

DRDO Ghatak

Ghatak (pronounced: ɡʰɑːtək; *lit.* 'Deadly' in [Sanskrit](#))^[a], initially designated as **Indian Unmanned Strike Air Vehicle (IUSAV)**, is an autonomous jet powered [stealthy unmanned combat aerial vehicle](#) (UCAV), being developed by [Aeronautical Development Establishment](#) (ADE) of the [Defence Research and Development Organisation](#) (DRDO) for the [Indian Air Force](#).^{[3][4]} The design work on the UCAV is to be carried out by the [Aeronautical Development Agency](#) (ADA). *Autonomous Unmanned Research Aircraft (AURA)* was a tentative name for the UCAV.^{[5][6]} Details of the project are classified.^[7]

The Ghatak UCAV will have an internal weapons bay for carrying [missiles](#), bombs and [precision-guided munitions](#). Its design will be based on a [flying-wing](#) concept, and will be powered by a [turbofan](#) engine.

The first flight of a scaled down [testbed](#) was carried out in July 2022,^[8] and that of a full scale prototype is expected in 2025.^[9]

Description

The Ghatak is an [autonomous jet](#) powered [stealthy unmanned combat air vehicle](#) (UCAV), being developed by the [Aeronautical Development Establishment](#) (ADE).^[10] It was initially called the *Autonomous Unmanned Research Aircraft (AURA)*,^[6] but was eventually renamed as *Ghatak* UCAV.^{[1][5]} In 2015, [Defence Minister Manohar Parrikar](#) informed the [Rajya Sabha](#) that the Ghatak UCAV will be powered by a dry variant of the [Kaveri afterburning turbofan](#) engine,^[11] which will have a thrust of 52 [kilonewtons](#).^[5]

The flight control system and data link packages of the UCAV will be developed inhouse by ADA and [Defence Electronics Application Laboratory](#).^[12] The Ghatak UCAV will be developed with public – private sector participation.^[13]

In 2011, in an interview given to [The Economic Times](#), the [Defence Research and Development Organisation's](#) (DRDO) Chief Controller, R&D (aeronautics), Dr Prahlada said, "the UCAV will have on-board mission computers, data links, fire control radars, identification of friend or foe, and collision avoidance systems, they will be highly [intelligent](#) drones", he also added that "UCAV will be capable of flying at altitudes of 30,000 ft [9,144 m] and weighing less than 15 tonnes, will have rail-launching for the missiles, bombs and PGMs (precision-guided munitions) they will carry."^[14]

Development

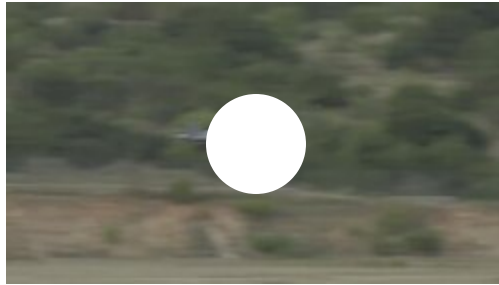
Project Ghatak

Project Ghatak was initiated as a successor to the 2009 AURA (Autonomous Unmanned Research Aircraft) programme. The AURA was a pioneer programme sanctioned in 2009 with a budget of ₹125 million (equivalent to ₹310 million or US\$3.7 million in 2023), to carryout a feasibility study for the future Indian UCAV. The AURA programme was completed in April 2013.^[5] The project Ghatak was initiated by ADA in consultation with the [Indian Air Force](#) (IAF), with an objective to develop a stealthy UCAV based on [flying wing](#) design.^[5] The flying wing configuration is inherently stealthy, can carry more fuel and payload than conventional UCAV designs, however it has more complex flight control surfaces and laws.^[9] [Times Now](#) news quoting DRDO scientists reports that this design ensures optimum fuel use and stability for the aircraft.^[15] The Ghatak UCAV is projected to weigh less than a fighter jet and is intended to be powered by a 'dry engine' derivative of [GTRE GTX-35VS Kaveri](#) turbofan engine capable of producing a thrust of 52 kN.^[5] According to a [Press Information Bureau](#) (PIB) document dated to 2017, an initial fund of ₹2.31 billion (equivalent to ₹3.3 billion or US\$39 million in 2023) had been allocated in 2016 for the design of Ghatak and development of critical advanced technologies for the Ghatak and [AMCA](#).^{[16][1]} The [Indian Navy](#) is also interested in the project, and is keen on acquiring deck based UCAVs for future aircraft carriers and [Landing Platform Docks](#) (LPD).^[17]

Ghatak	
	
A scaled down technology demonstrator of DRDO Ghatak (SWiFT)	
Role	Stealth Unmanned Combat aerial Vehicle
National origin	India
Designer	Aeronautical Development Agency Aeronautical Development Establishment IIT Kanpur
First flight	1 July, 2022 ^[1]
Status	Taxi trials, autonomous take off and landing of technology demonstrator completed.
Primary user	Indian Air Force (expected)
Number built	2 SWiFT prototypes ^[2]

The ADA and DRDO are prepared to start building a full-scale model of the Ghatak stealth UCAV after funds are allocated for the Ghatak program.^[18]

Stealth Wing Flying Testbed (SWiFT)



Successful maiden flight of SWiFT on 1 July 2022.

Development of a scaled down technology demonstrator of Ghatak UCAV, called *Stealth Wing Flying Testbed* (SWiFT), began in 2020.^[17] The programme was sanctioned in 2016 with a funding of ₹70 crore (equivalent to ₹101 crore or US\$12 million in 2023).^[19] According to DRDO, the SWiFT UAV is intended to develop and demonstrate technologies for controlling the flying wing configuration and flight characteristics at high-subsonic speed.^[9] A total of 2 prototypes have been developed. The first prototype features a [flying-wing](#) design while the second features a [vertical stabilizer](#).^[20] The prototypes are also designated as the Autonomous Flying Wing Technology Demonstrator.^[21] The airframe, undercarriage and entire flight control and avionics systems used for the UAV were developed indigenously.^[8]

The SWiFT UAV has a length of 4 metres and a wingspan of 5 metres.^[22] The weight of Swift UAV is around 1 tonne, and it uses a [NPO Saturn 36MT](#) or TRDD-50MT [turbofan](#) engine.^{[8][15]}

Apart from being a precursor for technology development related to Ghatak project, SWiFT could also be developed as separate project under [unmanned wingman](#) bomber program.^[23]

The ground trials of SWiFT UAV began in June 2021, picture and videos of it carrying out taxi trials surfaced on 29 October 2021.^[9]

The second prototype (tailfin configuration) of the SWiFT UAV took its maiden flight on 1 July 2022.^{[8][20]} According to DRDO, the aircraft exhibited a perfect flight, including take-off, way-point navigation and a smooth touchdown while operating in a fully autonomous mode.^[10]



Air Chief Marshal [Amar Preet Singh](#)
inspecting Ghatak UCAV Scaled model at
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On 15 December 2023, DRDO successfully demonstrated the flight trial of first SWiFT prototype (flying wing configuration) at [Chitradurga Aeronautical Test Range](#). For the test, the avionic systems were further improved, demonstrating the level of technological maturity and preparedness. This marked the seventh flight trial of the platform various developmental configurations following its debut flight in 2022. It features an advanced [ground control station](#), real-time and hardware-in-loop simulation, and improved aerodynamic and control systems. Lightweight carbon prepreg composite material, created locally, was used to construct the body. Fiber interrogators are infused into the composite structure in order to monitor health. With the use of onboard sensor data fusion and [GAGAN](#) receivers, autonomous landing has been demonstrated to be possible from any runway with documented coordinates, negating the requirement for ground radars, infrastructure, or pilots.^{[21][2][24]}

See also

- [Unmanned combat aerial vehicle](#)

Related development

- [DRDO Rustom](#)

Aircraft of comparable role, configuration and era

- [Boeing X-45](#)
- [Sukhoi S-70 Okhotnik](#)
- [TAI Anka-3](#)
- [Northrop Grumman X-47](#)
- [Lockheed Martin Polecat](#)
- [Dassault nEUROn](#)



- [BAE Taranis](#)
- [Boeing Phantom Ray](#)
- [Mikoyan Skat](#)

Notes

a. from Hindi/Sanskrit 'घातक' (*romanised: ghātaka*) meaning 'killer', 'deadly'

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