Strait.

The clip showing the Chien Hsiang loitering munition going through the motions of a strike on a mock target was included in a larger video segment that Taiwan’s Military News Agency put out. The Military News Agency is the official media outlet of the Taiwanese Ministry of Defense.

The full video, seen above, covers various drone developments from the National Chung-Shan Institute of Science and Technology (NCSIST), a top Taiwanese military organization charged with carrying out advanced research and development and test and evaluation work.The Chien Hsiang, which was first seen publicly in 2017, is a delta wing drone with a single gas engine driving a pusher propeller at the rear. The new video clip shows pairs of pop-out antennas deploying on top and below the drone after launch, which are features that have been seen on newer iterations of the core design.

A newer version of the Chien Hsiang seen on display in 2022, with what appear to be two pairs of antennas on top and below the rear end of the drone’s main body. I-HWA CHENG/AFP via Getty Images

To date, all variants of the Chien Hsiang have generally been described as being able to home in on a target’s radiofrequency emissions and being primarily intended to target enemy radars. NCSIST has said in the past that it has a maximum endurance of five hours and the ability to strike targets up to 621 miles (1,000 kilometers) away, making it truly a very long-range suppression/destruction of enemy air defenses (SEAD/DEAD) weapon.

Previously released information about the Chien Hsiang has made clear it does not need an operator in the loop to carry out a strike. It can be preset to fly to a specific location and then autonomously search for target emissions. This also allows the drone to re-engage a threat that might have stopped emitting temporarily. The onboard autopilot would also allow Chien Hsiangs to attack specific coordinates without homing in on any emissions.

What may cameras with fixed forward fields of view mounted on the underside of one of the Chien Hsiang variants. Other versions of the drone have this feature, as well. Military News Agency capture

Multiple Chien Hsiang variants have what appear to be cameras with fixed forward fields of view under their fuselages. This could offer a way to help confirm the drone had hit the desired target if some type of connectivity was available, such as on shorter-ranged missions or when an airborne relay is available.

**104 . Date: 25-08-2023Research - Mini - GeneralDrones Can Lock Together in Mid-Air to Form a Bigger, Stronger RobotURL: https://www.uasvision.com/2023/08/25/drones-can-lock-together-in-mid-air-to-form-a-bigger-stronger-robot/**

A drone’s size affects what it can—or can’t—do. If a drone is too small, it may be limited in the types of tasks it can complete, or the amount of heavy lifting it can do. But if a drone is too big, it may be difficult to get it up in the air or have it navigate around tricky structures, but it may make up for that in other ways.

A solution that a group of engineers from the University of Tokyo came up with is to create a set of drone units that can assemble and disassemble in the air. That way, they can break up to fit into tight spaces, but can also combine to become stronger if needed.

Last month, the detailed design behind this type of system, called Tilted-Rotor-Equipped Aerial Robot With Autonomous In-Flight Assembly and Disassembly Ability (TRADY), was described in the journal Advanced Intelligent Systems.

The drones used in the demonstration look like normal quadcopters but with an extra component (a plug or jack). The drone with the plug and the drone with the jack are designed to lock into one another, like two pieces of a jigsaw puzzle.

Although in their test runs, they only used two units, the authors wrote in the paper that this methodology “can be easily applied to more units by installing both the plug type and the jack type of docking mechanisms in a single unit.”

To control these drones, the researchers developed two systems: a distributed control system for operating each unit independently that can be switched to a unified control system. An onboard PC conveys the position of each drone to allow them to angle themselves appropriate for coming together and apart.

Other than testing the smoothness of the assembly and disassembly process, the team put these units to work by giving them tasks to do, such as inserting a peg into a pipe, and opening a valve. The TRADY units were able to complete both challenges.

“As a future prospect, we intend to design a new docking mechanism equipped with joints that will enable the robot to alter rotor directions after assembly. This will expand the robot’s controllability in a more significant manner,” the researchers wrote. “Furthermore, expanding the system by utilizing three or more units remains a future challenge.”

The full paper can be accessed here.

**105 . Date: 31-08-2023Armed ISR / ISTAR - MALE - ContractGeneral Atomics Gets $25M MQ-9 UK Logistics Support ContractURL: https://www.uasvision.com/2023/08/31/general-atomics-gets-25m-mq-9-uk-logistics-support-contract/**

General Atomics Aeronautical Systems Inc.

, Poway, California, was awarded a $25,396,875 cost-plus-fixed-fee contract for United Kingdom MQ-9 contractor logistics support. This contract provides contractor logistics support for the MQ-9A and ground control station to the Royal Air Force.

This contract provides for the field service representative, repair and return, and technical support tasks. Work will be performed at an international location and is expected to be completed March 31, 2024. This contract involves foreign military sales to the United Kingdom. This contract was a sole-source acquisition.

Foreign Military Sales funds in the amount of $25,396,875 are being obligated at time of award.

The Air Force Life Cycle Management Center, Wright Patterson Air Force Base, Ohio, is the contracting activity (FA8620-19-C-2003).

**106 . Date: 06-09-2023Armed ISR / ISTAR - MALE - GeneralUkraine’s TB-2 Drones are Back in Action – Bad News For RussiaURL: https://www.uasvision.com/2023/09/06/ukraines-tb-2-drones-are-back-in-action-bad-news-for-russia/**

Videos

that appeared online on Sunday depict the 1,500-pound, propeller-driven drones—which can range hundreds of miles—striking a Russian patrol boat and supply truck in occupied southern Ukraine.

That TB-2s are venturing south into nominally Russian-controlled air space implies two things: that Kyiv has managed to rebuild its TB-2 force, nine months after Russian air-defenses badly attrited the 70-drone force.

The TB-2’s dramatic reappearance also points to the steady degradation of Russian air-defenses across swathes of southern Ukraine as Kyiv’s 2023 counteroffensive grinds into its fourth month—and Ukrainian brigades make slow but steady progress along two main axes in southern Ukraine’s Zaporizhzhia and Donetsk Oblasts.

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The Turkish-made TB-2—a 21-foot-long, satellite-controlled drone with day-night optics and hardpoints for small, five-mile-range missiles—was an early icon of Russia’s 19-month wider war on Ukraine.

After recovering from air and missile strikes that destroyed some of their 20 TB-2s on the ground on day one of the wider war, the Ukrainian air force and navy sent the drones into action in north-central Ukraine and elsewhere.

Russian brigades were rolling toward Kyiv. But every mile they advanced stretched their supply lines as well as the air-defense coverage that protected both front-line and rear-area formations.

The TB-2 operators exploited that over-extension. First, the drones went after the short-range air-defense systems protecting Russian tank battalions and supply convoys. In just the first month of the wider war through mid-March 2022, the TB-2s plinked no fewer than 10 Russian surface-to-air missile launchers, including Buks, Tors and a Pantsir.

“Once they were free of Russian air-defenses, the Ukrainians … began deploying their TB-2s for their other two important tasks—for reconnaissance and for close air support,”

wrote

Tom Cooper, an author and expert on the Russian military.

Stripped of their air-defenses, Russian tanks and supply trucks were easy pickings. “In the Kyiv area, they have mauled many of Russian armored formations,” Cooper reported at the time. “In the south, they have directed massive and precise artillery barrages on the Kherson airport and the [Russian] units besieging Mykolaiv.”

TB-2s also fired missiles at several field headquarters. The effect on the Russians was profound.

“TB-2s are also wrecking the Russians’ nerves,” Cooper wrote. “We’ve seen several videos showing entire Russian [battalions] turning around and fleeing after losing only a few vehicles to TB-2s.”

The Russians fired back, shooting down at least a dozen TB-2s in the first six months of the wider war. A steady supply of fresh airframes from Turkish firm Bayraktar—at least 35 in the first year of the conflict—kept the TB-2 force in the fight.

It wasn’t cheap. A TB-2 unit with control hardware and six airframes can cost as much as $100 million.

After the invaders retreated from Kyiv—and, six months later, also quit Kharkiv Oblast in northeastern Ukraine and northern Kherson Oblast in southern Ukraine—the front line stabilized. The Russians hurried to reinforce their air-defenses along the 600-mile front.

The slow-flying TB-2s couldn’t survive in this environment.

“Once the Russian military got its act together, it was able to down many TB-2s,”

Samuel Bendett, an analyst with CNA in Washington D.C., told Insider. By now the Russians have shot down or destroyed on the ground no fewer than 24 TB-2s—a third of the fleet.

Late last year the Ukrainians pulled back the TB-2s, mostly relegating them to reconnaissance missions on the Ukrainian side of the line of contact. That kept the drones out of harm’s way, for the most part. For more dangerous missions directly over Russian battalions, the Ukrainians began using small, explosives-laden first-person-view racing drones—each costing just $5,000.

But an FPV drone ranges just a few miles from its operator. And it pretty much is a single-use system. For deeper and repeated strikes, the TB-2 still is the better drone. But it wasn’t until this month that the conditions were right for the rebuilt TB-2 force to resume offensive operations.

The attack on the Russian KS-701 patrol boat, which the Sunday video depicts in gruesome detail, is particularly impressive. The TB-2 watches from high overhead—quiet and unseen—as Russian sailors and troops on the shore unload supplies from the 29-foot boat.

The Russians don’t know they’re being watched until the missile strikes the KS-701, damaging it and obliterating some of the people aboard it.

It’s not hard to understand how the TB-2s regained their operational freedom. Since launching their counteroffensive on June 4, Ukrainian forces firing precision munitions—artillery, bombs, rockets and FPV drones—steadily have been eroding Russian air-defenses across southern Ukraine. On the southern front alone, the Ukrainians have knocked out at least 13 SAM launchers that independent analysts can confirm.

It’s possible the same dynamics that loosed the TB-2s on Russian battalions around Kyiv in February and March 2022 are in play in southern Ukraine today. TB-2s work best where enemy air-defenses are most stressed. That TB-2s again are firing missiles at Russian troops is a strong indicator that Russian air-defenses in the south are in trouble.

The danger, for the Russians, is a TB-2 feedback loop—whereby the Ukrainian drones exploit gaps in Russian air-defenses in order to target the air-defenses that still are intact. So on and so forth until the SAM umbrella over whole oblasts collapses, giving the TB-2s even greater freedom to crisscross occupied territory and strike Russian battalions and supply convoys at will.

**107 . Date: 07-09-2023Armed ISR / ISTAR - MALE - ContractMorocco to Acquire Turkish Akinci DronesURL: https://www.uasvision.com/2023/09/07/morocco-to-acquire-turkish-akinci-drones/**

Morocco has begun talks with the Turkish company Baykar to acquire the Akinci combat drone . This unmanned aircraft entered service in 2021 and is considered the ‘jewel’ of the Turkish military arsenal. Due to its capabilities, other countries such as Pakistan and Saudi Arabia have already acquired several units.

Turkey’s Baykar, Akinci is a high-altitude unmanned combat aerial vehicle with extended endurance, equipped with artificial intelligence and capable of carrying out operations with combat aircraft in air-to-ground and air- to-air strike missions.

The drone, which weighs 4.5 tonnes, is capable of deploying a payload of 1,500kg, including 400kg of internal cargo and 950kg of external cargo, with an airframe equipped with two turboprop engines. It also has electronic support that will allow it to carry satellite communication systems, air-to-air radar, obstacle detection radar, synthetic aperture radar .

The Akinci is capable of reducing the payload of fighter aircraft, and can also carry out aerial bombing. According to the Moroccan media, it could also be used by Morocco for air-to-air missions .

In 2021, the Kingdom has already acquired 19 units of Bayraktar TB2 drones from the Baykar company . In this regard, last June, the Royal Moroccan Armed Forces (FAR) also acquired SPY-X kamikaze drones manufactured by the Israeli company Bluebird Aero Systems, following negotiations that began in 2021. Rabat has also acquired unmanned aircraft from other countries such as China and France. It has even positioned itself as the leading drone manufacturer in Africa.

As reported late last year by The Wall Street Journal, Rabat has reportedly reached an agreement with two leading Israeli companies in the manufacture of both attack and defense drones to build two drone factories in Morocco, which would make the Kingdom the continent’s leading drone manufacturing nation .

**108 . Date: 11-09-2023Armed ISR / ISTAR - HALE - ContractGeneral Atomics Wins DARPA LongShot Air-To-Air Combat Drone BidURL: https://www.uasvision.com/2023/09/11/general-atomics-wins-darpa-longshot-air-to-air-combat-drone-bid/**

General Atomics Aeronautical Systems, Inc.

(GA-ASI) is poised to begin the flight-testing phase on the Defense Advanced Research Projects Agency’s (DARPA) LongShot program.

Begun in 2020, General Atomics was competitively awarded a contract to develop DARPA’s concept for disruptive air combat operations through demonstration of an air-to-air weapons capable air vehicle. The concept seeks to significantly increase engagement range and mission effectiveness of current 4th gen fighters and air-to-air missiles.

Over the last three years, GA-ASI has iterated on numerous vehicle designs to optimize performance and will complete the design enroute to flight testing in 2024. The testing will validate basic vehicle handling characteristics and lay the foundation for follow-on development and testing.

“We are extremely excited to get in the air!” said Mike Atwood, Senior Director of Advanced Aircraft Programs at GA-ASI. “Flight testing will validate digital designs that have been refined throughout the course of the project. General Atomics is dedicated to leveraging this process to rapidly deliver innovative unmanned capabilities for national defense.”

**109 . Date: 15-09-2023Requirement - SoftwareDARPA Seeks Tech Solutions to Create Autonomous Capabilities for Commercial DronesURL: https://www.uasvision.com/2023/09/15/darpa-seeks-tech-solutions-to-create-autonomous-capabilities-for-commercial-drones/**

Commercial drone technology is advancing rapidly, providing cost-effective and robust capabilities for a variety of civil and military missions. As small aerial vehicles play increasingly important military roles on the battlefield, adversaries are developing electromagnetic countermeasures to disrupt communication links between operator and drone, forcing the vehicle to abort mission, return to its starting point, or crash.

DARPA’s Rapid Experimental Missionized Autonomy (REMA) program aims to enable a drone to autonomously continue its predefined mission when connection to the operator is lost. To achieve this goal, REMA tasks performers with building a subsystem that allows autonomous operation of a variety of commercially available small drones without being tied to a specific drone design. The program also seeks to create mission-specific autonomy software through rapid, monthly spirals of development.

“REMA is focused on creating autonomous solutions to maximize effectiveness of stock commercial and small military drones on the battlefield,” said Lael Rudd, program manager in DARPA’s Tactical Technology Office. “Through creating an autonomy adapter that works with all commercial drones, regardless of manufacturer, and by developing mission-specific autonomy software that is constantly refreshed and easy to upload prior to a mission, we aim to give drone operators the advantage in fast-paced combat operations. Speed in tech development and on the battlefield is key, and REMA aims to deliver.”

The 18-month, single-phase program is divided into two technical areas: 1) A drone-autonomy adapter interface and 2) mission-specific autonomy software that runs on the adapter. The autonomy adapter will be designed to agnostically detect the drone type and adjust operational parameters to enable the drone to receive mission-specific autonomy software. The autonomy software will be completed in development cycles starting at three-month intervals and accelerating to one-month intervals, to repeatedly provide new and improved autonomy capabilities.

For technical details and proposal instructions visit the REMA program solicitation at SAM.gov

**110 . Date: 03-10-2023Armed ISR / ISTAR - MALE - GeneralGA-ASI Delivers First Protector UAV to UKURL: https://www.uasvision.com/2023/10/03/ga-asi-delivers-first-protector-uav-to-uk/**

General Atomics Aeronautical Systems Inc

(GA-ASI) has delivered the first MQ-9B Protector RG1 medium-altitude long-endurance unmanned aerial vehicle (UAV) to the United Kingdom.

The first of a planned 16 Protector RG1 air vehicles was loaded onto an Antonov An-124 airlifter at the company’s Poway production facility in southern California on 29 September, ahead of its transatlantic crossing to Royal Air Force (RAF) Waddington in England.

The Protector is the UK-specific variant of the MQ-9B SkyGuardian, which is also known as the SeaGuardian in its dedicated maritime fit. It is designed to provide a step change in unmanned operations for the RAF, given that it will be a sovereign capability that the UK fully owns, whereas the previous MQ-9A Reaper was an urgent operational requirement for Afghanistan that was largely controlled by the United States.

While the Protector fleet will be based at and operated from RAF Waddington, it will spend most of its time overseas in the same manner as the Reaper fleet. A future operational scenario could see the Protector ferry itself from RAF Waddington to a location in the Middle East or Sub-Saharan Africa, arriving in theatre to be met by a team that would arm and prep it for its mission.

Besides intelligence, surveillance, and reconnaissance (ISR) and strike, the RAF envisions a range of roles for the Protector that would include civil support in the UK and maritime awareness at home and abroad.

Operational flying by 13 and 31 squadrons (sqns) is scheduled to commence in 2025, with full operating capability scheduled for 2026.

**111 . Date: 04-10-2023ContractGeneral Atomics Gets $18M US Army Services ContractURL: https://www.uasvision.com/2023/10/04/general-atomics-gets-18m-us-army-services-contract/**

General Atomics Aeronautical Systems Inc.,

Poway, California, was awarded a $17,999,819 cost-plus-fixed-price contract for modeling, simulation and analysis services.

Bids were solicited via the internet with one received. Work locations and funding will be determined with each order, with an estimated completion date of Sept. 29, 2025.

Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity (W31P4Q-23-F-0209).

**112 . Date: 05-10-2023ISR / ISTAR - Tactical - TrainingIndonesian Naval Aviation Concludes Schiebel Camcopter S-100 UAS TrainingURL: https://www.uasvision.com/2023/10/05/indonesian-naval-aviation-concludes-schiebel-camcopter-s-100-uas-training/**

The Commander of the Indonesian Navy Aviation Center (Pusat Penerbangan Angkatan Laut, Danpuspenerbal), Rear Admiral Dr. Imam Musani, closed the Unmanned Air System (UAS) training for the Schiebel Camcopter S-100 and inspected the operational flying capabilities of the new Ron 700 Drone of Squadron 700 Wing Air 2 Puspenerbal on Friday, September 29, 2023.

From September 11 to September 28, 2023, technical support activities were conducted for one unit of the Unmanned Serial Vertical Takeoff and Landing Maritime Surveillance System, which was attended by 10 personnel from Squadron Air 700 Wing Air 2 Indonesian Naval Aviation Juanda. The addition of one unit of the Camcopter S-100 UAS with its advanced capabilities will undoubtedly enhance the capabilities of Squadron 700 Wing Air 2 in monitoring and securing maritime borders.

The closing event of the Schiebel Camcopter S-100 UAS training and the test flight of the new drone took place at Shelter 700 Wing Air 2 Puspenerbal, Juanda Naval Air Base. Present at the event were Deputy Commander of Puspenerbal, Rear Admiral Bayu Alisyahbana, Indonesian Naval Aviation’s Naval Colonel (Ret.) Bambang Yunianto, as well as various officials and the Commander of Squadron 700 Wing Air 2 Juanda. Addressing the participants of the advanced Camcopter S-100 UAS training, Rear Admiral Dr. Imam Musani, affectionately referred to as Danpuspenerbal, emphasized the importance of applying and enhancing the knowledge acquired during training. The dedication required for meticulous maintenance and upkeep by the crew members to ensure that the Camcopter S-100 can operate effectively at all times.

Indonesian Naval Aviation Schiebel Camcopter S-100 Unmanned Aerial System Training. (Photo by Puspen TNI)

The Schiebel Camcopter S-100 is an Austrian unmanned aerial vehicle (UAV) using a rotorcraft design. The unmanned aerial vehicle is a proven capability for military and civilian applications. The Vertical Takeoff and Landing (VTOL) UAS needs no prepared area or supporting launch or recovery equipment. It operates day and night, under adverse weather conditions, with a range out to 200 km, both on land and at sea. The S-100 navigates automatically via pre-programmed GPS waypoints or can be operated directly with a pilot control unit. Missions are planned and controlled via a simple point-and-click graphical user interface. High-definition payload imagery is transmitted to the control station in real time. Using “fly-by-wire” technology controlled by redundant flight computers, the UAV can complete its mission automatically in the most complex of electromagnetic environments.

Produced by the Austrian company Schiebel, it was developed from 2003 to 2005. With a maximum take-off weight (MTOW) of 200 kg (440 lb), its endurance is 6 hours (extendable to over 10 hours with optional external AVGAS fuel tanks fitted). It has a maximum speed of 220 km/h (140 mph) and a ceiling of 5,500 m (18,000 ft). It is powered by a 41 kW (55 hp) Diamond engine and can carry various payloads, such as electro-optics and infrared sensors.The primary radio link between ground station(s) occupy the 5030?5091 MHz band. A secondary link in the UHF band would operate within 433.2125 MHz to 434.4625 MHz. it successfully tested a company-developed heavy-fuel engine interchangeable with the standard Diamond engine. This heavy-fuel engine allows for the use of JP-5, Jet A-1 or JP-8 jet fuels. These fuels, which are standard on marine vessels, are safer to store and handle than gasoline.

**113 . Date: 13-10-2023Armed ISR / ISTAR - Small - General - ArmamentGreek Startup Fits Rocket Launcher on QuadcopterURL: https://www.uasvision.com/2023/10/13/greek-startup-fits-rocket-launcher-on-quadcopter/**

At the Hellenic booth at the Association of the United States Army conference, it is hard not to notice the five-foot-long quadcopter equipped with rocket launcher, a rare combination, developed by startup Spirit Aeronautical Systems (S.A.S) technology.

The final industrial configuration of the rotary drone SARISA SRS-1A with RL275-1S rocket launcher is being exhibited for the first time at the defense expo in the US, and company officials told Breaking Defense that the system is gaining increased interest from Ukraine and other countries.

“This is a unique systems that is not developed by others. Rockets are normally being shot out of the big helicopters like the Apache and Cobra. We give an alternative solution for that, through the drone saving lives,”

S.A.S technology Vice President Fotis Kampiotis told Breaking Defense.

The kinetic thrust of a rocket launcher requires an effective stabilizer to keep the drone balanced while shooting to hit the target.

“Right at the back of the UAV [unmanned aerial vehicle], there is a system that absorbs much of the kinetic energy produced by the firing, which is an absorbing mechanism we have developed at special absorbing positions in the drone body,”

S.A.S technology designer Christos Christou told Breaking Defense.

Successful rocket launching tests were conducted earlier this summer, the officials said. French firm Thales is the provider of the rockets for S.A.S technology.

“It is a high-precision weapon because it can actually hits the target with high precision from a distance of less than one meter or from up to kilometers away,” Kampiotis said.

He added that the system can have any type of communication, stating, “It is radio controlled, within the line of sight but it can also have SATCOM for extended application,” he said.

Kampiotis said that the quadcopter can’t currently be linked to Link-16, since it hasn’t received the order, but the drone is agnostic for data sharing.

According to company officials, the system is ready for production.

SARISA SRS-1 A can be equipped with one or two launchers of HYDRA 70, 2.75-inch / 70mm diameter rockets. The quadcopter can either be controlled by a large S.A.S-made control station for more demanding operations, or by a small off-the-shelf controller.

“We are here to declare our presence in the international market. The American market is a very attractive market for us and we’d like to be here. We have received a lot of inquiries from American entities here, military and other companies” Kampiotis said.

He added that the firm is seeking business-to-business opportunities to integrate systems with other companies.

In addition to apparent interest from Ukraine, Kampiotis said the firm “right now [has seen] a strong interest from the Hellenic army.”

Aside from the use of a rocket, the company said the drone can be used for transportation and logistics in different configurations.

“We’re working with many partners around Europe for European defense fund’s EDF programs, and we are a very flexible company seeking cooperation,” Kampiotis said.

**114 . Date: 13-10-2023Swarm - Mini - General - SoftwareNexter and Naval Group Demonstrate Drone Swarm Technology with 100 Drones in French Army DemoURL: https://www.uasvision.com/2023/10/13/nexter-and-naval-group-demonstrate-drone-swarm-technology-with-100-drones-in-french-army-demo/**

Nexter

and Naval Group have demonstrated that drone swarms can have other applications than saturation attacks. This was done together with the Gironde company Icarus Swarms, which has developed software allowing the evolution of several mini-drones, generally supplied by the manufacturer Parrot, which also equips the French forces .

During this demonstration, organized with the support of the Technical Section of the Army [STAT], Nexter and Naval Group first insisted on the “saturation” function, by flying a swarm of one hundred mini -drones. Which is as spectacular as it is impressive, the scene appearing to be taken from an episode of the television series Black Mirror… Having such a capacity could make it possible to inflict “considerable” damage at “lower cost” suggests Nexter/ KNDS. It all depends, in reality, on the countermeasures put in place by the adversary…

Another function explored is reconnaissance, with a formation of six micro-drones deployed from a light multi-role armored vehicle [VBMR-L] Serval. Depending on the payload carried, these devices can do real-time mapping, detect potential threats or even mark a target. That being said, the video broadcast by Nexter/KNDS does not mention other interesting capabilities, such as those consisting of luring an opposing force or jamming [or relaying] communications.

“Nexter and Naval Group have taken the initiative to experiment with solutions in order to initiate studies on this subject with the Armed Forces and the General Directorate of Armaments. We have chosen to present different functions: auto-geolocation of vehicles, real-time terrain scanning, geolocation and target aggression. Ultimately, this will increase the capabilities of Nexter and Naval Group systems [in order] to give our customers a tactical advantage over their adversary,”

explains the industrialist.

“Our swarms continue to grow… We don’t usually communicate about our work but when our customers do we are very happy,”

commented Icarus Swarms.

That being said, the DGA, via the Defense Innovation Agency [AID], has already launched, in this area, the TAMOS program [for “Tactical Multi-Objectices Swarming UAVs], entrusted to Safran Electronics & Defense and Squadrone -System.

This “project provides for the implementation of swarms of drones to enable the achievement of one or more missions, with the capacity to adapt and reconfigure fleets dynamically, all controlled by an intelligent supervisor,” explained the AID, in its activity report for the year 2022, published last June. If they are likely to be integrated into the Future Air Combat System [SCAF], the solutions developed within the framework of TAMOS could also have land and maritime applications… or even make coordination between robots of different types possible.

**115 . Date: 17-10-2023Armed ISR / ISTAR - MALE - General - PlatformBayraktar TB3 Prepares for Maiden FlightURL: https://www.uasvision.com/2023/10/17/bayraktar-tb3-drone-prepares-for-maiden-flight/**

Baykar

is continuing its development efforts on the Bayraktar TB3 drone, which can take off and land on ships with short runways. In this context, the company successfully completed the first roll test of the Bayraktar TB3, that features a foldable wing structure.

Baykar included footage from the first roll test of the Bayraktar TB3 at the flight training and test center in Çorlu in a post on social media. The Bayraktar TB3, which had been prepared by Baykar engineers before ground tests, was seen successfully starting its engine and leaving the hangar in the brief video.

https://youtu.be/37qRCKkC4gw

Bayraktar TB3, which has officially begun ground tests with engine start-up and ground driving tests, is planned to complete taxiing, first flight, and STOBAR type landing and take-off tests by the end of 2023. Bayraktar TB3 is expected to enter mass production in 2024, following the end of the testing phase, with KIZILELMA, another combat drone of the company.

On October 29, 2020, Baykar announced to the public that they were working on developing an unmanned aerial vehicle with folding wings and short-range take-off and landing capabilities. Approximately one year later, during TEKNOFEST 2021, Baykar’s chairman of the board of directors, Selçuk Bayraktar, disclosed the technical specs of the Bayraktar TB3.

Selçuk Bayraktar provided the press with images of the first prototype of the Bayraktar TB3 unmanned aerial vehicle on the assembly line about 6 months ago. The Turkish Navy’s largest ship, TCG Anadolu, was put into service in the same month, and prototypes of the Bayraktar TB3 and Kızılelma were also on the ship’s flight deck.

During the commissioning ceremony of the TCG Anadolu, a multi-purpose amphibious assault ship, Selçuk Bayraktar stated that Bayraktar TB3 will be ready to serve on the ship in 2024 and Kızılelma will be fully ready to serve on the ship in 2025.

Bayraktar further revealed that the TB3 Unmanned Aerial Vehicle may take off and land from TCG Anadolu without the use of the catapult system, and that the arresting equipment for KIZILELMA MIUS will be fitted on the ship in the future.

**116 . Date: 26-10-2023RegulationSwissDrones Achieves Milestone FAA Authorization for BVLOS UAV OperationsURL: https://www.uasvision.com/2023/10/26/swissdrones-achieves-milestone-faa-authorization-for-bvlos-uav-operations/**

SwissDrones, a global manufacturer and operator of long-range uncrewed helicopter systems for inspection, surveillance, and public safety applications, has announced that its SDO 50 V2 multi-mission, single-turbine uncrewed helicopter system has been granted an unprecedented FAA authorization.

This authorization allows aerial service provider Phoenix Air Unmanned (PAU), partner of SwissDrones, to operate the SDO 50 V2 beyond visual line of sight (BVLOS) across the entire United States. This landmark achievement marks the first-of-its-kind authorization within the nation, empowering PAU to broaden its capabilities in inspection, patrol, and survey missions over extensive distances. Furthermore, this authorization establishes a clear regulatory pathway, setting a precedent for other organizations utilizing the SDO 50 V2 to pursue BVLOS approvals for their commercial operations.

SwissDrones and PAU collaborated over three years to build a robust concept of safe BVLOS operations (CONOPS) and conducted numerous flight trials in the United States with the SDO 50 V2. All regulatory and safety requirements were met in cooperation with the FAA to enable extended-range inspection and patrol flights over linear infrastructure under the same regulations as traditional-crewed aircraft.

“We take great pride in our partnership with Phoenix Air Unmanned, which has resulted in securing this first-in-kind BVLOS authorization in the United States,” said Ulrich Amberg, CEO of SwissDrones. “This FAA authorization not only validates the strength of our CONOPS strategy but also paves the way for other commercial operators to leverage the capabilities of our SDO 50 V2 unmanned systems, setting a precedent for expanded operations in the industry.”

Phoenix Air Unmanned (PAU) intends to use this aircraft for various data-gathering tasks, including high-resolution imaging, LiDAR data collection, thermal imaging, and corona detection. Depending on the specific sensor package and operating area, inspection flights may span distances exceeding 60 miles. This enhanced capability to collect diverse datasets over long distances allows PAU to conduct multiple inspections efficiently within a single flight.

“This unprecedented authorization empowers us to conduct BVLOS operations for utilities nationwide,” stated Will Lovett, Managing Director of Phoenix Air Unmanned. “The SwissDrones SDO 50 V2 represents a game-changing advancement for our operations and clients in the Utility and Energy space, providing advanced sensor packages and an endurance capacity far surpassing what was previously available in the commercial market. It offers a safer, more efficient, and cost-effective alternative to traditional infrastructure inspection methods.”

The SDO 50 V2, with its maximum weight of 191 pounds, can carry sensors weighing between 30 and 70 pounds and maintain flights lasting over three hours. This extended endurance makes it ideal for missions requiring multiple sensors. It marks a significant performance boost, offering nearly ten times the endurance and three times the lift capacity compared to aircraft weighing under 55 pounds that operate under Part 107 waivers, allowing BVLOS inspections.

SwissDrones collaborates with civil aviation authorities worldwide to expand its operational capabilities and secure regulatory approvals and flight authorizations. These efforts aim to facilitate enhanced mission-specific operations to serve our valued customers better.

In addition to securing the groundbreaking FAA BVOS authorization, the SDO 50 V2 has received a Special Airworthiness Certificate (SAC-EC) from the FAA. Furthermore, SwissDrones is among the first organizations to obtain a European drone operator license, the European Union Aviation Safety Agency (EASA) Light UAS Operator Certificate (LUC). This certificate grants SwissDrones the authority to self-authorize flight operations for its aircraft across EASA countries, encompassing BVLOS operations within the specified certificate limits.

Additional regulatory approvals from civil aviation authorities worldwide will be announced in the coming months.

**117 . Date: 27-10-2023ISR / ISTAR - Small - General - Engine / PowersourceL3Harris, US Navy to Develop Heavy Fuel Version of FVR-90 DroneURL: https://www.uasvision.com/2023/10/27/l3harris-us-navy-to-develop-heavy-fuel-version-of-fvr-90-drone/**

As the US Navy seeks to develop and field advanced unmanned systems, the Naval Air Systems Command’s Small Tactical Unmanned Aircraft Systems Program will look to the FVR-90 to continue VTOL experimentation and maturation efforts due to its tactical mobility and agility.

The US Navy recently entered into an Other Transaction Authority with L3Harris to partner in developing a new UAS engine based on the FVR-90 airframe. In the coming months, teams from the Navy, L3Harris’ Agile Development Group, and Cobra AERO will collaborate to develop a heavy fuel variant of the FVR-90 UAS using the A99 HFE (heavy fuel engine system) that is more capable and agile than those the service currently uses.

The prototype project is a step in the Navy’s longer-term strategy to develop Vertical Take Off and Landing (VTOL) systems that offer greater tactical mobility and do not require launch and recovery equipment. The FVR-90 uses the L3Harris VideoScout® as its control station, a multiband digital data and video communication system, which is already integrated and operational throughout the fleet on numerous U.S. Navy and U.S. Marine Corps Afloat assets, allowing it to integrate onto various vessels.

In addition, L3Harris will be able to demonstrate other company technologies including the CMDL tactical radio and WESCAM MX-8 EO/IR payload.

“Unmanned systems play an increasingly important role in military tactical and strategic operations, and this project is a big step forward in positioning ourselves for successful mission support against evolving Navy and Marine Corps UAS threats and mission requirements,” said Ed Zoiss President Space and Airborne Systems, L3Harris. “Our system provides a plethora of different capabilities that can be applied to a wide range of operations; from humanitarian assistance, to search and rescue, to surveillance and reconnaissance. The ultimate goal is to provide our warfighters with cutting-edge technologies that enhance their capabilities and keep them safe.”

Designed for long endurance, 12-18 hours with a robust payload capacity, the FVR-90’s innovative modular design includes interchangeable nose payloads, boom mounts for detachable payloads and integrated radio bays for maximum flexibility in dynamic environments. The FVR-90 is efficient and effective. It only takes a two-person operation team roughly one hour to get it up and running.

No additional equipment is needed.

“When it comes to launching a UAS at sea, every second counts,” Zoiss said. “Conditions are changing quickly and the faster you can deploy, the faster you can begin gathering critical intelligence and increase the chances of mission success. The FVR-90 is tailor-made for the challenges of a maritime environment, and we’re looking forward to bringing its capabilities to bear on developing a next-generation UAS prototype for the Navy.”

L3Harris established the ADG in 2022 as an innovation accelerator, bringing approximately 1,000 engineers, program managers, technicians, and operations professionals together to focus on front-end development for urgent national security solutions. Using an agile development approach, the team works to deliver innovative solutions within a fraction of the time and cost of industry norms. Initial focus areas include advanced sensors, weapons systems, and unmanned/multi-mission systems

**118 . Date: 03-11-2023MarketUS House Panel Seeks Ban on Federal Purchases of China DronesURL: https://www.uasvision.com/2023/11/03/us-house-panel-seeks-ban-on-federal-purchases-of-china-drones/**

The top members of a U.S. House committee on China are introducing a bill that seeks to ban the U.S. government from buying Chinese drones.

Mike Gallagher, the Republican chair of the committee, and Raja Krishnamoorthi, the ranking Democrat, are introducing the “American Security Drone Act” on Wednesday, the lawmakers said in a statement to Reuters.

“This bill would prohibit the federal government from using American taxpayer dollars to purchase this equipment from countries like China,” Gallagher said. “It is imperative that Congress pass this bipartisan bill to protect U.S. interests and our national security supply chain.”

The bill would also bar local and state governments from purchasing Chinese drones using federal grants and require a federal report detailing the amount of foreign commercial off-the-shelf drones and covered unmanned aircraft systems procured by federal departments and agencies from China.

Krishnamoorthi said the bill

“helps protect against any vulnerabilities posed by our government agencies’ reliance on foreign-manufactured drone technology and will encourage growth in the U.S. drone industry.”

Separately, the U.S. Senate on Tuesday unanimously approved an amendment proposed by Republican Senator Marsha Blackburn and Democrat Mark Warner that would prohibit the Federal Aviation Administration (FAA) from operating or providing federal funds for drones produced in China, Russia, Iran, North Korea, Venezuela or Cuba.

“Taxpayer dollars should never fund drones manufactured in regions that are hostile toward our nation,” Blackburn said.

China recently announced export controls on some drones and drone-related equipment, saying it wanted to safeguard “national security and interests.”

The Commerce Department in 2020 imposed export restrictions on China-based drone manufacturer DJI, accusing it of complicity in the oppression of China’s Uyghur minority and helping the military.

Over 50% of drones sold in the United States are made by DJI, and they are the most popular drones in use by public safety agencies, Republican lawmakers said earlier this year.

Congress in 2019 banned the Pentagon from buying or using drones and components manufactured in China.

The American Security Drone Act seeks to ban the federal government from using American taxpayer dollars to purchase or operate Chinese drones, which account for over 50% of all the drones sold in the US.

Lawmakers say the majority of those drones are from one Chinese company – DJI – and are being used by multiple US public safety agencies, including the Department of Homeland Security, Secret Service, Immigration and Customs Enforcement, and the US Coast Guard.

“For years, I’ve been sounding the alarm on the risks that Chinese-made drones pose to United States’ national security”

said Florida Senator Rick Scott, who spearheaded the legislation.

“The US cannot and will not sit idly by while Xi and the Chinese Communist Party operate within the confines of our government to spy and gather intel on our nation through drones from Chinese-based companies like DJI,” Scott said.

The Shenzhen-based company had hired two lobbyist firms back in July to try and persuade Congress to dismiss the Act.

Once enacted, the American Security Drone Act would also apply to local and state governments, prohibiting them from buying Chinese drones using any federal funds derived from grants, contracts or other agreements.

The Act would also require local and state agencies to file a federal report detailing their current inventory of commercial off-the-shelf drones and unmanned aircraft systems obtained from other countries, like China, identified as national security threats.

Lastly, the bill would provide agencies with a timeline to end the current use of foreign-made drones.

Several agencies, including the Departments of Defense, Homeland Security, and Justice, would be exempt from the bill’s prohibitions under conditions specified in the bill.. Other agencies could apply for a waiver on a case-by-case basis, according to the bill.

The Act is now part of the FY2024 National Defense Authorization Act (NDAA), which was approved in July.

Additionally, another amendment related to the American Security Drone Act was passed unanimously by the Senate on Tuesday.

Besides restricting federal funding, the Senate measure takes the Act a step further by also prohibiting the US Federal Aviation Administration (FAA) from buying or operating drones produced specifically in China, Russia, Iran, North Korea, Venezuela, or Cuba.

The amendment will be added to an Appropriations Minibus funding package for Military Construction-VA, Agriculture, and Transportation agencies to be voted on this week.

Lawmakers from both sides of the aisle say both bills will help to boost the drone manufacturing industry in the US.

“The United States should lead the world in drone production and investment”

said Senator Mark Warner (D-VA), who has been vocal on the issues in June.

“Our reliance on drones from foreign adversaries like the People’s Republic of China, which has shown time and time again it will do whatever it takes to get its hands on sensitive American data, is extremely risky,”

Warner said.

**119 . Date: 07-11-2023Armed ISR / ISTAR - N/A - General - PlatformKratos Reveals Thanatos Tactical UAVURL: https://www.uasvision.com/2023/11/07/kratos-reveals-thanatos-tactical-uav/**

Kratos

has provided a rendering of its Thanatos drone for the first time. The company says it hopes to have gotten a contract by next year related to this stealth drone, the most advanced design the company has unveiled to date.

Though the potential customer remains unnamed, the artist’s conception includes a U.S. Air Force logo, suggesting this could be tied to the service’s Collaborative Combat Aircraft program or other advanced drone projects.

We are in discussions with a customer and hope to be under contract next year related to certain other Kratos tactical drone systems, including Thanatos,”

Eric DeMarco, Kratos’ President and CEO, said in a press release.

The rendering does show a tailless uncrewed aircraft with a number of textbook low-observable (stealthy) elements, including a shovel nose design, deep chine line, blended and recessed inlets, and a platypus-like trailing edge extension concealing a recessed exhaust. A tail design like this helps significantly reduce an aircraft’s infrared signature on top of its radar stealth features.

Thanatos also has diamond-shaped wings, which can offer reduced drag at high subsonic and supersonic speeds.

As has already been noted, the rendering shows Thanatos wearing both a Kratos logo and a U.S. Air Force logo. We have seen this combination in renderings of other drones the company has pitched to the Air Force in the past. This makes it very likely that the potential customer Kratos is hoping to get a contract from in relation to this design is the Air Force.

**120 . Date: 08-11-2023ContractAnduril Industries Gets UK MoD £17M Force Protection Technology ContractURL: https://www.uasvision.com/2023/11/08/anduril-industries-gets-uk-mod-17m-force-protection-technology-contract/**

The UK MoD has awarded defence technology company Anduril Industries a £17 million 31-month contract to explore future capabilities.

Strategic Command’s innovation team, jHub, is working with Anduril on the third phase of Programme TALOS. TALOS aims to accelerate a defence-wide approach to Integrated Command and Control (C2) for Force Protection, with Phase 3 focused on experimenting with technological advancements that could inform future capabilities and platforms.

This builds on earlier work which established an understanding of Anduril’s autonomous Sentry Towers, and their utility at active Royal Air Force (RAF) air bases, and introduced multiple Force Protection layers at locations across the MoD.

This new contract will further develop these capabilities, experimenting with integrated technologies to better understand ways of providing end-to-end solutions.

The jHub is fundamental in this work, and it closely aligns with their aim of delivering competitive advantage against adversaries through novel capabilities. Taking an opportunity-led and user-centred approach, the jHub has a particular focus on delivering impact at pace.

Lieutenant Colonel Dan Sawyers, Head of the jHub, Strategic Command, said:

Technology within Defence is rapidly advancing, and we must harness these changes to respond to a more contested and volatile world.

Phase 3 of this programme will see us continue to innovate, utilising technology to protect the UK and our allies anytime and anywhere.

The innovative work of the jHub is complemented by Anduril, whose Lattice software platform leverages advancements in key technologies. Their work on TALOS explores future capabilities for fixed installation Force Protection and Counter Intrusion and Counter-Unmanned Aerial Systems across Permanent Joint Operating Bases.

Greg Kausner, Anduril’s Head of Global Defense, said:

The contract with jHub will allow Anduril to expedite modern defence technology and robustly support UK Defence, and represents an advancement of our relationship with the MoD.

Force Protection and Counter Intrusion are increasingly important as the nature of threats expand, and Anduril’s Lattice platform can play a key role. Our objective is to meet the specific requirements of armed forces to best shape the future of defence with advanced, modern technology; to do this, working with partners like jHub is key.

**121 . Date: 08-11-2023Armed ISR / ISTAR - Small - General - PlatformOrigin’s BEAK is a Precision Bomb-Drop Drone with Class-leading ISR CapabilityURL: https://www.uasvision.com/2023/11/08/origins-beak-is-a-precision-bomb-drop-drone-with-class-leading-isr-capability/**

Origin

, a pioneer in military unmanned aerial systems with precision bomb-drop capability, is ready to transform the industry with the introduction of their latest breakthrough – the ‘BEAK’. This multipurpose Unmanned Aircraft System (UAS) is set to redefine ISR capabilities, offering extended range, reduced acoustic signature, and the unique ability to precisely attack soft and hard targets.

Drawing from the lessons learned in the Ukraine war, Origin has developed a NATO-ready solution that empowers a new level of capability. The BEAK provides the means to employ unconventional tactics effectively exploiting an adversary’s vulnerabilities.

Designed to address the shortcomings of current systems used in bomb-drop missions in Ukraine, the BEAK is from ground-up designed for operations in GNSS-denied environments and has state-of-the-art anti-jamming capabilities. Despite its remarkable 4 kg munition payload capacity, the BEAK remains highly portable, ensuring flexibility in deployment. Beak can deliver 4 kilograms of munitions to a distance of over 12 kilometers. The beak can be configured with 6, 4 or 2 munition slots making it suitable for various missions. Moreover, in ISR configuration, it leads the industry with an impressive flight time of 60 minutes.

The team behind the BEAK has gone the extra mile to significantly enhance bomb-drop accuracy, incorporating advanced algorithms for precision hit capability. The Origin Ground Control software leverages an open-source architecture, featuring an intuitive user interface that slashes operator training time to just a few hours.

In its ISR configuration, the BEAK’s extended flight time and capable sensor payload make it an exceptional reconnaissance solution. Despite being size, weight, and power optimized, it delivers leading Detection, Recognition, and Identification (DRI) ranges. Equipped with a thermal imager, it enables human detection at night from distances of over 1000 meters.

Agris Kipurs, Co-founder at Origin, emphasized,

“At Origin, we believe that addressing the escalating security threats in Europe stands as our society’s foremost priority. Drawing on decades of expertise, we are committed to propelling Europe and our NATO allies forward in capability.”

BEAK is currently undergoing rigorous product qualification testing with several NATO partners, with shipments expected to commence in early 2024.

**122 . Date: 09-11-2023ISR / ISTAR - Small - ContractChina to Supply Sky Saker FX80 UAV to Thai ArmyURL: https://www.uasvision.com/2023/11/09/norinco-to-supply-sky-saker-fx80-uav-to-thai-army/**

China North Industries Corporation

(Norinco) has signed a contract with the Royal Thai Army (RTA) to supply its fixed-wing/vertical take-off and landing (VTOL) Sky Saker FX80 unmanned aerial vehicle (UAV), the company has confirmed.

A Norinco official told Janes on 7 November at the Defense & Security 2023 exhibition in Bangkok that the contract was signed in October and features the delivery of one FX80 system comprising four UAVs and a ground control station. Deliveries to the RTA are expected in 2024, the official added.

The value of the deal was not disclosed, but Janes understands it is worth about THB188 million (USD5.3 million).

In marketing material, Norinco said the FX80 has been designed in two configurations – electric and gasoline-electric hybrid power – but the type ordered by the RTA has not been disclosed. The Chinese company said the UAV is designed for long-range reconnaissance and laser designation and targeting for artillery units.

According to Norinco, the FX80 has a length of 2.9 m, a width of 5.9 m, and a height of 0.58 m. The UAV has an operating radius of 100 km, a maximum take-off weight of 68 kg, and a top speed of 110 km/h. The endurance of the electric system is 3 hours, and 8 hours for the hybrid version. The maximum altitude of the hybrid FX80 is 4 km. The electric version can operate at 5 km.

**123 . Date: 15-11-2023Cargo - Tactical - General - PlatformRotor Technologies Performs First Uncrewed Autonomous Helicopter Test CampaignURL: https://www.uasvision.com/2023/11/15/rotor-technologies-performs-first-uncrewed-autonomous-helicopter-test-campaign/**

Rotor Technologies, Inc.

(Rotor), a developer of autonomous vertical takeoff and landing (VTOL) aircraft, has completed the first autonomous helicopter flight campaign of a full-scale civilian helicopter.

The campaign was flown with two Rotor R220Y autonomous helicopters. The R220Y is an experimental platform based on the popular Robinson R22 two-seat helicopter, with seats, pilot controls, and the instrument panel removed and all functions of the helicopter automated by Rotor’s technology.

Two R220Ys logged more than 20 hours of flight time and over 80 hours of engine run-time during the flight campaign. These flights successfully proved Rotor’s flight control systems, autonomous hover and velocity modes, and vision-based perception systems. The campaign also developed the aircraft’s long-distance flight capability through in-flight testing of long-range radio equipment and cellular LTE communication links – although all flights were conducted within direct line of sight of a ground control station.

“This is a major milestone toward fully-autonomous flight and testament to our ability to develop autonomy that will be safe and reliable enough for utility and passenger operations,” says Rotor Founder and CEO Dr. Hector Xu. “Our AI pilot system is already expert-level at tasks like precision flight control and navigation in poor visibility conditions, and we’re increasing its capabilities every day.”

The R220Y flying without anyone onboard during Rotor’s Fall flight test campaign at the company’s test site in New Hampshire

Although no human pilot was onboard during test flights, the R220Y currently requires a pilot to remotely control the vehicle when the autonomy system is not engaged.

“We’re excited to see Robinson helicopters used by Rotor as a platform for innovation.” says Robinson Vice President of Operations David Smith in reference to the successful R220Y flight tests. “We believe that our flight heritage and manufacturing capability will position Robinson to be a key player in the next generation of VTOL aviation.”

Rotor is commercializing its autonomy technology with the development of the R550X, an uncrewed utility helicopter based on the Robinson R44 Raven II. The R550X will feature a payload capacity of 1,212 lbs (550 kg) and more than three hours of endurance. The R550X is designed to perform hazardous operations such as firefighting, crop dusting, construction, humanitarian aid, and remote cargo delivery without putting pilot lives at risk.

“We’re bringing the highest-payload civilian uncrewed VTOL available in the world to the commercial market,” says Chief Commercial Officer Ben Frank. “We’re taking all the technology that we’ve developed on the R220Y and are putting it on a similar – and even more capable – platform. We’re working with a set of close partners to put the R550X into revenue operation in 2024. No other company is close to performing commercial operations with an autonomous helicopter of this size.”

Beyond the R550X, Rotor is progressing toward certifying the technology for passenger flight. Autonomous passenger helicopters have the potential to popularize fast and convenient regional transportation. With the increased safety and efficiency brought by autonomy, the 200-mile journey between New York and Boston could be completed in about 90 minutes without the need to travel through congestion.

**124 . Date: 16-11-2023ISR / ISTAR - Mini - General - PlatformElistair Unveils KHRONOS – Push Button DroneBox for ISR MissionsURL: https://www.uasvision.com/2023/11/16/elistair-unveils-khronos-push-button-dronebox-for-isr-missions/**

Elistair

, a manufacturer of long-endurance, tethered unmanned aircraft systems, announced the unveiling of KHRONOS, a fully automated tethered drone system designed for intelligence, surveillance and reconnaissance (ISR) missions in challenging, GPS/GNSS-denied and RF-denied environments.

Deployed from a transportable dronebox in under two minutes, KHRONOS can operate from both fixed and mobile platforms with minimal human input, enabling operators on the move their own “pocket watchtower” without a heavy investment in training.

“KHRONOS represents a significant milestone for Elistair,” said company CEO Guilhem de Marliave. “Public safety agencies, border patrol units, military forces and even vehicle integrators have all been looking for a simple, organic, long-endurance ISR asset that can be launched at the push of a button—and now they finally have it.”

Elistair has been developing and delivering tethered drones to customers in more than 70 countries for close to a decade. The 66-pound KHRONOS leverages that experience. It is easily deployed from a dronebox to deliver a continuous, day/night aerial view extending over a 10-kilometer radius for 24 hours a stretch.

In addition to being ruggedized for operation off-road and in poor weather, KHRONOS can operate in both GPS/GNSS-Denied and RF-denied environments, thanks to its advanced positioning system and secured tethered communications. And with its small logistical footprint, and its open API, it can be easily integrated with vehicles.

“The aim behind KHRONOS was clear: we wanted a tethered drone that’s straightforward to use, adaptable to various scenarios, integrates seamlessly, and is robust in construction for demanding environments,”

said Elistair CTO Timothée Penet.

Powered by T-Planner 2, the newest version of Elistair mission software, KHRONOS benefits from the latest intelligent functions, such as target tracking, automated object categorization, and cued camera slewing to points of interests.

Elistair plans to deliver its first KHRONOS systems to customers in January 2024.

**125 . Date: 16-11-2023Armed ISR / ISTAR - HALE - MarketLoyal Wingmen Drones to Cost Quarter of an F-35URL: https://www.uasvision.com/2023/11/16/loyal-wingmen-drones-to-cost-quarter-of-an-f-35/**

Secretary of the Air Force Frank Kendall said his service is aiming for its future Collaborative Combat Aircraft (CCA) drones that will fight alongside crewed aircraft to each cost as little as a quarter of the current price of an F-35 Joint Strike Fighter. Kendall offered this and other details about the CCA program during a public event on November 13 at the Center for a New American Security (CNAS) think tank in Washington, D.C.

The CCA effort is centered on the acquisition of at least a thousand advanced uncrewed aircraft with high degrees of autonomy designed to work closely together with crewed combat jets. The program is part of the Air Force’s larger Next Generation Air Dominance (NGAD) modernization initiative that also includes the development of a new crewed sixth-generation combat jet, weapons, electronic warfare suites, sensors, battle management capabilities, engines, and other systems.

A rendering of a notional sixth-generation crewed combat jet flying together with a trio of advanced drones. Collins Aerospace

Kendall and other senior Air Force officials regularly describe these uncrewed aircraft as a critical component of how the service will conduct operations, especially in a high-end fight against an opponent like China, and achieve critical “affordable mass” in the future.

“If we go ahead buying just the NGAD platform and F-35s … and B-21s as … our combat aircraft, you can’t afford the Air Force. Those systems are all [in the] 100 million dollar plus category, in some cases, way beyond that,” Kendall said today. “So, we’ve got to have something that will allow us to have massive, affordable prices. So, CCA is designed to do that.”

Secretary of the Air Force Frank Kendall. USAF

The other main takeaways regarding the CCA effort from Kendall’s chat with Stacie Pettyjohn, Senior Fellow and Director of CNAS’ Defense Program, and the subsequent question and answer session are as follows:

The Air Force views CCA as complementary to the Pentagon’s Replicator initiative that was announced earlier this year. Kendall’s comments here about the projected costs and production goals for the CCA program, as well as how the Air Force hopes to maximize what it can get capability-wise within those constraints are notable. While the CCA drones still look set to be significantly cheaper than fifth or sixth-generation combat jets, what is being laid out here is not necessarily inexpensive even by U.S. military budget standards.

How the unit costs of the three existing variants of the F-35 are calculated has long been a subject of debate. For instance, as of January, Lockheed Martin pegged the price of the A variant the Air Force flies at $69.9 million, according to Air & Space Forces Magazine, but that figure doesn’t include the Pratt & Whitney F135 engine. The U.S. military’s F-35 Joint Program Office told Defense One recently that the average unit price for examples of all three variants, including the engines, in the latest production lots is around $82.5 million.

A quarter of that would be just under $20.6 million. The bill for buying 1,000 CCAs with that unit cost would therefore be close to $20.6 billion. As Kendall noted, this is still much cheaper than purchasing substantial numbers of crewed jets at close to $100 million apiece, or substantially more. The Secretary of the Air Force has previously said that each NGAD jet, of which the service plans to buy 200, would cost “multiple hundreds of millions of dollars.”

A rendering showing an F-35 Joint Strike Fighter flying with multiple different types of uncrewed aircraft. Lockheed Martin

In terms of CCA requirements, Kendall’s specific mention of wanting to get away from larger runways is interesting, but not surprising. The Air Force has made no secret of its concerns about the growing vulnerability of large, established bases and the need for more distributed operations, as well as new camouflage, concealment, and deception capabilities and tactics, as being essential for reducing those risks going forward. The War Zone has highlighted in the past how complete runway independence, or short takeoff and landing performance close to it, could be very valuable for the future CCAs to have in this context, and how it could also allow for additional operational flexibility.

It’s also worth pointing out that Kendall said that multiple MQ-28s are being used to support Air Force test efforts tied to the CCA program. It emerged in 2022 that the service had acquired at least one of these drones, which was originally developed for the Royal Australian Air Force (RAAF), but further details about that effort have been limited since then. A video the Air Force Research Laboratory (AFRL) released earlier this year, seen below, heavily featured MQ-28s, including slickly edited clips depicting them flying alongside Air Force F-22 Raptor stealth fighters and other crewed aircraft.

**126 . Date: 21-11-2023Armed ISR / ISTAR - MALE - General - PlatformIran Introduces Shahed-147 Surveillance DroneURL: https://www.uasvision.com/2023/11/21/iran-introduces-shahed-147-surveillance-drone/**

Iran’s defense industry has introduced a new surveillance drone – the Shahed-147, a high-altitude, long-endurance (HALE) unmanned aircraft system.

According to local sources, the new drone stands out with its features, boasting a wingspan spanning 26 meters and an impressive ceiling altitude of 60,000 feet.

Fueled by a turboprop engine, this twin-boom surveillance drone reportedly incorporates state-of-the-art technology, notably the Synthetic Aperture Radar (SAR), enhancing its surveillance capabilities to unprecedented levels.

The unveiling of this advanced drone underscores Iran’s dedication to enhancing its aerial reconnaissance capabilities. Operating at high altitudes for extended periods, the Shahed-147 will demonstrate prowess in surveilling vast areas, making it a formidable asset in monitoring and intelligence gathering.

The integration of Synthetic Aperture Radar further amplifies the Shahed-147’s capabilities, allowing it to generate high-resolution imagery even in challenging weather conditions. This cutting-edge feature solidifies its position as a key player in Iran’s future surveillance drone fleet.

**127 . Date: 22-11-2023Cargo - MALE - ContractPiasecki Gets $37M USAF Award for Next-Gen VTOLs and Hydrogen Propulsion TechnologiesURL: https://www.uasvision.com/2023/11/22/piasecki-gets-37m-usaf-award-for-next-gen-vtols-and-hydrogen-propulsion-technologies/**

Piasecki Aircraft Corporation

, a global supplier of rotorcraft and aerial vehicles, announced that it has been awarded a $37 million multi-year contract by AFWERX, the Air Force’s innovation arm in conjunction with the Air Force Research Laboratory (AFRL), as part of its Strategic Funding Increase (STRATFI) program.

The award will enable Piasecki to flight demonstrate its Aerial Reconfigurable Embedded System (ARES) tilt-duct vertical takeoff and landing (VTOL) unmanned aerial system (UAS) as well as industry-leading hydrogen fuel cell propulsion technologies for VTOL and other aviation applications.

“The STRATFI program plays a critical role in advancing emerging American technologies and we are thrilled to receive this significant investment,” said John Piasecki, CEO of Piasecki Aircraft. “This new funding will allow us to demonstrate ARES’ unique tilt-duct configuration, which enables seamless transition between hover and fixed-wing forward flight — a technological leap that would address critical aerial challenges faced by the U.S. military. The STRATFI test program will also fund the demonstration of zero-emission hydrogen fuel cell propulsion technology for VTOLs, including our forthcoming PA-890 compound helicopter. Demonstration of the PA-890 would be a world-first for electric aviation and would usher in a new era of clean vertical flight. While R&D work on these projects began several years ago, this new funding will rapidly expand our ability to deliver these radically new vehicles to customers and partners across the military and commercial sectors.”

The funding will support Piasecki R&D programs, including:

Val Miftakhov, Founder and CEO, ZeroAvia, said:

“Higher temperature fuel cells are a critical technology to delivering improvements in specific power and unlocking truly clean propulsion for larger fixed wing aircraft, but they will also enable rotorcraft and VTOL applications. Working together on this project with a company of Piasecki’s heritage and expertise in rotorcraft, with US Air Force backing, is a hugely exciting step in delivering on our vision of hydrogen-electric engines in every aircraft.”

Earlier this year, Piasecki announced that it acquired the former Lockheed Martin Sikorsky Heliplex facility in Coatesville, Pennsylvania, and will transform the 219,000 square foot state-of-the-art facility into an advanced R&D and testing center for VTOL and UAS vehicles. The facility — which includes engineering, assembly, paint and finishing, as well as a flight test and delivery center — is expected to attract about 400 workers by 2028.

**128 . Date: 23-11-2023Tanker - HALE - ContractBoeing Gets $36M MQ-25 Stingray Modification Contract from US NavyURL: https://www.uasvision.com/2023/11/23/boeing-gets-36m-mq-25-stingray-modification-contract-from-us-navy/**

The Boeing Co., St. Louis, Missouri, is awarded a cost-plus-incentive-fee $36,000,000 modification (P00063) to a previously awarded fixed-price incentive (firm-target), cost-plus-incentive-fee contract (N0001918C1012).

This modification adds scope to provide non-recurring engineering for the preliminary design review of six sub-systems to mitigate component obsolescence in support of MQ-25 Stingray low-rate initial production for the Navy.

Work will be performed in Endicott, New York (35%); Saint Louis, Missouri (23%); Cedar Rapids, Iowa (16%); Clearwater, Florida (11%), San Diego, California (8%); and Melbourne, Florida (7%), and is expected to be completed in April 2024.

Fiscal 2023 research, development, test and evaluation (Navy) funds in the amount of $10,591,776 will be obligated at the time of award, all of which will expire at the end of the current fiscal year.

Naval Air Systems Command, Patuxent River, Maryland, is the contracting activity.

**129 . Date: 29-11-2023Armed ISR / ISTAR - MALE - GeneralKyrgyzstan Receives First Bayraktar Akıncı & TAI Aksungur UAVsURL: https://www.uasvision.com/2023/11/29/kyrgyzstan-receives-first-bayraktar-akinci-tai-aksungur-uavs/**

Kyrgyzstan has received the Bayraktar Akıncı and TAI Aksungur unmanned aerial vehicles that it earlier ordered from Turkey’s leading aviation companies, Baykar and Turkish Aerospace Industries (TAI).

Kyrgyz President Sadyr Japarov, Chairman of the National Security State Committee Kamchibek Tashiev and BAYKAR Technology General Manager (CEO) Haluk Bayraktar attended the delivery ceremony, which took place at a drone base belonging to the Kyrgyz Border Security Agency.

TAI Aksungur unmanned aerial vehicle delivered to the Kyrgyzstan Border Security Agency / From the Presidency of the Kyrgyz Republic

At the ceremony, Kyrgyz President Sadyr Japarov stated that the new unmanned aerial vehicles purchased from Turkey will be utilized to ensure the country’s border security. Japarov stated that the procurement of these vehicles was financed by the state budget and that modern and high-tech unmanned aerial vehicles will make a significant contribution to maintaining the country’s security. Following his speech, the President presented the Order of Glory, Kyrgyzstan’s State Award, to Baykar CEO Haluk Bayraktar.

President of Kyrgyzstan Sadyr Japarov presents the Order of Glory, the State Award of the Kyrgyz Republic, to Baykar CEO Haluk Bayraktar / From Haluk Bayraktar’s X account

Two days after receiving these Bayraktar Akıncı and TAI Aksungur drones, Kyrgyzstan utilized them in an exercise at the Edelweiss training ground in the country’s Issyk-Kul region. The tactical and technical features of the new unmanned aerial vehicles equipped with ROKETSAN-produced MAM-L and MAM-T laser-guided Mini Smart Munitions, as well as their firepower, were demonstrated in the exercise attended by Kyrgyz President Sadyr Japarov and Baykar General Manager Haluk Bayraktar. In addition to the Bayraktar Akıncı and TAI Aksungur drones, electronic warfare equipment, armored vehicles, and helicopters from the Kyrgyz Border Security Agency also took part in the exercise.

The Kyrgyz president stated in his speech during the exercise that they would continue to strengthen the country’s armed forces and improve the social standards of military personnel, and that such exercises will be carried out on a regular basis to ensure the successful implementation of new modern technologies.

A Bayraktar TB2 in the service of the Kyrgyz Border Security Agency / From the Presidency of the Kyrgyz Republic

In addition to Bayraktar Akıncı and TAI Aksungur drones, Kyrgyzstan has ordered Bayraktar TB2s from Turkey in October 2021. The State National Security Committee of Kyrgyzstan later built a new unmanned aerial vehicle base for these TB2s. Daiyrbek Orunbekov, head of the Presidential Administration’s Information Policy Service, also revealed at the start of this year that Kyrgyzstan had ordered Anka unmanned aerial vehicles from Turkish Aerospace Industries. Anka unmanned aerial vehicles are planned to arrive in Kyrgyzstan in the first quarter of 2024. With the delivery of Anka, Kyrgyzstan will be the first country other than Turkey to use all drones produced by TAI and Baykar.

Kyrgyzstan, which frequently clashes with its neighbor Tajikistan over border disputes, maintains close ties with Russia, Belarus, and Turkey in order to strengthen its military capabilities. In this regard, Kyrgyzstan has recently received Orlan-10 unmanned aerial vehicles, Mi-17V-5 helicopters, and several armored vehicles from Russia.

During this time, the Biškek government also procured the Pechora-2BM air defense missile system, communication equipment, various weapons, anti-tank and helicopter munitions, engineering equipment, sniper rifles, pistols, grenades, and rockets from Belarus. Kyrgyzstan, which has spent over a billion dollars on all of the above-mentioned arms purchases, has stated repeatedly that these purchases will continue in the future.

Kyrgyzstan defines these efforts as a measure to strengthen the country’s national security in light of global developments.

**130 . Date: 05-12-2023Armed ISR / ISTAR - MALE - ContractBangladesh Gets Bayraktar TB2URL: https://www.uasvision.com/2023/12/05/bangladesh-gets-bayraktar-tb2/**

The Bangladesh Army Aviation took six Bayraktar TB2 Unmanned Aerial Systems (UAS) on charge. The TB2s will be operated from the army hangars at Chittagong/M.A. Hannan International also known as Zahurul-Haque Air Base.

Six more TB2 UAS’ are expected to be delivered enhancing the army’s capabilities into this new realm of unmanned aerial systems.

The remotely piloted aircraft will not be shown in the public sphere soon because the country has cancelled the yearly military parade that normally takes place on 16 December because of the upcoming general elections of 7 January 2024.

**131 . Date: 05-12-2023Armed ISR / ISTAR - MALE - ContractGeneral Atomics Gets $389M US Army MQ-1C-25M Gray Eagle Modernized Extended Range ContractURL: https://www.uasvision.com/2023/12/05/general-atomics-gets-389m-us-army-mq-1c-25m-gray-eagle-modernized-extended-range-contract/**

General Atomics Aeronautical Systems Inc.

, Poway, California, was awarded a $389,000,000 fixed-price incentive contract for the purchase of MQ-1C-25M Gray Eagle Modernized Extended Range systems.

Bids were solicited via the internet with one received. Work locations and funding will be determined with each order, with an estimated completion date of November 29, 2024.

Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity (W58RGZ-24-C-0021).

**132 . Date: 05-12-2023Cargo - MALE - General - PlatformRotor Unveils R550X Uncrewed Helicopter and Begins ProductionURL: https://www.uasvision.com/2023/12/05/rotor-unveils-r550x-uncrewed-helicopter-and-begins-production/**

Rotor Technologies, Inc.

, a developer of autonomous vertical takeoff and landing (VTOL) aircraft, unveils the R550X, the largest uncrewed civilian helicopter on the market, and begins production.

The R550X is an uncrewed helicopter based on the Robinson R44 Raven II. It is designed to lift heavy loads up to 1,200 pounds, or 550 kilograms, with no pilot onboard. With a flight time of over three (3) hours and a top speed of 150 miles per hour, the R550X offers long-range VTOL capabilities beyond the reach of drones and eVTOLs, making it suitable for demanding cargo, utility, and maritime operations.

Sensors and digital flight control systems enable the R550X to operate safely and autonomously in a wide range of operating environments – including at night and in limited visibility. Rotor’s software can prevent common causes of helicopter accidents such as inadvertent entry into instrument meteorological conditions (I-IMC), vortex ring state, mast bumping, loss-of-control, and controlled flight into terrain (CFIT).

<span data-mce-type="bookmark" style="display: inline-block; width: 0px; overflow: hidden; line-height: 0;" class="mce\_SELRES\_start">&#65279;</span>

“The R550X is going to bring huge safety and economic benefits to a wide range of helicopter use cases,” says Rotor CEO Hector Xu, “Demonstrating the impact of autonomy in dangerous missions like crop dusting and aerial firefighting is the first step towards our vision for safe and accessible vertical flight.”

The R550X is an experimental-category uncrewed aircraft that is not designed to carry people. Operators can leverage existing FAA rules and regulations to fly the R550X in agricultural, firefighting, inspection, and maritime operations.

Production of two R550Xs is now underway at the company’s facilities in New Hampshire following the receipt of Letters of Intent (LOIs) from agricultural aircraft operators, who plan to use the aircraft for crop dusting.

Rotor Chief Commercial Officer Ben Frank says,

“We have a number of agricultural customers who want to start operating the R550X as soon as possible, and this demand is driving us to begin production immediately.”

The first commercial operations of the R550X are expected to begin in the US in 2024, with international operations to follow.

Earlier this month,the company announced its First Uncrewed Autonomous Helicopter Test Campaign.

**133 . Date: 06-12-2023Solar - HALE - GeneralAirbus Picks Kenya for First HAPS Drone HubURL: https://www.uasvision.com/2023/12/06/airbus-picks-kenya-for-first-haps-drone-hub/**

AALTO HAPS Ltd.

aims to deploy its Zephyr aircraft that can stay aloft for days at a time from four or five bases around the world, starting with the operational hub in Laikipia County in Kenya early next year, Samer Halawi, the unit’s chief executive officer said in an interview in Nairobi.

However, this plan is subject to regulatory approvals from the Kenyan government.

This development could bring about a significant boost to the local economy by potentially creating up to 1,000 job opportunities for Kenyan residents.

AALTO’s CEO, Samer Halawi, recently engaged with various government agencies and telecommunications companies to discuss the potential of this groundbreaking technology. These high-altitude drones, operating in the stratosphere between 10 to 50 kilometers, have the capability to act as mobile signal masts and attract telecommunication companies as key users.

After thorough consideration, Airbus selected Kenya as the preferred hub for this groundbreaking initiative due to several favorable factors. The country offers the ideal combination of optimal weather conditions for launching and landing the aircraft, business-friendly practices, a substantial talent pool, and quick licensing processes.

Mr. Halawi, while emphasizing the significance of this milestone project, stated that Airbus plans to establish four to five hubs worldwide to serve the global market. Each hub will encompass various units, including launch and landing ports, maintenance facilities, assembly lines with a production capacity of up to 50 aircraft per year, an operations center, and customer support facilities.

A crucial aspect that makes Kenya stand out as a hub is its ability to launch and land these high-altitude drones for up to 10 months annually. Consequently, the country is slated to host the majority of launches and landings, further solidifying its position in the aerospace industry.

The establishment of the hub is expected to generate approximately 800 to 1,000 jobs in the information and communication technology (ICT), manufacturing, and service sectors over a span of seven years.

Furthermore, the Zephyr aircraft developed by Airbus over the past two decades brings a new dimension to the aerial landscape. With its unique ability to land and take off in a corkscrew motion and remain airborne for more than 30 days, the Zephyr HAPS has enormous potential. It weighs 75 kilograms, boasts a wingspan of 25 meters, and can serve multiple purposes such as security observation, border security, mobile connectivity, forest fire management, precision agriculture, and aerial photography for mapping.

As this groundbreaking initiative takes shape, Kenya stands to benefit from becoming a pioneering force in HAPS commercial and technical regulations, potentially paving the way for accelerated industrialization of the sector throughout the decade.

Airbus recognizes Kenya’s language capabilities and favorable time zone as advantages that would enable them to establish the program’s main customer care in the country.

With this next-generation technology and strategic collaboration, Kenya is on the brink of a new era in high-altitude communication drones, ushering in unparalleled opportunities for economic growth and technological advancement.

**134 . Date: 06-12-2023Armed ISR / ISTAR - HALE - ContractKratos Gets $23M US Navy XQ-58A ContractURL: https://www.uasvision.com/2023/12/06/kratos-gets-23m-us-navy-xq-58a-drone-contract/**

Kratos Unmanned Aerial Systems Inc.

, Sacramento, California, is awarded a $22,913,358 modification (P00006) to a previously awarded cost-plus-fixed-fee contract (N0042123C0010).

This modification adds scope to provide continued non-recurring engineering in support for the XQ-58A Unmanned Aerial Systems mission systems and subsystems integration for the Marine Corps. Additionally, this modification provides for flight test and demonstration events, associated spares, materials, and repairs.

Work will be performed in Sacramento, California (75%); and Oklahoma City, Oklahoma (25%), and is expected to be completed in September 2024. Fiscal 2023 research, development, test and evaluation (Navy) funds in the amount of $22,913,358 will be obligated at the time of award, all of which will expire at the end of the current fiscal year.

Naval Air Warfare Aircraft Division, Patuxent River, Maryland, is the contracting activity.

**135 . Date: 07-12-2023Armed ISR / ISTAR - HALE - GeneralJapan Becomes Observer on Eurodrone ProjectURL: https://www.uasvision.com/2023/12/07/japan-becomes-observer-on-eurodrone-project/**

Japan has attained official observer status on the Eurodrone project, the Organisation for Joint Armament Cooperation (OCCAR) announced on 30 November.

The letter of approval was presented in Berlin by OCCAR Executive Administration Director Joachim Sucker to the Japanese Ambassador to Germany, Hidenao Yanagi.

Also known as the European medium-altitude long-endurance (MALE) remotely piloted air system (RPAS), the Eurodrone was officially launched in February 2022 by Germany, along with France, Italy, and Spain.

Mock-ups presented at several European air shows show the twin-engined Eurodrone to be slightly larger than the General Atomics Aeronautical Systems Inc (GA-ASI) MQ-9A Reaper. Although intended primarily as an intelligence, surveillance, and reconnaissance (ISR) vehicle (including signals intelligence), there will be an option for it to be armed (the MBDA Akeron LP air-to-surface missile was recently selected as one weapon type for the platform).

Under current plans, 20 systems will be developed and manufactured, each containing three aircraft and two ground control stations. Germany will receive seven systems, Italy five, while France and Spain will each receive four.

The first flight is expected in 2025, with deliveries set to begin from 2028.

**136 . Date: 07-12-2023Loitering Munition - Small - ContractLithuania to Receive Switchblade Kamikaze Drones Next YearURL: https://www.uasvision.com/2023/12/07/lithuania-to-receive-switchblade-kamikaze-drones-next-year/**

American Switchblade 600 combat drones will be delivered to Lithuania next year, the Lithuanian Defence Ministry said on Saturday. Wahid Nawabi, CEO of AeroVironment, confirmed the news to Defence Minister Arvydas Anušauskas who is currently in the United States.

Lithuania signed a contract for the American drones in December 2022.

“We are the first country in the world, after the US itself, to acquire the new Switchblade combat drones. This will be a significant reinforcement of our armed forces with a re-deployable capability that will allow us to destroy armoured enemy vehicles up to 40 kilometres away,”

Anušauskas was quoted as saying in the ministry’s statement.

On Friday, the Lithuanian defence minister visited the AeroVironment production facility in California where he inspected the equipment under development and discussed possibilities for further cooperation.

Switchblade 600 combat drones are the next-generation long-range combat drones, featuring ultra-precise optics, the ability to stay airborne for up to 40 minutes, and an effective anti-tank warhead capable of destroying heavy armoured vehicles, including tanks.

Together with these combat drones, Lithuania is buying drone launching and control equipment, a simulator for personnel training, and a maintenance package from the US.

**137 . Date: 08-12-2023Loitering Munition - Mini - General - PlatformIran Unveils New Shahin-1 Kamikaze DroneURL: https://www.uasvision.com/2023/12/08/iran-unveils-new-shahin-1-kamikaze-drone/**

Iran recently introduced its latest defense asset, unveiling the Shahin-1 kamikaze drone during a commissioning ceremony at the Deylaman helipad.

Named Shahin-1, this tube-launched autonomous loitering munition is engineered to locate, acquire, and engage targets specified by the operator. Its canister-based launch system draws similarities to smaller Meraj-521 and Sina UAVs, showcasing Iran’s consistent design approach in drone development.

The Shahin-1’s operational versatility allows deployment from various ground and naval platforms, enhancing its potential effectiveness across diverse military scenarios.

The autonomous functionality of the Shahin-1 positions it as a potent asset for targeted engagements, leveraging advanced technologies for autonomous target identification and engagement. This capability aligns with modern warfare’s evolving landscape, emphasizing precision and autonomy in defense strategies.

Regarding the Deylaman, it’s a 1,400-ton destroyer, named after a northern Iranian town. It measures 95 meters (312 feet) in length, 11 meters (36 feet) in width, and has the capacity to launch torpedoes while traveling at 30 knots (56 kph, 35 mph), according to the state-owned IRNA news agency

**138 . Date: 12-12-2023Swarm - General - SoftwareBabcock Demonstrated its SwarmCore TechnologyURL: https://www.uasvision.com/2023/12/12/babcock-demonstrated-its-swarmcore-technology/**

Babcock

has developed a technology with the capability of controlling single or entire fleets of vehicles in a defence environment. The company demonstrated its SwarmCore technology, an advanced software system made up of multiple networks, at the UK Ministry of Defence’s BattleLab site last week of November in Dorset.

The project was created in collaboration with Arqit, a supplier of quantum-safe encryption solutions and supported by the UK’s national innovation agency, Innovate UK.

Fundamentally, SwarmCore, which is ready to be tested in the military environment, can be used to control single or entire fleets of vehicles such as drones. It can be operated either fully autonomously or by remote human control at a safe distance from the battlefield.

One of the key benefits of SwarmCore and its integration with Arqit’s Symmetric Key Agreement Platform is its ability to receive and transmit data in a safe and secure way in a decentralised manner. In a defence environment, this would mean if a single vehicle as part of a fleet was either hacked or attacked, the rest of the fleet could continue its mission instructions with no single asset ever being a point of failure.

With the integration of Arqit’s encryption technology, information carried on encrypted keys to and from assets will benefit from robust protection against cyber-attacks.

Brad Yelland, Babcock’s Chief Engineering and Technology Officer said:

“Combining both autonomous systems with advanced software that can deal with potential cyber threats could be a gamechanger in the modern defence landscape.

“Disruptive technologies such as AI, machine learning and quantum are playing an increasingly important role in the changing digital defence landscape and the rise in cyber threats.

“For our defence customers, developing technologies like this gives them more control in today’s complex defence environment, increased performance and security along with the ability for their teams to perform tasks remotely with solutions that are quicker and more cost effective to implement.”

Arqit Founder, Chairman and CEO, David Williams said:

“This collaboration with Babcock has allowed us to deliver a ground-breaking technology that not only enhances security but can also boost operational agility, both in the present and in the foreseeable future.”

**139 . Date: 13-12-2023Armed ISR / ISTAR - MALE - MarketBayraktar TB2 Completes 750,000 Flight HoursURL: https://www.uasvision.com/2023/12/13/bayraktar-tb2-completes-750000-flight-hours/**

Turkey’s first indigenous UCAV Bayraktar TB2 has successfully completed 750,000 flight hours, setting a new record in Turkish aviation history. Bayraktar TB2 UCAV System, which made many unprecedented achievements in the history of Turkish aviation, has successfully completed 750,000 flight hours.

Bayraktar TB2 UCAV thus became the indigenous aerial vehicle to spend the longest time in the Turkish skies, approaching one million hours of service.

Developed by Baykar, the manufacturer of Türkiye’s indigenous UCAV systems and recognized as the best in its class globally in terms of technical specifications and participation in operations, Bayraktar TB2 entered the inventory of the Turkish Armed Forces (TSK) in 2014. Armed in 2015, the UAV is currently operated by the TSK, the Gendarmerie General Command, the Turkish National Police, and the National Intelligence Organization (MIT). Bayraktar TB2 UCAV has been actively involved in counter-terrorism operations at home and abroad since 2014.

The Ukrainian military actively uses Bayraktar TB2 UCAVs for defensive purposes in the ongoing war between Russia and Ukraine. People in Lithuania, Poland, Latvia, Norway, Spain and Canada organized fundraising campaigns in the past to buy Bayraktar TB2s and donate them to the Ukrainian armed forces. Baykar, instead of accepting the donations collected from campaigns in Lithuania, Ukraine, and Poland, donated the funds raised to purchase Bayraktar TB2 UCAVs to meet the humanitarian needs of the Ukrainian people.

Baykar, which has been developing the most valuable software and hardware systems in the field of unmanned aerial vehicles with its team of Turkish engineers since the early 2000s, is recognized as one of the world’s leading technology companies with engineering power in 13 different disciplines. Bayraktar TB2 UCAVs, whose critical components, designs, and software are developed nationally and independently by Baykar, are produced with a record-breaking domestic industry participation rate of 93% at the Özdemir Bayraktar National Technology Center in Istanbul.

On July 16, 2019, Bayraktar TB2 UCAV set a record by flying for 27 hours and 3 minutes continuously under challenging geographical and climate conditions such as high temperature and sandstorms during a demonstration flight in Kuwait. Indigenous UCAVs continue to operate in all weather conditions, including desert heat, freezing cold, snow, and storms, from Europe to Africa. With 750 thousand flight hours, the national UCAV has made history in Turkish aviation, holding the title of the aircraft that has served Turkey successfully for the longest time.

Bayraktar TB2 UCAV actively participated in domestic and cross-border operations conducted by the Turkish Armed Forces, such as the ‘Trench’ operations, Operation Euphrates Shield, and Operation Olive Branch. Defense experts noted that indigenously UCAVs played a crucial role in those operations, leading to shorter-than-expected durations and fewer casualties. Bayraktar TB2 UCAV systems, especially during the Olive Branch Operation in Afrin, made its mark on the operation by conducting more than 90% of all flights, with a total of 5,300 flight hours.

Participating in many operations against terrorist organizations, such as Operations Claw and Hawk, Bayraktar TB2 UCAVs continue to play a significant role in operations targeting the so-called leaders of separatist terrorist organizations. In addition to those missions, indigenous UCAVs contribute to the protection of the Blue Homeland. In this context, they provided air support for our drilling ships operating in the Eastern Mediterranean. On December 16, 2019, Bayraktar TB2 UCAV made a historic flight by taking off from the Dalaman Naval Air Base Command and landing at Geçitkale Airport in Cyprus to be stationed for operations in the TRNC.

**140 . Date: 14-12-2023General - NavigationMIT Drones Navigate Unseen Environments with Liquid Neural NetworksURL: https://www.uasvision.com/2023/12/14/mit-drones-navigate-unseen-environments-with-liquid-neural-networks-2/**

Inspired by the adaptable nature of organic brains, researchers from MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL) have introduced a method for robust flight navigation agents to master vision-based fly-to-target tasks in intricate, unfamiliar environments. The liquid neural networks, which can continuously adapt to new data inputs, showed prowess in making reliable decisions in unknown domains like forests, urban landscapes, and environments with added noise, rotation, and occlusion.

These adaptable models, which outperformed many state-of-the-art counterparts in navigation tasks, could enable potential real-world drone applications like search and rescue, delivery, and wildlife monitoring.

The researchers’ recent study, published earlier this year in Science Robotics, details how this new breed of agents can adapt to significant distribution shifts, a long-standing challenge in the field. The team’s new class of machine-learning algorithms, however, captures the causal structure of tasks from high-dimensional, unstructured data, such as pixel inputs from a drone-mounted camera. These networks can then extract crucial aspects of a task (i.e., understand the task at hand) and ignore irrelevant features, allowing acquired navigation skills to transfer targets seamlessly to new environments.

“We are thrilled by the immense potential of our learning-based control approach for robots, as it lays the groundwork for solving problems that arise when training in one environment and deploying in a completely distinct environment without additional training,” says Daniela Rus, CSAIL director and the Andrew (1956) and Erna Viterbi Professor of Electrical Engineering and Computer Science at MIT. “Our experiments demonstrate that we can effectively teach a drone to locate an object in a forest during summer, and then deploy the model in winter, with vastly different surroundings, or even in urban settings, with varied tasks such as seeking and following. This adaptability is made possible by the causal underpinnings of our solutions. These flexible algorithms could one day aid in decision-making based on data streams that change over time, such as medical diagnosis and autonomous driving applications.”

A daunting challenge was at the forefront: Do machine-learning systems understand the task they are given from data when flying drones to an unlabeled object? And, would they be able to transfer their learned skill and task to new environments with drastic changes in scenery, such as flying from a forest to an urban landscape? What’s more, unlike the remarkable abilities of our biological brains, deep learning systems struggle with capturing causality, frequently over-fitting their training data and failing to adapt to new environments or changing conditions. This is especially troubling for resource-limited embedded systems, like aerial drones, that need to traverse varied environments and respond to obstacles instantaneously.

The liquid networks, in contrast, offer promising preliminary indications of their capacity to address this crucial weakness in deep learning systems. The team’s system was first trained on data collected by a human pilot, to see how they transferred learned navigation skills to new environments under drastic changes in scenery and conditions. Unlike traditional neural networks that only learn during the training phase, the liquid neural net’s parameters can change over time, making them not only interpretable, but more resilient to unexpected or noisy data.

In a series of quadrotor closed-loop control experiments, the drones underwent range tests, stress tests, target rotation and occlusion, hiking with adversaries, triangular loops between objects, and dynamic target tracking. They tracked moving targets, and executed multi-step loops between objects in never-before-seen environments, surpassing performance of other cutting-edge counterparts.

The team believes that the ability to learn from limited expert data and understand a given task while generalizing to new environments could make autonomous drone deployment more efficient, cost-effective, and reliable. Liquid neural networks, they noted, could enable autonomous air mobility drones to be used for environmental monitoring, package delivery, autonomous vehicles, and robotic assistants.

“The experimental setup presented in our work tests the reasoning capabilities of various deep learning systems in controlled and straightforward scenarios,” says MIT CSAIL Research Affiliate Ramin Hasani. “There is still so much room left for future research and development on more complex reasoning challenges for AI systems in autonomous navigation applications, which has to be tested before we can safely deploy them in our society.”

“Robust learning and performance in out-of-distribution tasks and scenarios are some of the key problems that machine learning and autonomous robotic systems have to conquer to make further inroads in society-critical applications,” says Alessio Lomuscio, professor of AI safety in the Department of Computing at Imperial College London. “In this context, the performance of liquid neural networks, a novel brain-inspired paradigm developed by the authors at MIT, reported in this study is remarkable. If these results are confirmed in other experiments, the paradigm here developed will contribute to making AI and robotic systems more reliable, robust, and efficient.”

Clearly, the sky is no longer the limit, but rather a vast playground for the boundless possibilities of these airborne marvels.

Hasani and PhD student Makram Chahine; Patrick Kao ’22, MEng ’22; and PhD student Aaron Ray SM ’21 wrote the paper with Ryan Shubert ’20, MEng ’22; MIT postdocs Mathias Lechner and Alexander Amini; and Rus.

This research was supported, in part, by Schmidt Futures, the U.S. Air Force Research Laboratory, the U.S. Air Force Artificial Intelligence Accelerator, and the Boeing Co.

**141 . Date: 15-12-2023ContractDZYNE Technologies Gets $49M US Air Force UAS Development ContractURL: https://www.uasvision.com/2023/12/15/dzyne-technologies-gets-49m-us-air-force-uas-development-contract/**

DZYNE Technologies

has been awarded a seven-year, $49 million contract through the Small Business Innovation Research program to conduct research and development on advanced unmanned aerial systems for the U.S. Air Force.

R&D efforts will include improving flight performance, sensor capabilities and flight endurance of long endurance UAS.

Furthermore, the initiative seeks to advance low-cost precision cargo delivery, facilitate the swift conversion of manned aircraft to UAS and explore other enhancements for advanced UAS capabilities.

At the time of award, the Air Force Research Laboratory is obligating $700,000 in fiscal 2023 research, development, test and evaluation funds and $920,000 in fiscal 2024 RDT&E funds.

Work under the indefinite-quantity/indefinite-delivery contract will take place in Irvine, California through Dec. 12, 2030.

**142 . Date: 15-12-2023ISR / ISTAR - Mini - General - PlatformFrench Army Integrates Thales Spy’Ranger Drones and CAESAr Self-Propelled HowitzersURL: https://www.uasvision.com/2023/12/15/french-army-integrates-thales-spyranger-drones-and-caesar-self-propelled-howitzers/**

In January 2023, the 68th Régiment d’Artillerie d’Afrique (68RAA) conducted operational preparation for its deployment to Romania as part of the Aigle mission, Laurent Lagneau reports in Opex360. During this preparation, they utilized a firing campaign at Canjuers to train their drone section in fire support coordination.

This training also included validating a drone-observed firing procedure through simulations using the Virtual Battlespace 3 system. This innovative operational approach was initially experimental but is now on track to become standard practice.

On December 7, 2023, the Ministry of Defense announced a significant development in artillery capabilities. The 40th Artillery Regiment conducted a five-week firing campaign that incorporated an accelerated intelligence-fire loop during operational preparation. This was achieved by integrating the self-propelled howitzer 155mm CAESAr with the System of Mini Reconnaissance Drones (SMDR). The SMDR serves multiple functions, such as intelligence gathering, target designation, transmitting firing requests through the ATLAS system, and assessing damage inflicted on the enemy. This integration allows for rapid firing within minutes.

The French Army emphasizes that the SMDR, along with drones, complements Forward Air Controllers teams and is set to replace the VAB OBS armored vehicles with the Griffon VOA, the Artillery Observation Version.

The success of this accelerated intelligence-fire loop is attributed to the Spy’Ranger reconnaissance mini-drones, developed by Thales. These drones boast an impressive 2-hour and 30-minute autonomy and can securely transmit high-definition video over a distance of at least 30 km. This is a significant improvement compared to the 10 km range of the Contact Reconnaissance Drones (DRAC) they replaced.

The Spy’Ranger fixed-wing contact drones have proved their worth in combat. As part of the French SMDR (Systèmes de Mini-Drones de Reconnaissance) programme, the Spy’Ranger 330s have carried out numerous missions alongside French forces since the end of 2020, contributing to the success of military operations and protecting soldiers during the French Barkhane operation in Mali.

With more than 2,000 flights and over 2,000 flying hours in overseas operations, the SMDR has accumulated unrivalled experience. After a period of learning and adaptation, the French army has gradually increased the SMDR’s objectives, dedicating it to missions involving observation of enemy movements, surveillance of empty zones and routes, detection of enemy fire and Improvised explosive devices (IED), protection of convoys and disembarked combatants, day/night intelligence, BDA (Battle Damage Assessment) and the provision of coordinates for friendly fire guidance.

**143 . Date: 18-12-2023Armed ISR / ISTAR - HALE - General - PlatformIndia Successfully Tests Flying-Wing UAVURL: https://www.uasvision.com/2023/12/18/india-successfully-tests-flying-wing-uav/**

The DRDO Friday successfully demonstrated the flight trial of Autonomous Flying Wing Technology Demonstrator, an indigenous high-speed flying wing UAV from the Aeronautical Test Range (ATR), Chitradurga in Karnataka.

With this flight in the tailless configuration, India has joined the elite club of countries that have mastered the controls for the Flying wing configuration.

This complex arrowhead wing unmanned aerial Vehicle is taking off from a runway in Karnataka in India. India’s own Defence Research and Development Organisation (DRDO) has successfully carried out the flight trial of Autonomous Flying Wing Technology Demonstrator, an indigenous high-speed flying-wing Unmanned Aerial Vehicle (UAV) from the Aeronautical Test Range, Chitradurga in Karnataka.

The successful flying demonstration of this autonomous stealth UAV is a testimony to maturity in the technology readiness levels in the country. With this flight in the tailless configuration, India has joined the elite club of countries to have mastered the controls for the flying wing technology.

“The critical technologies involved have been proven in the improved final configuration now. The RPSA project, after the government sanctions it, will involve scaling up the size and the dimensions of the UAV with a new aero-engine,” a source said.

The ADE’s has been focusing on developing “stealthy” drones and aircraft, with a reduced radar cross-section to evade hostile air defence systems, which have autonomous take-off and landing capabilities. “The priority has to be on NGAD (next-generation air dominance) like the US and a few other countries,” he said.

After its maiden flight was conducted in July 2022, six flight trials of the flying-wing UAV with two prototypes in various developmental configurations have been carried out.

These flight-tests have led to the development of a robust aerodynamic and control system, integrated real-time and hardware-in-loop simulation, and state-of-the-art ground control station. “The development team optimized the avionic systems, integration and flight operations towards the successful seventh flight in the final configuration on Friday,” another official said.

The aircraft prototype, with a complex arrowhead wing platform, is designed and manufactured with “light-weight carbon prepreg composite material” developed indigenously.

“The autonomous landing of the UAV, without the need for ground radars, infrastructure and pilot, showcased a unique capability demonstration, allowing take-off and landing from any runway with surveyed coordinates,” he said. “This was possible using onboard sensor data fusion with indigenous satellite-based augmentation using GPS-aided GEO augmented navigation (GAGAN) receivers,”

**144 . Date: 18-12-2023Cargo - Small - RegulationWing Gets FAA Approval for Drone Deliveries in DallasURL: https://www.uasvision.com/2023/12/18/wing-gets-faa-approval-for-drone-deliveries-in-dallas/**

The FAA has approved Wing’s detect and avoid (DAA) approach for its beyond visual line of sight (BVLOS) operations without visual observers through a summary grant, which will allow its drones to use Automatic Dependent Surveillance-Broadcast-based (ADS-B) DAA inside a major area of Dallas airspace where traditional aircraft are required to continually broadcast their position.

While Wing has already been serving customers at a 6 mile radius from nests in Frisco, this summary grant enables it to move toward BVLOS operations without visual observers across Dallas and similar airspace surrounding other major US cities, adding to the momentum of the drone delivery industry at large.

Wing flies within underutilized airspace over populated areas and conducts comprehensive aviation community outreach, recognizing and working with other users of the surrounding airspace. Its holistic approach to BVLOS flight has been used for commercial deliveries on three continents for several years. It is grounded in avoiding potential conflict before flights ever take off and utilizes in-flight DAA to add an additional layer of safety. Wing has demonstrated the effectiveness and safety of this approach with operational flight data, extensive simulation, and flight test.

Overall, the FAA’s approval for DAA and recognition of broader strategic deconfliction and UTM applications will allow it to operate more efficiently and work toward scaled operations nationwide. Starting with communities across the Dallas-Fort Worth area, this action supports its path toward expanding its service across the US. Wing’s fast-mile drone delivery at scale could save the Dallas-Fort Worth community several millions of hours each year which would have otherwise been spent driving to the store or delivering packages on the road.

**145 . Date: 20-12-2023Armed ISR / ISTAR - MALE - ContractGeneral Atomics SOCOM Contract Increased to $200MURL: https://www.uasvision.com/2023/12/20/general-atomics-socom-contract-increased-to-200m/**

General Atomics Aeronautical Systems Inc.

, Poway, California, indefinite-delivery/indefinite-quantity, firm-fixed-price and cost-plus-fixed-fee contract (H92403-18-D-0006) ceiling has been increased and now has a potential maximum estimated value of $200,000,000.

The contract is for integration and testing support for the Medium Altitude Long Endurance Tactical (MALET) MQ-9 and MQ-1C Special Operations Forces peculiar (SOF-p) modifications, procurement of GA-ASI developed and produced aircraft modification kits, and analysis and studies to inform Government decision on potential future MALET MQ-9 and MQ-1C SOF-p modifications.

Fiscal 2023 research, development, test and evaluation funds in the amount of $5,011,000 are being obligated at time of award. The majority of the work will be performed in Poway, California, and is expected to be completed by March 2024.

This is a sole source requirement and was issued under the authority 10 U.S. Code 2304(c) (1), Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements, as implemented by Federal Acquisition Regulation 6.302-1.

U.S. Special Operations Command, MacDill Air Force Base, Florida, is the contracting activity.

**146 . Date: 02-01-2023PartnershipJapan and USA Sign Joint Agreement for AI and UAS ResearchURL: https://www.uasvision.com/2024/01/02/japan-and-usa-sign-joint-agreement-for-ai-and-uas-research/**

The U.S. Department of Defense and the Japanese Ministry of Defense signed a project arrangement for joint research on Overwhelming Response through Collaborative Autonomy, Dec. 22, 2023.

The project’s objective is to revolutionize airborne combat by merging state-of-the-art artificial intelligence and machine learning with advanced unmanned air vehicles and is a direct result of the December 2022 MoD-DoD joint statement on cooperation for Japan’s future aircraft.

The AI developed in this joint research is expected to be applied to UAVs operated alongside Japan’s next fighter aircraft.

Japan MoD and the U.S. DoD will continue to coordinate and expand bilateral cooperation on UAVs. Japan-U.S. efforts in this endeavor are beneficial for maintaining the interoperability and technological advantages of the Japan-U.S. alliance.

**147 . Date: 02-01-2023ISR / ISTAR - Tactical - ContractNordic Unmanned to Sell CAMCOPTER Assets Back to Schiebel in a Non-Cash TransactionURL: https://www.uasvision.com/2024/01/02/nordic-unmanned-to-sell-camcopter-assets-back-to-schiebel-in-a-non-cash-transaction/**

Nordic Unmanned

’s Flight Services business has come to an agreement with Schiebel Aircraft GmbH to settle outstanding payables in a non-cash transaction where Schiebel buys back one CAMCOPTER asset (Air Vehicle plus spare-parts).

The delivery of the equipment will be executed in Q1 2024. The value of the transaction is EUR 927,000 and will result in a net loss from sale of assets of approximately EUR 700,000.

The transaction underpins Nordic Unmanned’s efforts to work with its suppliers as partners, and supports Nordic Unmanned’s ongoing efforts to lighten the balance sheet and optimise the fleet for Flight Services. It remains a key goal to sell inventory unless idle equipment can be contracted and utilized in order to improve return on assets and strengthen the liquidity position.

After this transaction, Nordic Unmanned will have a fleet of 3 CAMCOPTER systems which includes 4 Air Vehicles.

Disclosure regulation This information is subject to the disclosure requirements pursuant to section 5-12 of the Norwegian Securities Trading Act.

**148 . Date: 04-01-2023Loitering Munition - Mini - ContractAeroVironment Gets $65M US Army Switchblade ContractURL: https://www.uasvision.com/2024/01/04/aerovironment-gets-65m-us-army-switchblade-contract/**

AeroVironment Inc

., Simi Valley, California, was awarded a $65,402,691 modification (P00036) to contract W31P4Q-20-C-0024 for the Switchblade weapon system.

Work will be performed in Simi Valley, California, with an estimated completion date of April 30, 2024. Fiscal 2024 Foreign Military Sales funds in the amount of $65,402,691 were obligated at the time of the award.

Army Contracting Command, Redstone Arsenal, Alabama, is the contracting activity.

**183 . Date: 05-04-2023ISR / ISTAR - Mini - ContractKraus Hamdani Aerospace to Provide US Navy with First Electric VTOL UASURL: https://www.uasvision.com/2024/04/05/kraus-hamdani-aerospace-to-provide-us-navy-with-first-electric-vtol-uas/**

The U.S. Navy, through PMA 263, has chosen KHAero to provide its first electric, solar-powered VTOL UAS. It will be fielded by the United States Marine Corps Small Unit Remote Scouting System

The Navy asked KHAero to demonstrate their offering through a comprehensive evaluation of capabilities.

Conducted at both KHAero and government test facilities and overseen by UAS Research and Operations Center at the University of Maryland, this included evaluation of:

– Enhanced manoeuvrability, reduced transportation and logistics requirements, radically simplifies the operational footprint required to operate a UAS from 120-150 people to under 5

– Quiet operations to minimize the risk of detection (goes nearly undetected by radars)

– Long flight endurance, where the K1000ULE remains a world leader

– Vertical take-off and landing, ensuring runway independence

– Ability to operate in various environmental conditions, day and night

– Reconnaissance, surveillance and target acquisition tests

– Compliance with SOCOM modular open system architectures (MOSA)

– Mission systems packages, including full motion video capabilities that incorporate target identification and classification

The K1000ULE provides the Navy with the capacity to perform Intelligence, surveillance, and reconnaissance operations better, simpler, faster, and more cost-effectively. Additionally, the Navy will get enhanced beyond line-of-sight communication capabilities, securing continued coverage in denied and contested environments.

The K1000ULE, while providing the longest flight endurance in eVTOL category, is also enabled to share information between different platforms, repositioning aircraft on demand based on sensor needs, while dynamically populating the Common Operating Picture.

A single operator can operate a swarm of K1000ULE unmanned platforms through our simple user interface, identifying a specific coverage area and then launching the correct number of assets. The pilot can view flight time, number of assets in the sky, battery power and positioning. Additionally, the operator can review or change coverage area or mission objectives using a gamified and simple user interface.

“Today we live with the prospect of a new era of defense technology in which autonomy and artificial intelligence will become more important. The Navy wants to discover what’s possible. And we’re honored to give them the solutions they need.”

says KHAero CEO, Fatema Hamdani.