

Global monthly E-magazine for Drones



DRONES

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Mr. George Matus

CEO - TEAL DRONES

PG-11



Mr. Michael Norcia

Co-Founder & CEO, Pyka

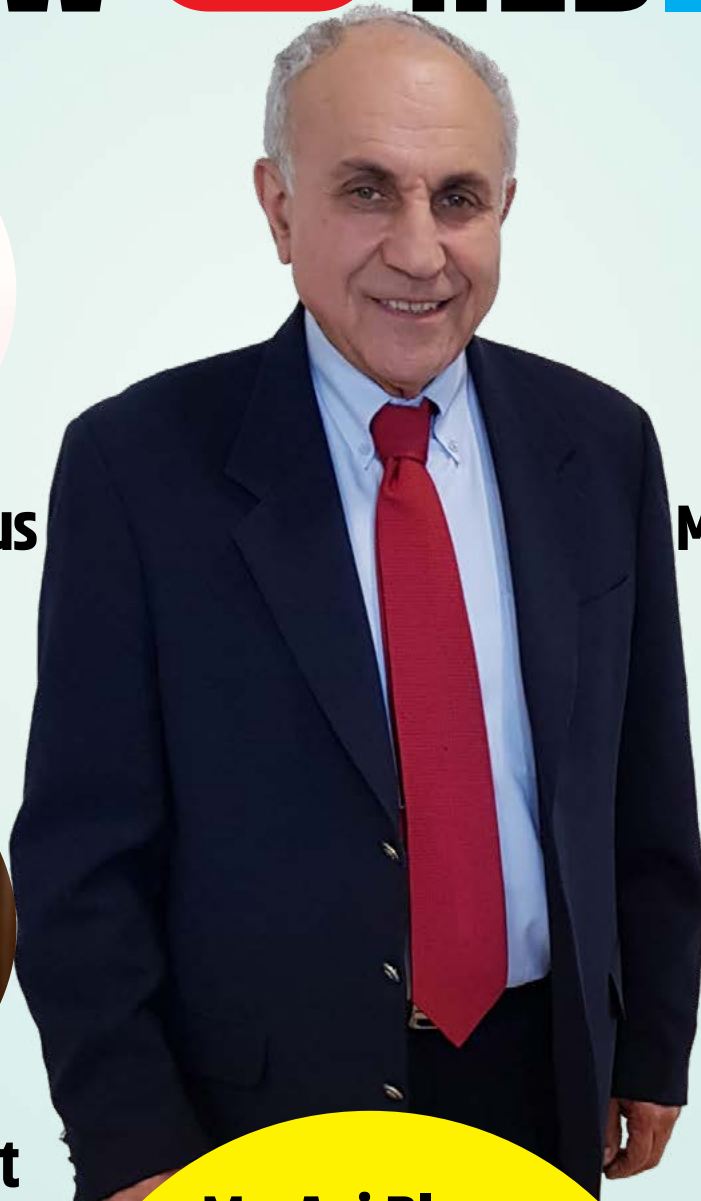
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Mr. Brad Schmidt

Global UAV sales manager
Trimble Applanix

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Mr. Avi Bleser

Vice President of Marketing for India
Israel Aerospace Industries (IAI)

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Mr. Aaron Zhang

Co-founder & CEO
A2Z Drone Delivery

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AeroVironment to Acquire Tomahawk Robotics

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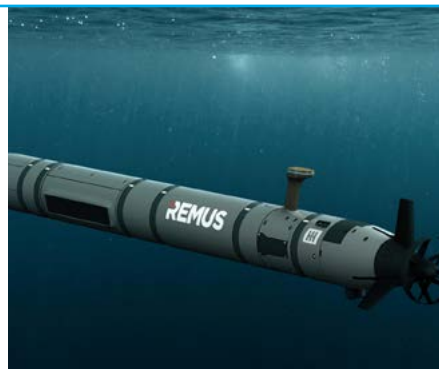
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NASA Launches Beta Site; On-Demand Streaming, App Update Coming Soon



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DRONES WORLD

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DRONES WORLD is published by - B. Kartikeya



B. KARTIKEYA

Integration with properly designed enterprise IoT networks will become more crucial as drone use in businesses grows. Here is another magazine edition for SEPTEMBER, updated to reflect the most recent developments with drones.

This month, we present you the five most exclusive interviews with outstanding figures in the drone industry. Israel Aerospace Industries (IAI) Vice President of Marketing for India, Mr. Avi Bleser, is the subject of the first interview. He argues that because India is a fundamental and essential part of the ecosystem and the business, it is only logical for IAI to be a part of the supply chain. The second interview will be with Mr. Michael Norcia, Co-Founder & CEO of Pyka, who will inform you about drones in the agriculture sector. The following discussion is with Mr. Aaron Zhang, Co-founder and CEO of A2Z Drone Delivery, who discusses some real-world challenges he encountered when he first tried to introduce the drone. The following interview with Mr. George Matus, CEO of TEAL DRONES, explains the main contrasts between the civil and defense drone market groups. Mr. Brad Schmidt, the Trimble Applanix global UAV sales manager, is the subject of the last interview. He gave a quick summary of the Trimble PX-1 RTX. These interviews will improve your perspective on the drone business.

Using the Drones News section, get a quick update. Red Cat chooses Tough Stump Technologies to be the DoD's training provider. Shield AI works in partnership with Sentient Vision Systems to provide AI-Enabled Wide Area Motion Imagery.

The HOVERAirX1 Pocket-Sized Self-Flying Camera and Two-Axis Rate Gimbal for Surveillance Missions are just some of the recently released drones you can discover in the Products section.

Keep yourself occupied with the material in the BVLOS, GIS, Counter Drones, Defense, and other magazine areas until our next issue arrives. Spend a wonderful time reading our magazine.

Red Cat's Teal 2 sUAS Receives Remote ID Certification from FAA

Red Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government and commercial operations announces that its military-grade sUAS, the Teal 2, has received Remote ID certification from the Federal Aviation Administration (FAA).

Remote ID allows UAS in flight to provide identification and location information that other parties can receive via a broadcast signal. The technology is designed to provide increased safety and security in U.S. airspace as unmanned aerial systems become more ubiquitous. The FAA will require all UAS operating in the U.S. national airspace system to be equipped with Remote ID as of Sept. 16.

Red Cat's integrated Remote ID system goes above and beyond the technology being used in competing drones. It sits inside the Teal 2 vehicle, broadcasting data from the flight control system about once per second to ensure a high level of accuracy. The use of Bluetooth 5 allows the signal to be transmitted over a longer distance – as far as a mile – significantly outpacing the range of other systems on the market.

"I think this really speaks to who we are at Red Cat and what our values are," said Brendan Stewart, vice president of regulatory affairs at Red Cat. "We

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We've put a lot of effort, a lot of resources and a lot of capital into this to make sure that our customers won't have a service interruption," said Brendan Stewart. "For us at Red Cat, standing behind the quality of our products means ensuring that they'll remain operational and compliant with regulations long into the future. ”

view ourselves as an aircraft manufacturer, as opposed to a consumer electronics manufacturer building something that flies. What sets us apart is our ability to look into the future, figure out what the FAA's goals are in implementing a particular regulation, and then build technology that allows us to not only meet the regulation today, but sets our customers up for long-term success in a changing regulatory environment."

Red Cat recently tested its Remote ID integration in New York with NUAIR acting as the independent third-party validator, using ASTM International standard F3586-22 for the means of compliance testing. Working alongside individuals from the standardization committee who helped write the regulations for Remote ID, NUAIR personnel also provided mission commander,

visual observers, airworthiness check and test card formulation.

"Remote ID is another great step forward to safely integrate drones into the national airspace and move the commercial drone industry forward," said NUAIR CEO Ken Stewart. "NUAIR has conducted multiple validations for other ASTM Standards including sUAS parachute recovery systems and we are happy to see Red Cat receive their certification following our successful validation of their Remote ID solution."

Going forward, all Teal 2 systems sold for operation within the U.S. will be manufactured with Remote ID included. Red Cat is also creating a pathway for owners of previously manufactured Teal 2s to have Remote ID modules installed on their units to comply with FAA regulations.

Shield AI Collaborates with Sentient Vision Systems to Offer AI-Enabled Wide Area Motion Imagery Capability

Shield AI, an American defense technology company building the world's best AI pilot, and Sentient Vision Systems (Sentient), an Australia-based leader in AI-enabled passive wide area search, are pleased to announce a strategic collaboration aimed at delivering a wide area motion imagery (WAMI) solution for Department of Defense (DoD), Australian Defense Forces (ADF) and other international customers.

The companies will jointly develop and integrate a ViDAR-enabled, wide-area-search capability onto Shield AI's V-BAT unmanned aircraft, which will enable Shield AI's V-BAT to intelligently classify, track, and read-and-react to targets in dynamic missions. Shield AI plans to fly the capability on V-BAT next year.



"This work with our Australian partner, Sentient, is a unique opportunity to fuse the innovation prowess of two companies from allied countries on opposite sides of the world. Together, we are shaping the future of defense technology," said Brandon Tseng, Shield AI's President, Co-founder, and former U.S. Navy SEAL.

ViDAR is Sentient's AI system, which uses an Electro-Optic or Infrared (EO/IR) sensor to

detect and classify targets in the imagery stream that would be invisible to a human operator or to a conventional radar. With these enhanced capabilities, V-BAT will be even more proficient in executing the most challenging missions, offering a level of capability that significantly bolsters threat deterrence, thereby reinforcing international peace and security.

"Sentient is excited and proud to be working with Shield AI on this truly breakthrough solution," said Mark Palmer, Sentient's Chief Technology Officer. "We look forward to combining the AI expertise and operational understanding of our two great teams to deliver superior ISR capabilities for today's rapidly changing defense and security environment."



Red Cat Names Tough Stump Technologies as DoD Training Provider

Red Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government and commercial operations announces Tough Stump Technologies as its primary training provider for customers including the U.S. Department of Defense (DoD).

Tough Stump, a situational awareness systems company, will also consult on ATAK app integration for Red Cat systems, and on testing and evaluation of new product capabilities. In addition, Red Cat will support Tough Stump in further expanding the Tough Stump Rodeo, an innovative trade show and conference where mission-technology solutions are demonstrated in the field, instead of a convention center.

"Tough Stump is a trusted partner for Red Cat because it's a veteran-owned business with more than 150 years of combined experience across all branches of the U.S. military," said George Matus, CEO of Red Cat subsidiary Teal Drones. "Red Cat's new military-grade drone, the Teal 2, is the smartest choice for sUAS missions, and Tough Stump has the testing and training expertise to prepare our customers for mission success."

DoD-approved as Blue UAS and now available to purchase through the U.S. government's GSA Advantage website, the Teal 2 is designed to Dominate the Night™ as the world's leading sUAS for night operations. The Teal 2 is the first sUAS to be equipped with Teledyne FLIR's new Hadron 640R sensor, providing end users with the highest resolution thermal imaging in a small form factor. The Teal 2 also offers the latest intelligence, surveillance and reconnaissance technology.

At the 2023 Tough Stump Rodeo, held in remote Montana in June, Tough Stump worked with Red Cat to integrate the Teal 2 into the ATAK app, command and control the drone using the UAS Tool within ATAK, and disseminate intelligence test data to 12 countries around the world.

The Tough Stump Rodeo is designed for military and government professionals seeking technology solutions to increase mission effectiveness while improving the safety of personnel. The event's location, near Alder, Montana, simulates challenging mission environments over a 40-mile area, and has limited internet access, which provides opportunities for testing radio communication systems.

"Tough Stump Rodeo is a first-of-its-kind trade show where solutions are stress-tested in real-world conditions and there are no salespeople because the technology has to sell itself," said Tough Stump Co-Founder and COO Ben Brown. "Attendees tell us the rodeo sets the standard for what a trade show should be, and Tough Stump looks forward to working with Red Cat to continue growing the event in 2024."

SkyGrid's All-in-One Drone Application Lands on Android



SkyGrid, a Boeing, SparkCognition company announced the launch of SkyGrid Drone Central, a comprehensive application designed to automate every phase of flight in one unified solution. Now available for free on the Google Play Store for Android users, this launch follows the positive response to SkyGrid's iOS application, SkyGrid Flight Control.

Powered by SkyGrid's Aerial Operating System, AerialOS™, SkyGrid Drone Central is an all-in-one solution that allows drone operators to explore airspace, automate mission planning, and execute flights seamlessly, enabling safe, secure, and efficient operations. The free application continuously monitors and adapts to changing regulatory advisories, aircraft performance, and location information to safely enable a wide variety of drone operations.

"Our goal with SkyGrid Drone Central is to provide a comprehensive solution that simplifies and enhances operations of smaller aircraft at low altitudes," said Fabrice Kunzi, Chief Operating Officer at SkyGrid. "Following the successful launch of our iOS application, we're excited to expand our reach to Android users, making advanced drone operations accessible to a broader audience."

Key features of SkyGrid Drone Central include: Airspace Awareness: Offering insights into airspace classes, no-fly zones, roadway traffic, population density, and relevant advisories empowering operators to make informed decisions before they fly.

Weather Intelligence: Providing real-time, hyper-local weather updates, including wind speed, temperature, visibility, and more, operators are given crucial insights that can influence flight decisions, enhancing safety and efficiency.

Flight Operations: Through an intuitive interface, users can define flight parameters to automatically generate diverse missions such as area exploration, waypoints, and multi-objective missions.

Autonomous Flight Execution: Operators can effortlessly connect drones and launch missions, performing predefined flight plans autonomously, making missions more streamlined and less labor-intensive.

In an age where the skies are becoming more populated with drones, having an intelligent, unified solution to check airspace, plan and execute flights, and gather insights is necessary. Recognizing this challenge, SkyGrid has minimized the burden on drone operators by creating one solution that gives operators the assurance they need to execute safe, compliant missions.

The London Heliport Deploy Altitude Angel's Approval Services Platform

Altitude Angel, the world's leading UTM (Unified Traffic Management) technology provider announced The London Heliport is deploying its Approval Services platform which allows drone operators, and in the future eVTOL pilots, the ability to request and pay for operations within the heliport's airspace digitally and at the touch of a button.

From today, Approval Services, described on its launch by Aviation Minister Baroness Vere, as 'a key step to [the UK] achieving its ambitious outcomes we are setting through the Future of Flight Industry Group', allows drone operators to submit flight plans, which take place in part wholly or in part, within The London Heliport's FRZ, quickly and securely, as well as facilitating any charges the heliport has in place when a flight is approved.

Prior to the introduction of Approval Services, Altitude Angel has been providing The London Heliport with a combined view of the airspace in the vicinity of its FRZ (flight restriction zone), enabling the heliport to digitally approve or decline operations from drone companies and drone operators, using Altitude Angel's proven digital authorisation and flight management technology.

The London Heliport has a rich tradition of



pioneering aviation dating back over 60 years, beginning operations in 1959. Now, it is the only CAA licensed heliport in London and provides an essential service to the business community and local emergency services, such as the London Air Ambulance (HEMS).

On the deployment of Altitude Angel's Approval Services platform at The London Heliport, Chris Forster, Altitude Angel, Chief Operating Officer, said: "The London Heliport has a special place in the history of aviation and Altitude Angel is incredibly proud to be part of a new chapter in the heliport's continued development. The drone and urban air mobility industries will be part of a new aviation ecosystem which can take advantage of the heliports unique central London location."

Matthew Rice, The London Heliport, Operations Manager added: "The heliport's location is a prime area for drone activity and within its FRZ, will have over 500 authorised drone flights a year. Managing these applications and having an overall picture of what is going on day to day has always been a challenge. This is why our relationship with Altitude Angel has been pivotal in having a robust application process that helps us to monitor and process them easily.

"Situational Awareness' allows our Air Traffic Control to have a better understanding of what activity is planned and approved within the FRZ on the day. This helps us to try and achieve our ultimate goal of ensuring all helicopters operating in and out of the heliport are made aware of any drone operations and kept safe."

Skydio to Sunset Consumer Drone Offerings

Four years after its launch, Skydio 2's follow-and-film capability and autonomous cinematography features like KeyFrame are still in a class all on their own. Watching our consumer customers use our drones to capture photos and videos that would be impossible to achieve any other way while they bike, climb, run, drive, and ski in some of the most beautiful parts of the world has been one the greatest joys of our work.

While Skydio 2 has been an incredible success in enabling new kinds of content capture, Skydio drones are also having a transformative impact for over 1,500 enterprise and public sector customers, putting sensors in dangerous and important places to perform inspections, find missing children, and protect our troops around the world. Our drones are making the core



industries that our civilization runs on - public safety, transportation, energy, construction, and defense - safer and more efficient. And it's becoming more and more clear every day that we need trusted, secure drones to meet these critical applications. The impact we're having with our enterprise and public sector customers has become so compelling that it demands nothing less than our full focus and attention.

As a result, I have made the very difficult decision to sunset our consumer business in

order to put everything we've got into serving our enterprise and public sector customers.

This means that we will no longer offer our Skydio 2+ Starter, Sports, Cinema, or Pro Kits. We will continue to provide software and customer support for existing customers. We stand by all warranty terms, Skydio Care, and will continue vehicle repairs. Additionally, we will retain inventory of accessories for as long as we can to support the need for replacement batteries, propellers, charging cables, etc.

Commercial enterprises and public sector organizations can purchase the Skydio 2+ Enterprise Kit from their Skydio representative or reseller. We will be forever grateful to every consumer who has purchased a Skydio drone. We hope you have enjoyed the product as much as we enjoyed building it and supporting you.

GA-ASI Advances Ecosystem for Autonomously Operational UCAV



General Atomics Aeronautical Systems advanced its ability to operationalize the Unmanned Combat Air Vehicle (UCAV) ecosystem by combining advanced autonomy and government-provided human-machine interface (HMI) hardware. A GA-ASI-owned Avenger® Unmanned Aircraft System (UAS) was paired with “digital twin” aircraft to autonomously conduct Live, Virtual, and Constructive (LVC) multi-objective collaborative combat missions.

The flights, which took place on July 13, 2023, from GA-ASI’s Desert Horizon Flight Operations Facility in El Mirage, Calif, demonstrate the company’s commitment to maturing its UCAV ecosystem for Autonomous Collaborative Platforms (ACP). The ecosystem’s goal is to rapidly integrate best-of-breed capabilities in areas such as Artificial Intelligence (AI), mission-relevant interfaces, and other capabilities from third-party providers at the speed of relevance for 21st century conflicts.

The team demonstrated Manned-Unmanned Teaming (MUM-T) using the U.S. Air Force’s Project FoX system, which included a touchscreen tablet for fighter cockpits. The tablet provided control and monitoring of advanced autonomy while it conducted a multi-objective combat mission consisting of LVC entities. Mission autonomy capabilities focused on optimized search and signature management. Search optimization autonomy behaviors were provided by Scientific Systems Company, Inc. (SSCI). These skills were integrated into and orchestrated by government-furnished equipment (GFE) autonomy core architecture enhanced by GA-ASI. The flexibility of the GFE autonomy core software stack enabled rapid, seamless integration of one of SSCI’s multi-UAS behaviors. Autonomous trajectories were calculated by SSCI algorithms and subsequently communicated to GA-ASI’s autonomy core for translation to vehicle routes. SSCI provided an array of behaviors using its Collaborative Mission Autonomy suite where the software adapts to mission contingencies such as system failures, connectivity dropout, and combat losses to ensure successful tactical execution.

“The concepts demonstrated by these flights set the standard for operationally relevant mission systems capabilities on UCAV platforms,” said GA-ASI Senior Director of Advanced Programs Michael Atwood. “Our integration of the emerging FoX system accelerates speed to ramp for emerging collaborative air-to-air capabilities. The combination of airborne high-performance computing, sensor fusion, human-machine teaming, and AI pilots making decisions at the speed of relevance shows how quickly GA-ASI’s capabilities are maturing as we move to operationalize autonomy for UCAVs.”



SoftBank Corp. Successfully Completes Flight Test of Sub-scale Model of Next-generation HAPS UAS

SoftBank Corp announced that it collected the data necessary for flight verification and aircraft design as part of its development of a next-generation uncrewed aircraft system (UAS) designed for High Altitude Platform Station (HAPS) by testing a sub-scale model. A low altitude flight test for the sub-scale model, a small-scale version of an actual aircraft, was conducted on March 14, 2023 (U.S. Mountain Time) in Willcox Playa, Arizona.

The sub-scale model used in the flight test was based on “Sunglider,” a UAS designed for HAPS-based stratospheric telecommunications. The current version of Sunglider, developed by Softbank’s subsidiary HAPSMobile Inc.

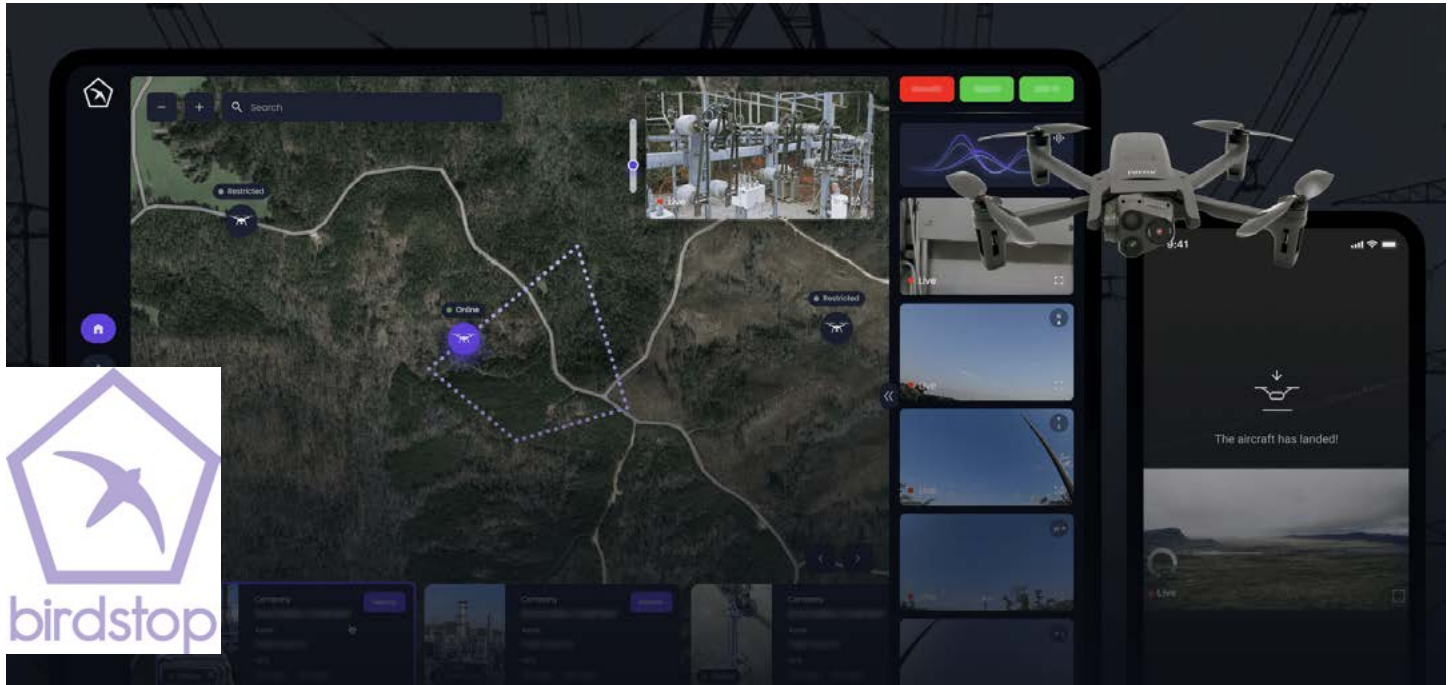
(“HAPSMobile”)*1 and AeroVironment Inc., successfully reached the stratosphere during a test flight conducted in September 2020*2. Based on the achievement and lessons learned from Sunglider’s stratospheric flight test, SoftBank and AeroVironment are developing a next-generation UAS. When developing an aircraft, it is necessary to verify whether it will fly as designed before actually developing and producing the actual one. In this flight test, carefully crafted multiple sub-scale models were used to create conditions equal to those of the full-scale aircraft’s shape and characteristics. In addition to verifying whether the aircraft could fly with stability as designed, following the actual flight test, SoftBank collected and analyzed various data, including data on the aircraft’s structural characteristics that could not be otherwise obtained from computer-based simulations.

SoftBank and AeroVironment will apply the data and know-how obtained in this flight test to the development of the next-generation UAS. Both companies are also continuing to focus on acquiring Federal Aviation Administration (FAA) type certification and making design improvements to enable mass production.

“By creating multiple sub-scale models that replicate the shape and characteristics of the full-scale next-generation candidate aircraft and conducting repeated flight tests, we were able to obtain crucial data on next-generation design and control policies that could not be otherwise obtained from computer-based simulations,” said Junichi Nakajima, Director of SoftBank’s Advanced HAPS Research Office and Senior Vice President of HAPSMobile’s Technology Administration Division. “We will continue our efforts to develop aircraft and foundational technologies to realize commercial HAPS-based stratospheric telecommunication services.”

SoftBank will continue to promote its HAPS business with the aim of creating a society where all can be connected to stable networks, anytime and anywhere, and to bridge the digital divide.

California-based Birdstop Raises Funding to Expand Network of BVLOS Drones across America and Protect Critical Infrastructure



Remote sensing company Birdstop, Inc. raised \$2.3M in funding to expand its constellation of BVLOS (Beyond Visual Line of Sight) drones across the nation's critical infrastructure, grow its AI capabilities, and deliver more data-driven value to customers. The round was led by Lerer Hippeau and included Anorak Ventures, Correlation Ventures, Data Tech Fund, Graph Ventures, Techstars, Timberline Holdings, as well as strategic investors in energy and telecommunications.

From its NASA-style mission control in California, Birdstop operates a network of drones across the nation akin to a constellation of satellites on the ground. Birdstop's patented technology uses a suite of risk mitigation measures including a proprietary low altitude airspace deconfliction system to ensure the highest level of safety even when the operator is thousands of miles away. Birdstop has received several of the nation's top Federal Aviation Administration (FAA) approvals to conduct complex BVLOS operations.

Birdstop analyzes and protects power grids, telecom networks, and other national critical infrastructure. In addition to routine monitoring and inspection, Birdstop remote sensing is mobilized on-demand for extreme circumstances from natural disasters to security breaches. Birdstop coverage is already active in several states including Alabama, California, and Texas, providing real-time intelligence to customers managing both public and private sector assets. In addition to infrastructure users, over 20 other industries - from agriculture to construction to first response - can leverage Birdstop coverage to enhance situational awareness and real-time intelligence.

With the opening of a new R&D facility in Alabama, Birdstop has begun scaling production of its systems, starting with its airspace intelligence beacon.

Birdstop was founded by its CEO Keith Miao, former Google data scientist and Earth Institute satellite imagery analyst. Other leaders at Birdstop include Head of

Software Jatin Kolekar, who brings a decade of experience at the frontier of drone technology, Software Engineer Robert Reynoso, who operated a global network of Internet balloons at Google Loon, and Principal R&D Engineer Timothy McPhail, who managed cellular infrastructure with drone imaging at American Tower.

"We all use Google Maps, but few of us have seen a physical satellite. At Birdstop, we take the same approach for drones. Our customers receive data and intel but the drones are invisible to them," says Keith Miao, CEO. "We take away all the complexities of drones, robotics, and FAA regulations, so that users simply dial into their assets in real-time, on-demand."

"Developments in drone technology and Beyond Visual Line of Sight (BVLOS) regulation over the past decade are allowing Birdstop's vision to be realized for the first time," says Andrea Hippeau, Partner at Lerer Hippeau. "Birdstop's ability to generate real-time intel remotely is a huge step forward for the industry."



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Drones are now vital to national security, which is apparent based on everything we're seeing in Ukraine.



Drones World Editor Kartikeya in Conversation with

Mr. George Matus - CEO - TEAL DRONES



Q What sparked your interest in starting a drone company?

A I had two passions growing up. One was creating things that didn't yet exist, and the other was flying. I started flying when I was about 10 years old; I started just with RC planes and helicopters, eventually transitioned into drones, became a test pilot for a drone company and then, in high school, started building my own platforms and creating new things. Ultimately, I had the idea for Teal (which in hindsight was a little naïve — to try and build a world-leading drone company!). But here we are today 8 years later, working hard to become just that.

Q What products does Red Cat currently have on offer?

A Teal was the fourth acquisition by Red Cat, and the rest of its portfolio includes Fat Shark, Rotor Riot and Skypersonic. Fat Shark and Rotor Riot are consumer oriented around FPV drones, racing and virtual reality. Red Cat recently announced that it is going to be selling off the consumer division of its company and focusing on enterprise and defense, which includes Teal and Skypersonic. Teal is focused on short-range reconnaissance and ISR-type use cases with its current product, the Teal 2. The Teal 2 is a dual-use product — we use it for defense as well as for public safety,

for inspections and other commercial-use cases. And Skypersonic is a company that builds caged small drones that are able to fly in tight indoor spaces, which also opens up the door to a lot of interesting use cases.

Q Can you provide an insight into the civil and defense segments of the drone market? What are their key differences?

A Demand for drones has been going up across both civil and defense sectors. Drones are now vital to national security, which is apparent based on everything we're seeing in Ukraine. The government is increasing its investments into the domestic industrial base, allowing it to grow and ultimately compete globally. Most of the investment happening right now is in defense, which is where Teal is focused and believes it can have the biggest impact. The Teal 2 is primarily defense focused but is also a dual-use product. We are beginning to penetrate some civil segments too, including public safety, land management, wildlife conservation and infrastructure inspections. What's cool about a lot of these use cases is that the requirements overlap a large amount, though every use case does have its unique requirements. And with Teal's best-in-class payload and modularity, we can support a lot of these use cases with a single product.

Q Red Cat's new Teal 2 military-grade drone caught our interest. Can you explain its importance and its potential?

A We believe we have a great product — it has a best-in-class sensor payload designed to



dominate the night. It's highly modular, meaning every part of the drone can be replaced in the field or upgraded over time, and it's also very interoperable with other technologies. We have publicly talked about a few of Red Cat's and Teal's partnerships to extend the capability of the Teal 2, a few of which are Reveal technology, which allows us to do near real-time 3D photogrammetry, and Athena AI, which enables some really powerful artificial intelligence capabilities at the tactical edge. The Teal 2 is a big step in the right direction for the U.S. to rebuild its industrial base and begin to close the gap with capabilities we see coming out of China.

Q Can you elaborate on the technologies that you are

working on and the industries you serve?

A While we are very interoperable and modular, across our hardware and software, we are quite vertically integrated. This means that our engineering and manufacturing teams span every engineering discipline related to drones. In terms of technology, we're working on everything from the payload to the propulsion and to the full integration of all the rest of the subsystems, most of which are designed internally. More broadly, what we're trying to do is not just build a drone, but build a drone factory. What we're proving out now is the ability to manufacture this type of product at high quantities to support the demand we're seeing across the board domestically and

internationally. The reason for our focus on vertical integration is to be able to build a competitive product at a lower cost than we could otherwise, and then be able to scale that to high volume in our factory.

Q How do you see Red Cat's innovations shaping the future of warfare?

A What we're hearing from many sources who have been in Ukraine and who have seen how drones are being deployed, is that the invention of the drone is as impactful as the invention of the machine gun in the late 1800s. I'm specifically talking about this category of drone, which is a short-range UAS meant to be deployed on the frontline, at the tactical edge, and is a game changer in the process of war (known as the kill chain). We believe a big part of the future of this technology is being able to responsibly deliver kinetic effects — or, in other words, weaponizing drones — which we believe is going to be a necessary part of the future. The ultimate goal is to build an asymmetric advantage over our competition, create a strategic deterrence to future conflict, but win if our soldiers are ever called to fight.

Q Do you hope that your work will inspire other dronepreneurs to continue innovating unmanned vehicles?

A I think there's huge opportunity in the drone industry. We're just getting started. There are going to be so many interesting needs for drones moving forward, and I don't think a single company in America is going to be able to fulfill all of it. So I certainly encourage anyone who is passionate about the drone industry, or feels some sense of purpose around it, to do it.



GA-ASI Mojave STOL UAS Completes First Dirt Operation

General Atomics Aeronautical Systems, Inc. (GA-ASI) completed multiple successful takeoffs and landings with its Mojave Unmanned Aircraft System (UAS) on a dirt strip near El Mirage, Calif. The ability to take off and land on unimproved surfaces demonstrates Mojave's departure from traditional fixed-wing aircraft's dependence on prepared runways. This new capability provides greater versatility and allows the aircraft to operate in areas previously deemed unsuitable for UAS operations.

"Being able to execute missions in austere locations with runway independence opens the operational envelope for commanders across all services and geographic locations," said GA-ASI President David R. Alexander. "Mojave can do this while retaining significant advantages in endurance and persistence over Vertical Takeoff and Landing (VTOL) and manned aircraft."

The flight tests were the first-ever Short Takeoff and Landing (STOL) on a dirt surface for Mojave. Takeoffs were performed in as little as 586 feet; and short landings were completed in as little as 335 feet. The tests were primarily focused on gathering terrain feedback using Mojave, not achieving the shortest distances possible.

Tracing its lineage from the MQ-1C Gray Eagle and MQ-9 Reaper, Mojave is a technical demonstrator with STOL capability, making it a versatile expeditionary UAS. Adhering to Modular Open System Approach (MOSA) principles, Mojave leverages the modernized avionics, data links, sensor integration, and laptop ground control station of GA-ASI's Gray Eagle 25M program. These features – along with Mojave's enlarged wings with high-lift devices, combat-proven 450-HP turbine engine, and ruggedized landing gear – make it ideal for semi-improved surfaces with a small ground support footprint.

Mojave provides options for forward-basing operations without the need for typical airport runways or infrastructure, so it can be rapidly deployed from and recovered to non-traditional discrete locations. To extend operational reach, Mojave can fit into a C-130 and be rapidly assembled and employed. These innovations make Mojave the perfect UAS to perform Reconnaissance, Surveillance, and Target Acquisition (RSTA), attack, and contested logistics support missions.

Designed to be rapidly deployable and expeditionary, Mojave's tailored features include a ruggedized airframe that enables operations in austere conditions and weatherization that enables flight in wider environmental windows. Robust wing storage means it can carry up to 16 Hellfire or equivalent missiles, assorted munitions, Launched Effects (LEs), or logistical resupply pods. Mojave can provide greater operational flexibility while still being equipped with a multi-sensor suite that includes Electro-Optical/Infrared (EO/IR), Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI), Electronic Intelligence (ELINT), and Signals Intelligence (SIGINT) to support land or maritime missions throughout Joint All-Domain Operations (JADO).

AFRL AI Agents Successfully Pilot XQ-58A Valkyrie Uncrewed Jet Aircraft



To reduce risk to the development and maturation of artificial intelligence capabilities, the Air Force Research Laboratory led a successful three-hour sortie, July 25, demonstrating the first flight of AFRL-developed, machine-learning trained, artificial intelligence algorithms on an XQ-58A Valkyrie. Test units executed the flight in the Eglin Test and Training Complex, Florida. The flight was the culmination of the previous two years of partnership that began with the Skyborg Vanguard and Autonomous Aircraft Experimentation (AAX) programs.

"The mission proved out a multi-layer safety framework on an AI/ML-flown uncrewed aircraft and demonstrated an AI/ML agent solving a tactically relevant "challenge problem" during airborne operations," said Col. Tucker Hamilton, DAF AI Test and Operations chief. "This sortie officially enables the ability to develop AI/ML agents that will execute modern air-to-air and air-to-surface skills that are immediately transferrable to the CCA program."

The algorithms were developed by AFRL's Autonomous Air Combat Operations team. The algorithms matured during millions of hours in high fidelity simulation events, sorties on the X-62 VISTA, Hardware-in-the-Loop events with the XQ-58A and ground test operations.

"AACO has taken a multi-pronged approach to uncrewed flight testing of machine learning Artificial Intelligence and has met operational experimentation objectives by using a combination of High-performance computing, modeling and simulation, and hardware in the loop testing to train an AI agent to safely fly the XQ-58 uncrewed aircraft," said AACO Program Manager, Dr. Terry Wilson.

The Department of Defense is committed to the responsible employment of AI. To achieve responsible use of AI requires teaming of developers and users of AI enabled autonomy working in collaboration with acquisition specialists.

"AI will be a critical element to future warfighting and the speed at which we're going to have to understand the operational picture and make decisions," said Brig. Gen. Scott Cain, AFRL commander. "AI, Autonomous Operations, and Human-Machine Teaming continue to evolve at an unprecedented pace and we need the coordinated efforts of our government, academia and industry partners to keep pace."

Red Cat Subsidiary Teal Drones Receives \$2.6M Purchase Order to Supply Teal 2 sUAS to US DLA

Red Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government and commercial operations announces that subsidiary Teal Drones has received a \$2.6 million purchase order to supply its Teal 2 sUAS to the U.S. Defense Logistics Agency (DLA). Teal will deliver 172 units of the Teal 2 plus spare parts and training. This order was requested by U.S. Air Force Security Forces, whose role is to defend Air Force bases and installations. The procurement was sourced by global operations support company Noble Supply & Logistics, LLC (NOBLE) as part of the DLA's Special Operational Equipment Tailored Logistics Support (SOE TLS) Program.

NOBLE is a DLA-designated provider for the SOE TLS Program. This 10-year program, capped at \$33 billion, covers the delivery of logistics support to federal agencies, military bases and other DLA customers worldwide, helping them meet their SOE requirements.

"It's an honor to supply the United States Air Force with the Teal 2 sUAS," said Red Cat CEO Jeff Thompson. "The Teal 2's industry-leading



night-vision capabilities will be a strong asset in helping the Air Force to secure airfields and bases after dark."

Approved by the U.S. Department of Defense as Blue UAS and available to purchase through the federal government's GSA Advantage website, the Teal 2 is designed to Dominate the Night™ as the world's leading sUAS for night operations. The Teal 2 is the first sUAS to be equipped with Teledyne FLIR's new Hadron 640R sensor, providing end users with the highest resolution thermal imaging in a small form factor.

The Teal 2 also features the latest intelligence, surveillance and reconnaissance technology, delivering time-critical information and enabling operators to make faster, smarter decisions. The system offers multi-vehicle control and artificial intelligence capabilities. Officially launched in April, early-adopter customers for the Teal 2 have included U.S. Customs and Border Protection, which has taken delivery of 54 systems, and the North Carolina Division of Emergency Management, which has purchased 10 systems for Civil Air Patrol's North Carolina Wing.

Textron Systems Awarded UAS Contractor-Owned/ Contractor-Operated Contract for 3 LCS by US Navy

Textron Systems Corporation that it has been awarded an initial contract valued at up to \$19.5 million by the U.S. Navy's Naval Air Systems Command (NAVAIR) to provide UAS operational support to two Independence Class LCS and one Freedom Class LCS variants. This award joins the Expeditionary Sea Base (ESB)-4 and ESB-5, as well as two DDG-class ships, bringing the total number of U.S. Navy ships supported by the Aerosonde® UAS system to seven.

Textron Systems will deploy its Aerosonde UAS to provide mission overwatch and extended intelligence, surveillance and reconnaissance (ISR) services with enhanced mission payloads as seen aboard the ESB-5.

"Contractor-owned/contractor-operated



contracts like this support the Navy's continued investments in uncrewed assets for their ships," said Wayne Prender, Senior Vice President,

Air Systems. "We've seen the benefits of our Aerosonde UAS for DDG and ESB-class ships already, and we're honored to be expanding into this new ship class, allowing us to continue supporting maritime domain awareness and missions while delivering operational and logistical capabilities."

The Aerosonde system continues to set the standard for mission readiness and ease of use, amassing more than 600,000 flight hours serving multiple U.S. customers and allies. It is designed for expeditionary land- and sea-based operations with both fixed-wing and vertical takeoff and landing (VTOL) options. Textron Systems has provided turnkey, UAS operations for customers around the world for more than 10 years.



GA-ASI Opens New Hangar at FTTC in Grand Forks, ND

General Atomics Aeronautical Systems, Inc. (GA-ASI) hosted a grand opening event on August 9, 2023 to mark the opening of its newest hangar at the Grand Sky Unmanned Aircraft System (UAS) Business Park near Grand Forks, North Dakota. The event included a ribbon-cutting ceremony to commemorate the opening of the new hangar at the company's Flight Test & Training Center (FTTC).

GA-ASI is a global leader in UAS technology, producing the world's most ubiquitous unmanned aircraft, including the Predator®, Reaper, Gray Eagle, Avenger® and MQ-9B SkyGuardian®/SeaGuardian®. The company has delivered more than 1,000 aircraft during its 30+ years in business. In July, GA-ASI announced that its line of UAS have flown in excess of 8 million flight hours in support of global security.

"We're excited to open another permanent hangar at our Flight Test & Training Center in North Dakota," said GA-ASI CEO Linden Blue. "The new hangar represents our ongoing investment in test and training capabilities that provide our customers with a world-class facility to train aircrews in the operation of our aircraft."

In addition to Mr. Blue, the opening event included remarks from U.S. Senators John Hoeven (R-ND) and Kevin Cramer (R-ND); Grand Forks Mayor Brandon Bochenski; North Dakota Lieutenant Governor Tammy Miller; and GA-ASI President David R. Alexander.

The new hangar will be used for international crew training, aircraft storage, aircraft maintenance and will house two GA-ASI Certified Ground Control Stations (CGCSs) with room to add additional CGCS as required. The FTTC opened in 2016.

"This new hangar is part of General Atomics' growing footprint in North Dakota. It's only fitting that General Atomics, the premier private sector trainer of unmanned aircraft pilots, is dedicating this new facility here in Grand Forks, home of the premier school of aviation in the world. We welcome this new investment and the ongoing partnerships that are helping North Dakota lead the way in unmanned aircraft operations," said Senator Hoeven.

"General Atomics is a proven leader in unmanned aerial systems and a vital partner in North Dakota as we expand our UAS expertise," said Senator Cramer. "Today's grand opening celebrates the Flight Test & Training Center, which is essential in addressing the high demand for flight crew training and sensor system testing. Continued investment from General Atomics in Grand Forks illustrates the success of the UAS ecosystem North Dakota has created."

Shield AI Collaborates with Sentient Vision Systems to Offer AI-Enabled Wide Area Motion Imagery Capability

Shield AI, an American defense technology company building the world's best AI pilot, and Sentient Vision Systems (Sentient), an Australia-based leader in AI-enabled passive wide area search, are pleased to announce a strategic collaboration aimed at delivering a wide area motion imagery (WAMI) solution for Department of Defense (DoD), Australian Defense Forces (ADF) and other international customers.

The companies will jointly develop and integrate a ViDAR-enabled, wide-area-search capability onto Shield AI's V-BAT unmanned aircraft, which will enable Shield AI's V-BAT to intelligently classify, track, and read-and-react to targets in dynamic missions. Shield AI plans to fly the capability on V-BAT next year.

"This work with our Australian partner, Sentient, is a unique opportunity to fuse the innovation prowess of two companies from allied countries on opposite sides of the world. Together, we are shaping the future of defense technology," said Brandon Tseng, Shield AI's President, Co-founder, and former U.S. Navy

ViDAR is Sentient's AI system, which uses an Electro-Optic or Infrared (EO/IR) sensor to detect and classify targets in the imagery stream that would be invisible to a human operator or to a conventional radar. With these enhanced capabilities, V-BAT will be even more proficient in executing the most challenging missions, offering a level of capability that significantly bolsters threat deterrence, thereby reinforcing international peace and security.

"Sentient is excited and proud to be working with Shield AI on this truly breakthrough solution," said Mark Palmer, Sentient's Chief Technology Officer. "We look forward to combining the AI expertise and operational understanding of our two great teams to deliver superior ISR capabilities for today's rapidly changing defense and security environment."



Rheinmetall's LUNA NG to See Action in Ukraine

Rheinmetall has reached another milestone with its LUNA NG reconnaissance drone. The Group's next-generation LUNA-NG air-supported short-range reconnaissance system will soon be in action in Ukraine. The system should be ready for delivery in the course of 2023. The order now placed is worth a low double-digit million euro amount. Rheinmetall is therefore making another important contribution to enhancing the effectiveness of the Ukrainian military through advanced technology. The LUNA NG has already clocked on several thousand hours of flying time, to include active deployment.

Experience accumulated during the war in Ukraine shows how crucial having real-time reconnaissance results can be at the operational level. This is precisely the purpose of the LUNA NG, an acronym standing for "Unbemannte Nahauflärungs-ausstattung der nächsten Generation" or "unmanned short-range reconnaissance equipment, next generation". The last word in unmanned air-supported reconnaissance, it can detect, classify and recognize objects in real time.

An unmanned aerial system, the LUNA NG



comprises a ground control station and several unmanned aerial vehicles, otherwise known as drones. The system also includes the launch catapult, an optional net equipment for catching the drones when they land as well as equipment for rapid repair. The entire system is mounted on an HX truck with a swap body system made by Rheinmetall MAN Military Vehicles.

Thanks to their ultralight high-stability design, LUNA NG drones can remain aloft for over twelve hours. Moreover, when fitted with optional StaCom equipment, they have a datalink range of up to 300 kilometres. It has a reconnaissance capability of several hundred kilometres with sufficient time over the mission area.

The LUNA NG system ordered for Ukraine is

part of an extensive military aid package initiated by the German government in July 2023. The Bundeswehr is currently introducing the LUNA NG unmanned reconnaissance system under the name "Husar".

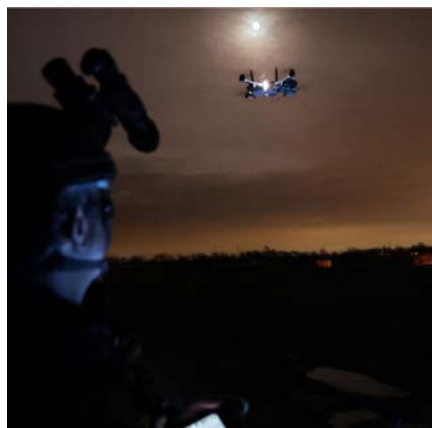
Now placed, this order represents a major milestone for Rheinmetall's UAV and the Group's digitalization strategy. LUNA NG is an advanced sensor component for networked operations, which significantly increases the performance of the sensor-to-shooter chain. At the same time, LUNA NG provides the basis for future development of Rheinmetall's product portfolio both in the field of vertical take-off and landing (VTOL) capabilities and in the field of tactical payloads.

Teal Drones Receives Contract Now Totaling \$5.2M to Supply Teal 2 Drone to US DLA

Red Cat Holdings a drone technology company integrating robotic hardware and software for military, government and commercial operations, today announces that subsidiary Teal Drones has received a second \$2.6 million purchase order to supply Teal 2 systems to the U.S. Defense Logistics Agency (DLA).

Teal will deliver an additional 172 units of the Teal 2 drone plus spare parts and training. Previously, on Aug. 8, Red Cat announced an initial order from the DLA for 172 units, also totaling \$2.6 million. Combined, the two orders now total \$5.2 million. Both orders were requested by U.S. Air Force Security Forces, whose role is to defend Air Force bases and installations.

"The Air Force needs to secure its airfields and bases 24/7, and the Teal 2 offers the highest-resolution night vision in its class," said Red Cat



CEO Jeff Thompson. "We're honored that the Air Force has now doubled its order, to more than \$5 million."

The procurements were sourced by global

operations support company Noble Supply & Logistics, LLC (NOBLE) as part of the DLA's Special Operational Equipment Tailored Logistics Support (SOE TLS) Program. NOBLE is a DLA-designated provider for the SOE TLS Program. This 10-year program, capped at \$33 billion, covers the delivery of logistics support to federal agencies, military bases and other DLA customers worldwide, helping them meet their SOE requirements.

Approved by the U.S. Department of Defense as Blue UAS and available to purchase through the federal government's GSA Advantage website, the Teal 2 is designed to dominate the Night™ as the world's leading small drone for night operations. The Teal 2 is the first sUAS to be equipped with Teledyne FLIR's new Hadron 640R sensor, providing end users with the highest-resolution thermal imaging in a small form factor.

GIS Software Innovator VertiGIS Acquires Fellow Location-Intelligence Company ibR



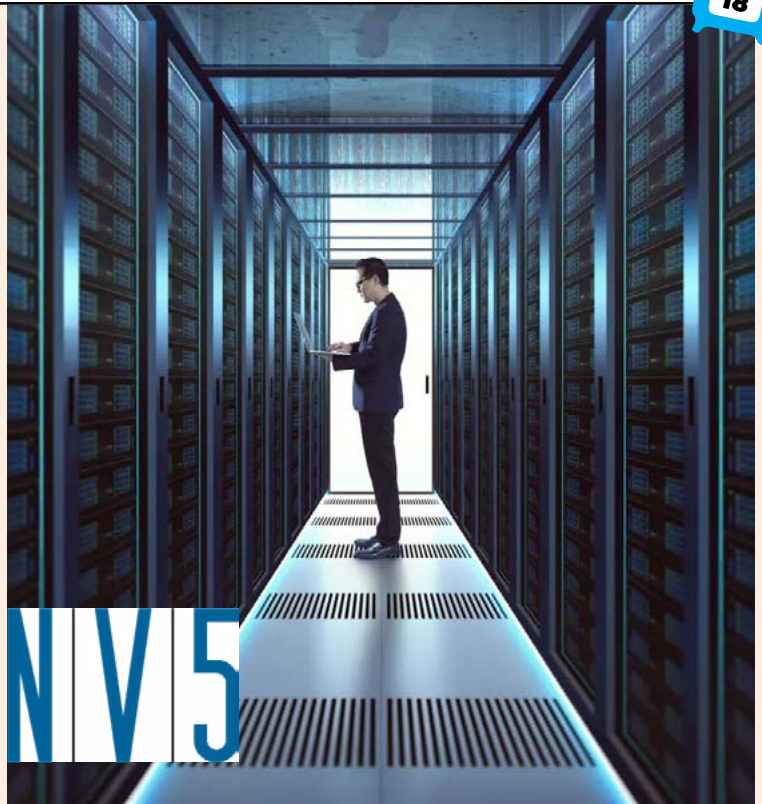
VertiGIS, a leading solution provider and software developer in the field of geographic information systems (GIS) and spatial asset management announced it has acquired ibR Gesellschaft für Geoinformation mbH (ibR).

VertiGIS also announced a new business unit for land management which combines its expertise across the DACH region—comprising Germany, Austria and Switzerland—as well as a Berlin-based Innovation Center for SaaS/cloud development to serve its expanding customer base.

Based in Bonn, ibR specializes in GIS systems for cadaster and surveying. It shares a vision with VertiGIS for the evolution of land management enabled through modern GIS software delivery.

“We feel our existing customers and new ones will benefit greatly from the enhanced capabilities ibR brings us,” said Andy Berry, VertiGIS’s CEO. “With both companies’ decades of experience in the fields of cadaster, surveying and land development, we feel extremely well-positioned to help accelerate additional digital innovation for our customers, and specifically to expand VertiGIS’ industry-specific solutions for land management. This is a cornerstone of our global business.”

“I am delighted that the complementary strengths of both companies are being combined and that we can work together as a team to support municipalities and public authorities in generating added value from their GIS data. In this way, we can help to further accelerate digitalization in Germany,” says Dr. Hans-Gerd Riemer, CEO of ibR.



NV5 Acquires Red Technologies, Strengthens Data Center and Mission Critical Services in Asia Pacific

NV5 Global, Inc. a provider of technology, conformity assessment, and consulting solutions, announced that it has acquired Red Technologies, a provider of information technology and utility infrastructure services for mission critical data centers. Red Technologies clients include large international technology and financial services companies that depend on data centers and cloud services for their operations. The acquisition was made with a combination of cash and stock and will be immediately accretive to NV5’s earnings.

“The data center market is experiencing rapid growth, particularly in the Asia Pacific Region, as deployment of 5G service, increased reliance on smartphones, and demand for connectivity drive the expansion of cloud service,” said Dickerson Wright, PE, Chairman & CEO of NV5. “Red Technologies’ information technology and utility infrastructure design and implementation services complement NV5’s existing MEP design and commissioning services to provide a distinct value proposition throughout the entire data center lifecycle and a competitive advantage as we support our data center clients.”

Founded in 2000, Red Technologies operates out of offices in Singapore, Malaysia, and Hong Kong and has deployed projects in Australia, China, India, Japan, Korea, and throughout Southeast Asia. Red Technologies has partnered with NV5 on past and current projects and provides NV5 access to new international clients in the data center market. With the acquisition of Red Technologies, NV5 now has over 250 employees in the Asia Pacific region.

“We are excited to join NV5, and we look forward to the expanded service offering that we can provide to our international data center clients and the growth opportunities that NV5 will provide to our employees across the region,” said Maurice Baker, Founder and CEO of Red Technologies.

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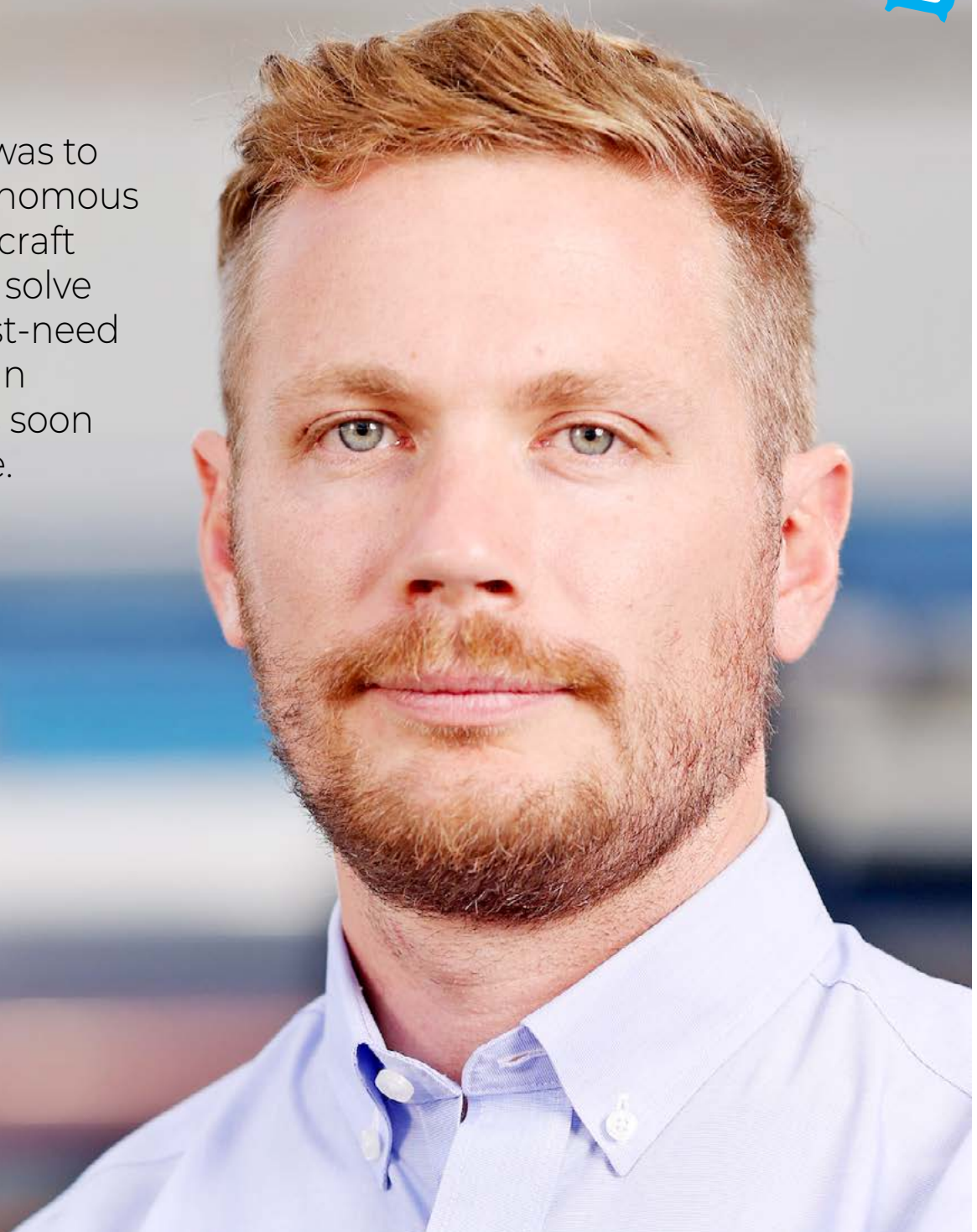
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My vision was to build autonomous electric aircraft that could solve the highest-need problems in aviation as soon as possible.



Drones World Editor Kartikeya in Conversation with

Mr. Michael Norcia

Co-Founder & CEO, Pyka

Q Tell us about your experience in the field of UAVs and what your fields were of expertise before venturing into UAVs?

A Aviation has been a lifelong passion of mine. Before designing large fixed-wing UAVs, I worked on piloted eVTOL aircraft, and before those, it was pretty much any battery-powered aircraft I could get my hands on. After earning a degree in computational physics, I landed a job in the eVTOL industry designing advanced power systems for electric vertical takeoff and landing (eVTOL) aircraft. My experience of the limitations of that technology inspired me to develop a more pragmatic approach to autonomous electric aircraft, which ultimately led me to start Pyka.

Q What are the reasons behind choosing a fixed-wing over the Multi Rotors?

A My vision was to build autonomous electric aircraft that could solve the highest-need problems in aviation as soon as

possible. For addressing large-scale crop protection and heavy-payload/long-range cargo transportation, fixed wing aircraft offer a very practical solution that is safe, reliable, and relatively well-understood from a regulatory perspective. In addition, fixed wing aircraft are significantly more efficient than multi rotors in terms of payload, range, capital cost, etc.

Q How good are fixed-wing agricultural drones in terms of cost effectiveness, crop yield and conservation of resources?

A The economic benefits of Pelican Spray are unprecedented. Autonomous operation yields greater spray precision, which means increased efficiency of chemical usage and therefore, significantly reduced chemical costs. The capability to operate the aircraft at night is another major benefit of its autonomous technology because it allows farmers to effectively target nocturnal pests, spray during optimal weather conditions, and nearly double

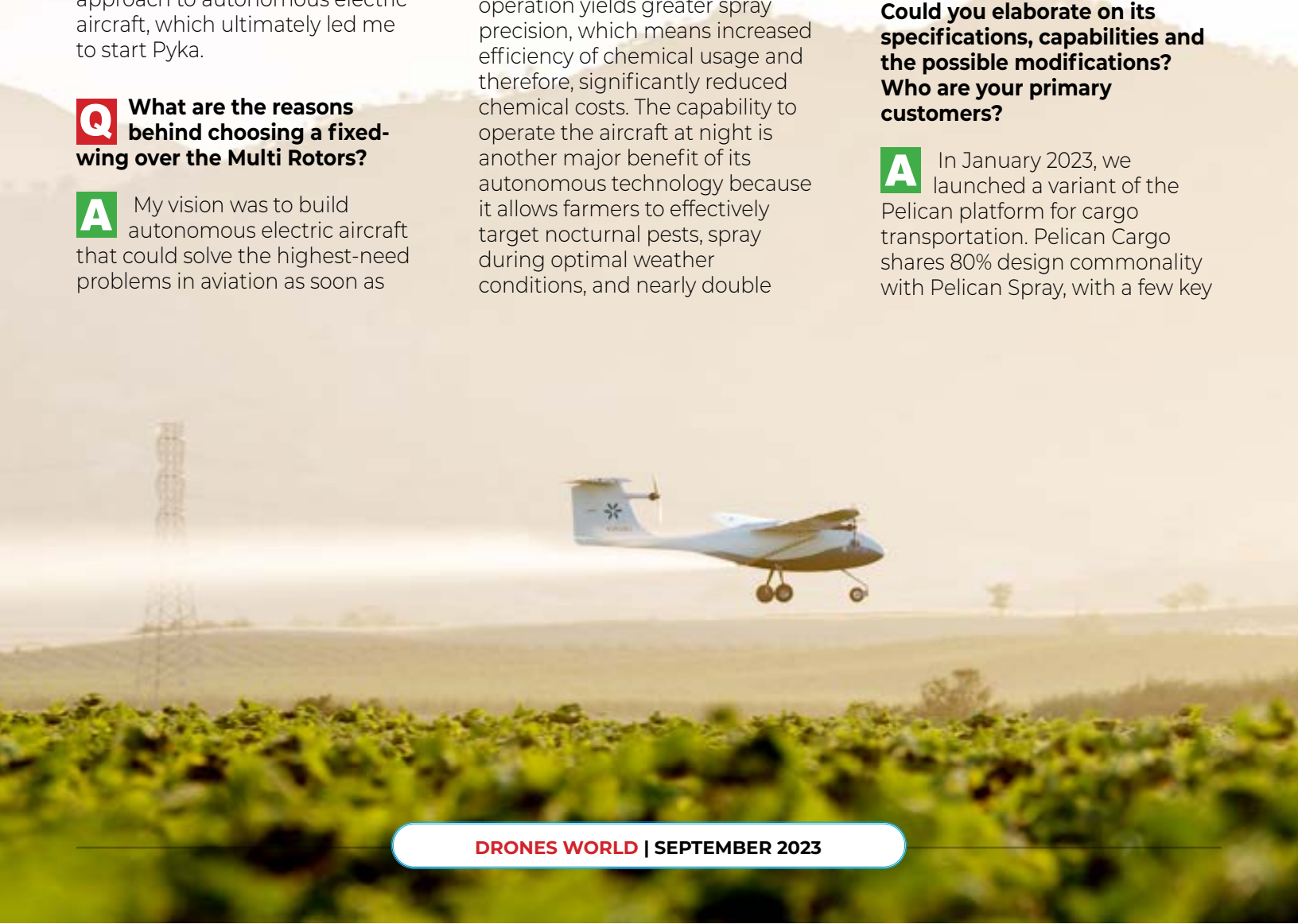
their viable window of spray time. Electrification also reduces operating cost, allowing for the elimination of fuel costs and a significant reduction in maintenance costs.

Q What advancements do you see in the Agritech sector in the next decade? What would be the participation of Drones?

A We expect to see drones replace the majority of crewed vehicles in the aerial application industry over the next decade.

Q What are the various products and services that Pyka has to offer currently? Could you elaborate on its specifications, capabilities and the possible modifications? Who are your primary customers?

A In January 2023, we launched a variant of the Pelican platform for cargo transportation. Pelican Cargo shares 80% design commonality with Pelican Spray, with a few key



modifications. Namely, we increased the size of the fuselage and incorporated a nose door configuration to accommodate bulk cargo within about 70 cubic feet of volume. We also increased the battery capacity of the aircraft to achieve a range of up to 200 mi with a max payload of 400 lbs. Our primary commercial use case for this product is enabling rural connectivity, for example through enabling autonomous interisland flights.

Q What will be the cost of each unit? What kind of tech & service support will be provided?

A All Pelican aircraft are available to customers on a competitive, utilization-based

lease rate. Each aircraft comes with all operational systems, spares, training, product support and warranties.

Q What are the major countries Pyka is currently targeting? What is the process to buy drones from you?

A For our aerial application product, we are primarily operating in the banana growing regions of the world, including Central America and parts of South America. We are in the process of expanding our operations in Brazil and the

United States and will target other countries as their regulatory landscapes become more favorable. Customers interested in leasing our aircraft should contact us through our website at www.flypyka.com.

Q Congratulations on your recent certification, how do you see the cargo market especially last mile deliveries?

A Thank you, we are quite proud of it! Our recent authorization from the FAA for commercial operation in the United States was specific to our agricultural aircraft, though we are on track to secure a similar authorization for our cargo aircraft in the near future.

The global demand for autonomous electric cargo transportation is massive. We see the potential for this technology to enhance express logistics networks, particularly in the middle-mile arena, enable connectivity of remote regions of the world, and ensure fast and reliable shipping of critical supplies to areas in need.

Q What are your suggestions to youngster who wish to choose Agriculture Drone Industry?

A It's an exciting time to join the drone industry. There are hundreds of useful applications for drone technology and there is no better time than now to get involved. I encourage anyone interested in joining our team to check out our careers page at www.flypyka.com/careers for current job opportunities.



AeroVironment to Acquire Tomahawk Robotics

AeroVironment has announced its anticipated acquisition of Tomahawk Robotics, a leader in AI-enabled robotic control systems. The acquisition will enable deeper integration of both companies' technology, leading to enhanced interoperability and interconnectivity of unmanned systems through a singular platform with similar control features. This will ultimately enable warfighters to operate various connected robotic solutions in the battlefield and share information between multiple domains with one common controller. The two companies entered into a definitive agreement under which AeroVironment will acquire 100% of Tomahawk Robotics equity for a total purchase price of \$120 million to be paid in a mix of cash and stock.

Founded by Brad Truesdell and Matt Summer in 2018, Tomahawk Robotics is the visionary force behind the groundbreaking Kinesis Ecosystem, an unmatched tactical capability designed for the warfighter first. At the heart of this innovation lies Kinesis, an AI-enhanced and open architecture common control system that seamlessly integrates the network of battle-proven unmanned expeditionary vehicles, sensors, and third-party software onto a single pane of glass. Powered by innovation, the Kinesis Ecosystem delivers targeted situational awareness and precision strike capabilities for the human-machine teams across the battlespace.

"The acquisition of Tomahawk Robotics will not only provide AeroVironment with strong new members of our team, but a quality brand and products that are widely respected in the industry. Tomahawk Robotics will become part of the small UAS (SUAS) business unit within AeroVironment's Unmanned Systems segment. We intend to retain all



of their workforce and existing facilities in Florida," said AeroVironment's CEO and Chairman Wahid Nawabi. "We will support all existing Tomahawk Robotics customers and their products will remain platform agnostic to the market and within the industry. We also plan to introduce Tomahawk Robotics solutions to AeroVironment's growing network of more than 55 allied nations."

"Combining features of our Crysalis operating system with Tomahawk Robotics' AI-enhanced Kinesis platform means pairing the best common controller technology with the most ubiquitous unmanned systems on the market today," said AeroVironment's Senior Vice President of Unmanned Systems Trace Stevenson. Tomahawk Robotics' Kinesis control system was integrated into AeroVironment's small unmanned aircraft family of systems including Raven® B and Puma™ 3 AE in 2022.

"Tomahawk Robotics' solutions will accelerate our adoption and implementation of AI and autonomy into AeroVironment platforms," continued Stevenson. "We're confident that the combined experience and expertise of

our two teams will result in a variety of unmatched unmanned expeditionary vehicles that meet our customers' emerging needs and exacting standards."

"Our motto has always been 'warfighter first.' Everything we've designed or made has been optimized to better equip and prepare soldiers on the battlefield," said Tomahawk Robotics' CEO Brad Truesdell. "Joining AeroVironment means our solutions will have a broader reach and the opportunity to be optimized by not only AeroVironment's family of systems, but the broader robotics community, better enabling warfighters across the globe."

"Acquiring Tomahawk Robotics strengthens our value to our customers as we will be uniquely qualified to support multiple platforms and offer the best solution for their operational needs," continued Nawabi. "Tomahawk Robotics' products will enable AeroVironment's solutions to achieve an elevated Modular Open System Approach (MOSA) desired by our customers, and the opportunity to expand into new and adjacent markets for interconnected soldiers with a Common Operating Picture enabled by AI and autonomy."



Drone Delivery Canada completes successful commercial flights

Drone Delivery Canada Corp is pleased to announce, further to its press release dated June 15, 2023, the successful completion of the first flights in a commercial setting for the Canary remote piloted aircraft ("RPA") on the Care by Air route, which is the Company's longest ever commercial route at 13.4km. The Company completed 3 round trip flights with the Canary on the Care by Air route, with all flights completed in accordance with the Canadian Aviation Regulations. The third flight was completed in wind conditions where the Sparrow RPA would not have been flown, highlighting the improved flight dynamics of the Canary over the Sparrow.

Compared to its predecessor, the Sparrow RPA, the Canary showcased improved performance in several flight measures. The Canary completed the trip on the Care by Air route in less time (9% reduction in flight duration) and with less battery power consumption (42% less). Additionally, the Canary recorded a noise level reduction of 46% compared to the Sparrow RPA.

The Canary flew the same route as the Sparrow, but future routes would be more efficient due to the Canary's ability to fly over people which will allow for more direct customer routes leading to further reductions in flight time and improved utilization.

"The successful commercial flights of the Canary on the Care by Air route marks a significant milestone for our company and the drone delivery industry as a whole," said Steve Magirias, CEO of Drone Delivery Canada. "We are incredibly proud of our team's dedication and innovation, which has allowed us to push the boundaries of what's possible in the realm of drone logistics. The Canary's impressive performance demonstrates its immense potential to revolutionize healthcare supply chains and make a tangible difference in people's lives."

The Canary RPA features enhanced design, performance, and technology, including a payload of up to 4.5kg, a range of greater than 20km, real-time communication and tracking systems, an integrated scale on the RPA itself, a 50% reduction in the number of batteries needed in comparison to the Sparrow RPA. Safety is paramount in the design of the Canary RPA and to ensure the utmost protection of both people and property, the aircraft is equipped with a state-of-the-art parachute recovery system. This innovative feature enables the Canary RPA to fly over populated areas, expanding its potential applications and increasing its versatility.

Moreover, the Canary RPA boasts several benefits, including faster and safer delivery of essential goods, reduced delivery costs, and enhanced accessibility to both remote and urban areas. The Canary advances the Company's technology and capabilities while improving the operational parameters for our customers and significantly improving operational efficiencies for the Company. With the integrated scale designed onto the RPA, the Company will be able to reduce ground infrastructure costs, speed up deployments and provide a more robust solution to the end customer. Additionally, the Canary RPA can reduce the carbon footprint associated with traditional transportation methods, contributing to a more sustainable future.

EMED Group and Skyports Drone Services trial medical courier services by drone

EMED Group, one of the largest healthcare logistic providers to the NHS, and Skyports Drone Services have successfully completed a proof-of-concept project aimed at bringing additional innovation and sustainability benefits to medical courier services. Launched in June 2023, the four-week trial was run with East Suffolk and North Essex NHS Foundation Trust (ESNEFT), an existing customer of EMED Group. The project successfully transported over 400 pathology samples between two ESNEFT sites, highlighting how regular and recurring drone operations can support traditional medical courier services to further improve services for patients and healthcare professionals.

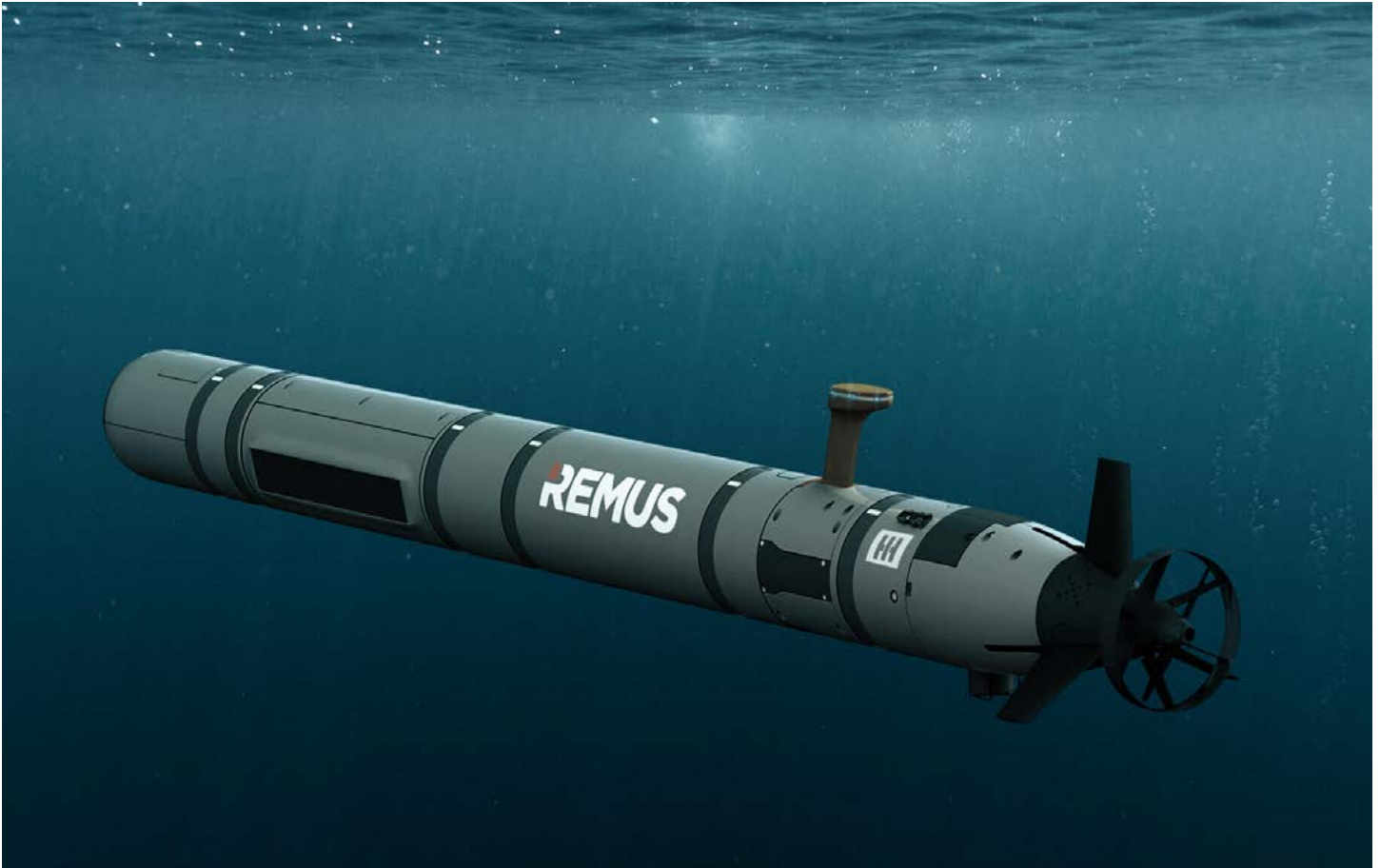
Craig Smith, Group CEO of EMED Group, explains more, "This project is an important milestone highlighting innovative practices in the medical courier space. As a healthcare business, we are driven by our mission to improve the wellbeing of the communities we serve. This initiative is a great example of this. Not only does it provide tangible environmental benefits, but it also ensures that vital pathology samples and medical supplies are quickly and effectively transported between points of care with no risk to delays we often experience on the road network. All of this ultimately ensures our communities are that little bit healthier and those with medical needs are diagnosed more rapidly."

Alex Brown, Director of Skyports Drone Services, commented: "We're at a really important stage in the scaling of medical drone logistics. Projects such as this one with EMED are helping pave the way for permanent operations by demonstrating just how safe, beneficial and effective drone services are - and the ease with which they can be implemented. Each delivery we complete ensures that a patient receives the care they need that bit quicker. At scale, the impact is transformational."

Shelley Garrey, Service Lead - Support Services at East Suffolk and North Essex NHS Foundation Trust, said: "This is a really exciting step in looking at new technologies to help deliver healthcare faster. Using drones mean patients will receive their results quicker while saving time and resources. This is an exciting pilot project and we hope we can look to expand in the future."



HII Receives Order to Build 2 REMUS 620 UUVs for NOAA



The National Oceanic and Atmospheric Administration (NOAA) recently ordered two REMUS 620 unmanned underwater vehicles (UUVs) from HII. The customized, medium-class UUVs will be built by HII's Mission Technologies division in partnership with W.S. Darley & Co. and delivered in 2024.

Unveiled in November of 2022, the REMUS 620 has a battery life of up to 110 hours and a range of 275 nautical miles, providing unmatched mission capabilities for mine countermeasures, hydrographic surveys, intelligence collection, surveillance and electronic warfare.

"The REMUS 620 is the first

medium-class UUV designed to accurately deliver this range of advanced above- and below-water effects at long range," said Duane Fotheringham, president of Mission Technologies' Unmanned Systems business group. "We are excited to build these vehicles for the U.S. government, supporting the mission of our long-term customer, NOAA."

The vehicles will be customized with a synthetic aperture sonar module, additional energy modules and auxiliary equipment.

"There has been tremendous market interest in the REMUS 620," Fotheringham added. "Combined with the steadily increasing backlog of our

REMUS 300 vehicles, this order is a strong statement on the capabilities of our products."

NOAA will use the REMUS 620 vehicles for higher-resolution mapping of the Gulf of Mexico and its effort to restore the seafloor habitats damaged by the 2010 Deepwater Horizon oil spill. The agency has previously used other REMUS models for habitat characterization, marine archeology and other ocean mapping and exploration activities. The REMUS line of UUVs has been successful around the world supporting scientific research and operations and is currently in use in more than 30 countries.

Zero Zero Launches Direct Sales of the HOVERAirX1 Pocket-Sized Self-Flying Camera



Zero Zero, a pioneering tech company in intelligent devices, is thrilled to announce the direct sales launch of the HOVERAir X1. The pocket-sized self-flying camera effortlessly captures cinematic shots without the need for a controller or app.

The HOVERAir X1 has been engineered to deliver a remarkable, effortless flying camera experience. Weighing in at just 125g, the device is ultra-lightweight and requires no registration or certification. Its compact, foldable, and portable design ensures that it fits comfortably in a handbag or pocket.

“Our vision has always been to utilize cutting-edge technology to build a companion for all your adventures: a product that is simple enough for everybody to use while creating great-looking content,” said MQ Wang, Founder & CEO of Zero Zero. “I’m incredibly proud of what we’ve achieved with the HOVERAir, and I believe it will bring a lot of joy to people’s lives. We

want to make flying fun again!”

One of the camera’s standout features is its five pre-programmed flight paths, offering cinematic hands-free shots at the press of an on-device button. The intelligent flight modes of HOVERAir X1 include Hover, Follow, Zoom Out, Orbit, and Bird’s Eye, each offering a unique perspective. And for users who prefer more control, there’s a companion app that allows for flight parameter modification, real-time composition adjustments, media editing, and sharing of content to social media.

With an impressive 3-second launch and landing mechanism, HOVERAir X1 takes off from a user’s palm and can be grabbed from the air when a flight is complete. Safety is prioritized as the HOVERAir X1’s fully enclosed frame enables safe launching and landing directly from the hand. Video recording capabilities, including 2.7K@30fps, 1080p@60fps, and 1080P HDR, provide users with high-quality content capturing options. Burst mode

ensures the capture of fleeting motion, and the triple stabilization system, which combines mechanical and electronic hybrid stabilization, guarantees super smooth videos.

HOVERAir X1 also features robust computer vision algorithms that keep the drone following users steadily. If the subject is lost, it will utilize face, body, and motion tracking to re-identify the user and resume tracking. Unlike traditional drones that rely on GPS satellites, HOVERAir utilizes VIO (Visual Inertial Odometry) technology and a ToF laser altitude determination system, offering centimeter-level precision and seamless indoor and outdoor transitions.

Zero Zero has proudly completed the Indiegogo fulfillment process, with most backers having already received their HOVERAir X1. The excitement and satisfaction among users are palpable, with testimonials that underscore the product’s ease of use and innovative appeal.

Remote ID solutions for drone manufacturers



Do you know that Aerobits offers the smallest Remote ID solutions on the market that combines: Wi-Fi, Bluetooth, GNSS and pressure sensor? Moreover, we were the first company on the global market which officially launched Remote ID solutions.

Now our group of idME Family to meet the expectations of drone manufacturers, includes a series of OEM modules equipped with Remote ID modules:

- With BLE: TT-RB1
- With BLE, GNSS: TT-RG1
- With BLE, GNSS, Wi-Fi: TT-RW1
- Technical concept

Remote Identification data is a key part to think about while conducting airspace awareness and protection operations. Aerobits has launched a new OEM module for Remote ID purposes. TT-RW1 is OEM Direct/Broadcast Remote ID solution. It is designed especially for global drone manufacturers or aeromodellers, who want to comply with the FAA's and EASA's requirements.

Our TT-RW1 module is a low-level solution prepared for integration with drones directly in their manufacturing process. The modules can communicate via the UART standard and USB. Compared to the competition, we are distinguished by our small size and very low weight, which allows our products to be used in virtually any category of drones.

TT-RW1 has implemented communication via MAVLINK V2 protocol, which significantly facilitates the integration with various flight controllers, it also has a CSV protocol, which is ideal for further data processing. Such a solution allows the module to be post-integrated not only in the Direct/Broadcast standard but also through Internet databases using applications on phones, computers etc.

Timeline of upcoming legal changes

Remote Identification is coming to a drone world soon and will be in our everyday life. The mandatory compliance date for registered drone operations begins on the 1st of January 2024 in European countries. The Remote ID rule declares that specific UAV or commercial drones must have Remote ID broadcast capabilities to fly legally in the airspace.



UAVOS Unveils New Two-Axis Rate Gimbal for Surveillance Missions

UAVOS has launched the GSG 201 - an artificial Intelligence drone gimbal, the company's latest camera innovation that combines its new proprietary software with AI and its core imaging technology. It will be able to conduct wide-area search, surveillance, and identification specific to autonomous surveillance missions. The GSG 201 is an EO/IR configuration with a 30x optical zoom visible camera and laser rangefinder.

"By delivering automated object detection, identification, and tracking capabilities in a single payload, the GSG 201 reduces a customer's payload cost, payload weight and need for a complex aircraft. In addition, the GSG 201's fully integrated AI system dramatically increases efficiency and accuracy for customers - ultimately improving mission success", comments Aliaksei Stratsilatau, Co-Founder and CEO of UAVOS.

True to UAVOS' product line, the GSG 201 is designed with low weight, superior imaging, and best-in-class geolocation capability. Gimbal features include embedded video processing with electronic stabilization and object tracking, integration with external GPS/INS with real-time target location at multiple ranges across a variety of environments, and day/night operations through visible and thermal cameras.

The GSG 201 contains a primary Full HD, Global Shutter camera with 30x optical zoom lens with optical video stabilization, a 1024x768 uncooled Thermal camera, and Laser rangefinder.

UAVOS' software offers an advanced multi-object acquisition engine for mission-critical airborne applications at all wavelengths. Combining these modern processing capabilities with high-end raw video at the edge provides a valuable asset to operators by reducing the clutter of information at the ground station and enhancing the ability to deliver critical capabilities in communications denied environments.

"This hardware and software upgrade will dramatically enhance the accuracy and efficiency of UAS missions," said Aliaksei Stratsilatau. "Our advanced software delivers improved geolocation target accuracy, greater capacity to extract valuable insights from video imagery, and allows for data processing to occur onboard UAS. This means operators will receive only important data in a much higher-quality format for assessment."



Drones World Editor Kartikeya in conversation with

Mr. Avi Bleser

Vice President of Marketing for India

Israel Aerospace Industries (IAI)

Q With the increasing focus on indigenous R&D and production by the government of India, do you envisage a possibility of collaborating with Indian public or private sector companies for design and development?

A IAI has built a close partnership with India over the last 30 years and is proud to partner and collaborate with the public and private sectors. Today, we have more than 20 partners

in India and we are working with many of them on R&D activities for both software and hardware.

Q Can you talk about your multiple partnerships with Different Govt Organisation and what roadmap do you see in the future?

A We are working together with different government entities on different projects and

programs. For example, we have strategic agreements with HAL and with Elcom Systems from the private sector which is spearheading our MRO activities in India. We are working closely with DRDO on collaborations in ToT and R&D, including on the Barak 8 air defense system which was developed collaboratively.

Q Many Indian MSMEs are looking at becoming part



of the global supply chain after Covid, do you envisage that kind of engagement with the Indian industry? Can you elaborate on the process of approaching IAI?

A This is something we have been working on with Indian companies since 2010 when we started incorporating the industry in India with our global supply chain and we continue to grow that cooperation. We believe that

India plays a core and integral role within the industry and the ecosystem and it is natural for us to include them in our supply chain.

These partnerships come about in several ways. We have had a physical presence in India for 30 years and have offices in New Delhi and Bengaluru where we meet with potential partners. We participate in all of the defense shows in the country which is another opportunity to

meet with potential partners as well as current ones where there may be an opportunity to grow that relationship further.

Q **What future programmes are you looking forward to in India?**

A As a global leader in the UAV sector, we are excited by all of the new opportunities that present itself. In India, there is an opportunity to provide

solutions to the military and to work together with both the public and private sectors to further capabilities. What's most exciting to us is that the sky is the limit. With our visionary partners in India, we are working together on projects and programmes that seemed like a dream years ago.

Q According to you, which is the biggest market for business concern? What are the other markets you are eyeing in the near future?

A There are several countries looking for advanced UAV

capabilities and solutions but we recognize India as potentially one of the largest markets today.

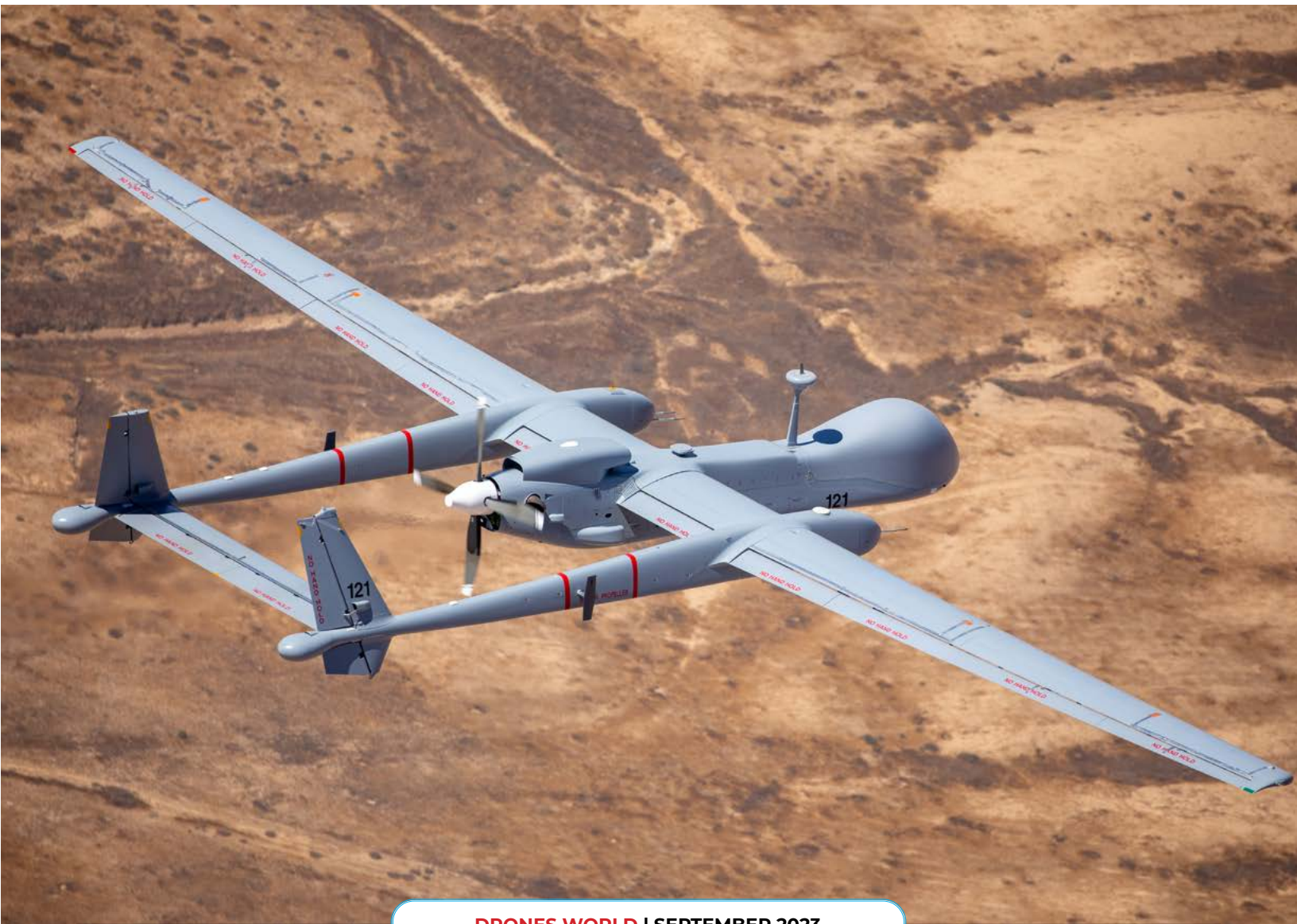
Q Can you brief us about new technologies, especially in the realm of unmanned and intelligent that IAI is investigating in?

A Our systems are state-of-the-art and incorporate the latest technology together with the combination of system of system capabilities providing our users the ability to view an area of interest very accurately and with persistent surveillance. Additionally, our UAVs have the potential to land and take

off from remote locations without the need for ground system at the remote site.

Q Does IAI have any interest in building partnerships with academia and industry?

A Absolutely, this is very important to us and we have partnerships with Universities all around the world, including in India. We also have a school of UAVs in India and plan in the future to increase the knowledge of UAV Ops & technology with local institutes and academia.





Drones World Editor Kartikeya in Conversation with

Mr. Aaron Zhang
Co-founder & CEO, A2Z Drone Delivery



Q With what mission and objectives, the company was set up? In short, tell us about your journey since the inception of the company?

A A2Z Drone Delivery was born out of an engineering project when I was studying at Brown University. We designed and fabricated a very early prototype of what would eventually evolve into the Rapid Delivery System, our commercial drone winch which is now in its second manufactured generation. With the help of some early seed funding, we refined the design and brought the first purpose-built UAV winch to market in October of 2020. Among the early adopters of our RDS1 was DroneUp, which is among the leaders in

residential drone delivery in the US. Over the last few years, we have continued to evolve the Rapid Delivery System and incorporated it into our fleet of commercial cargo drones that include the just launched RDST Longtail and the long-range RDSX Pelican.

Q How long has this been in the making? Help us understand what some of the practical obstacles you faced to launch the drone?

A The new RDST Longtail has been about a year in development. It is essentially a redesign of our first generation RDST cargo drone with new features that customers have been requesting, like rain proofing and advanced avionics.

The biggest practical challenge with any of our drone launches is time. Our approach to engineering and design puts the end user at the forefront, so we try to anticipate their needs but also really understand how customers will use our UAVs and how consumers or package recipients will interact with the platforms. To best understand these dynamics, we conduct extensive real-world trials with our newest drones at our test facility before bringing products to market.

Q Please brief us about the products along with its specifications & your targeted industries/customers?

A We believe depositing payloads from altitude is



the safest way to conduct last mile drone deliveries. Leveraging our Rapid Delivery System allows the drone to maintain a safe hover high above people and property, and away from potential obstructions like powerlines or trees. It also helps mitigate rotor noise for consumers, and their neighbours, on the ground. From a practical standpoint, keeping the drone above the tree line improves line of sight for visual observers, allowing them to push out to longer delivery distances while staying in eye contact with the drone.

We currently offer our Rapid Delivery System drone winch as a standalone product ready to be integrated with any drone, along with two commercial delivery drone platforms. The RDST Longtail, which was just released, is intended to be an all-around last mile delivery drone. It has a max range of 26km without a payload onboard. With a 5kg parcel attached to the drone winch, it can reach 11km round trip, so the effective range of an average payload is about 5.5km from the logistics base. The Premium version is rainproof so it can operate in inclement weather, and comes equipped with a factory integrated RDS2 drone winch.

Our RDSX Pelican is the long-range drone for a delivery fleet. It

leverages a hybrid VTOL design to extend its range out to 40km with a 5kg payload. The Pelican is the ideal solution for logistics operators looking to streamline delivery costs. Compared to costly ground transportation, the Pelican can delivery payloads for just 13 cents per kg per km.

Our purpose-built delivery drones are targeted to anyone looking to make more affordable and more environmentally friendly last mile deliveries. Obviously, most people immediately think about residential parcel deliveries as the main use case for drone delivery, but we focus on a diverse array of commercial applications. We have customers leveraging our products for shore-to-ship deliveries, delivering emergency equipment to first responders in the field, expediting search and rescue efforts, natural disaster response, and more.

We also created specialty delivery mechanisms to attach to our tether that can deposit payloads when they touchdown, so recipients do not need to interact with the drone or even be present when parcels arrive.

Q What is your biggest USP that differentiates the company from competitors?

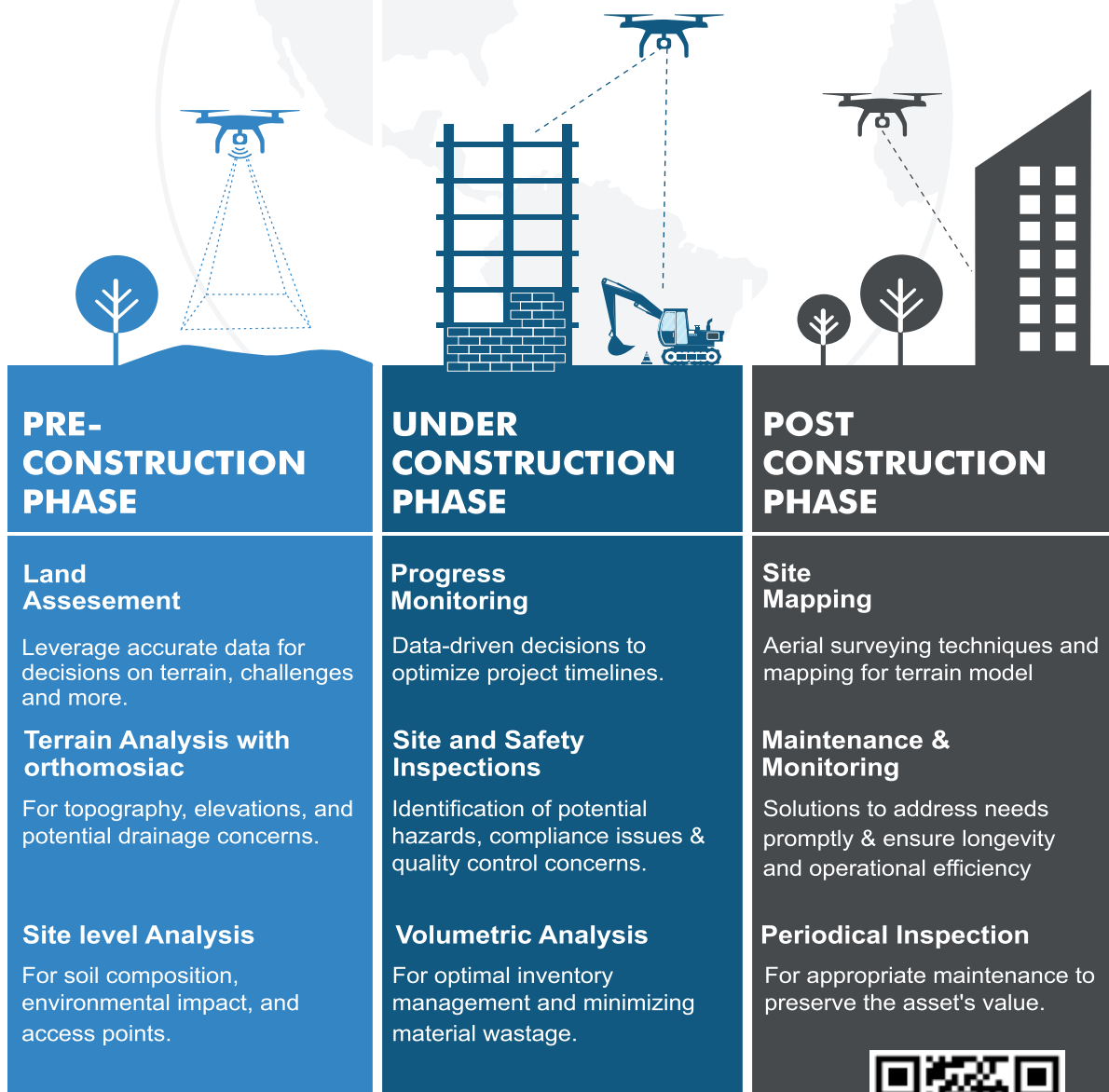
A One of our core objectives is

to democratize commercial drone delivery making it a tool for anyone that wants to conduct last mile deliveries, whether the payload is a food delivery or emergency medical equipment. Our solutions are ready-to-fly right off the shelf, making them a seamless addition to any drone logistics operation. We also put a premium on ease of use for the operators. Our drones can deliver any box the shipper has on hand rather than having to rely on specialty payload boxes. Also, with our ground control station, operators can create delivery routes to include dedicated waypoints, then with the touch of a single button, the drone will fly that route, make its delivery or pickup, and return to land back at the logistics hub all autonomously.

Q What are some of the milestones that you envision for your company this year?

A This year we are focused on our two new platforms, the Pelican and Longtail. We have been growing our team, manufacturing capabilities, testing facility, and embedding our products more deeply into our customer's tool belt. We are also working on exciting new products that further expand our mission of improving drone safety and privacy.

Revolutionize Construction with Simplified Processes Powered by AeroMegh SaaS Platform





Drones World Editor Kartikeya in Conversation with

Mr. Brad Schmidt

Global UAV sales manager for Trimble Applanix



Q Can you briefly tell us about Trimble PX-1 RTX?

A The Trimble® PX-1 RTX™ solution provides accurate and robust precise positioning and heading as a service for commercial drone delivery applications. It allows operators precise control of a drone during takeoff and landing in order to tackle more demanding operations in tight or partially obstructed spaces. It also minimizes operational risks from poor sensor performance or magnetic interference by ensuring greater positioning redundancy, which is especially important as commercial drone delivery operations venture into increasingly difficult urban and suburban environments.

Q Will it be useful on Multi rotors & Fixed Wings? How does it help the drone?

A The Trimble PX-1 RTX can be used with either multi-rotors or fixed wing uncrewed aerial vehicles (UAVs).

THE PX-1 RTX AIDS

DRONES IN SEVERAL WAYS:

- Achieving centimeter-level positioning performance without a need for supplying RTK corrections from a dedicated ground base station improves and simplifies the drone hardware design as well as ground operation.

- Removes base line limitations, i.e., the distance between GNSS rover and ground base station, for beyond visual line of site (BVLOS) operations.

- Contributes to the efficiency and productivity of the drone by making it possible to plan missions with increased trajectory accuracy.

- The robustness of an inertial-based navigation solution with continuous precise positioning and attitude/heading information provides autopilot with a key guidance ingredient during take-off and landing stages.

Q What are the different industries and applications

that can benefit from this platform?

A The PX-1 RTX solution is specifically focused on delivering landing and takeoff guidance, precise navigation, and flight control to the Advanced Air Mobility market. In particular, the PX-1 RTX focuses on the cargo and parcel delivery markets at this time.

Q What is ProPoint GNSS & Applanix IN-Fusion+?

A Trimble ProPoint™ is a fifth generation high-precision positioning engine engineered to provide position and orientation data from the fusion of GNSS signals, globally accessible high-accuracy correction services, and measurement data from a variety of sensors. It leverages the latest developments in GNSS signal infrastructure and Trimble's high-precision receiver hardware to deliver improved positioning performance in challenging environments.

Trimble Applanix IN-Fusion+ GNSS-aided inertial firmware with Trimble ProPoint GNSS positioning technology runs data from inertial sensors (accelerometers and gyros) through a navigation algorithm, which is then "aided" or "fused" together with information from other sensors such as GNSS and odometer (Distance Measurement Indicator or DMI) to produce highly accurate, high-rate 3D measurements of the position, velocity and orientation of a platform as it moves. Trimble Applanix In-Fusion+ technology provides the highest level of navigation sensor integration producing measurements with an unequalled level of accuracy and robustness.

Q What is Trimble CenterPoint RTX?

A Trimble CenterPoint® RTX is an exclusive, advanced precise point positioning technology providing real-time, centimeter-level corrections as a service. Available via IP/cellular or satellite delivery worldwide, CenterPoint RTX is suitable for all industries providing next-level accuracy and maximized workflow efficiency.

The Trimble CenterPoint RTX network provides multi-frequency GNSS technology that employs its own dedicated precise ephemeris correction service and derives integer-level ambiguities for accuracy approaching that of RTK. It supports GPS, GLONASS, Galileo, BeiDou, and QZSS.

Trimble RTX is key to the overall PX-1 RTX solution in that it allows for the elimination of any base station infrastructure required for navigation and landing. As a global service it is available virtually anywhere in the world.

Q What GNSS antennas are supported?

A When it comes to performance, the antenna is a critical element in any GNSS integration. The optimum antenna choice is subject to a particular UAV platform when it comes to size, weight and shape. Trimble Applanix offers a number of GNSS antenna products ranging from light weight helical technology (AV17/AV18) to fully certified FAA antennas (AV39/AV37). All antennas are active devices, powered directly through PX-1 RTX, providing triple frequency GNSS and L-band tracking for over the air correction service.



Hardware: Trimble PX-1

Single antenna multi-sensor aided HW solution, multi-constellation, RPH, 100 HZ, 60g

Corrections Service: Trimble CenterPoint RTX

Global real-time cm-level accuracy without base stations



Q What does a PX-1 RTX subscription include and what is the cost?

A The PX-1 RTX solution includes the hardware (i.e., PX-1 RTX) along with the global real-time Trimble RTX service, as pictured below.

The PX-1 RTX solution is available as a one, three or five year subscription service under an OEM Supply Agreement with Trimble Applanix. The OEM Supply Agreement also features volume pricing for quantity purchases.

Altos Radar raises \$3.5m to accelerate the development and commercialization of 4D imaging radars

Silicon Valley-based automotive radar startup, Altos Radar, has raised \$3.5 million in seed round funding that will fast-track the commercialization of 4D imaging radars in driver-assisted and autonomous vehicles. The funding, led by Hesai Technology CEO David (Yifan) Li, ZhenFund and Monad Ventures, will be used to mass-produce and market Altos Radar's new high-performance 4D imaging RADAR Altos V1, which demonstrates revolutionary perception capabilities at a fraction of the cost of its competitors.

Starting in 2017, the FCC and other global RF regulators opened up the 76-81GHz frequency band for automotive radar use. This enabled the possibility of producing high-resolution radars at one-third the size of the previously used 24GHz radars with similar angular resolution.

Dozens of companies have been racing to develop this technology, including a well-known electric car company, which earlier this year brought back their radars for their FSD (Full Self-Driving) Hardware 4.0 upgrade. Altos Radar stands out from the crowd, due to their real-time, on-board computed, LIDAR-like point clouds from a ready to ship product. The radar offers long-range detection and a point cloud with up to 3,000 points per frame at 10 fps.

Furthermore, Altos Radar's team has achieved state-of-the-art performance on low-cost, mass-produced automotive System on Chips (SOCs). This makes Altos V1 radar the world's first production-ready non-FPGA-based, 4-chip cascaded (12TX, 16RX) 4D imaging radar, offering great advantages in cost, reliability and mass-productibility.



Due to the nature of radio waves, radars outperform other types of sensors in their unique capability for far-range detection spanning hundreds of meters, instant and accurate velocity measurement, and robustness in adverse weather conditions. As a pioneer in the field of high-performance 4D radars, Altos V1's detection capacity can now achieve an unprecedented range of 500m for cars and 180m for pedestrians.

What has impeded traditional radars from playing a bigger role in the autonomous

vehicle sensor suite is the lack of height information, low angular resolution and suboptimal signal-noise performance, all of which the new generation of 4D imaging radars by Altos Radar are set to change.

The team at Altos Radar are proven experts in electronics design, signal processing algorithms, compute optimization and radar perception in autonomous vehicles, having held leading R&D positions at Hitachi, ZF, Huawei and Pony.ai, as well as in the autonomous driving departments of Apple and Lyft.

Hexagon releases cloud solution for utilities and telecoms geospatial asset management

Utilities and telecommunications companies looking to modernize asset management can benefit from HxGN Networks in the cloud, a software-as-a-service (SaaS) offering from Hexagon's Safety, Infrastructure & Geospatial division.

HxGN Networks in the cloud is the only fully managed, SaaS geospatial asset management solution for utilities and communications. In addition to providing all features and functions of the on-premises HxGN Networks suite, the cloud-based solution includes hosted IT infrastructure as well as preventive and corrective maintenance services, which allow companies to reduce capital expenditures.

HxGN NetWorks helps utilities and telecommunications providers build digital twins of their physical networks, topology and assets. It's a flexible and integration-ready geospatial asset management solution that provides a single source of accurate, up-to-date information and a full spectrum of tools for different users across the business. NetWorks is used by more than 600 customers across the world to design, build, manage and maintain physical networks, including electric, gas, water, wastewater, multiutility and fiber.

With HxGN Networks in the cloud, companies can benefit from robust cybersecurity features, including identity and access management, encryption and threat detection. It also allows companies to better store and analyze the large amounts of data generated by smart grid devices for making more informed decisions about network operations.

"HxGN Networks in the cloud is not only cost-effective for our customers but also gives them the security and peace of mind that their data is safe and their systems are optimized," said Maximilian Weber, senior vice president, global utilities and communications, Hexagon's Safety, Infrastructure & Geospatial division.



Francisco Partners to Acquire the Weather Company Assets from IBM



IBM has agreed to sell The Weather Company, its weather forecasting and Information Company, to Francisco Partners, a private equity firm, for an undisclosed amount. The deal, which is expected to close in the first quarter of 2024, is part of IBM's ongoing effort to focus on its core businesses of hybrid cloud and artificial intelligence.

The Weather Company was acquired by IBM in 2015 for \$2 billion. Under IBM's ownership, the company has launched a number of new products and services, including hyperlocal forecasts, COVID-19 maps, and enhanced weather forecasts leveraging data from aircraft and smartphones.

Francisco Partners plans to invest in The Weather Company and take it "beyond forecasting alone" with "new tools and experiences" focused on health and well-being. The company also plans to offer "more actionable insights" to businesses and "real-time experiences" to ad and subscription media companies.

"Amid the growing volatility of weather, The Weather Company's unique set of consumer, media and industry-specific products provide mission-critical, data-driven weather insights to individuals and businesses around the world," said Alan Ni, partner at Francisco Partners. "We're excited to partner with the management team to grow The Weather Company's robust portfolio of technology offerings and deliver a great product experience for its customers."

NASA Launches Beta Site; On-Demand Streaming, App Update Coming Soon

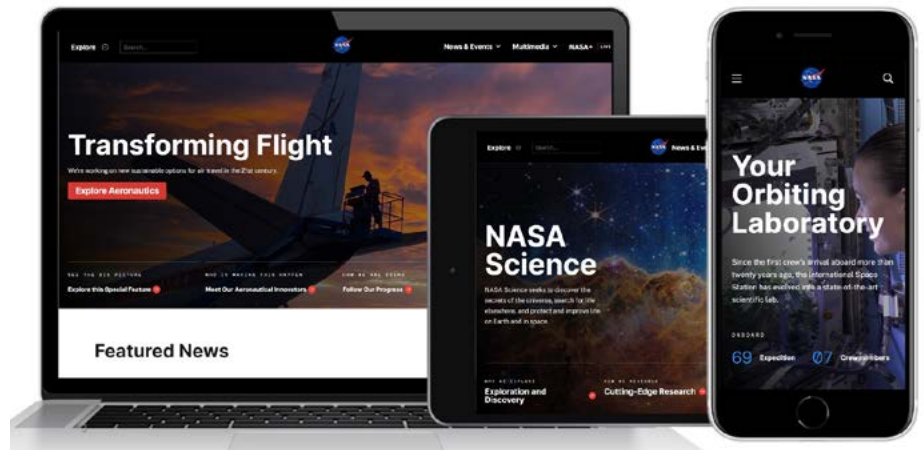
NASA is elevating its digital platforms for the benefit of all by revamping its flagship and science websites, adding its first on-demand streaming service, and upgrading the NASA app. With these changes, everyone will have access to a new world of content from the space agency. Users can access the early, in-progress preview of the beta website now and are encouraged to visit and submit feedback at: <https://beta.nasa.gov/>

“Our vision is to inspire humanity through a unified, world-class NASA web experience,” said Jeff Seaton, chief information officer at the agency’s headquarters in Washington. “NASA’s legacy footprint presents an opportunity to dramatically improve the user experience for the public we serve. Modernizing our main websites from a technology standpoint and streamlining how the public engages with our content online are critical first steps in making our agency’s information more accessible, discoverable, and secure.”

This new web experience will serve as an ever-expanding yet consolidated homebase for information about the agency’s missions and research, climate data, Artemis updates, and more. The updated nasa.gov and science.nasa.gov websites will provide a connected, topic-driven experience, with a common search engine, integrated navigation, and optimized publishing capabilities in a modernized and secure set of web tools.

NASA will continue to update and improve the beta site on a rolling-basis as it receives feedback from website visitors. Once fully launched, the online content from a selection of popular agency websites will be included within this new experience to ensure easier, integrated access to NASA information currently found across the agency’s many websites.

Later this year, NASA also will launch its new streaming platform, NASA+, and upgrade the NASA app. Through the ad-free, no cost, and family-friendly streaming service, users will gain access to the agency’s



Emmy Award-winning live coverage and views into NASA’s missions through collections of original video series, including a handful of new series launching with the streaming service.

NASA+ will be available on most major platforms via the NASA App on iOS and Android mobile and tablet devices; streaming media players such as Roku, Apple TV, and Fire TV; and on the web across desktop and mobile devices.

Following the launch of all new digital platforms, NASA will continue to connect additional agency websites and multimedia libraries into this new experience to continually streamline all the information

shared across its centers, missions, and programs. With an enhanced digital presence, NASA will share science, research, exploration, and innovation with the world through cohesive platforms.

“From exoplanet research to better understanding Earth’s climate and the influence of the Sun on our planet along with exploration of the solar system, our new science and flagship websites, as well as forthcoming NASA+ videos, showcases our discovery programs in an interdisciplinary and crosscutting way, ultimately building stronger connections with our visitors and viewers,” said Nicky Fox, associate administrator, Science Mission Directorate, NASA Headquarters.

“We’re putting space on demand and at your fingertips with NASA’s new streaming platform,” said Marc Etkind, associate administrator, Office of Communications, NASA Headquarters. “Transforming our digital presence will help us better tell the stories of how NASA explores the unknown in air and space, inspires through discovery, and innovates for the benefit of humanity.”

DIEZ and Derq launch AI-Powered smart pedestrian crossing system in DSO

Dubai Silicon Oasis (DSO), the special economic zone for knowledge and innovation and a member of the Dubai Integrated Economic Zones Authority (DIEZ), and Derq, a prominent developer of artificial intelligence (AI) analytics solutions for road safety and traffic management, have achieved a significant milestone through their successful implementation of 14 AI Smart Pedestrian Crossing Systems across Dubai Silicon Oasis. This achievement follows their partnership, where both entities joined forces to provide DSO with cutting-edge capabilities and smart city solutions.

Derq's "Real-Time Perception and Connectivity AI Platform" is specifically designed to detect pedestrians, cyclists, and other vulnerable road users (VRUs) with exceptional accuracy and reliability. This pioneering system, the first of its kind in the region, seamlessly integrates with road infrastructure to enhance safety measures. Using patented behavior prediction models, the technology can proactively activate flashing warning signs, in-road warning lights, and even traffic signal controllers in anticipation of pedestrians crossing, effectively preempting any potential conflicts with approaching vehicles. The system also collects valuable data to enhance road users' awareness and relevant authorities' responsiveness to safety issues and traffic performance. This achievement follows extensive testing over a period of two years, which has been conducted to ensure the safety and effectiveness of the proof of concept.

Eng. Muammar Al Katheeri, Chief Officer Engineering and Sustainability at DIEZ, said: "The implementation of Derq's AI Smart Pedestrian Crossing System at DSO aligns directly with the objectives outlined in the Dubai 2040 Urban Master Plan. By integrating this state-of-the-art technology, we are



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Dr. Georges Aoude, CEO and Co-Founder of Derq, said: "Our collaboration with DIEZ aligns well with the vision of Dubai's Crown Prince, His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, to establish Dubai as a bicycle-friendly city with robust safety measures and to promote eco-friendly transportation options. DIEZ has played a crucial role in the successful implementation of our cutting-edge AI Smart Pedestrian Crossing system in DSO. As we remain steadfast in our mission to drive the future of road safety and enable the seamless and efficient movement of road users and autonomous vehicles, this milestone holds significant importance. We look forward to sharing the positive impact of our efforts in Dubai and on a global scale."

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creating an exceptional environment that prioritizes innovation, safety, and sustainability. This system serves as a cornerstone in cementing DSO's position as a technologically advanced zone, offering residents and business partners a

seamless and intelligent living and working experience. Through our longstanding partnership with Derq, we will continue to make remarkable progress in ensuring pedestrian safety and advancing Dubai's smart city agenda."

Singlewire Software Partners with Critical Response Group to Add Critical Incident Mapping to InformaCast Mass Notification



Singlewire Software, the leader in solutions that help keep people safe and informed, announces its partnership with Critical Response Group (CRG) to add critical incident mapping capabilities to Singlewire's InformaCast software. InformaCast users will be able to upload CRG maps to InformaCast and see location information in notifications.

"The more information response teams have, the more effectively they can help people during a crisis," said Paul Shain, president and CEO of Singlewire Software. "Adding CRG maps to InformaCast provides helpful visual assets to critical notifications to quickly understand where incidents are occurring and where to direct help."

The partnership will provide a foundation for Singlewire to enhance the notification capabilities of InformaCast by including a visual location of where the person is when they initiate an alert. Organizations will be able to define buildings, floors, and rooms with CRG Collaborative Response Graphics® that have been uploaded into InformaCast. Those details will be tied to the scenarios an organization creates. When a scenario is initiated, the user will be able to add these details to their message. Recipients will receive the notification along with a map that has a highlighted area indicating the sender's location. This helps provide critical information to responders who can ascertain where the person is and send assistance.

"Seconds matter during an emergency, which is why it is important for organizations to reach all of their people with the information they need to stay safe," said Mike Rodgers, Chief Executive Officer of Critical Response Group. "Combining the powerful mass notification and incident management capabilities of InformaCast with our Collaborative Response Graphics means vital messages will reach people with the necessary context for them to deploy an effective response."



Hesai Technology Advances Autonomous Vehicle Lidar Integration with NVIDIA DRIVE and Omniverse

Hesai Technology, a pioneer in the field of lidar sensors, announced a collaboration with NVIDIA to integrate Hesai's cutting-edge lidar sensors within the NVIDIA DRIVE and NVIDIA Omniverse ecosystems. By combining Hesai's industry-leading expertise in lidar sensors with NVIDIA's AI, simulation, and software development platforms, the collaboration will unlock new possibilities for the autonomous driving industry.

NVIDIA DriveWorks is the foundation for autonomous vehicle software development and a trusted solution for creating and deploying autonomous driving applications. Developers building on DriveWorks will be able to effectively integrate Hesai's lidar sensors into their vehicles, leading to more efficient and reliable autonomous driving systems.

Simulation is a critical component to the sensor integration pipeline. Built on Omniverse, NVIDIA DRIVE Sim is a powerful simulation platform that enables developers to test and validate autonomous driving systems in a physically based virtual environment.

With the ability to access Hesai lidar sensor models in DRIVE Sim, developers can take advantage of enhanced capabilities for simulating real-world lidar data, enabling more robust and accurate testing of autonomous vehicle algorithms.

Hesai's AT128 is an automotive-grade, ultra-high resolution long-range lidar. With 128 independent VCSEL laser transmitters, AT128 is able to achieve 1.53 million data points per second and a detection range of 200 meters. Its ultra-high resolution point cloud is at the forefront of the industry. As of today, Hesai is collaborating with 11 leading OEMs in the industry on multi-year ADAS contracts, including China's largest new energy vehicle manufacturer and leading auto companies. Among them, 6 OEMs will start mass production and delivery before the end of 2023.

"By combining our expertise in lidar technology with NVIDIA's world-class simulation and software development platforms, we can provide developers with invaluable insights and resources for unlocking the full potential of lidar in autonomous driving applications. This announcement marks a significant step forward in advancing the autonomous driving industry," said Bob in den Bosch, SVP of Global Sales at Hesai Technology.

"This collaboration will provide autonomous vehicle developers with seamless tools and flexibility along the AV pipeline," said Glenn Schuster, Senior Director of Sensor Ecosystems at NVIDIA. "Together, we aim to push the boundaries of lidar technology and accelerate the deployment of safe and efficient autonomous driving."

The NVIDIA DRIVE and Omniverse collaboration expands on Hesai's participation in the NVIDIA partner ecosystem, which has been ongoing since 2019. The companies will continue to work together to help end-users and OEMs more easily integrate GPU and lidar technology into self-driving vehicles.

DGT collaborates with Amazon Web Services India to offer skilling programs on emerging technologies

The Directorate General of Training (DGT), under the aegis of the Ministry of Skill Development and Entrepreneurship (MSDE), is collaborating with Amazon Web Services (AWS) India to upskill students in cloud computing, data annotation, artificial intelligence (AI), and machine learning (ML), to boost their capabilities and employability. This initiative will benefit students enrolled in the institutions under the DGT, an apex organisation responsible for implementing long-term institutional skill training through an extensive network of about 15,000 Industrial Training Institutes (ITIs) and 33 National Skill Training Institutes (NSTIs), across India.

As part of this collaboration, AWS India will provide individuals with self-paced online learning programs in emerging technologies at no cost. This learning content will be offered on DGT's Bharat Skills platform (<https://bharatskills.gov.in>), a central repository of updated curriculum, course content, digitally blended content, question banks, and learning videos of all courses under the Craftsmen Training Scheme (CTS) and Crafts Instructor Training Scheme (CITS).

Shri Atul Kumar Tiwari, Secretary, MSDE said that we are making training on high-demand, emerging technologies available to students, opening up new opportunities for them, and enhancing their employability. Through this initiative with AWS. We are happy that students from ITIs and NSTIs can gain in-demand skills and hands-on experience in important areas such as cloud computing, data annotation, AI, and ML. The support that AWS will provide to train the faculty in these technologies will be valuable and empower them to deliver better learning outcomes.

Sunil PP, Lead—Education, Space,



Non-profits, Channels and Alliances, AWS India Private Limited said that Cloud computing, AI, and ML are transforming nearly every industry, and developing a workforce skilled in these technologies is important to drive innovation and enhance the country's competitiveness. By offering industry-relevant AWS-based curriculum and learning resources to learners and educators, we are investing in education at large, and developing India's future digital workforce.

Recognizing data annotation as a critical aspect of the development of AI and ML projects as it makes datasets more usable and ready for innovation, AWS India will also enable DGT to train individuals in data annotation and labelling, using Amazon Sage Maker Ground Truth, a purpose-built service from AWS that easily enables labelling of training data for machine learning

at scale. In addition, AWS will provide nominated education institutions under DGT with ready-to-teach cloud computing curriculum that prepares students to pursue industry-recognised certifications and in-demand cloud jobs.

The trend towards cloud adoption has been growing, especially since the pandemic necessitated organizations of all sizes to rapidly transform into digital businesses, innovate their business model, and enable remote working through several cloud-enabled services. According to the research "Asia Pacific Digital Skills Study: The Economic Benefits of a Tech-Savvy Workforce", 92% of the 769 employers surveyed in India say at least one of the emerging technologies including AI, edge and quantum computing, block chain, and crypto currency, is likely to become a standard part of their future business operations.



OVERTURE MAPS FOUNDATION

Precisely Joins the Overture Maps Foundation to Help Power its First Worldwide Open Map Dataset

Precisely, the global leader in data integrity announced its membership to the Overture Maps Foundation. Founded by Amazon Web Services (AWS), Meta, Microsoft, and TomTom in 2022, the foundation recently launched its first worldwide open map dataset to the market, based upon the shared data and knowledge of its network of members.

As a contributing member, Precisely will provide vital location intelligence and data enrichment expertise to simplify interoperability between different datasets. This will allow organizations around the world to freely access geospatial data and spatial analytics, and ultimately, drive exciting new advancements in geospatial technology.

The past decade has seen an explosion in location-based technology, with it fast becoming an essential aspect of many people's everyday lives. An increasing reliance on navigation software, ride-hailing apps, real-time transport updates, and more have been behind rapid growth in the market - with the location-based services industry expected to grow 20% in the next five years to a value of over \$66 billion. But this growth represents only a fraction of what could be possible in the market, with many organizations struggling to access the geospatial data needed to make confident business decisions and power critical new product development.

"As the requirements for accuracy, recency, and attribution in maps have grown to meet user needs, the costs and complexities of collecting and maintaining global map data have grown beyond the capability of any single entity," said Marc Prioleau, Executive Director at the Overture Maps Foundation. "We are excited to welcome Precisely to the foundation and look forward to working with them to enable a level playing field wherein baseline, high-quality, mapping data and a global catalog of associated data are freely accessible to everyone."

Precisely will provide its wealth of location intelligence and data enrichment experience to the foundation's Global Entity Reference System (GERS) that simplifies data exchange by creating a persistent shared identifier for geospatial entities. With a proven history in developing its own geospatial identifier, the PreciselyID, the data integrity expert is well positioned to help inform the program.

"At precisely, we have over 30 years of experience in building, managing, and supporting the use of location information in the business environment," said Dan Adams, Senior Vice President - Data Strategy and Operations at Precisely. "We are excited to be a member of the Overture Maps Foundation and collaborate on the critical work being done to facilitate access to next-level mapping - powered by trusted geospatial data."

Esri Canada launches Assessment Analyst ValueIT for accurate property assessment values

Esri Canada announced the launch of Assessment Analyst ValueIT, a powerful visualization and analytic application that revolutionizes property assessment by providing clarity and control over the accuracy of assessment values. With AA ValueIT, assessors can confidently determine if assessments meet local or state standards by leveraging the full potential of computer-assisted mass appraisal (CAMA) data within a geographic information system (GIS) environment. The application expands the capabilities of Assessment Analyst®, Esri Canada's powerful software suite that enhances assessments by geo-enabling property data.

Accurate property assessment values are crucial for ensuring fair taxation and maintaining trust in the assessment process. However, identifying inconsistencies and errors in property valuations has been a persistent challenge. AA ValueIT addresses this issue head-on by offering advanced visualization and analytic tools that enable assessors to pinpoint data inconsistencies and valuation errors with ease.

"We're excited to introduce AA ValueIT, a game-changer in the property assessment industry," said Brian Smith, industry and product manager, Assessment at Esri Canada. "This application provides assessors with the necessary tools to visualize, analyze and validate assessment values, helping them make informed decisions and achieve fair and accurate property assessments. With AA ValueIT, assessors can now take control of the assessment process like never before."

Key benefits of using AA ValueIT: Time Savings and Efficiency: AA ValueIT efficiently handles large datasets, saving assessors valuable time. It consolidates data from multiple sources and presents it through an intuitive interface with insightful dashboards, enabling efficient data analysis and informed decision-making.

Enhanced Compliance: By using GIS-based data visualization, AA ValueIT swiftly identifies geographical areas that meet local or state appraisal standards. This feature ensures assessors adhere to regulatory requirements.

Deeper Insights: AA ValueIT empowers assessors to isolate individual properties and evaluate their impact on the overall quality of the assessment roll. This in-depth analysis provides valuable insights into specific property valuations, leading to improved accuracy and fairness in assessments.

Improved Accuracy: AA ValueIT incorporates Esri Canada's lightweight regression model, enabling assessors to identify significant disparities between assessed values and market sales within a specific market. This independent valuation tool contributes to the assurance of precise assessment values.

AA ValueIT is available for implementation at the jurisdiction level, offering seamless integration with existing GIS and CAMA systems. The application is customizable to suit specific requirements, ensuring optimal performance and compatibility with local data standards.

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INUNDATION MAPPING



BIM FOR FIRE MANAGEMENT

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Our range of mapping solutions for emergency management includes flood hazard mapping, risk maps, BIM for fire hazard management, 3D topographic mapping, fault location mapping, and more.

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Shield AI Demonstrates AI-piloted, Teaming V-BATs with AFWERX; Transformational Capability to Be Fielded in 2024

Shield AI, a defense technology company building the world's best AI pilot announced the successful completion of an autonomous teaming demonstration featuring three V-BAT Unmanned Aircraft Systems (UAS). This accomplishment was the final milestone of an AFWERX autonomy effort under their Strategic Funding Increase (STRATFI) program and collaboration with the AFRL Sensors Directorate.

Shield AI showcased its Hivemind AI pilot by launching a team of three V-BATs to monitor and surveil simulated wildfires. The multi-agent, coordinated team conducted Detect, Identify, Locate, and Report (DILR) missions in a contingency scenario with dual-use applications. This work with AFWERX sets Shield AI on a path to deploy V-BAT teaming capabilities in GPS- and communications-denied environments in the next year.

"Intelligent, affordable mass that can see everything on the battlefield, execute the mission even when GPS and comms are denied or degraded, and put all our adversaries' military assets at risk at all times is the holy grail of deterrence. This milestone brings us closer to achieving that reality," said Brandon Tseng, Shield AI's President, Co-founder and former U.S. Navy SEAL. "We had many customers from across the DoD enterprise attend the event and my favorite customer quote was 'Wait, you're flying those three aircraft, doing the recon, and at the same time briefing us?!' The customers genuinely appreciated that this isn't merely talk, or just computer simulations, or a science project leading nowhere. This represents real autonomy on actual aircraft that, most importantly, will be deployed imminently."

Hivemind can be trained for a variety of missions and its modular open systems architecture enables portability to other aircraft. It has flown



quadcopters, V-BATs, and jet aircraft. Hivemind can be trained to undertake a broad range of missions, including integrated air defense breach, SCUD missile hunting, zone reconnaissance, counter-air, beyond-visual-range strike, maritime domain awareness, and communications-contested operations.

"Autonomy on V-BAT directly supports our autonomy efforts on uncrewed jet aircraft. Beyond our autonomy stack being leveraged across different aircraft, what sets this autonomy effort apart from others is that it was deployed on a program-of-record aircraft and will be a fielded capability next year. Many DoD-funded efforts, unfortunately, never reach the hands of a warfighter. However, Shield AI and AFWERX decided from the start that we would field this capability within the DoD. The great thing is all

our DoD customers — the Army, the Navy, the Marines, SOCOM, and the Air Force — will benefit from this AFWERX effort. Autonomy is a joint capability," said Ryan Tseng, CEO and Co-founder of Shield AI.

"What's exciting to us is not just the capability that teaming V-BATs can bring to the table or how it's on a great path for fielding with DoD partners, but how autonomy stacks can be leveraged across different aircraft and programs. The continual application of autonomy from small systems, now V-BAT, and onto larger platforms provides paths for industry progression and autonomy maturation. The criticality of autonomous capabilities for future programs of record within the DoD was the driver for this Shield AI - AFWERX effort," said Col. Tom Meagher, AFWERX Prime Division Chief.

Teledyne FLIR Defense Signs \$31 Million Contract with Kongsberg Defence & Aerospace for C-UAS Systems for Ukraine



Teledyne FLIR Defense, part of Teledyne Technologies Incorporated has signed a contract with Kongsberg Defence & Aerospace, Norway, valued at roughly \$31 million to provide its Cerberus® XL mobile counter-unmanned aerial system (UAS) as part of a total C-UAS solution for Ukraine. The agreement includes delivery of the surveillance platforms as well as software, spares, support and training.

Kongsberg recently signed an agreement with the International Fund for Ukraine (IFU) to deliver counter-drone systems that will be donated to the war-torn nation. The IFU was established by the UK and international partners to identify and procure critical capabilities and deliver them quickly to Ukraine. Norway and the UK are among many nations that have contributed to the fund.

Cerberus XL combines an advanced thermal/visual imaging system with highly sensitive radar sensors onto a mobile platform to rapidly locate and track UAS targets. Kongsberg then feeds information from Cerberus into its remote weapons station to disable and defeat the threat.

"Teledyne FLIR is proud to partner with Kongsberg in delivering our next-generation Cerberus XL as part of a complete and robust system to protect Ukraine's warfighters," said Dr. JihFen Lei, executive vice president and general manager of Teledyne FLIR Defense. "We have a long history of providing state-of-the-art imaging solutions to Kongsberg, and this important joint effort only strengthens our relationship."

In addition to the Cerberus systems, Teledyne FLIR is supporting Ukraine's defense with other advanced military technology, including its Black Hornet® nano-drone. The Black Hornet 3 is currently being used by Ukrainian forces through donations made by the British and Norwegian governments.



FAA Selects D-Fend Solutions' EnforceAir for UAS Detection and Mitigation Testing and Evaluation Program Aimed at Enhancing Aviation Safety

D-Fend Solutions, the leader in radio frequency (RF), cyber-based, non-kinetic, non-jamming, counter-drone detection and takeover technology, has been selected for participation in the Federal Aviation Administration (FAA)'s Airport UAS Detection and Mitigation Research Program, under Section 383 of the FAA Reauthorization Act of 2018. D-Fend Solutions' core C-UAS system, EnforceAir, will undergo initial testing at Atlantic City International Airport (KACY) and potential further evaluation at other airport environments.

D-Fend Solutions' EnforceAir is the first RF-cyber based advanced protocol full takeover UAS detection and mitigation system selected for the program. The EnforceAir system design is specifically optimized to empower airports with a surgical counter-drone approach to threat detection and mitigation that allows nearby authorized drones to continue operations with no collateral effect on navigation or communications systems, damage to infrastructure, or excessive burden to human resources. The system provides 360 degree and long-range directional protection and coverage to protect airport facilities and takeoff and landing airspace corridors.

"EnforceAir's engagement in this mission-critical FAA program aligns perfectly with our core mission of leading in providing the most advanced technology to overcome rogue drone threats in the most sensitive environments and airspace, most notably airports, in a controlled manner that enables safe and uninterrupted operations", said Zohar Halachmi, Chairman and CEO of D-Fend Solutions. "We are gratified to be selected for this prestigious and selective program, and we commend the FAA for prioritizing requirements for the safest forms of non-disruptive mitigation technology that allow for airport operational continuity."



Civil Air Patrol and uAvionix Partner to Expand Low Altitude Aircraft Data Availability for Its Emergency Services Mission



Civil Air Patrol and uAvionix Corporation, have successfully partnered to deploy a DO-260B compliant dual band ADS-B receiver network to compliment FAA sensor data with low altitude aircraft positions in support of the National Radar Analysis Team (NRAT) mission to shorten the crash to rescue time in Search & Rescue.

Through the leadership of Virginia Wing (VAWG), Volunteers throughout Civil Air Patrol Squadrons in Virginia have assisted uAvionix in locating suitable receiver sites and supported the installation of small, low weight FlightStation ADS-B receivers at various airports in the State. The dual mode (1090Mhz and 978Mhz) FlightStations, receive transponder data from aircraft, which is centrally received and transmitted to the NRAT server at Maxwell Air Force Base where it is combined with FAA sensor data.

NRAT uses FAA data and advanced technologies in support of the CAP Emergency Services mission. The team

is activated by the Air Force Rescue Coordination Center (AFRCC) when there is a report of a possible missing aircraft or crash. Once the team is activated, analysis and actionable data can be provided in minutes to an Incident Commander; instead of days or hours before NRAT was created, which is used by Incident Commanders and air crews to conduct their search.

The FlightLine roll-out consists of several ATC grade ADS-B receivers with overlapping coverage, allowing for validation of transmitted ADS-B data and pinpoint multilaterated positions. Traditional ADS-B and radar concentrate mostly on airports and higher altitudes in support of Air Traffic Control. Most other available data sources largely exclude coverage for 978Mhz transponders, typically used by General Aviation aircraft. Virginia is the first State in the US to have 100% coverage down to 500 ft of altitude, rapidly expanding to other States.

“NRAT has been working several years to test small ADSB receivers to place at

locations with limited FAA coverage”, said Lt Col Mark Young, Commander of NRAT. “The availability of these new receivers, built to RTCA aviation certification standards, and it’s subsequent real time data from FlightLine data available to CAP is a significant advancement for NRAT. Real time data at lower altitudes significantly improves NRAT’s ability to provide a fast and accurate location of missing aircraft that can be used to support the Emergency Services Search & Rescue mission and will result in lives saved.”

“uAvionix is proud to work together with CAP to improve low altitude data availability for this important public service”, said Christian Ramsey, Managing Director of uAvionix. “The introduction of ADS-B has resulted in a significant improvement of General Aviation safety, expanding on the FAA coverage at lower altitude and for UAT transponders typically carried by General Aviation will further enhance the tools used in safety of life activities such as CAP’s Emergency Services mission.”

D-Fend Solutions Launches EnforceAir2 Next Generation Counter-UAS

D-Fend Solutions, the leader in radio frequency (RF), cyber-based, non-kinetic, non-jamming, counter-drone takeover technology, has announced the launch of its new product, EnforceAir2. The next-generation product features the best offerings of the original award-winning EnforceAir technology with enhanced, expanded, and extended C-UAS capabilities. The system now comes with even more power, performance, portability, and range, all in a more compact and accessible system.

High-Performance, Purpose-Built C-UAS Cyber-SDR Hardware with Specially Designed PCBs

Longer-Range Detection and Mitigation Coverage ranges

Overcomes limitations of traditional commercial off-the-shelf SDR platforms

Multiple receivers and transmitters; powerful real-time processing; advanced RF technology; compliance with radio regulations

High-Performance MIMO (Multiple Input, Multiple Output) Antennas for improved radiation patterns and compact footprint form-factor implementation suitable for tactical or fixed applications

Man-Portable Backpack Option

The system's brand-new backpack deployment provides flexible on-the-move full capability protection for tactical and stealth operations in a compact ultra-mobile solution:

Covert use case suitability with concealed antennas and a rugged, slim, lightweight design

Long-term power from hot-swap batteries providing long-duration, no downtime continuous operations

Seamless Operational Flexibility (SOF)

EnforceAir2's multi-use deployment



kit enables tactical teams to overcome deployment challenges and achieve total operational flexibility. This includes:

Quick set-up, locking, and release mechanisms for rapid conversions between deployments

Short to medium-term stationary deployment options for tactical teams

Tactical, Vehicular, Stationary, and Man-Portable (backpack) deployments

Best-in-Class SWaP (Size, Weight, and Power) delivering unprecedented power and portability, in a compact, lightweight small form factor, with easy transport, and simple handling and set-up

“EnforceAir2 reinforces D-Fend’s strategic market position as the pioneer and leader in the groundbreaking technology category of RF-Cyber for counter-drone detection and mitigation, focused on control, safety and continuity,” said Yaniv Benbenisti, President and Chief Product Officer of D-Fend Solutions. “As the threat escalates and proliferates, into more varied environments and scenarios, EnforceAir2 now brings unprecedented power, flexibility, and portability to security officials to confront and overcome the growing risks and challenging dangers.”



All Planned Tests for EH216-S Type Certification Completed 100%

EHang Holdings Limited, the world's leading autonomous aerial vehicle ("AAV") technology platform company, announced that the company has achieved a significant milestone for EH216-STC by successfully completing all of the planned tests and flights in the last phase of demonstration and verification of compliance, and also completed the definitive TC Flight Test by the Civil Aviation Administration of China ("CAAC"), with unwavering endeavors throughout past 31 months since the CAAC officially accepted the Company's TC application in January 2021.

This is the last milestone before obtaining the type certificate, and also the result of the unwavering efforts of EHang team. After finishing the remaining procedures, the Company expects to obtain the type certificate of EH216-S Unmanned Aerial Vehicle ("UAV") System from the CAAC soon.

Since the time when CAAC officially accepted the EH216-STC application in January 2021, our unyielding efforts have spanned over 30 months. Throughout this journey, we have overcome various challenges and finally successfully completed all of the substantive tasks. Ranging from battery, environment, material, strength, electronics, software, data link to ground control station, we have sufficiently proved that EH216-S meets the safety standards and airworthiness requirements by the CAAC, through scientific approaches, multi-angle demonstrations, rigorous testing, and continuous optimizations.

As an innovative product for urban air mobility, EH216-S sticks to three fundamental technological principles, which are full redundancy, autonomous flying, and cluster management. So far, it stands out as the world's first TC program for unmanned eVTOL.

Huazhi Hu, Founder, Chairman and CEO of EHang, commented, "We've made remarkable progress in our pursuit of long-term growth. Notably, we are thrilled to announce that we have successfully completed all the planned tests for EH216-S type certification. This achievement marks a significant unprecedented milestone in the global emerging eVTOL industry, underscoring our unwavering dedication and pioneering advantages. Additionally, this sets the stage for us to secure the type certificate soon and proceed with our endeavors to initiate commercial operations. I would like to express my gratitude to the CAAC's officials and the review team as well as the Company's airworthiness certification team for their unwavering efforts and persevering spirits. It is their professionalism, exceptional technological expertise, and collaborations that have led us to our impressive achievement today. I believe the remaining procedures will be finished very soon before the official authorization of the type certificate. It will pave the way for our commercial operations in the next stage."

Wisk Aero, Archer, and Boeing Reach Agreement to Settle Litigation and Enter Into Autonomous Flight Collaboration



Wisk Aero and Archer Aviation leaders in the Advanced Air Mobility (AAM) market, along with The Boeing Company announced that they have reached a settlement to resolve the federal and state court litigation between the parties on undisclosed terms.

Simultaneously, the parties have entered into a collaboration that looks forward to the growth and development of the AAM industry. Archer has agreed to make Wisk its exclusive provider of autonomy technology for future variants of Archer's aircraft.

As part of the parties' collaboration, Boeing is making an investment in Archer that will support the integration of Wisk's autonomous technology in future variants of Archer's aircraft.



Astronics Announces Growing Backlog of Electrical System Solutions for eVTOL Aircraft Manufacturers



Astronics Corporation a leading provider of advanced technologies for global aerospace, defense, and other mission critical industries, announced that it has accepted purchase orders to provide certain electrical power distribution, conversion, and vehicle charge control capabilities from ten eVTOL aircraft OEMs who are developing electrical aircraft for emerging air mobility missions. These orders include Astronics' previously announced program win to provide its enhanced CorePower® electrical power distribution system for the Lilium Jet.

The combined orders represent approximately \$20 million in sales over the period to certification and consist of hardware deliveries along with engineering support to achieve aircraft certification. Once certified, Astronics expects these initial sales to result in long-term production contracts.

Astronics has developed a set of capabilities and a family of products which provide a wide range of electrical power management solutions required by eVTOL aircraft. This includes high voltage conversion from 800 VDC (Volts Direct Current) through 1000 VDC converted down to 28 VDC, as well as low power distribution throughout the aircraft. The hardware is designed to be compact and lightweight, ensuring reliable power management from the aircraft batteries to flight-critical end use systems, including flight controls, avionics, navigation, communication, sensors, lighting, and passenger comfort systems.

Jon Neal, President of Astronics Advanced Electronic Systems, said "Over the last few years Astronics has expanded its CorePower® product offerings to include a suite of high power electrical power management capabilities that are critical to the safe and efficient operation of small, electric aircraft. Our OEM customers have chosen Astronics because of our breadth of products, our technical expertise, and our commitment to supporting them through certification. Astronics is excited to be part of the electrification of aircraft moving towards more sustainable and cleaner modes of transportation."



Eve and DHL Partner to Design a Supply Chain Concept for eVTOL Support

Eve Air Mobility and DHL Supply Chain, a global leader in warehousing and distribution, announced the signature of a Memorandum of Understanding (MoU) to conduct a study of key demands and supply chain characteristics for Eve's electric vertical take-off and landing aircraft (eVTOL) operation. The primary goal of the partnership is to explore and understand best practices for supplying operators and service centers with spare parts and inputs, with an emphasis on batteries and the specific requirements concerning transport, storage and disposal of those devices. Other aspects reviewed will include modes of transportation, frequency, and delivery plan, required logistics partners, potential locations for advanced inventories, physical and technological infrastructure requirements and contingency plans.

"We are transforming urban air mobility, which also brings logistical challenges. DHL's expertise in this field in the aeronautical market and dozens of other industries, coupled with the innovation mindset of both companies, will be vital to ensure the safe and agile operation of eVTOLs," said Luiz Mauad, Vice President of Services and Operations Solutions at Eve. "In addition to offering high-performance logistics, our premise is to reduce the environmental impact of the supply chain in line with our purpose of offering more sustainable products and services."

"We are very excited about the opportunity to shape the future of mobility with Eve Air Mobility. Initiatives like this are part of our ESG mission, and we are contributing all our knowledge and experience to make this another great successful project developed by the Brazilian aerospace industry, with benefits for major cities around the world," said the Vice President of the Automotive, Technology and Consumer sectors at DHL Supply Chain, Mauricio Almeida.

The logistics study from Eve and DHL will encompass the distribution of parts and materials required for repairs and maintenance. Another crucial aspect to be considered is battery logistics, which holds significant importance in this business model. In this regard, DHL's expertise in handling batteries from various industries will be leveraged. The companies will also evaluate supply chain management for general supplies to vertiports, optimizing the business processes.

Continuing to achieve significant milestones in the development of its eVTOL and agnostic solutions for the market ecosystem, Eve holds the largest backlog in the Urban Air Mobility (UAM) industry, with up to 2,850 aircraft. Among its accomplishments are the creation of a distinctive Urban Air Traffic Management (Urban ATM) software and the establishment of a comprehensive network of services and operational solutions. The first eVTOL deliveries and entry into service are expected as early as 2026.

Advanced Air Mobility Depends on Advanced Air Communications



AURA Network Systems, a Virginia-based startup that holds licensed spectrum dedicated for use in building the nation's digital aviation communications infrastructure, urged federal regulators and policymakers to create a comprehensive spectrum access plan and continue interagency coordination, while also calling for "a clear FAA approval process for third-party services supporting AAM, including command-and-control."

AURA's comments came in response to a Department of Transportation request for information (RFI) on development of a national strategy for Advanced Air Mobility, or AAM; AURA responded with a 32-page white paper detailing its views. Bill Tolpegin, AURA Networks Systems founder and CEO, voiced his appreciation for the increased attention given to AAM by lawmakers and regulators, as well as for the call for industry input.

"By passing The Advanced Air Mobility

Coordination and Leadership Act last year, Congress got the ball rolling and one of the great things that's come out of that legislation is this Transportation Department request for information on AAM," said Tolpegin.

"We're at a critical juncture for this nascent industry, and it's a great opportunity for the agency and Congress to hear how we can develop a successful AAM system in the United States. From our view as long-time aviation comms experts, we strongly believe it is in the best interest of federal agencies and industry to internalize the foundational nature of dedicated aviation spectrum and a capable digital communications infrastructure to the success of any AAM system," added Tolpegin.

The AURA white paper also details the umbrella concept of Enabling Communications — which encompasses command-and-control (C2); position, navigation, and timing (PNT); detect and avoid (DAA); vehicle to vehicle (V2V); and air traffic control (ATC) voice — as well as

the relevant spectrum bands, the standards, and policy considerations for each. As it states, "ultimately, the aircraft, operational plans, and all the enabling technologies and services need to be considered holistically to maximize the likelihood of AAM's success, and to enable the U.S. to capture all the benefits of AAM."

Brian Regan, AURA Chief Legal & Regulatory Officer, emphasized the need to more comprehensively expand regulatory focus on aircraft and flight operations to the third-party services necessary to support AAM.

"As an industry, we are digging ourselves into a hole by not giving sufficient weight in various AAM CONOPs frameworks to the third-party services necessary to support AAM," said Regan. "And as the saying goes, when you're in a hole, stop digging. This white paper offers a path upwards that recognizes the critical importance of Enabling Communications to U.S. leadership in AAM."

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