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Drone startups fly higher — after altering their paths

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Interactive Aerial Inc.

The Zenith inspection system at a coal silo at a powerplant in Nebraska.

SPECIAL REPORT: TRAVERSE CITY

In this Crain's Michigan Business report:

The drone technology program at Traverse City's Northwestern Michigan College has produced two companies, Interactive Aerial Inc. and Hybrid Robotic Inc., that are sharply increasing their revenue, have happy customers and are hiring.

Both of them have done so by adapting to market needs in ways not foreseen in their original "flight" plans.

Most of their combined revenue isn't coming from building and selling drones, as their founders originally intended, but from selling components and services that were in more demand than completed drones and easier to make and sell.

Interactive wanted to make drones to do interior inspection of such large spaces as cargo and ballast holds on ships, large storage tanks for chemical and oil companies and refineries, and of large smokestacks and boilers for the pulp and paper industry. When the company realized companies didn't want their own employees operating drones in interior spaces, it began offering inspections as a service, then expanded that with a patent-pending non-drone interior inspection system called the Zenith, which is a camera on the end of a line dropped into an interior space and controlled remotely.

Interactive counts Midland-based Dow Chemical Co. and Cincinnati-based Procter & Gamble Co. as Zenith customers.

Hybrid's plan was to build a large drone called the Catalina that could fly equipment for a landing on water, then lower cargo such as cameras to inspect underwater fuel pipes or remote-controlled robots for law enforcement to investigate accidents and search for missing bodies.

It hopes to have a finished drone ready for demonstration in the first quarter next year and to be selling it in the third, but meanwhile has a fast-growing business selling other components, such as winches and search and recovery robots, also known as SARBOTs.

Hybrid Robotics

Hybrid's planned Catalina drone would ostensibly fly equipment for a landing on water, then lower cargo such as cameras to inspect underwater fuel pipes or remote-controlled robots.

Casey Cowell was an early investor in both companies through Boomerang Catapult, his early-stage Traverse City-based investment company. Cowell founded U.S. Robotics Inc. in Chicago in 1976 with $200 when he was 23 and grew it to be the world's dominant maker of computer modems. The company went public in 1991 and was sold to 3Com Corp. in 1997 for $6.6 billion. The company also made the Palm Pilot. Cowell was president and CEO until 1996.

He said it was crucial that both drone companies were smart enough to pivot from original business models.

"The original plan to build drones was extremely complicated. There was a long sales cycle, and it's hard to convince buyers to buy. But they pivoted and are writing orders. They are making it happen," he said.

Jason Slade is director of technical programs at NMC, which includes the 10-year-old drone program, one of the oldest in the country.

"Interactive Aerial launched in our maker space at the college. They were hyper drone-focused, and it's been interesting to see how they have adapted as they realized there were other markets out there," he said. "Hybrid used them as a model. They saw they had to have some breadth. Interactive was nimble, and it was OK for them to be, too."

Interactive Aerial was founded in 2016 by three NMC students, Justin Bentsen, now the hardware engineer; Chris Schmidt, the software engineer; and Pierce Thomas, manager of

production and inspection services; as well as Christian Smith, the company president who grew up in Midland with Bentsen and attended the University of North Dakota for its manned aviation and flight school program before joining them in Traverse City.

Early funding was from friends and family, with the company generating revenue early on. For three years, three of the co-founders actually slept on mattresses in the office, pouring as much money as possible back into the business, hiding the mattresses in closets when visitors arrived. The fourth was able to live with his parents.

Mark Stephens

The company's CEO is Mark Stephens, whose path to the head of the company was unusual, to say the least. He met the three NMC co-founders when he was a 65-year-old taking classes in the drone program at the school, and they were the student instructors teaching his classes.

In 1980, he founded a plastic injection-molding company in Ironwood in the Upper Peninsula called Ironwood Plastics Inc. By 2010, when he sold it, it had 300 employees in Michigan and Wisconsin. He remained with the company for more than three years, then moved to Traverse City.

He didn't move to Traverse City to retire. He knew he would be active in business, he just wasn't sure how.

"I didn't know a single person, so I started networking," he said. "Four people told me someone needed to start a drone company because there was a great drone program at the college, but that kids go through the program then leave."

So, in 2015, Stephens, a mechanical engineer, enrolled in the school to check the program out. That year, Interactive's founders got the idea to develop a drone for internal inspections. "All the hype was doing outdoor drones. We thought, 'Why not make a drone that can go inside things?'" said Smith.

After the company was founded, Stephens followed its progress. In 2019, he became its lead investor and CEO, helping raise an investment round of $700,000.

Smith said the company doubled revenue each of the two years before COVID-19 and would have doubled last year too if not for the pandemic. He said the company will double revenue this year and will become profitable by the end of the year. Stephens said revenue projection for this year of more than $700,000 should easily be bypassed and he expects the company will be able to fund growth out of cash flow and not need more equity funding.

The company has 11 employees, now, up from four in 2019, and has four distributors globally in about a dozen countries, including China, Canada and Indonesia. Smith said the company only uses U.S.-made materials, such as carbon fiber components and circuit boards, for its drones and the Zenith. It does 3D printing on premises and uses Grand Traverse Tool to machine parts it can't make itself, as does Hybrid Robotics.

"I come from a family business, so I know all the problems you can have with too many partners. Generally I don't like to invest in companies with too many shareholders. Bad things can happen," Stephens said. "But I'm glad I got involved."

Brad Owens is president of Alternative Marine LLC, which operates unmanned underwater robots and does interior inspections of cargo holds and ballast holds for Great Lakes ships and underwater inspection of such things as propellers and shaft.

Though he is licensed to operate drones, he didn't trust himself to operate them in enclosed areas, so he began hiring Interactive Aerial.

Impressed by the Zenith system, he says he will be using it next winter when the busy inspection season begins.

"I really enjoy working with these guys, and this takes it to a whole new level," he said.

Hybrid Robotics

Hybrid Robotics got some attention and money when Matt Goddard, its CEO, did a five-minute presentation at a pitch event in October 2018 put on by TC New Tech, a nonprofit that puts on pitch events every month to showcase five early-stage companies. It won the top prize of $500 and the attention of Cowell.

Tom Henderson/Crain's Detroit Business

Matt Goddard, CEO of Hybrid Robotics.

"We were fresh out of college and ready to go," said Goddard. "Casey walked up to us after and said, 'I want to start a company.'"

Boomerang made an investment early in 2019 as part of a friends and family funding round of $200,000, and an S-Corp. was formed.

Goddard, the president, was a combat engineer in the U.S Marine Corps from 2009-2014 in Afghanistan and South Korea, whose specialty in the Middle East was finding improvised

explosive devices, first with metal detectors and then with unmanned aerial devices. "I fell in love with drones," he said.

A native of Eastpointe, he had heard about the NMC drone program and upon leaving the service enrolled.

His co-founders are Aaron Bottke, head of R&D; and Ryan Mater, operations manager.

The company began in the maker space at NMC, then soon graduated, in true entrepreneurial fashion, to 800 square feet in a garage.

Goddard said they quickly realized getting a big drone capable of landing on water and taking off was going to be expensive and time consuming.

"A drone that can land on water and then launch a submersible on a 300-foot tether is very complicated," said Cowell. "Then to return to the surface, reattach to the drone and fly, again, there's a lot of pieces to that puzzle. It's very expensive and a long sales cycle. Are there smaller markets for subsets of products? It turns out there are. They've knocked down some impressive orders and are a real company, now."

"The market needed a lot of the technology we were building," said Goddard, including winches, underwater lights and unmanned robots. He says he has about 20 customers. "Adapt and overcome. That's what we say in the military, and that's what had to be done here."

One client became the History Channel gold-hunting series, "The Curse of Oak Island," one of whose stars, Marty Lagina, is a Traverse City resident. Goddard said the show uses its equipment to film some B-roll footage using Traverse City as a backdrop.

Hybrid Robotics

An underwater search vehicle, parts made by Hybrid Robotics.

Another client is BlueLink Technology Partners LLC of Escondido, Calif. The company makes and distributes component parts and systems to makers of unmanned underwater vehicles, called remotely operated vehicles or autonomous underwater vehicles. It also sells vehicles to sheriff's departments and state police for use in investigating boating accidents or for the recovery of bodies underwater as a result of accidents or floods.

Jeff Conger is president of BlueLink. He said got to know the team at Hybrid and officials in the drone program at NMC two years ago. He says he got Hybrid into some trade shows with him for free.

He said he joined Hybrid's advisory board and became a customer in 2020 when a company in Torrance, Calif., that had been supplying him with robotic arms discontinued making them. "Aaron said, 'We can make you an arm.'"

He said he was impressed with various components Hybrid had designed as part of the winch system that attached to the Catalina to lower an automated underwater vehicle into the water and later bring it to the service. He said the parts were better-looking and more efficient than similar parts he was buying from his previous supplier.

"I just love innovation and people doing cool stuff. I like seeing the younger generation, people half my age, doing cool stuff," he said. "Their designs were beautiful. My concern had been that they were very young and didn't have a lot of industry experience, but my engineers loved their designs."

Conger said he has had Hybrid build SARBOTs or supply other components for the Utah Department of Natural Resources, the San Bernardino (Calif.) Sheriff's Department and the Oregon State Police. "I have them completely slammed. They barely have time to catch their breath, designing new stuff for me. Hybrid has done an amazing job compared to what my old suppliers were doing. Aesthetics as well as function. It doesn't just work well, it looks good, too. I've got eight to 10 products in mind for them to design. We can start selling them as soon as they come up for air."

Hybrid has four employees and two interns, now, with Goddard saying he will be hiring five or six employees in the next two months to handle the expanding business for Conger and other clients and plans to add nine to 10 employees over the next year.

He said the company has had sales of about $200,000 in the last five months and projects up to $1 million over the next year.

He said he will begin raising an equity round of about $500,000 to fund growth soon. He said he expects Boomerang to write another check and is hoping the Traverse City-based Northern Angels will write their first check, too.
