

Global monthly E-magazine for Drones



# DRONES WORLD

VOL 04 ■ ISSUE 12  
JANUARY 2024

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## Mr. Miles Chambers

Vice President International  
Business Development

EDGE Group

PG 22





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# DRONES WORLD

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**DRONES WORLD is published by - B. Kartikeya**



**B. KARTIKEYA**

Hello my dear readers,

**H**igh roads... High hopes... High fly into the sky... I'm so high, of course with emotions. Hurrah! What an year it was, the 2023 despite the imperfections that we had to experience. With all my happiness and joy I wish you a very happy and prosperous New Year 2024.

Entering the New Year, as like ever, we brought you fantastic and new stylish design makeover of your favourite Drones World Magazine. To keep you update frequently we have decided to shift from Indian Monthly E Magazine to global E Magazine. As the name of our magazine is Drones World – Our duty to represent the whole world is on our shoulders to interact and have more conversations with companies world-wide.

Drone Industry is global now. My Intelligence asks me always common sense question is how unmanned industry grows without skilled man power. Will the shortcuts makes humans as skilled manpower for the future growing Industry? Does all countries are copying the rules & regulations? Who is really able to bring /accept the global perception? Is future depends war depends on Unmanned? Who is supporting who? It scares me a lot in the lot of scenarios. Are we conscious on what's happening globally?

Enjoy the wonderful conversation with Mr. Miles Chambers, Vice President International - Business Development, EDGE Group says in a brief period of four years, EDGE has made impressive strides in the autonomous systems domain. Our portfolio has expanded rapidly, from a single offering to forty autonomous aerial solutions.

Check out our Regular Global News, Anti Drones, Urban air Mobility & All relevant information to get equipped with knowledge on Unmanned Industry. Our team is really working hard to bridge the gap. We need industry support to progress further.

We appreciate the support & admiration you gave to Drones World in 2023 and we anticipate the same level of trust and enthusiasm towards our magazine in 2024. We hope we are able to raise the bar and reach new heights in 2024.

With that, I take your leave this month. More when we meet again in our next issue.

Till then, stay safe, God bless.

## Garuda Aerospace Donates 1 crores Worth of Free Kisan Drones to Kaushalya – The Skill University.



Garuda Aerospace, India's leading drone manufacturer, and Kaushalya - The Skill University have signed a Memorandum of Understanding (MoU) to boost drone technology education in India. Honourable Prime Minister Shri Narendra Modi Ji and Chief Minister Bhupendrahai Patelji have championed the cause of making India self-reliant through skill development, and this partnership aligns with that vision.

Under the terms of the MoU, Garuda Aerospace commits to providing Kaushalya - The Skill University with 10 small category agricultural drones, valued at approximately Rs 1 crore. These drones will be utilised for specialised training programs in agriculture, contributing to skill development in this crucial sector. Furthermore, Garuda Aerospace will offer mentorship support for drone technology to students and start-ups associated with the university. The collaboration extends beyond hardware support. Garuda Aerospace will provide the services of technical experts in the field of drones through online and offline channels. The company will also engage in collaborative research, indigenization, and product development with university faculties. In a bid to bridge the gap between training and employment, Garuda Aerospace will extend placement support to trainees undergoing drone training through the "Bharat Drone Association."

"We are honoured to align with the visionary goals of Honourable Prime Minister Shri Narendra Modi Ji fostering innovation and self-reliance. This collaboration signifies our commitment to contributing to the skill development landscape, empowering the youth, and realising the larger vision of a self-reliant India. We look forward to synergising our efforts with Kaushalya - The Skill University and contributing to the nation's progress in the field of drone technology. Recognizing the immense potential and youthful dynamism in Vibrant Gujarat, we are excited about the prospect of positioning the state as the Drone Hub of India. Our enthusiasm stems from the collaborative efforts to equip the younger generation with vital drone skills, aligning seamlessly with our vision for substantial employment growth. Prime Minister Modiji's visionary initiative, involving the launch of 100 drones in 100 areas and his commitment to deploying 1 lakh drones in the next two years, underscores the rapid expansion of the drone industry. This ambitious goal necessitates the training of 1 lakh pilots, and Gujarat is well-poised to make a significant contribution—10% to the total Drone Pilot community. This development marks a pivotal step in propelling Gujarat to the forefront of the burgeoning drone technology landscape, and we are proud to play a role in this transformative journey," said Agnishwar Jayaprakash, Founder and CEO, Garuda Aerospace.

## Darkhive Inc. Closes \$4M Seed Round to Scale Development of Low-cost Autonomous Drones for Defense and Public Safety

Darkhive Inc. announced the closing of a \$4M Seed round led by Crosslink Capital and joined by MVP Ventures, Capital Factory, and existing investor Stellar Ventures. This round of financing will enable Darkhive to accelerate production of both hardware and software product lines in support of high-profile Department of Defense initiatives. In the past year, Darkhive has been awarded contracts totaling nearly \$14M, but collaboration with key strategic investors provides a critical component to the future success of the company.

"We have some hard timelines to hit in 2024 and beyond in order for our products to provide real value at scale to the communities we support," said Darkhive CEO John Goodson, "We're excited to be teamed up with Crosslink and our other partners that joined the round to hit those



milestones and deliver for our customers."

Matt Bigge, Partner at Crosslink Capital and Darkhive Board Member, commented "Darkhive represents the future of uncrewed systems. Their open hardware and software architecture enables the first truly scalable, interoperable and cost appropriate approach to US-made drones. Crosslink is excited to work with the Darkhive team to facilitate this strategic architectural approach at a critical time for US National Security."

## Sentera Sensors Now Compatible with Gremsy Quick Release



Sentera, the industry-leading provider of ag analytics announced that its 6X Multispectral, 6X Thermal, and 65R sensors are now compatible with the Gremsy hyper-quick-release interconnect.

"We are excited to offer compatibility with drones equipped with this popular Gremsy gimbal attachment," said Eric Taipale, chief technology officer, Sentera. "This will help our customers more seamlessly capture high quality RGB, multispectral, and thermal imagery."

This new integration extends the usability of Sentera's 65R and 6X sensors to an expanded array of drone platforms. This combination is ideal for a variety of applications, including precision agriculture, surveying and mapping, utilities inspection and maintenance, and public safety.

"Adding this to our suite of gimbal options -

joining DJI Skyport and Smart Dovetail - makes our sensors easy to bring to new applications and use cases," said Taipale.

The 65R is the first ultra-high-resolution aerial sensor in its class to deliver seamless drone integration without compromising image quality. With 65 million pixels per frame of global shutter imagery, the 65R produces exceptional imagery that is free from distortions and detailed enough to generate, digital surface models (DSMs), orthomosaics, individual photos, and other imagery products.

The high capture-rate performance of the 6X results in greater collection efficiency than competitors. 6X imagery is standards-compliant, ensuring that products can be processed via Sentera or third-party data science software ecosystems for deeper analysis.



## ANRA Technologies and NAVOS Air Ink Agreement to develop vertiports for Urban Air Mobility

**A**NRA Technologies, a global leader in uncrewed vehicle mission management and operations solutions, and NAVOS Air, an Instrument Flight Procedure Products and Services company announced a collaboration to incorporate flightpath procedures into ANRA's Vertiport Management Service for Vertical Takeoff and Landing (VTOL) aircraft operations for Urban Air Mobility. This joint undertaking combines first-of-its-kind services and technologies to accelerate safe and compliant vertiport implementation in the United States.

NAVOS Air is authorized by the Federal Aviation Administration (FAA) to develop and maintain non-Part 97 (special) satellite-based performance-based navigation (PBN) instrument flight procedures (IFPs) and to conduct Heliport evaluation and designation.

"As an extension of our Advanced Air Mobility (AAM) instrument procedure integration work, we were able to leverage our helicopter, low-level flight and regulatory experience to obtain the first FAA conditional approval for a vertiport," stated Ty Le Roy, Chief Designer at NAVOS Air. "Building upon this experience in our new partnership with ANRA, we will design FAA-compliant flight path infrastructure that will be incorporated into ANRA's software for supporting VTOL aircraft arrivals and departures from vertiports."

ANRA recently launched its Vertiport Management System (VMS), a versatile, web-based software platform designed to adapt to various aircraft, vertiports, and locations by intelligently exchanging real-time data with all the necessary services to facilitate vertiport operations.

"While many vertiport providers are busy building the physical infrastructure and conceptualizing the passenger experience, ANRA has developed the digital layer," stated Amit Ganjoo, Founder and CEO of ANRA Technologies. "Partnering with NAVOS allows us to bring a more complete solution to the market faster, especially when combined with our Urban Air Mobility traffic management technology."

The ANRA-NAVOS partnership will also benefit from ANRA's years of experience developing its UAM traffic management capability with the FAA, NASA, and internationally. It will allow UAM operators to plan and execute their flight operations from pad to pad efficiently, supported by a comprehensive suite of services.

## Wingcopter wins Gründerszene Award 2023 and expands LieferMichel offering

**T**he Germany-based delivery drone company Wingcopter, which focuses on improving medical supply chains and the logistics of urgently needed goods, has won the Gründerszene Award 2023, the most prestigious award for German startups. The winner was chosen from 15 pre-selected start-ups in a public voting process.

"Being voted Startup of the Year by the Gründerszene readers means a lot to us. It recognizes the years of hard work invested by the entire Wingcopter team. Each of us is putting so much passion into revolutionizing the transportation of goods over the most difficult mile through fast, efficient and environmentally friendly drone deliveries. This award gives us even more energy to keep pushing forward in the years to come," said Tom Plümmer, Co-founder and CEO of Wingcopter.

Founded in 2017, Wingcopter has become a leading company in the development, production, and operation ("Drone-as-a-Service") of electric delivery drones in recent years. In addition to a project to improve healthcare in rural Malawi, which Wingcopter operates together with the German Gesellschaft für wirtschaftliche Zusammenarbeit und Entwicklung (GIZ) and UNICEF, the company recently launched the "LieferMichel" pilot project in the Odenwald region of Germany.

Together with the Frankfurt University of Applied Sciences, the company is testing a delivery service that allows residents of two remote districts of Michelstadt to have everyday goods delivered by Wingcopter drone and cargo bike - conveniently, quickly and emission-free. The research project is funded by the German Federal Ministry for Digital and Transport (BMDV). In addition to a wide range of products from the local REWE Center, LieferMichel customers can now also order fan merchandise from Bundesliga club SV Darmstadt 98 - and, as of today, regional products from the Odenwaldbox range.



# Spirit Aeronautical Systems S.A. and Garuda Aerospace S.A. Forge Strategic Partnership for Mutual Growth and Innovation

In a landmark development within the aerospace industry, Spirit Aeronautical Systems S.A., a leading Greek manufacturer specializing in rotary and fixed-wing weaponized drones, and Garuda Aerospace's Garuda Aerospace S.A., a prominent Indian manufacturer of drones for civil applications, have entered a strategic partnership through counter-signed contracts of cooperation.

This collaboration is set to redefine the landscape of drone manufacturing and distribution, both in the Indian market and its wider area of influence as well as in Greece / Europe / Africa, but also in service provision, bringing together the unique strengths and expertise of both companies. The core objectives of this partnership include expanding market reach, fostering innovation, and facilitating the exchange of technology, experience, and best practices.

**Key Highlights of the Partnership:** Reseller Agreement: The companies have committed to acting as resellers for each other's products, amplifying their presence in diverse markets. This strategic move is expected to result in a synergistic effect, leveraging the strengths of each company's product portfolio.

**Technology Transfer:** Spirit Aeronautical Systems S.A. and Garuda Aerospace S.A. recognize the importance of technological advancement in the rapidly evolving drone industry. Both companies have agreed to actively exchange and transfer cutting-edge technology, facilitating the development of state-of-the-art products that meet the highest standards of quality and performance.

**Experience Sharing:** With a shared commitment to excellence, both companies will engage in a robust exchange of experiences and best practices. This collaborative approach aims to elevate the overall industry standards by combining the wealth of knowledge accumulated by Spirit Aeronautical Systems S.A. in weaponized drone manufacturing and Garuda Aerospace S.A.'s expertise in civil drone applications.

**Quality Assurance:** Recognizing the significance of maintaining the highest level of



quality in their products, both companies are unwavering in their commitment to delivering superior, reliable, and technologically advanced drones to their customers. This dedication to quality assurance is expected to set new benchmarks within the industry.

Mr. Mike SPYRIDAKOS, CEO at Spirit Aeronautical Systems S.A., stated, "This collaboration marks a significant milestone for Spirit Aeronautical Systems S.A. Our partnership with Garuda Aerospace S.A. not only broadens our market presence but also facilitates the sharing of invaluable knowledge and

technology. Together, we aim to lead the industry in innovation and excellence."

Mr. Bruno ESCOJIDO, Chief Strategy Alliance Officer at Garuda Aerospace S.A., commented, "Garuda Aerospace S.A. is excited to join hands with Spirit Aeronautical Systems S.A. in this strategic partnership. The collaboration reflects our commitment to delivering cutting-edge drone solutions for civil applications. By leveraging the strengths of both companies, we are confident in achieving new heights of success and providing unmatched value to our customers."

# CAMBIUM ANNOUNCES CLOSE OF ITS \$19 MILLION SERIES A FINANCING



CAMBIUM

Cambium, an advanced materials innovator for defense and other high-performance fields, announced a \$19 million Series A funding round. 8VC led the round, with participation from Veteran Ventures, GSBackers, MarlinSpike, MVP Ventures, Gaingels, Kern Venture Fund, Jackson Moses (Founder, Silent Ventures), Vertical Capital, and select angel investors. DLA Piper provided legal counsel to Cambium on the transaction. This significant investment underscores Cambium's commitment to addressing critical capability and supply chain gaps to support current and future high-performance hardware needs across land, air, sea and space applications. These same innovations are widely applicable outside defense, from commercial aerospace to renewable energy.

This Series A round enables Cambium to build out staffing and R&D, rapid discovery-to-field demonstrations, and pilot-scale manufacturing. Each of the above will accelerate the development of its product pipeline, such as the advancement of next-generation Thermal Protection Systems (TPS) for defense tech and commercial applications.

Cambium's TPSs are designed and fabricated to better protect various hardware against extreme conditions such as heat, fire and rapid-heating impacts, and from severe aerodynamic heating and

pressure loads experienced during flight. Existing TPSs are slow to manufacture and severely supply-constrained. Cambium is developing alternative TPSs that exhibit similar high thermal stability and mechanical strength characteristics, coupled with easier manufacturing processes and a stable domestic supply chain.

More broadly, Cambium is supporting the generational shift in the defense industrial base from large, complex, manned platforms to autonomous, networked systems. This includes everything from the emergence of new platforms like UAVs and hypersonics to the need for lightweighting and improved fuel consumption across many platforms. Each requires material solutions that make products easier, faster, and cheaper to produce.

Cambium's contracts include BioMADE (a prime contractor), as well as the bio-manufacturing arm of the Department of Defense (DoD), which drives the transition of bio-for-defense (B4D) products from the laboratory to defense and commercial markets. Cambium also works closely with the U.S. Naval Air Warfare Center Weapons Division and the U.S. Office of the Under Secretary of Defense for Research and Engineering to develop a range of new high-performance biomaterials that can be

industry certified and integrated into a broad set of high-value defense and aerospace performance systems. These range from hypersonic flight vehicles to enhanced survivability unmanned aerial vehicles to laser-protective eyewear and optics.

"The continuous advancement of next-generation hardware for air, land, sea and space applications also demands continuous improvements in advanced materials and associated supply chains used to fabricate and protect these hardware," says Cambium co-founder and CEO Simon Waddington. "Cambium has closely collaborated with multiple arms of the US defense community and commercial innovators to build solutions to meet their ongoing requirements. The benefits of our vertically-integrated development approach, from computational material discovery through to production of advanced composite solutions, is designed for rapid innovation, production and deployment."

According to Joe Lonsdale, Managing Partner, 8VC, "The rise of autonomous and software-defined systems makes the development of advanced materials that much more urgent. Cambium is a force multiplier for defense innovation, and we are proud to have supported their mission from the beginning."



# AIRBUS SIGNS CONTRACT WITH THE SPANISH MOD FOR THE ACQUISITION OF SIRTAP UAS

**A**irbus has signed a contract with the Spanish Ministry of Defence for the development and acquisition of SIRTAP, a High Performance Tactical UAS that will reinforce the tactical capabilities of the Spanish Army and the Air and Space Force. This contract includes a total of nine systems, each consisting of three unmanned aerial vehicles and one ground control station. Furthermore, two simulators will be supplied to train the Spanish Armed Forces.

"This new technological milestone in the tactical UAS segment together with the Spanish Ministry of Defence, will reinforce national sovereignty. SIRTAP will be fully developed in Spain, integrating national capabilities. However, thanks to its versatility and the use of ITAR-free components, we also expect it to play a key role on the international market," said Jean-Brice Dumont, Head of Military Air Systems at Airbus Defence and Space.

SIRTAP, with a payload of more than 150kgs,



has been designed for advanced surveillance, intelligence and reconnaissance missions, both over land and at sea. A range of more than 2,000km and an endurance of more than 20 hours will provide high flexibility and reactivity, allowing for day and night operations in the most demanding environments. The system will be certified to fly in segregated airspace.

In the future, this tactical UAS will be able to operate jointly with other platforms to be integrated into a system of systems. The development of SIRTAP will bring the national industry key experience and competences in the field of Remote Carriers for FCAS.

First flight of the SIRTAP prototype is expected to take place in 2025.

## Italian AF Flies New MQ-9A Block 5 RPA from GA-ASI

**T**he Italian Air Force (ItAF) made its first flight of a new MQ-9A Block 5 Remotely Piloted Aircraft (RPA) built by General Atomics Aeronautical Systems, Inc. (GA-ASI). The new RPA was delivered to the ItAF, along with a new Mobile Ground Control Station (MGCS), as part of a Mid-Life Modernization (MLM) update to the ItAF fleet of RPAs from GA-ASI. The aircraft and MGCS are part of a Foreign Military Sale.

The Block 5 RPA provides a significant increase in electrical power generation, auto takeoff and landing capability with improved landing gear and datalinks, and the latest version of the GA-ASI Lynx® Multi-mode Radar.

"The Italian Air Force has long been a leader in using the MQ-9 Reaper to support a wide range



of Intelligence, Surveillance, and Reconnaissance (ISR) missions in Italy, over the Mediterranean, and in support of NATO operations," said GA-ASI Vice President of International Strategic Development Jaime Walters. "The delivery of this

new Block 5 and MGCS will help to update the Italian Air Force's existing fleet."

The ItAF's current fleet of RPAs from GA-ASI consists of four Block 1s and two Block 15 MGCSs.

# MILREM ROBOTICS PARTNERS WITH THE UKRAINIAN DEFENCE INDUSTRY



Europe's leading robotics and autonomous systems developer Milrem Robotics and the Ukrainian Defense Industry (UDI) which consolidates national defence industry companies signed an agreement to start forging next-generation multi-domain robotic defence systems.

The agreement, signed during the First Defense Industries Forum (DFNC1) in Kyiv, details several development and manufacturing activities between Milrem Robotics and the members of UDI. As a first step, the parties will start strategic cooperation in identifying Ukraine's requirements and use cases for robotic systems which can enhance the capabilities of Ukraine's armed units in the ongoing war and after the war.

Thereafter the companies involved will integrate Ukraine's battlefield experience into Milrem Robotics' existing robotic and autonomous systems and develop new products to create Ukraine's manned and unmanned multi-domain capabilities.

"This unfortunate war in Ukraine has made it clear that unmanned and robotic systems have an important role on battlefield and this role will

increase in time," said Kuldar Väärssi, CEO of Milrem Robotics. "The main goal is to protect the troops and to keep the warfighters safe, but at the same time provide stronger and an asymmetric effect on the aggressor's forces. We are honoured to cooperate with UDI to develop and manufacture robotic systems which help Ukraine win this war."

"The First International Defence Industries Forum proved that we are on the same course as our Western partners, as Ukrainian manufacturers signed an agreement with Milrem Robotics and other global arms companies. Currently, Ukraine is gaining unique experience in Defense Tech, and we are ready to share this knowledge with our partners. We aim to deepen our cooperation with leading high-tech international companies to build the arsenal of the free world together," said Oleksandr Kamyshin, Minister of Strategic Industries of Ukraine.

Ukrainian defence developers and manufacturers will be included to integrate their defence technology, such as weapon systems, electronic warfare and mine-clearing equipment with Milrem's robotic vehicles to meet the

requirements of the armed forces.

Additionally, the parties will look into manufacturing TheMIS Combat (with HMG and antitank capabilities), Combat Engineering (mine detection and demining), CASEVAC unmanned ground vehicles and other Milrem Robotics' products in Ukraine and engineering cooperation in designing a wheeled Robotic Combat Vehicle.

Milrem Robotics has already delivered 15 TheMIS Unmanned Ground Vehicles to Ukraine to support logistics, casualty evacuation and route clearance operations.

Milrem Robotics is the leading European robotics and autonomous systems developer and systems integrator, with offices in Estonia, Finland, Sweden, the Netherlands and the US. The company is known for their TheMIS and Multiscope UGVs, the Type-X Robotic Combat Vehicle and the MIFIK autonomy kit.

UDI, which was transformed into a joint-stock company this summer, is a strategic manufacturer of weapons and military equipment in Ukraine and unites state-owned defence companies employing around 67,000 highly qualified employees.



## Saab Announces Double Eagle Sale to Kuwait

Saab has received a contract from the U.S. Navy for a Double Eagle Semi-Autonomous Remotely Operated Vehicle (SAROV) for the Kuwait Naval Force.

The Double Eagle family of undersea vehicles is a safe and operationally proven ROV system, used by navies around the world supporting mine countermeasure (MCM) missions. In the SAROV configuration the vehicle can be used both as an Autonomous Underwater Vehicle (AUV) for detection, classification and identification, and as an ROV for mine disposal. The U.S. Navy is procuring this system as a Foreign Military Sales (FMS) program for the State of Kuwait's Naval Force.

Developed and produced at Saab in Linköping, Sweden, this sale represents a milestone in expanding the production of this Swedish technology to the U.S. Saab, Inc.'s Autonomous and Undersea Systems Division will produce parts of this system in close collaboration with other production sites in Sweden, the United Kingdom and Denmark.

"We're excited to introduce production of this undersea vehicle capability to the United States. The Autonomous and Undersea Systems team has established both a highly experienced team of undersea vehicle experts and significant new production capabilities for Saab that position us for greater U.S. market expansion," said Erik Smith, President and CEO of Saab in the U.S.

"Saab's journey in the Middle East has seen growth over the years. Today, we extend our partnerships in Kuwait, leveraging a highly capable, robust solution. Committed to excellence, we are dedicated to delivering substantial value and enhanced offerings, ensuring we consistently meet and exceed our customers' evolving requirements," said Killian Swift, Executive Vice President, Head of Region Middle East and Africa at Saab.

These highly manoeuvrable vehicles can be launched from any type of ship, from the shore, or from a craft of opportunity. All Double Eagle systems can be housed in a standard container, providing a deployable solution across a variety of platforms enabling rapid response to mine threats.

## L3Harris' VAMPIRE System Helps US Navy Fill Ukraines Counter UAS Gap with Speed and Agility

L3Harris Technologies Vehicle Agnostic Modular Palletized ISR Rocket Equipment (VAMPIRE™) multi-purpose weapons systems are having an immediate impact in Ukraine's wartime efforts.

"Early customer reports say VAMPIRE is already having a positive effect in Ukraine thanks to the U.S. Navy's ability to respond with 'unprecedented speed and agility,'" said Jason Lambert, President, Intelligence, Surveillance and Reconnaissance, L3Harris. "As adversary tactics evolve, our customers rely on us to anticipate, design and rapidly deliver reliable mission capabilities. We'll continue partnering with the Department of Defense to field critical capabilities that will help save lives."

VAMPIRE enables Ukrainian ground forces to target and destroy enemy drones and defend against adversary ground threats. L3Harris designed the system to deliver advanced reconnaissance and precision strike capabilities to protect Ukrainian civilian infrastructure from enemy attacks.

L3Harris completed installation and delivery of all systems, in support of Ukrainian defense efforts, on time to DoD.

VAMPIRE's mission management system integrates an advanced company WESCAM MX™-10 RSTA targeting sensor with its weapons station, allowing an operator to engage targets quickly and accurately. It combines affordability with accuracy from the Advanced Precision Kill Weapons System rocket, selected specifically for use in Ukraine, which will incorporate L3Harris' proximity fuze for increased system lethality for engaging ground and aerial targets.

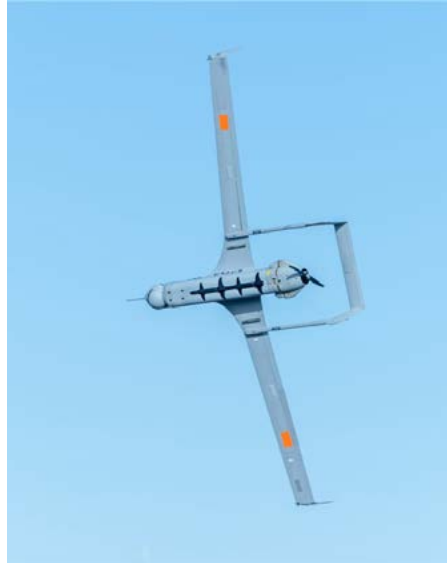


# INSITU ANNOUNCES SUCCESSFUL SHRYKE DEMO WITH INTEGRATOR UNCREWED AIRCRAFT SYSTEM

Insitu, a Boeing Company, announced today the first successful drop of inert GPS-guided Shryke munitions from the Integrator Uncrewed Aircraft System (UAS) in collaboration with Corvid and L3Harris Technologies. Shryke, developed by Corvid Technologies with L3Harris, is known for its multi-mission precision strike and versatility and is another option in a long line of highly sought-after strike capabilities that Insitu is offering to its customers.

"We were able to demonstrate a low signature munition with a safe separation sensor, fuze, and warhead on Integrator," said Kyle Bowen, Corvid Technologies Director of Business Development. "Integrator delivered the munitions within 1-2 meters of the target in each test flight. We couldn't have asked for a more successful demonstration," Bowen said.

Integrator, a NATO Class 1 Small UAS (DoD Group 3 UAS) offers endurance of more than 24 hours and carries up to 40lb of payload capacity. Payload integrations are accommodated in the center CG bay, two wing trays, and two wing-mounted hardpoints. Integrator's multi-payload capacity provides our customers the ability to carry multiple munitions and/or transition between kinetic and



non-kinetic objectives as the mission requires.

"The two rounds of munitions were seamlessly fitted into Integrator's CG payload bay and several mission sorties were executed demonstrating advanced navigation, targeting, and payload delivery systems," said Justin Pearce, Insitu Vice President of Programs, Engineering & Flight. "Pairing kinetics with Insitu's proven endurance and range

gives our customers flexibility in how they address a dynamic battlefield."

The Integrator was equipped with a MIL-STD-1316 Electronic Safe and Arm Device (ESAD) from L3Harris to provide safety-critical energetic systems initiation-on-command and to safely support the post-flight recovery of munitions still installed.

"The ESAD was designed for applications that require a reliable arming and firing sequence with precise timing events, as well as vital personnel safety precautions," said Steve Stasiak, General Manager, L3Harris Technologies. "We were able to validate this capability on Integrator and are very pleased with the way the ESAD configurations performed during the flight test."

Insitu continues to work with customers and industry partners in testing and integrating additional munition payloads. With three decades of experience, more than 3,500 uncrewed aircraft manufactured to date, and more than 1.4 million operational flight hours, Insitu continues to deliver the most advanced capabilities available to our global customer base in more than 35 countries. Visit [Insitu.com](http://Insitu.com) to learn more about the most capable, reliable, and combat-proven small tactical UAS on the market.

## AeroVironment Awarded \$16M US Navy Contract

AeroVironment, Inc. announced it received a \$16,098,922 cost-plus-fixed-fee contract from the U.S. Navy for the advancement of video analytics and computer vision research to support multi-domain robotics initiatives. This contract is in support of the Small Business Innovation Research Phase III "Automated Entity Classification in Video Using Soft Biometrics" and will be managed by the Naval Air Warfare Center Aircraft Division in Lakehurst, New Jersey.

AeroVironment's focus is on developing a video analytics software ecosystem for the government that can be used across platforms (both internal and external to AeroVironment) to provide enhanced situational awareness and capabilities for the warfighter in a wide range of

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mission areas.

"This is a multi-year effort that will allow us to explore and implement new research initiatives and provide critical processing capabilities to AeroVironment products, integration partners, and other research organizations," said Jeff Rodrian, senior vice president and general manager for the MacCready Works Segment. "This investment will allow us to optimize how current

Intelligence, Surveillance, Reconnaissance (ISR) and Targeting are performed throughout the United States DoD."

Building on 50 years of innovation, AeroVironment draws from a legacy in multi-domain robotic systems; its pioneering autonomy and advanced perception capabilities serve as a force multiplier for warfighters today and tomorrow.

# Government of Canada Orders the MQ-9B SkyGuardian RPAS from GA-ASI



The Government of Canada has signed a contract to purchase a fleet of MQ-9B SkyGuardian® Remotely Piloted Aircraft Systems (RPAS) from General Atomics Aeronautical Systems, Inc. (GA-ASI). The order includes the associated Certified Ground Control Stations and support equipment from GA-ASI. The first delivery is expected in 2028.

The SkyGuardian RPAS is interoperable with Canada's domestic missions and its continental defence missions through NORAD, as well as with Canada's closest allies - including the Five Eyes Alliance (FVEY) and NATO - for seamless integration with current and future Canadian defence, civil air, and ground assets.

"Canada's vast territory and complex terrains, including in the Arctic, require a cost-effective multi-mission RPAS solution that can endure long periods on station, fly in harsh weather environments, and safely operate in all airspaces," said Linden Blue, CEO of GA-ASI. "MQ-9B SkyGuardian delivers those critical capabilities. GA-ASI and Team SkyGuardian Canada are honored by this opportunity to become a key partner to Canada for the very long term

in delivering these no-fail defence and security outcomes."

Team SkyGuardian Canada is a coalition of leading Canadian businesses - including CAE, MDA Ltd., and L3Harris Technologies - that are working with GA-ASI on MQ-9B development, delivery, and sustainment. Canada's investments in the RPAS Project and Team SkyGuardian Canada are a direct reflection of Canada's vested domestic interest in pursuing leading-edge RPAS technologies.

GA-ASI has had a long, successful, and proud history with Canadian industry that continues to grow. Nearly every system that GA-ASI has delivered throughout its more than 30-year history has contained some level of Canadian content, including sensors, propulsion equipment, and training/simulation systems and services. CAE, MDA Ltd., L3Harris, and GA-ASI are committed to delivering the world's premier RPAS capability to Canada while creating domestic economic benefits and work opportunities.

MQ-9B is the next generation of RPAS, delivering exceptionally long endurance and range, with auto takeoff and landing under SATCOM-only control, and

will be able to operate in unsegregated airspace using the GA-ASI developed Detect and Avoid system. First customer deliveries of MQ-9B began in 2022 to the U.K. Royal Air Force, and contracts have been signed with Belgium and the U.S. Air Force, in support of Special Operations Command. The Japan Coast Guard is currently operating the MQ-9B for maritime operations, which the Japan Maritime Self-Defense Force (JMSDF) also selected for its Medium-Altitude, Long-Endurance (MALE) RPAS Trial Operation Project. MQ-9B has additionally supported various U.S. Navy exercises this year, including Northern Edge, Integrated Battle Problem, and Group Sail.

"We look forward to working with our Team SkyGuardian Canada partners to deliver our industry leading RPAS for Canada's dynamic mission requirements. GA-ASI is the world leader in reliable, cost-efficient, and sustainable remotely piloted aircraft systems. These aircraft perform advanced interoperable and systems-of-systems operations for our valued customers around the world - all at a fraction of the carbon footprint impact as traditional manned systems performing similar missions," added Blue.



## Red Cat Holdings Selected by US Army as Finalist for Short Range Reconnaissance Tranche 2 Drone Program

**R**ed Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government, and commercial operations, announces that its subsidiary Teal Drones (Teal) has been selected by the Department of Defense's (DoD) Defense Innovation Unit (DIU) and the U.S. Army as one of two finalists competing in the Short Range Reconnaissance Tranche 2 (SRR T2) Program of Record. As part of being named a finalist, Teal will be awarded \$3 million of additional funding to support final prototype development and completion of remaining SRR milestones.

Teal was previously one of three drone manufacturers selected to develop a next-generation small unmanned aerial system (sUAS) designed for intelligence, surveillance, and reconnaissance (ISR) for the U.S. Army. The ultimate goal of the SRR program is to provide small, rucksack portable sUAS capabilities to Army platoons (20-50 soldiers) for situational awareness beyond the next terrain feature.

"I'm excited to advance our collaboration with the U.S. Army as we seek to provide the ideal solution for SRR. We are grateful to have been selected as one of the two finalists in a program that began with more than 37 bidding vendors," commented George Matus, founder of Teal and Red Cat's Chief Technology Officer. "We're developing our next generation product from the ground up to meet the highly specific requirements of SRR, with the mission of providing warfighters superhuman capabilities."

Teal 2, the Company's current flagship product, is built in Teal's factory in Salt Lake City. It is an affordable, man-portable sUAS designed to "Dominate the Night™." Teal 2 has a best-in-class night vision camera, fully modular design, multi-vehicle control, and artificial intelligence capabilities. The drone is designed to support U.S. military operations, public safety organizations, and U.S. government agencies in a variety of environments. It is both Blue UAS Certified, which indicates its approval by the Department of Defense, and FAA Remote ID approved.

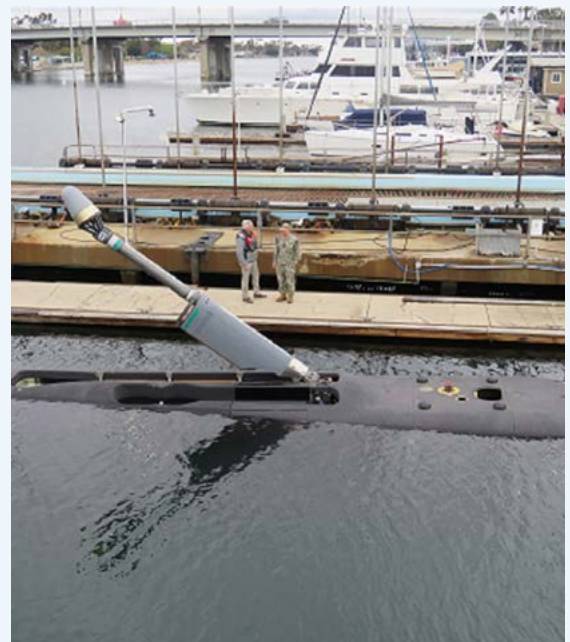
## Boeing Delivers 1st Orca Extra Large Uncrewed Undersea Vehicle to US Navy

**B**oeing has delivered the first Orca Extra Large Uncrewed Undersea Vehicle (XLUUV) to the U.S. Navy following acceptance testing completion this month. The XLUUV, designated by the Navy as "Orca," is a new class of autonomous submarine that can perform long duration critical missions to achieve undersea maritime dominance in changing environments and contested waters.

"This is the culmination of more than a decade of pioneering work, developing a long-range, fully autonomous undersea vehicle with a large payload capacity that can operate completely independently of a host vehicle," said Ann Stevens, Boeing Maritime and Intelligence Systems vice president. "I've had the distinct pleasure of witnessing our team bring this first-of-its-kind capability to life, and I'm proud of their innovation, perseverance and unwavering commitment which has yielded the most advanced and capable UUV in the world. With the Navy's partnership, we look forward to continuing to deliver this game-changing vehicle to the fleet."

With the partnership of the Navy, Orca has undergone several phases of at-sea testing, including above and below surface maneuvers to demonstrate the vehicles' unique capabilities.

Orca is the result of more than 50 years of Boeing experience building and operating undersea vehicles. In 2012 Boeing initiated the design and development of Echo Voyager, a proof-of-concept XLUUV that began at-sea testing began in 2017 and was a precursor to the US Navy's Orca XLUUV competition. Echo Voyager - the world's only vehicle of its size and capability - has spent over 10,000 hours operating at sea and transited hundreds of nautical miles autonomously.





## Esri Advances ArcGIS Platform

In 2021, Esri, the global leader in location intelligence, released ArcGIS Platform, a geospatial platform as a service (PaaS) for developers to integrate location capabilities into their apps, business systems, and products. Now, the company is adding two new enhanced services to ArcGIS Platform to improve the ease, speed, cost effectiveness, and security with which users will be able to accomplish these goals for their organizations.

New services include the following:

**Places—Access** points of interest data that encompasses a variety of location- and attribute-based criteria, describing features in Earth's built and natural environments. This includes retail locations, public facilities, and landscapes. Places offers insight into what attracts people to a location and supports site selection, market analysis, and distribution planning.

**Data Hosting—Benefit** from a simple and secure solution to store, manage, and access location-based data. With ownership of their data, developers can create hosted layers and services, allowing users to query, edit, and analyze data within applications.

ArcGIS Platform also now includes the latest release of the basemap styles service. This global collection of ready-to-use map styles serves as the foundation for apps that developers can access with localized languages and geographies to meet their unique needs. Updates include a new user-friendly URL endpoint; access to over 50 different ArcGIS and OpenStreetMap basemap styles; and the ability to display localized place labels around the world in over 30 languages.

"The new enhanced services that have been added to ArcGIS Platform will enable developers to build their apps more quickly while staying on budget, giving the organizations they support the confidence to expand," said David Cardella, Esri product manager for developer technologies. "Places provides developers on-demand access to over 1,000 categories of Places data, while Data Hosting allows developers and businesses to securely store their data as a service, retain their data ownership, and reduce cost of maintenance."

ArcGIS Platform gives developers direct access to Esri's powerful location services using the APIs and web frameworks of their choice. Scaling with developers and their apps, ArcGIS Platform lets customers leverage the same framework and services whether they're supporting dozens or millions of users.

## Trimble Contributes Inertial Navigation Solutions to the IIT in Kanpur Supporting the Country's Commitment to Becoming a Leader in the UAV Industry

Trimble announced a collaboration with the Indian Institute of Technology in Kanpur (IIT Kanpur) to support a new program in uncrewed aerial vehicles (UAV) to be offered by the Department of Aerospace Engineering. A signing ceremony to officially launch the program was held on October 26 and attended by Professor Tarun Gupta, dean of research and development; Professor Onkar Dikshit; Professor Bharat Lohani; Major General Dr. B. Nagarajan; and Professor Salil Goel from IIT Kanpur. In attendance from Trimble were Rajan Aiyer, managing director, India; and Sanjeev Trehan, director, business development and sales.

Trimble has contributed direct georeferencing (DG) products for UAV survey and mapping to the institution. This includes a suite of Applanix board sets and the supporting processing software. In addition to the hardware and software, Trimble will also provide training and support to educate the UAV engineering team on how best to integrate and use the products within their teaching curriculum.

"We are excited to spearhead the development of UAV technology in and for our country, which is being put in the spotlight under a new government sponsored mandate for 'Made in India' commercial UAV solutions," said Professor Salil Goel, PhD in philosophy in geomatics and will be using the technology in his student's coursework and lab exercises and for further research and development. "Our collaboration with Trimble will allow India to leverage the technology for the country's agriculture, telecom, urban development and other industries."

IIT Kanpur was declared an Institute of National Importance by the Government of India under the Institutes of Technology Act. With a dedicated program for UAV education, it receives government funding to develop UAV technology and build out labs to support student training and research. IIT Kanpur's researchers are credited with creating the first solar powered UAV developed in India, named MARAAL-1 and MARAAL-2.



# Blickfeld Raises 7.5M Euros of Initial Growth Financing

**B**lickfeld, an innovative LiDAR (Light Detection and Ranging) solutions manufacturer, has secured 7,5 million euros of Initial Growth Financing. Led by private equity firm New Future Capital (NFC) and UVC Partners, all existing capital providers are participating: Bayern Kapital, Continental, Fluxunit - ams OSRAM Ventures, High-Tech Gründerfonds, and Tengelmann Ventures.

Blickfeld's high growth rates in recent months and the achievement of sales milestones have convinced investors to provide additional funding. This is intended to fuel sales dynamics further, double revenue in the upcoming year and beyond, and enhance Blickfeld's market presence mainly in Europe, North America, and China. Among the measures to achieve this are intensified marketing and sales activities and investments in further developing the company's proprietary LiDAR technology and solutions tailored for specific industries.

Disruptive technology that convinces

Blickfeld's LiDAR sensors capture real-time 3D data, while the company's proprietary software "Percept" transforms this data into actionable insights with great benefit for users. Blickfeld's most groundbreaking innovation is the LiDAR sensor model Qb2 which has been in mass production since the



middle of this year. Qb2 is the first industrial smart LiDAR sensor featuring fully integrated perception software within its ultra-compact design, presenting a unique proposition in the market. The combination of hardware and software in one small device unlocks a spectrum of pioneering applications. Currently, Blickfeld is experiencing the most growth in the areas of volume monitoring of bulk goods, where major companies in sectors like agriculture and waste management, such as Levenseat and EEW Energy from Waste GmbH are opting for the Blickfeld solution, and in security applications, where an increasing number of operators in critical infrastructure like airports or power stations are adopting Blickfeld LiDAR technology for exceptionally reliable detection of unauthorized intrusion.

Mathias Müller, founder and CEO of Blickfeld, states: "Our investors' recurrent commitment is a

sign of trust in our unique solutions and our ability to develop and fulfill an international demand. We are confident that our cutting-edge LiDAR technology will establish itself soon as an indispensable standard in numerous industries and applications. It's good to know that we have our investors as strong partners by our side!"

Tiffany Luo, CEO at New Future Capital, asserts: "We are excited to see how Blickfeld has created a unique position for itself successfully in various industries with huge market potential. Blickfeld's new and highly value-adding technology has the potential to conquer numerous markets rapidly. Thus, we are delighted to continue supporting the company's path alongside the other investors."

Andreas Unsel, General Partner of UVC Partners, says: "LiDAR has been very challenging - in terms of technology but also of market fit. Most companies founded in the LiDAR space have not been able to face both of these aspects. Blickfeld has solved these challenges perfectly and is looking into a bright future because they can now address a wide variety of applications with a fully industrialized, high-performance, and low-cost full-stack solution, including hardware and software in a device not much bigger than the palm of a hand."

## Scanfly Integrates Nearmap, LiDAR and other Data Sources to Launch Remote Design Capabilities

**S**canfly, a leading solar software for the design, field, permitting, and operations stages of a solar project, announced integrations with a variety of remote data sources as part of its new preliminary design solution, Scanfly Prelim.

Scanfly Prelim offers Contractors a budget-conscious remote design solution, with all the features of Scanfly3D, including the ability to create a PV layout, production estimate, and shading analysis within minutes. The Prelim product is particularly useful for Contractors who have their own internal proposal and financing tools, or are seeking to consolidate their design solutions, and broader software stack, onto one platform.

To further enhance the quality of preliminary designs, Scanfly added Nearmap's leading aerial data coverage, as well as imagery from well-known satellite imagery providers Google Maps, Bing,



and Mapbox. Scanfly also incorporated the United States Geological Survey's (USGS) publicly available LiDAR data. The "light detecting and ranging" data is commonly used as a reference for modeling a site and remotely estimating a project's shading.

The LiDAR data can also be viewed with Scanfly's drone-based models, which are already equal in accuracy to other on-site tools, like the Solmetric SunEye. This considerably improves the ability to estimate shading during the fall and winter months, when dormant deciduous trees may

not display their full shading impact due to the lack of foliage present at the time of data capture. This reinforces Scanfly's patented Viewshed shading technology and hyper-local shading simulations that are already approved by numerous regulators and lenders as bankable.

"The addition of Nearmap, satellite imagery providers, and LiDAR data positions Scanfly to be a comprehensive platform for many stages of a residential and commercial solar project's life," said CEO Jason Steinberg. "All of Scanfly's customer-facing people previously worked for solar contractors or construction companies, including as solar surveyors, designers, and installers. We are eager to support our fellow solar professionals and build technology that improves the quality of workmanship, safety, and speed for Contractors of all sizes."



# New RIEGL Laser Scanning Solutions for UAV-based Data Acquisition



**R**IEGL once again underlines its pioneering role as a provider of high-performance LIDAR sensors and systems for integration with A.The ongoing trend in the UAS industry demands for performance-matched and survey-grade laser scanners for integration with both compact multi-rotor and high-speed VTOL and fixed-wing UAV platforms. RIEGL has recognized this trend and aligned its product range in this direction.

**RIEGL VUX-180-24** : The new RIEGL VUX-180-24 offers a wide field of view of 75 degrees and an extremely high pulse repetition rate of up to 2.4 MHz. These features in combination with an increased scan speed of up to 800 lines per second make it perfectly suited for high-speed surveying missions and applications where an optimal line and point distribution is required. Typical applications include mapping and monitoring of critical infrastructure like power lines, railway tracks, pipelines, and runways.

The RIEGL VUX-180-24 provides mechanical and electrical interfaces for IMU/GNSS integration and up to 5 external cameras, mirroring the form factor of the VUX-16023. For smooth and straight forward

data storage, an internal SSD memory with 2 TByte storage capacity and a removable CFast memory card are available.

This sensor further complements RIEGL's already proven VUX-12023, VUX-16023, and VUX-24024 series and is available as a stand-alone sensor or in various fully integrated laser scanning system configurations with IMU/GNSS system and optional cameras.

**RIEGL VUX-240-24** : The RIEGL VUX-240-24 is the new enhanced version of the well-established RIEGL VUX-240, now offering higher pulse repetition rates and faster scanning speed for further increased field performance and workflow efficiency. A wide field of view of 75 degrees and an extremely fast data acquisition rate of up to 2.4 MHz, which results in a measurement rate of up to 2 million measurements per second, make the sensor perfectly suited for high point density applications like power line, rail track, and pipeline inspection. Its increased scan speed of up to 600 lines per second allows operations not only from fast flying UAVs, but also small helicopters, gyrocopters and other crewed aircraft at operating flight altitudes up to 4,700 feet.

Mechanical and electrical interfaces allow for the optional integration of an IMU/GNSS system and up to 4 cameras. Data can be stored either on the internal 2 TByte SSD Memory or with a removable CFast memory card providing quick data transfer to a PC.

**RIEGL miniVUX-Series** : In addition to the stand-alone versions of the RIEGL miniVUX-1UAV and the miniVUX-3UAV LIDAR sensor, RIEGL also offers system solutions with IMU/GNSS systems and cameras.

Now RIEGL provides RiLOC, an integrated component to complement RIEGL's kinematic LIDAR systems for localization and orientation of LIDAR data in a reference coordinate system. This fully integrated subsystem with a small and lightweight form factor is directly attached to the housing of the miniVUX-1UAV or miniVUX-3UAV with a total system weight of only 1.75 kg. RiLOC itself consists of one or two GNSS receivers, an inertial measurement unit and a data acquisition controller with accompanying software. It makes use of tight coupling in processing inertial, GNSS and LIDAR data providing a new entry-level option for RIEGL's cost effective UAS LIDAR system solutions.

# Nearmap Announces Agreement to Acquire Betterview, a Complementary Property Intelligence and Risk Management Platform

**N**earmap, one of the world's largest location intelligence and aerial imagery solutions providers, has signed an agreement to acquire Betterview, a leading property intelligence and risk management platform in the insurance industry.

Founded in Australia in 2007, Nearmap expanded operations into the U.S. in 2014 to help companies better visualize the truth on the ground to make more informed business decisions. Today's announcement marks a significant milestone in the advancement of the Nearmap global growth strategy. This will reinforce the company's position as a leading source of imagery intelligence, data and solutions, and expand and complement its expertise and capabilities for insurance customers and partners.

"The Nearmap acquisition of Betterview is transformative for the industry," said Andy Watt, CEO of Nearmap. "Integrating the Betterview platform and AI solutions into the Nearmap technology stack will enable better visualization of the truth on the ground with a richer, more powerful set of AI capabilities that combine the best of both companies. This is a significant milestone in our ongoing efforts to innovate solutions for insurance carriers, and expand our presence within the property and casualty space."



Betterview is an established and trusted source of property intelligence and risk management for the insurance industry, applying artificial intelligence and computer vision to help identify and mitigate property risk, improve and automate underwriting and inspection workflows, and provide a more productive, seamless customer experience.

"Combining the offerings of two best-in-class providers will deliver greater impact for insurers," said Betterview Co-Founder and CEO David Lyman.

"The acquisition of Betterview by Nearmap will increase access to premium imagery and cutting-edge, scalable property intelligence solutions for the insurance industry."

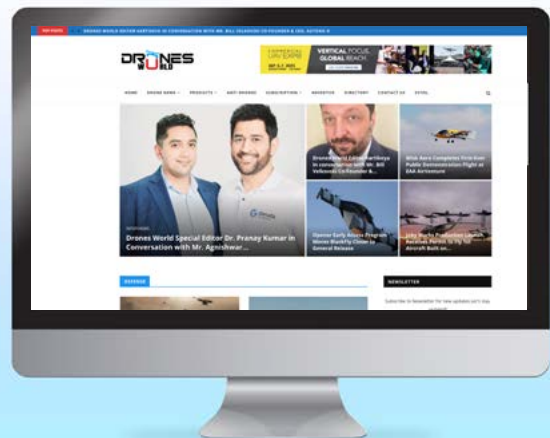
"We are optimistic about the outcomes this acquisition will bring to our customers, the potential for developing even greater products together, and the impact it will have on the future of the insurance industry," said Betterview Co-Founder and COO Dave Tobias.

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# Genesys International and Survey of India sign a strategic partnership to Transform India's Geospatial Landscape

Genesys International, a leader in Indian Mapping, and SOI, the national surveying authority, have partnered to revolutionize India's map content. This strategic alliance aims to create Digital Twins of major cities, leveraging Genesys' advanced navigable maps and SOI's CORS (Continuously Operating Reference Stations) network for real-time high precision positioning data. Aligned with India's National Geospatial Policy 2022, this initiative marks a significant step towards self-reliance in geospatial data. The collaboration introduces the India Map Stack initiative, synergizing Genesys' expertise with SOI's technical infrastructure, delivering previously unavailable data layers such as high-precision 3D data, Digital Terrain Models (DTM), Digital Surface Models (DSM), and orthoimagery. This comprehensive dataset forms the bedrock for creating detailed and accurate urban representations.

Genesys International has garnered acclaim for developing highly accurate, fully navigable road datasets encompassing 8.5 million kilometers, 40 million Points of Interest (POIs) and addresses, along with an unprecedented 1 million kilometers of 360-degree panoramic imagery across Indian towns and cities. Leveraging its Genesys constellation of LiDAR and optical sensors, the company stands as a pioneer in Digital Twin and 3D map creation.

SOI's Continuously Operating Reference Stations (CORS) network, comprising 902 stations across all states and Union Territories, provides real-time, high-precision positioning data. By seamlessly integrating CORS data, Genesys will ensure that its Digital Twins faithfully mirror the dynamic urban landscape with unparalleled precision. This integration empowers applications such as urban planning, telecom signal assessment, disaster management, and infrastructure development with accurate and reliable geospatial insights.

**Key Highlights of the Collaboration:**

Genesys will generate Geospatial 3D Digital Twins for major Indian cities and towns.

SOI will provide CORS datasets to Genesys.

SOI will offer administrative boundaries of major Indian cities and towns.

Genesys and SOI will collaborate on the urban



3D Data Model.

Genesys will acquire accurate geospatial datasets using advanced surveying equipment and ground validations.

Genesys will license its geospatial data products to end-users in a "Content-as-a-Service" model.

Shri. Hitesh Kumar Makwana, IAS, Surveyor General of India, shared his thoughts on the partnership, saying, "In line with National Geospatial Policy 2022, Survey of India have commenced collaboration with the Industry beginning with Genesys International, to deliver geospatial content which will be created with reference to National Geodetic Framework. SOI is willing to collaborate with Industry partners for utilising the modern surveying techniques and leveraging the expertise of Indian private sector. The 3D Digital Twin aimed to be created will be used by government departments for various new initiatives. The integration of our CORS technology with surveying expertise of private sector will enhance the usability and reliability of geospatial data, unlocking new possibilities for

India's development. We are looking for the future possibilities that this SOI-Industry collaboration holds and it would be useful for the larger public needs."

Prof. Debolina Kundu, Director, National Institute of Urban Affairs, Govt of India in her insightful speech mentioned that "The MoU between Survey of India and Genesys International is a testament to public-private partnership. The Digital Twin program offers town planners the opportunity to utilize 3D GIS data for the development of comprehensive 3D master plans for cities and towns across India, promoting transparency in holistic development of urban areas."

Mr. Sajid Malik, Chairman and Managing Director of Genesys International, expressed his pride in the partnership, stating "We are proud to join forces with Survey of India to create a Digital Twin of Indian cities that will serve as a cornerstone for India's development. We are excited that India's foremost mapping authority is playing the nodal role in the growth of this sunrise digital infrastructure."

# Ryplzz Raises \$3M in Seed Funding to Scale Its Disruptive Geospatial Technology Platform



**R** yplzz, creators of Interlife®, a multi-patented geo-location platform, announced that it has raised \$3 million in seed funding, led by sports technology investment firm KB Partners, with participation from Triptyq Capital. The funding round brings the company's total capital raised to \$6.8 million.

To keep up with demand, Ryplzz will use the funding to further scale its product and grow its team, with a particular focus on hiring more technical staff. As the company moves into the commercialization phase, it is gearing up for a wave of new deployments. In the past year, Ryplzz has run several successful pilot programs, enhanced its technology, and has formed strategic alliances with some of the key players in its target industry. Ryplzz also collaborated with music artist Grimes, who leveraged the technology to host the first-ever Augmented Reality Art Rave at the Ultra Music Festival in Miami.

"The technology industry is fiercely competitive, so for Ryplzz to garner this level of interest from investors, partners, and customers at this stage is a testament to the value we're creating and the void we're filling in the market," said Josh Pendrick, CEO of Ryplzz. "We have an ambitious vision for the future of spatial technology, and we look forward to expanding our team to continue

meeting demands and further evolving our capabilities. Ryplzz is entering a critical phase in its journey, and we're confident that we'll rise to the occasion."

To date, Ryplzz has cultivated impressive partnerships with notable brands and venues such as the 27-acre Tucson Convention Center, Cisco Sports Media Group, SkyPath Security, Inc.™ with its Mobile Defense Platform™ and a major US sports league. By turning airspace into monetizable engagement opportunities, Ryplzz's technology is powering groundbreaking AR-based fan experiences, precise wayfinding and traffic analytics, geotargeting and a host of tech-enabled crowd management capabilities.

"The lines between spectators and participants are blurring in sports, demanding a paradigm shift in how sports properties and brands connect with fans," said Keith Bank, Founder and CEO, KB Partners. "Ryplzz clearly sees this transformation taking shape, and it's pioneering a future where fan engagement is seamlessly interwoven into the fabric of the sporting experience, both physical and digital. Its cutting-edge geolocation platform serves as the backbone of this revolution, enabling a level of personalization and immersivity that was once unimaginable. With an unwavering commitment to innovation and a proven track record, we are

confident that Ryplzz will redefine the boundaries of fan engagement and set a new standard that all will follow."

GPS' precision has traditionally been limited to about 10-20 feet of accuracy. Ryplzz has created an algorithm to use radio frequency to track devices down to six-inch accuracy in three dimensions. The platform enables the ability to program digital files to the precise three-dimensional coordinates of airspace and those digital files can interact with phones and other types of internet-connected devices.

"Triptyq Capital is thrilled to support the audacious visionaries behind Ryplzz. Their groundbreaking positioning technology has the potential to catalyze the next generation of mobile and 3D revolution on the internet," said Bertrand Nepveu, Co-Founding Partner at Triptyq Capital. "At the dynamic intersection of the physical and digital realms, a robust infrastructure is paramount. Ryplzz's innovation not only tackles the challenges of latency and performance optimization in high-density environments, but also pioneers transformative experiences in media, entertainment, and sports. By unlocking the potential of spatial computing and the internet of things, Ryplzz is not just addressing hurdles; it's shaping the future of immersive connectivity."

# Official General Availability of ORCA™HUNTR: A Revolutionary No-Code AI Insights Platform for Object Detection



**b**lackshark.ai – the first company to detect every building on Earth using AI applied to satellite imagery is introducing ORCA™ HUNTR as a SaaS application running on AWS cloud from December 6th, 2023.

ORCA™HUNTR gives customers the unique power to identify any object on the Earth's surface with unprecedented ease and precision. It is a cutting-edge artificial intelligence environment designed to deliver rapid and accurate results without the need for coding experience.

Thanks to blackshark.ai's patented technology, HUNTR enables any user to develop, test and validate AI algorithms for object detection and semantic segmentation in a highly interactive and visual environment, in a matter of minutes from any image.

An analyst working on geospatial datasets, or any other imagery, can with very simple brush strokes (a "coloring with a crayon" like experience) identify objects of interest and differentiate them from the backdrop and see the results in real time from the running neural network. This integrated approach shortens the time to prototype, train and validate the performance of the algorithm and creates a trusted training environment where the

human in the loop can with confidence see what the algorithm has learned from each step of the training.

**Key Features of ORCA™HUNTR:**

**Accurate Object Detection:** Achieves consistent results even with limited quantity of images.

**LIVE TRAINING™ Workflow:** Empowers customer's teams to train custom AI algorithms without any AI or coding knowledge.

**Interactive Interface:** Users can instantly visualize detection results with a user-friendly platform and know how the AI algorithm is learning and performing.

**Real-time Insights:** The trained algorithm can be quickly applied to larger areas and obtain direct insights in minutes.

**Sensor Independent:** Works with any optical image on any resolution – whether captured by satellite, aerial or drone, up to 16 bands can be used for training simultaneously.

**Multi-class object detection:** Allows users to train algorithms to separate and classify objects in up to 9 distinct object classes for a single algorithm.

**Flexible and secure deployment options:** HUNTR can be used as a SaaS application on AWS or deployed as an application on the customer's AWS

tenant or even in hybrid scenarios involving AWS Snow family of products and the AWS Modular Data Center.

Through its simplified user interface, ORCA™HUNTR brings the power of highly sophisticated neural networks to be developed and trained by any user, democratizing access to AI-powered detection to any organization that wants to leverage geospatial insights to digitally transform its processes or harness the insights for data-centric decision making.

blackshark.ai's CEO Michael Putz says, "We are excited to bring the power of ORCA™HUNTR to AWS and leverage our combined strength as an AWS Public Sector Partner to help customers tackle some of the world's most pressing problems by tapping into advanced AI applied to geospatial data for rapid insights".

Clint Crosier, Director of Amazon Aerospace and Satellite division stated "Blackshark.ai is creating leading edge geospatial insights and high frequency mapping capabilities on AWS to serve Geo intelligence customers and growing at an incredible pace, and we're excited to collaborate with them to deliver services and solutions that help fuel their success".



Drones World  
Editor Kartikeya  
in conversation with

**Mr. Miles Chambers**

Vice President  
International Business  
Development

**EDGE Group**



**Q** Tell us about EDGE Group and its areas of business in general, as well as the company's key products and solutions at Dubai Airshow 2023?

**A** EDGE is a leading advanced technology conglomerate which has strategically consolidated more than 25 entities, creating a comprehensive defence and security ecosystem. Our capabilities are diverse and extensive, covering a broad range of solutions and services, and with a core focus on smart weapons, electronic warfare, and autonomous capabilities across air, land, and sea. Our commitment to adopting the most advanced technologies, investing in research and development (R&D), and acquiring highly specialised small and medium sized enterprises (SMEs), has solidified our position as a leader in the industry.

At the Dubai Airshow 2023, we showcased our robust portfolio with the launch of 11 new aerospace systems, adding to our already impressive collection of more than 160 systems and solutions. Among these, three autonomous aircraft were the highlights at our indoor stand: the REACH-M, the SINYAR, and the HT-100.

The REACH-M is a fixed-wing, medium-altitude long-endurance unmanned combat aerial vehicle

which is designed for ISR (Intelligence, Surveillance, Reconnaissance) and light ground-attack operations. Featuring advanced autonomous capabilities like automatic take-off and landing, it represents a new, larger variant of the REACH-S providing increased payload availability.

A large, jet-powered, fixed-wing unmanned aircraft, the SINYAR is an innovative evolution in our product line. It was developed after EDGE acquired a 50% share in FLARIS, a Polish aviation company. We transformed their LAR-01 small jet into an unmanned variant designed for intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) missions, merging commercial innovation with advanced defence technology.

We also recently acquired a majority stake in ANAVIA, a Swiss company and leader in vertical take-off and landing (VTOL) unmanned systems. Showcased on our stand at Dubai Airshow, the HT-100 advanced multi-role unmanned intermeshing-rotor helicopter stands out with its unique Flettner double rotor system. This design enables higher payloads and increased flight stability, making it a versatile addition to our unmanned aerial vehicle (UAV) offerings.



Through these products and our comprehensive approach to defence and security, EDGE is committed to driving innovation and delivering cutting-edge solutions to meet the evolving needs of our global clients.

**Q The Gulf region's market is currently witnessing intense competition. What makes EDGE Group's products attractive to customers?**

**A** To ensure our products stand out amidst the intense competition, EDGE adopts a customer-centric approach, focusing on meeting end-user requirements through industry collaboration, synergising our entities, and deeply understanding our customers' operational environments.

Our commitment to providing the best solutions is exemplified by the partnership between our precision guided munitions manufacturer HALCON and Rheinmetall Air Defence AG. This collaboration has resulted in the integration of HALCON's SKYKNIGHT air defence missile and missile launcher units with the Oerlikon Skynex air defence system. This combination offers our customers an enhanced defence capability against a broad range of both conventional and asymmetric aerial threats. Many countries in the region already use Skyshield or Skyguard systems, which can seamlessly connect with the Oerlikon Skynex SKYKNIGHT system, offering a significant advantage.

EDGE's diverse range of systems and solutions enables us to meet specific customer requirements

by leveraging the synergies across our various entities. For instance, we recently fulfilled a request from an export customer who required naval vessels equipped with UAVs for ISR missions. We met this demand by integrating the HT-100, manufactured by ANAVIA, onto naval vessels being constructed by Abu Dhabi Ship Building (ADSB).

Our systems and solutions are meticulously tailored to specific missions. We take pride in working very closely with end users to understand their intricate needs, and we possess an exceptional understanding of the operational environment and conditions in the Gulf region. Several of our products have a mission-proven status in the Gulf region, such as CARACAL's CAR 816 assault rifle, NIMR's AJBAN and JAIS vehicles, various ADSB's vessels, and the AL TARIQ long-range precision-guided munition.

**Q In your opinion, what are the defence solutions and technologies that the region is currently lacking in your area of expertise?**

**A** It's not so much about a lack of specific solutions or technologies, but more about aligning our offerings with the evolving military strategies of our customers. The dynamic nature of defence needs means that our focus is on continuously adapting and updating our solutions to meet the specific strategic objectives and operational requirements of each customer in the region.

EDGE is aggressively investing in three core areas, autonomous systems, electronic warfare, and smart



weapons. Advancements in artificial intelligence (AI) paired with existing autonomous technology is offering end-users powerful force multipliers while risking significantly less lives. Our autonomous technology portfolio is rapidly growing, and it's an area where we see commercial innovations playing an important role.

In terms of electronic warfare, a complex electromagnetic environment increasingly underpins the operational theatre, at least in conventional warfare. We are also seeing a new approach to joint operations, where elements in different domains are becoming a unified force. Actionable intelligence, advanced protection, and a networked approach to multi-domain communications are vital areas of focus for EDGE.

Finally, the future of tactical and strategic missions will involve a significant smart weapon capability. These systems have and will continue to play a major role in force projection, air defence, and strike capabilities. Smart weapons have rendered the bomber aircraft largely redundant, redefined the role of fighter aircraft, and provided militaries with far reaching strategic mission capabilities. Our focus in this area is predominantly on developing technologies that offer regional customers highly precise, long range solutions capable of operation in multiple domains.

**Q How do you see artificial intelligence, which has become the beating heart of many sectors and an essential tool in the military and defence sector? What are your company's key projects in this field?**

**A** AI is making a transformative impact on the defence industry, enhancing data analysis, decision-making, and autonomous operations. We are significantly investing in the development of AI, both in-house and with partners, and incorporating it into our product line-up to improve the efficiency, accuracy, and responsiveness of our systems. AI has the capacity to boost or fully transform our existing capabilities, including: training, logistics, cybersecurity, smart weapons, and autonomous systems across air, land, and maritime domains.

**Q How would you evaluate your recent experience and participation in Dubai Air Show 2023, and did it meet your expectations and the requirements of the defence sector in general?**

**A** Our participation at Dubai Airshow 2023 was hugely successful. We announced major deals,



acquired highly specialised companies, signed new partnerships, and unveiled new additions to our product portfolio. We announced large contracts with the UAE Ministry of Defence (MoD), including an AED 4.1 billion contract to supply munitions, and a contract to supply 100 REACH-S unmanned aircraft. We established new partnerships with prominent defence companies, such as General Atomics Aeronautical Systems, to integrate EDGE smart weapons onto the MQ-9B SkyGuardian, and Roketsan, to explore collaboration in smart weapons development.

In terms of meeting the requirements of the defence sector, we also unveiled the X-Range, the region's first multi-domain test range, which will be an international testing and evaluation facility for defence, aerospace, and commercial products, as well as a training ground for law enforcement and defence organisations, the first such facility in the region.

**Q How important is the UAE and GCC market to EDGE?**

**A** EDGE's commitment to the UAE and GCC markets is pivotal, centred on building sovereign defence capabilities and exporting our products in line with the broader vision and mandate of the UAE Leadership. Our commitment extends beyond commercial interests; we are invested in developing a self-reliant defence ecosystem. This approach is vital for ensuring that our defence solutions are not only technologically advanced but also sustainable and tailored to the specific needs of the region.

We have already made significant strides in this direction, with our products and services now being utilised in several markets worldwide. This global reach underlines our success in not only meeting



but exceeding the demands of various international markets, while simultaneously maintaining a strong and focused presence within the UAE.

**Q** What are your company's future plans? How do you see the company changing in the coming years?

**A** We have achieved many significant milestones and proud moments throughout the past four years. Our aim is to maintain this growth trajectory and intensify our investments in the latest technologies. Today, EDGE boasts an impressive portfolio of 160 innovative systems and solutions - a major accomplishment in the short timeframe, and a global footprint that covers over 50 countries across five continents, including Brazil, where the group opened its first international office this year.

EDGE future plans are firmly rooted in advancing our position as a global leader in the defence sector. In the coming years, we'll continue to expand our global presence and forge alliances with key players in the industry. These partnerships are essential for sharing knowledge, driving innovation, and enhancing our product offerings.

**Q** What are your recent biggest accomplishments in the unmanned and defence sector?

**A** In a brief period of four years, EDGE has made impressive strides in the autonomous systems

domain. Our portfolio has expanded rapidly, from a single offering to forty autonomous aerial solutions.

A prime example of this aggressive product development is the REACH-S UAV. Just two years after its launch, we successfully concluded its testing and secured an order for 100 units. This achievement underscores our agility and commitment to delivering high-quality solutions to the market at an accelerated rate.

Furthermore, our recent strategic investments in SIATT and ANAVIA have quickly proven their worth. Shortly after acquiring stakes in these companies, we announced substantial orders from the Brazilian Navy, and received a letter of intent from the UAE Ministry of Defence for the MANSUP-ER system. Additionally, we have secured a significant sale of several HT-100s to a major international client.

These accomplishments demonstrate not just the pace at which we're advancing our product development programmes, but also the growing global confidence in the quality of our solutions. Armed forces worldwide are increasingly recognising the value and effectiveness of our autonomous systems, solidifying our position as a leader in this domain.

**Q** What is EDGE's product roadmap to enhance cybersecurity, homeland security and law enforcement?

**A** We have significantly expanded our cyber capabilities in the last year, specifically in the areas of digital risk protection and secure communications. Acquiring ORYXLABS enabled us to elevate our portfolio with award-winning cybersecurity solutions which are designed to effectively monitor organisations' IT landscape and identify potential vulnerabilities across digital infrastructure and networks.

Similarly, the acquisition of KATIM strengthened our position as a leader in the development of secure communications solutions. From ultra-secure smartphones to post-quantum network encryptors, KATIM's solutions ensure sensitive data is secure at all times.

Also, with the acquisition of Etimad Holding, EDGE will enhance its extensive capabilities by establishing a new Homeland Security cluster and boosting its talented workforce. Homeland security is a fast-growing sector, with great potential for synergies across EDGE's current programs and capabilities. This will position EDGE as a leader in security solutions and diversify its offerings across various critical sectors.

# HERE EARN'S TOP SPOT IN OMDIA'S 2023 LOCATION PLATFORM INDEX

**H**ERE Technologies is pleased to announce its recognition as the leading location platform in Omdia's 2023 Location Platform Index. The annual evaluation by industry analyst firm, Omdia, assesses major vendors for digital mapping and location technology. The 2023 Omdia Location Platform Index compared major vendors, including HERE, Google, TomTom, Mapbox, Esri, Apple and Microsoft. The annual ranking is based on the completeness of each vendor's platform and its overall market reach.

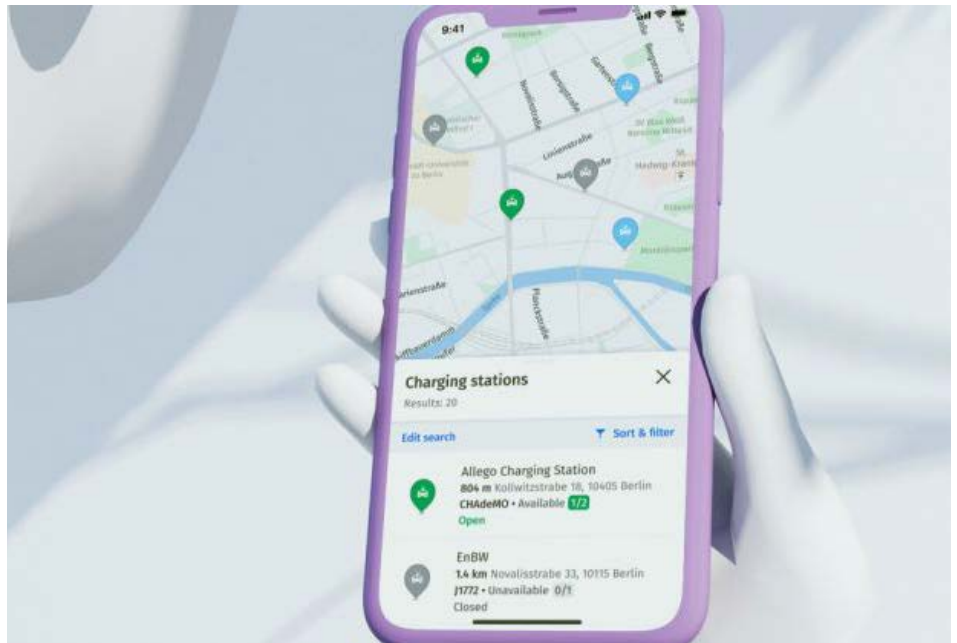
Shobhit Srivastava, Senior Principal Analyst at Omdia said: "It is often easier to be a technology disrupter than it is to be a consistent leader. In the face of disruption, HERE remains at the top spot in Omdia's Location Platform Index. With requirements from OEMs around EV routing and infrastructure, ADAS and autonomous driving, government regulations such as Intelligent Speed Assistance, and enterprise needs around private mapping, HERE continues to step up to the plate and deliver innovative solutions. HERE's UniMap demonstrates the company is readily embracing the next major technological paradigm shift, AI."

Index highlights and Omdia analyst commentary

Improving EV routing and charging: "Where HERE is differentiating is by using machine learning (ML) to provide predictive guidance... considers variable factors such as traffic, weather, events..."

Location intelligence is at the heart of electric vehicle (EV) adoption. The Index highlights how HERE works with the automotive industry on solving three key challenges: EV charging scarcity and ambiguity, EV route inefficiency, and inaccurate 'on-route' EV range calculations. HERE offers a comprehensive EV portfolio for optimized charging, routing and range functions. HERE EV Charge Points includes data on more than one million EV connectors across 102 countries.

Building confidence in automated driving: "HERE's win is a testament to the strength of its HD Maps."



Omdia highlights HERE's role in providing standard and high-definition map data to automakers for advanced driving assistance systems (ADAS) and automated vehicle functions. The HERE HD Live Map is used by Mercedes-Benz and BMW in their industry leading SAE Level 3 automated driving systems. More than 180 million vehicles are equipped with HERE maps, including 34+ million vehicles leveraging high-precision maps for ADAS functions and automated driving capabilities. More than 40 million vehicles provide HERE real-time sensor and probe data to power its ADAS, connected and automated vehicle services.

Partnering on road safety: "Just cataloging speed limits is a massive endeavor...HERE approached the dilemma of capturing speed limits comprehensively..." Today, 50+ car brands have chosen the HERE intelligent speed assist (ISA) Map to show fresh and accurate speed limit information to drivers at all times across Europe. By 2024, HERE estimates 50 million vehicles across the EU may be equipped with speed limit data from HERE. HERE is proud to provide data that helps automakers power

solutions in support of the EU ISA regulation and New Car Assessment Programs (NCAP) globally.

Innovation in mapmaking: "HERE has always had strong credentials for creating and maintaining maps by compiling massive amounts of data."

Omdia highlights HERE's commitment to innovation through UniMap, a next-generation map-making capability. UniMap utilizes artificial intelligence (AI) to automate the processing of vast amounts of data from a multitude of sources, from vehicle sensor, device, probe, satellite, Light Detection and Ranging (LIDAR), and numerous formats, capable of powering the most customized and advanced location-based use cases. Denise Doyle, Interim CEO and Chief Data Officer at HERE Technologies said: "It's an honor to be recognized by Omdia. We have a great team at HERE focused on offering the highest-quality, enterprise-grade digital mapping and location technology. We love equipping our customers with the data, services, tools and control they need to operate cities, supply chains, logistic operations and all types of vehicles more efficiently and sustainably."



## Joby, NASA Simulation Demos Up To 120 Air Taxi Operations Per Hour in Busy Airspace

Joby Aviation, Inc. a company developing electric vertical take-off and landing (eVTOL) aircraft for commercial passenger service announced it has successfully completed a series of air traffic simulations with NASA's Ames Research Center that evaluated how air taxi operations can be integrated into today's airspace, including at busy airports, using existing air traffic control (ATC) tools and procedures.

The simulations, jointly developed by Joby and NASA airspace engineers following a multi-year airspace study, tested scenarios with dozens of eVTOL aircraft per hour flying into and out of the complex, busy airspace in the Dallas-Fort Worth (DFW) region using today's airspace system.

The activity took place at NASA's Future Flight Central, a high-fidelity virtual tower facility offering a 360-degree view of a real-time simulation of an airport, where a team of NASA and Joby engineers, as well as pilots and air traffic controllers, simulated traffic patterns at Dallas Love Field (DAL) and DFW airports, representative of complex and busy airspace.

During the simulation, participating teams of controllers virtually tested the ability to integrate up to 120 eVTOL operations - arrivals or departures - per hour from DFW's Central Terminal Area, alongside the airport's existing traffic. Up to 45 simulated eVTOL aircraft were simultaneously aloft in DFW's Class B airspace during the activity.

"Working alongside our NASA colleagues, we have now demonstrated in a real-world simulation how air taxi operations can take place in today's airspace system, alongside active airport traffic, using tools and procedures currently available to air traffic controllers," said Tom Prevot, Air Taxi Product Lead at Joby. "These successful simulations were made possible by years of careful planning and collaboration between two organizations committed to redefining what is possible, and we're proud to be paving the way towards the scaled commercialization of air taxis in the National Airspace System."

Following scenarios developed by NASA and Joby airspace engineers, participating controllers employed some of the highly-structured routes and procedures used today in busy low-altitude airspace regions, including Letters of Agreement and dedicated controller positions to scale air taxi operations without impacting existing traffic.

NASA and Joby engineers hosted representatives from the FAA and the National Air Traffic Controllers Association (NATCA) to observe the simulation. More details on the simulation are available on NASA's website and NASA will publish a complete analysis of the simulation results next year, sharing data with the industry and the FAA.

## SkyDrive to Collaborate with Indian Institutes of Technology Hyderabad to Create Logistics Drone Market in India

SkyDrive Inc. a leading Japanese eVTOL aircraft manufacturer based in Japan, is pleased to announce that the company has signed a memorandum of understanding (MOU) with Technology Innovation Hub on Autonomous Navigation (TIHAN) Foundation, Indian Institute of Technology Hyderabad ("TIHAN") to collaborate on unmanned drone technology to expand the drone market in India.

With the mission of "taking the lead in the once-in-a-century mobility revolution," SkyDrive is developing accessible eVTOL aircraft for daily passenger transportation and heavy-lift drones for cargo transportation.

Indian Institutes of Technology Hyderabad ("IIT") has been consistently ranked in the top 10 institutes in India for Engineering according to the National Institutional Ranking Framework issued by the Ministry of Education, Government of India, and top-notch engineers conduct research on cutting-edge technologies. SkyDrive will be collaborating with TIHAN, India's first autonomous navigation testbed facility at IITH for developing and carrying out activities related to heavy-lift drones.

Explaining TIHAN-IITH efforts in Autonomous Navigation, Professor P. Rajalakshmi, Project Director, said, "TIHAN IIT Hyderabad is excited to announce a strategic partnership with SkyDrive Inc. to collectively develop and execute activities about heavy lifting drone technology. This partnership marks a significant step forward in the advancement of drone capabilities, focusing on the design, development, and deployment of innovative heavy-lifting drone solutions."

India faces various challenges in its land-based logistics system and the development of drones as a new means of logistics holds significant meaning. With a shared goal of creating a market for logistics drones in India, the two parties will be sharing expertise and exploring the market opportunities.

This collaboration was possible with the support of Suzuki Innovation Centre (SIC), a collaborative initiative between Suzuki Motor Corporation Japan (SMC) and IIT Hyderabad with a mission to build an open innovation platform to foster innovation for the benefit of both India and Japan.



# Eve Air Mobility Collaborates with Flexjet to Advance UAM through Innovative Software Simulation

**E**ve Air Mobility has achieved a key milestone in the progression of Urban Air Mobility (UAM) through a collaborative partnership with global private aviation leader Flexjet. Together, the companies have conducted an initial software simulation of Eve's cutting-edge Urban Air Traffic Management (Urban ATM) solution. The initiative validated and refined the software through user testing and feedback on its interface and industry value.

With London being one of the world's foremost helicopter markets and a key focus for future eVTOL operations, the simulation took place over four days this month at Flexjet's Tactical Control Centre at Farnborough Airport, UK, and saw Eve's Urban ATM software shadowing live helicopter flights operated by Flexjet's UK helicopter division, performing the kind of services that will be essential to enabling future UAM operations. Flexjet operates a fleet of 11 helicopters in the UK and its group of companies is one of Eve's Urban ATM Fleet Operator customers.

Leading UK helicopter operator Flexjet



provided its helicopter fleet to perform flights, collaborating closely with Eve's Urban ATM team. NATS, the UK's leading provider of air traffic control services, and London Heliport supported the initiative by providing additional feedback to help ensure Eve's solution will provide the greatest value to all UAM ecosystem participants.

"This collaboration with Flexjet represents a significant step forward in our efforts to advance urban air mobility," said Johann Bordais, CEO of Eve. "We are committed to exploring innovative solutions that will enhance current operations and

contribute to the future of urban flights."

Eli Flint, Flexjet President of Global Helicopter Operations, added: "We were delighted to provide Flexjet's UK helicopter expertise and to play a key role in forging the UAM ecosystem of tomorrow, helping to inform the movements of the next generation of vertical aircraft. Flexjet is dedicated to advancing the aviation solutions that will meet our customers' needs over the coming years, and we are excited by the potential of eVTOLs for seamless and sustainable electric short-range flights."

The initiative encompassed various aspects of operations, including regular business operations, atypical scenarios and flights tailored to an electric vertical take-off and landing (eVTOL) aircraft's specific needs, enabling the demonstration of product behavior in various real-world scenarios. The integration of vertiports to efficiently manage resources was the primary focus of the test, in addition to verifying and validating a subset of the Urban ATM product capabilities, with a specific emphasis on the UAM fleet operator support tool.

## Lufthansa Group and Lilium Sign MoU for Strategic Partnership

**T**he Lufthansa Group and Lilium signed a Memorandum of Understanding (MoU) to explore a strategic partnership on electric Vertical Take-Off and Landing (eVTOL) aircraft operation in Europe. The companies want to explore innovation opportunities in aviation, discussing areas such as ground and flight operations, future aircraft maintenance, as well as crewing and flight training. In a possible strategic partnership, both companies also want to analyze the opportunities for collaboration with third parties like airports and regional partners, for instance on the advancement of infrastructure such as vertiports, airspace integration and the definition of required operation processes.

Dr. Detlef Kayser, Member of the Lufthansa Group's Executive Board, responsible for Fleet & Technology, says: "Innovation is part of our DNA. The Lufthansa Group aspires to be a global leader in the integration of state-of-the-art products and



processes. We want to develop aviation further and drive the transformation of the industry. This Memorandum of Understanding with Lilium will make an important contribution to this. Only with innovation, courage and determination can we, as an industry, make aviation more sustainable and master the challenges of the future."

Klaus Roewe, CEO of Lilium, comments: "We are delighted that the Lufthansa Group has decided to cooperate with us to jointly advance in the future of flying. The Lufthansa Group has

been at the forefront of some of Europe's most important aviation initiatives, especially in the area of environmental sustainability. We are thrilled to explore opportunities on bringing eVTOL flights to Lufthansa Group customers."

As Lilium announced, the company has begun production of its Lilium Jet. According to Lilium's internal projections, the European market is expected to account for a demand of around 9,200 eVTOL aircraft through 2035.

With a current fleet of over 700 commercial aircraft, the Lufthansa Group is pursuing a long-term fleet strategy aimed at cost-efficiency and reduced emissions. The Lufthansa Group's latest aircraft acquisitions have up to 30 percent lower fuel consumption and CO2 emissions compared with predecessor models. The Lufthansa Group aims to cut its net carbon emissions in half by 2030 on its path to becoming carbon-neutral by 2050.



## Lilium Starts Production of the Lilium Jet in Watershed Moment for Sustainable Aviation

Lilium N.V. developer of the first all-electric vertical take-off and landing (“eVTOL”) jet announces the start of production of the Lilium Jet, following the arrival of the first Lilium Jet fuselage at Lilium’s final assembly line. In parallel, Lilium’s world-class tier-one suppliers – most of which have decades of experience in meeting the certification requirements of commercial aviation – are ramping up production of parts and systems for the Lilium Jet.

With the start of production, Lilium has hit a watershed moment, shifting from the design phase to industrialization of the Lilium Jet. Today’s milestone is an important turning point for Lilium’s industrial partners and supply chains working to make sustainable regional aviation a reality. In the next step, the fuselage will be matched and joined with the aircraft’s canards and main wings. Production of the Lilium Jet takes place at Lilium’s state-of-the-art facilities in Wessling, Germany. Lilium’s testing & manufacturing center, propulsion & aerostructures facility, final assembly building, and the newly constructed battery assembly building and logistics hub, where aircraft parts are readied for integration on the final assembly line, are all located alongside one another. In total, Lilium’s facilities cover an area of 175,000 square-feet (16,250 sqm).

Klaus Roewe, CEO of Lilium, commented: “To see the first aircraft fuselage on the final assembly line ready to join up with the canard and wings is a proud moment for everyone involved in our mission to make aviation sustainable. We firmly believe the Lilium Jet will usher in a new era of sustainable regional mobility, offering the highest safety standards, as well as superior comfort, unit economics, and customer experience.”

Yves Yemsi, COO of Lilium said: “I’d like to pay tribute not only to all Lilians, but also to the support and commitment of each of our suppliers and partners. The progress made in designing and building the fuselage, canard, and wings is a testament to the quality of collaboration with our aerostructures suppliers Aciturri and Aernnova. This once again confirms that our approach of teaming with proven aerospace suppliers is the optimal strategy as we advance along a path to certification and entry into service of the Lilium Jet.”

EASA approval of Lilium’s design competence

The start of assembly follows Lilium’s Design Organization Approval by EASA, confirming that Lilium has the organization, procedures, competencies, resources, and demonstrated rigor required to certify aircraft according to the very highest safety standards.

## Wisk Lays Foundation for Uncrewed Urban Air Mobility with Updated Concept of Operations

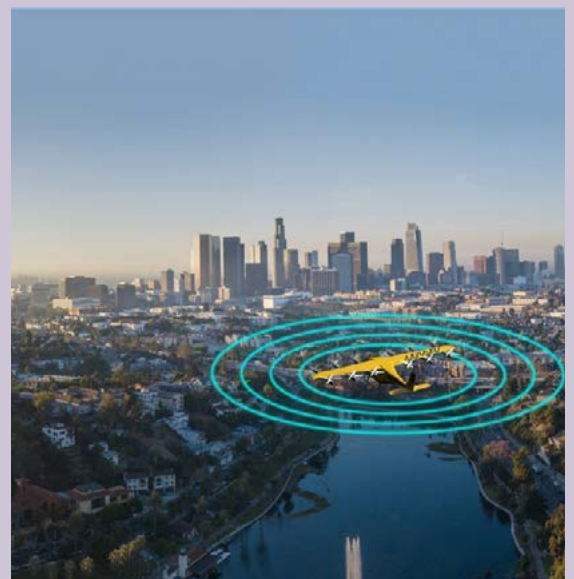
Wisk Aero, a leading Advanced Air Mobility (AAM) company, has issued an update to its previously released Concept of Operations (ConOps) for Uncrewed Urban Air Mobility (UAM), jointly developed with The Boeing Company.

The ConOps defines an approach to the transition from crewed to uncrewed flight and provides a template for uncrewed, passenger-carrying, urban air mobility (UAM) operations using highly automated, electric aircraft. The updated document outlines a high-level vision, in parallel with a detailed document, with technology, regulatory, and social recommendations to help make uncrewed UAM a safe reality.

The updates incorporate industry and government stakeholder feedback and reflect changes to align with the recently published FAA UAM ConOps v2.0. The document targets the safe initiation of uncrewed UAM passenger operations in the United States National Airspace System by the end of this decade, while providing a stepping stone to the goal of transitioning to high-throughput operations in the years that follow. It describes the key principles and assumptions for UAM aircraft, the operational environment, and normal operations that rely mostly on existing traffic management concepts.

“This ConOps defines our vision for autonomous advanced air mobility operations and the addition of uncrewed aircraft into the current aviation ecosystem. It outlines our approach to the aircraft, ground-based supervisors, infrastructure, airspace integration, and more, and provides a template for safe, everyday, autonomous flight,” said Brian Yutko, CEO of Wisk.

The ConOps for Urban Air Mobility (UAM) is the culmination of studies by experts across Boeing, Wisk, Aurora Flight Sciences, Skygrid, and other industry affiliates. Wisk and Boeing released their initial ConOps in September of 2022.



# Government of Canada Orders the MQ-9B SkyGuardian RPAS from GA-ASI



The Government of Canada has signed a contract to purchase a fleet of MQ-9B SkyGuardian® Remotely Piloted Aircraft Systems (RPAS) from General Atomics Aeronautical Systems, Inc. (GA-ASI). The order includes the associated Certified Ground Control Stations and support equipment from GA-ASI. The first delivery is expected in 2028.

The SkyGuardian RPAS is interoperable with Canada's domestic missions and its continental defence missions through NORAD, as well as with Canada's closest allies - including the Five Eyes Alliance (FVEY) and NATO - for seamless integration with current and future Canadian defence, civil air, and ground assets.

"Canada's vast territory and complex terrains, including in the Arctic, require a cost-effective multi-mission RPAS solution that can endure long periods on station, fly in harsh weather environments, and safely operate in all airspaces," said Linden Blue, CEO of GA-ASI. "MQ-9B SkyGuardian delivers those critical capabilities. GA-ASI and Team SkyGuardian Canada are honored by this opportunity to become a key partner to Canada for the very long term

in delivering these no-fail defence and security outcomes."

Team SkyGuardian Canada is a coalition of leading Canadian businesses - including CAE, MDA Ltd., and L3Harris Technologies - that are working with GA-ASI on MQ-9B development, delivery, and sustainment. Canada's investments in the RPAS Project and Team SkyGuardian Canada are a direct reflection of Canada's vested domestic interest in pursuing leading-edge RPAS technologies.

GA-ASI has had a long, successful, and proud history with Canadian industry that continues to grow. Nearly every system that GA-ASI has delivered throughout its more than 30-year history has contained some level of Canadian content, including sensors, propulsion equipment, and training/simulation systems and services. CAE, MDA Ltd., L3Harris, and GA-ASI are committed to delivering the world's premier RPAS capability to Canada while creating domestic economic benefits and work opportunities.

MQ-9B is the next generation of RPAS, delivering exceptionally long endurance and range, with auto takeoff and landing under SATCOM-only control, and

will be able to operate in unsegregated airspace using the GA-ASI developed Detect and Avoid system. First customer deliveries of MQ-9B began in 2022 to the U.K. Royal Air Force, and contracts have been signed with Belgium and the U.S. Air Force, in support of Special Operations Command. The Japan Coast Guard is currently operating the MQ-9B for maritime operations, which the Japan Maritime Self-Defense Force (JMSDF) also selected for its Medium-Altitude, Long-Endurance (MALE) RPAS Trial Operation Project. MQ-9B has additionally supported various U.S. Navy exercises this year, including Northern Edge, Integrated Battle Problem, and Group Sail.

"We look forward to working with our Team SkyGuardian Canada partners to deliver our industry leading RPAS for Canada's dynamic mission requirements. GA-ASI is the world leader in reliable, cost-efficient, and sustainable remotely piloted aircraft systems. These aircraft perform advanced interoperable and systems-of-systems operations for our valued customers around the world - all at a fraction of the carbon footprint impact as traditional manned systems performing similar missions," added Blue.

# WhiteFox Defense Introduces Scorpion 3: Light Weight Man-Portable C-UAS Solution for Airspace Security

As regional conflicts such as in Ukraine and Israel continue to pose significant challenges to security and stability, the demand for advanced solutions to mitigate the threats posed by drones has reached a critical juncture. WhiteFox Defense Technologies, a leading provider of cutting-edge counter-drone solutions, announces the release of Scorpion 3, a light-weight, portable drone detection solution. Customer testing has shown that Scorpion 3 offers efficient and reliable situational awareness in any dynamic environment and can be coupled with WhiteFox mitigation solutions. The Scorpion 3 hand-held drone detection system is designed for security forces to protect personnel and critical infrastructure and preserve airspace sovereignty.

"After personally seeing Scorpion 3 used in Ukraine, I can confidently say that it is a game-changer in the world of Counter UAS solutions,"



said Luke Fox, CEO of WhiteFox Defense. "It not only provides robust protection from unauthorized drones but does so in a manner that is simple to use, cost-effective, and remarkably portable. We're committed to securing the skies, and Scorpion 3 is a testament to that dedication."

With an intuitive user interface and an array of specialized features, Scorpion 3 ensures comprehensive airspace awareness and security, making it the go-to Portable Counter UAS solution.

"Scorpion 3's capability to swiftly and

accurately detect unauthorized drones in any environment is a critical advancement in airspace security," said Manu Srivastava, Chief Revenue Officer of WhiteFox Defense. "By introducing this innovative solution, we provide our customers with the most powerful and adaptable tool for safeguarding their operations."

Unwanted drone intrusions can disrupt critical mission operations and pose significant security risks. Scorpion 3 automatically detects drone threats by creating a protective dome around the user. If an unauthorized drone enters this space, Scorpion 3 promptly detects, identifies, locates, and tracks the drone location and the precise location of the drone operator for immediate situational awareness and threat assessment. This empowers law enforcement, tactical units, and security personnel to focus on defending critical assets without delay.

## D-Fend Solutions Expands and Extends Participation in FAA Program for UAS

### Detection & Mitigation Testing and Evaluation Aimed at Enhancing Airport Safety

D-Fend Solutions, the leader in radio frequency (RF), cyber-based, non-kinetic, non-jamming, counter-drone detection and takeover mitigation technology, announced expanded and extended participation in the Federal Aviation Administration's (FAA) Airport Unmanned Aircraft Systems (UAS) Detection and Mitigation Research Program, aimed at achieving safe and efficient airport and National Airspace System (NAS) operations. The company's core Counter-UAS system, EnforceAir, underwent testing at a second airport site, Syracuse Hancock International Airport (SYR).

EnforceAir was previously selected for participation in the FAA Program at Atlantic City International Airport (KACY). The program enables the FAA to work with major federal departments and agencies to ensure technologies/systems that are developed, tested, or deployed by federal departments and agencies to detect and/or mitigate potential risks posed by errant or hostile UAS operations do not adversely impact



or interfere with the safe and efficient operation of the National Airspace System (NAS). The evaluation further ensures that EnforceAir does not adversely impact or interfere with safe airport operations, aircraft navigation, or air traffic services. D-Fend Solutions rapidly progressed

from initial testing at one airport to further assessment in a second airport environment. Graduating and completing the second phase at another airport is a major milestone for program participants that are able to demonstrate that their product performs as advertised, generated reliable and accurate data, and warranted further evaluation in another operational setting.

"EnforceAir's quick progression from first trials at Atlantic City to additional evaluations at Syracuse in this demanding and vital FAA program validates D-Fend's vision of enabling a flourishing drone-powered society, specifically in aviation, by supporting the growth of safe and secure drone adoption and integration while applying innovation to defend against rogue drone threats at airports," said Zohar Halachmi, Chairman and CEO of D-Fend Solutions.

This program expansion follows a series of successful milestones achieved by the company in recent months, including expansion of the US team and the launch of EnforceAir2.



# The FAA Selects Pharovision and Sentrycs for Drone Detection and Mitigation Testing

Pharovision and Sentrycs have been selected by the FAA to conduct a three-month detection and mitigation test at Atlantic City International Airport. The testing period started in early July with a view to determine the efficacy of drone tracking, identification, and mitigation capabilities in airports. Sentrycs and Pharovision's complementary technologies identify and subdue any rogue or unfriendly unmanned aircraft system (UAS) that an airport encounters.

The Section 383 program requires the FAA to test and evaluate systems that detect potential drone threats. The FAA testing regimen serves to ensure that technologies or systems that are developed, tested, or deployed by authorized federal departments and agencies to detect and mitigate potential risks posed by errant or hostile unmanned aircraft system (UAS) or drone operations do not adversely impact or interfere with the safe and efficient operation of the National Airspace System (NAS).

Drone incidents at airports, whether criminal or careless in origin, have increased exponentially in recent years, with reports in multiple, major hubs, from Gatwick to Regan National. As drone technology becomes more sophisticated, the frequency of collisions or attacks accelerates, and the potential impact is more substantial - ranging from runway shutdowns to catastrophic damage to an aircraft. This year, over 60% of drone-aircraft close encounters occurred within 200 feet of an airport - with the proliferation and evolution of drone threats, it has never been more imperative to secure American airports with tried and tested counter-drone technology.

"Sentrycs' solution, based on powerful RF protocol analytics, is specially designed for countering unauthorized drones at airports without causing disruption, ensuring detection and interception of a drone is achieved without collateral damage or interference with the airport's day-to-day operations. Combining our technology with Pharovision's detection



expertise is a showcase in industry collaboration and advanced counter-drone security, and we are proud to demonstrate our capabilities in conjunction with such a crucial national security program," said Yoav Zaltzman, CEO at Sentrycs

"We are delighted to be involved in the FAA's national security program, in order to help protect airports from the ever-increasing drone threat. We at Pharovision, alongside our partners Sentrycs, are encouraged to see our joint detection technologies test successfully in these early stages. With the focus on testing by the FAA, in parallel with the continuous refinement of detection and mitigation techniques by our industry, we are confident

future airport counter-drone solutions will be comprehensive, clinical and keep up with the criminal drone operator," said Yuval Milo, Founding Partner at Pharovision.

Pharovision and Sentrycs combined their technological solutions to provide defense in depth for counter-drone airport solutions, in order to enhance the effectiveness of the tracking and identification of rogue and hostile drones. Sentrycs' activity is fed to Pharovision through an open API to combine identification and tracking information. Pharovision's unique scanning EO/IR detection systems work in tandem with Sentrycs' cutting-edge techniques to identify and track unauthorized drones.

## Latvia secures IRIS-T air defense system purchase from Germany

The Ministry of Defense (AM) signed a contract with the German company Diehl Defence on Thursday, November 30 to purchase the IRIS-T mid-range air defense system, the Ministry reported. The supply contract is worth approximately EUR 600 million. Latvia will receive all necessary equipment for the efficient operation of the IRIS-T systems.

Diehl Defence is scheduled to begin delivery of medium-range air defense systems in 2026.

Until then, Latvia has to train personnel and



improve infrastructure, as well as fulfill other prerequisites, so that at the moment of delivery of the IRIS-T system, the national Armed Forces are ready to use and maintain them fully.

AM said that in September this year, Latvia and Estonia signed a joint agreement for the purchase of an IRIS-T mid-range air defense system manufactured by the German company Diehl Defence. IRIS-T anti-aircraft defense systems are capable of destroying enemy aircraft and drones within 40 kilometers and up to 20 kilometers. Joint procurement of one type of system will allow Latvia and Estonia to save budget resources, as well as facilitate mutual co-ordination of protection of the Baltic States region, said AM.

## Aaronia Secures \$20 Million Order for its AARTOS Drone Detection System

Aaronia has received a major order for its AARTOS drone detection system (DDS). This \$20 Million order is the largest single order for Aaronia's Counter UAV AARTOS DDS to date. The system provides modular adaptability to adapt to diverse requirements.

The AARTOS drone detection system (DDS) offers flexible, customizable solutions for all requirements and budgets. From the mobile laptop versions X2 and X5 for limited applications to the high-end solutions X7 and X9. AARTOS thus covers all civil and military areas in which drones can pose a threat.

"An order of this volume, including detection and jamming technology, is for us both confirmation and motivation," says Thorsten Chmielus, CEO and founder of AARONIA AG. "It underlines the performance and reliability of our CUAV system. The trust we have received encourages us to consistently develop AARTOS further to offer our customers the best possible protection against drone attacks at all times.

Some of the unique features that distinguish AARTOS from competitors' systems are likely to have been a decisive factor in the award of the contract. For example, the system not only determines the position and speed of drones, but also their altitude. It ensures high-speed localization of drone activity. To do this, it



scans the entire frequency spectrum, including simultaneous scans of different frequencies, enabling it to locate all drones that use radio signals. The positioning of the drone as well as the operator is provided by AARTOS in real time. AARONIA's proprietary software solution RTSA-

Suite PRO plays a central role in this process. The powerful real-time spectrum analysis software enables the integration of a wide variety of hardware components for evaluation, thus guaranteeing simple, efficient and optimal use of the respective system.

# uAvionix Awarded Contract as Primary Systems Integrator for Skyway UAS Range in Tulsa

**U**Avionix, a leading provider of avionics solutions and infrastructure services for uncrewed and crewed aircraft, has been awarded a contract by Oklahoma Aerospace Institute for Research and Education (OAIRE) to develop the Skyway UAS range near Tulsa, Oklahoma.

Through its system integration efforts, uAvionix will deploy centrally managed, networked Command & Control (C2) and Detect & Avoid (DAA) services that enable uncrewed Beyond Visual Line of Sight (BVLOS) operations between nodes on the Skyway. The system will utilize uAvionix's SkyLine Cloud-based service for assured C2 and DAA. It is the same system at the core of uAvionix's recent FAA exemption for BVLOS operations in North Dakota. Each location or node along the Skyway will consist of C2 and DAA systems including radar, ADS-B receivers, computer-vision technologies, radios, and aviation weather monitoring systems that provide situational awareness and maintain airspace safety.

"Working with OAIRE and partners on the deployment of this range near Tulsa, OK represents another great opportunity for us to integrate our technology and support a growing base of customers conducting regional BVLOS operations", said Christian Ramsey, Managing Director for Uncrewed Aviation and Aviation Networks at uAvionix. "Sharing a vision with OAIRE and deploying proven technologies for uncrewed operations and aviation networks will ensure we deliver opportunity and value for OAIRE, and Oklahoma's large enterprises and accelerating startups."

The Skyway Range is an outgrowth of projects initiated under the new Tulsa Regional Advanced Mobility (TRAM) Cluster. In summer 2023, OSU partnered with Tulsa Innovation Labs and the Osage Nation to create the LaunchPad Center for Advanced Air Mobility at Oklahoma State University (OSU) and the Skyway UAS Range to connect the

Photo courtesy of Oklahoma Aerospace Institute for Research and Education (OAIRE)

**uAvionix**

**uAvionix Awarded Contract as Primary Systems Integrator for Skyway UAS Range in Tulsa**

uAvionix.com

Osage Nation and its enterprises' Skyway36 Droneport in Tulsa with OSU and two additional nodes in the region.

"As part of OSU's land-grant mission, we are committed to serving the State of Oklahoma and building for the future," said Dr. Jamey Jacob, OAIRE Executive Director. "This partnership and the Skyway Range expand opportunities for a variety of companies both large and small and represents a significant step toward developing and testing advanced air mobility (AAM) technologies that will benefit the region and nation."

Upon completion, the unique Skyway corridor will connect OAIRE's primary UAS test facility at OSU's Unmanned Aircraft Flight Station with the Osage Nation Skyway36 Droneport and then downtown Tulsa. Companies endeavoring to deploy UAS for cargo and passenger transport will have access to the range for testing and development, including conducting scalable BVLOS operations. Long-term goals include expanding the network to connect sites across the state and developing a statewide testing capability.

# Rheinmetall to modernise Romanian short-range air defence systems under EUR328 million order

Romania has contracted Rheinmetall to upgrade its Oerlikon GDF 103 air defence artillery systems. Valued at EUR328 million, the contract encompasses the delivery of four complete systems - two within the next two years, two within three years - as well as training, spare parts and other services.

"This substantial first-time order from the Romanian government widens our footprint in Central Europe," said Chairman of Rheinmetall's Executive Board, Armin Papperger. "It also underscores Rheinmetall's role as a leading supplier of ground-based air defence systems [and] will bolster the defensive capabilities of the EU and NATO on Europe's eastern flank".

Each of the systems ordered consists of an Oerlikon Skymaster TLCN fire control system; an X-Band Tactical Acquisition Radar 3D (X-TAR3D); six 35mm GDF009 TREO Oerlikon twin guns, including



autoloader; and two heavy-duty special trucks for transporting the fire control system and the tracking radar.

An upgraded Oerlikon anti-aircraft artillery system, the Rheinmetall Skynex air defence solution is a modular, flexible ground-based air defence system for the protection of stationary objects and installations at close and short ranges. Capable of simultaneously engaging up to four targets at very short range, including ground targets, cannon-based air defence solutions from the Skynex product family lend themselves especially well to close-range

operations where guided missiles are ineffective - including counter-UAS applications. The effectors used here are Oerlikon rapid-fire automatic cannon featuring a rate of fire of 1,100 rounds per minute and a maximum effective range of up to 4,000 metres.

Recent successes of the aging 35mm Gepard antiaircraft tank in Ukraine underscore the efficiency of cannon-based air defence in countering aerial threats - especially cruise missiles and drones - and the continuing importance of short-range air defence in modern warfare. Compared to the Gepard, Skynex constitutes a generational leap in terms of sensor technology, the networked deployment of multiple tactical units and inclusion in higher-echelon C2 systems. Its combat effectiveness further benefits from the use of Rheinmetall's programmable time-delayed 35mm Ahead ammunition, assuring maximum effectiveness against small, fast-moving targets.

## FRONTEX ANNOUNCES WINNERS IN CONTEST ON DETECTION OF LOW-FLYING OBJECTS

Frontex, the European Border and Coast Guard Agency, is pleased to announce the winners of its innovative Prize Award Contest on the Detection of Low-Flying Objects (LFOs). This ground-breaking contest demonstrates Frontex's commitment to fostering technological innovation in border security, addressing challenges such as the increasing use of drones at EU borders to support criminal activities.

"The increasing use of drones and other low-flying objects at our borders is not just a challenge; it's a call to action. And at Frontex, we're not just observing this trend; we're actively responding with advanced and innovative solutions. The Prize Award Contest is a clear demonstration of our commitment to safeguarding Europe's borders. Our proactive approach today is vital in shaping a safer and more secure Europe of tomorrow," said Frontex Executive Director Hans Leijten.



"The innovations we recognise today are not just technical solutions. They embody our ethos of combining efficiency with responsibility, ensuring that our border management strategies are as humane as they are effective," he added.

Following a rigorous series of operational trials, the top prize of EUR 250 000 has been awarded to DAT-CON, with the second prize of EUR 200 000 going to Teledyne FLIR, and the third prize of EUR 150 000 to Marduk Technologies. Each winner has showcased exceptional ingenuity in developing technologies that meet the critical

need for enhanced surveillance and detection of LFOs.

Conducted at Ridali Airfield in Estonia from 16 September to 6 October 2023, the operational trial represented the contest's final and decisive phase. The three finalists, previously selected in Phase 2, were tasked with deploying and operating their technologies in dynamic, real-world simulations. These rigorous tests, encompassing a variety of LFO threats and tactics, challenged the finalists to push the boundaries of innovation in low-level airspace surveillance.

# Sensoriis' NATEP grant set to deliver onboard Detect-and-Avoid Radar Tracking technology

Cambridge Sensoriis has been awarded a NATEP (National Aerospace Technology Exploitation Programme) grant to deliver an ultra-lightweight onboard Detection and Avoidance Radar Tracking (oDART) avionics system. oDART leverages micro radar technologies that have been specifically developed for low altitude flight onboard Uncrewed Aerial Systems (UAS) and shall adapt and introduce these into crewed aircraft.

Dr. Steve Clark, Founder and CEO of Cambridge Sensoriis, stated that, 'Our edge-cutting radar technology will support navigation, collision avoidance, and airspace deconfliction, during the critical take-off and landing phases of flight. He also stated that 'Few competing micro-Air-To-Air Radar (ATAR) exist, and those that do have been designed for light-aircraft obstacle detection at high altitudes and are often ineffective at lower altitudes.'

High frequency radar provides excellent all weather object detection performance but has traditionally been large and expensive. Cambridge Sensoriis has designed a low Size, Weight, Power, and cost (SWaPc) radar, suitable for object detection. Other technologies have limited ability to distinguish between low flying small aircraft and ground-based structures like cranes, larger antenna, or electricity pylons.

oDART supports reduced crew operation - part of the Aerospace Technology Institute (ATI) Advanced Systems stream - by providing greater and relevant situational awareness of flying and ground-based obstructions. Resilient pilot supporting systems are essential, especially within congested urban airspace.

Dave Howells, NATEP Technology Manager, who has supported project oDART since its application was submitted, commented, 'Project oDART falls within the ATI strategy of accelerating the introduction of novel aircraft platforms to establish the UK as a global leader



for Net Zero aerospace. I am delighted to be supporting Cambridge Sensoriis and I am just as enthusiastic as them to help develop their product and see it being brought to market.'

Novel aircraft include battery powered eVTOLs (electric Vertical Take-Off and Landing aircraft) - these are an integral part of the route towards zero carbon aviation which is a further ATI strategic objective. Safe and certified eVTOL flight will require advanced supporting avionics systems, such as those proposed within the oDART programme.

Cambridge Sensoriis is the project lead of this 18-month project which launched in June 2023, and they will be supported by other funded project partners, including Across Safety Development and TEKTower. Across Safety Development are specialists in safety management and regulatory affairs, providing expertise across all aspects of the aviation

industry, and have facilitated CAA approvals for numerous projects in the UK and abroad.

Anthony Venetz, Managing Director of Across Safety Development, had this to say, 'Bringing certified UAS, motors, and components to market will be a game changer and will establish leading positions for forward thinking developers. With our experience in regulatory affairs, and our understanding of current and proposed regulations, we can help manufacturers such as Cambridge Sensoriis with the planning and implementation of a workable certification strategy.'

TEKTower is an engineering solutions company bringing innovative products and services to market within safety-critical, security-critical software environments. Matt Banham and his engineers have decades experience in high-integrity software engineering.

# RHEINMETALL SUCCESSFUL WITH AIR DEFENSE IN AUSTRIA



The Austrian defence ministry has contracted with Rheinmetall to carry out a comprehensive modernization of its existing Skyguard air defence systems. In the presence of Austrian minister of defence Klaudia Tanner, the two parties have now signed the contract for Project Skyguard Next Generation in Vienna. For Rheinmetall the order represents sales of €532 million (without value added tax), which can already be booked as an incoming order in December 2023. The contract encompasses a project period of 48 months starting in February 2024.

On behalf of Austria, a neighbouring nation and close partner of Germany, Rheinmetall will be conducting one of the most ambitious air defence projects in Europe. For the Austrian Army, the undertaking is an important step in its "Mission Forward" rearmament programme to revamp the country's armed forces.

Armin Papperger, chairman of the executive board of Rheinmetall AG, welcomed the news: "We're delighted by this important market win for Skynex technology. In this flagship project, Austria is at the absolute forefront of anti-aircraft and counter-drone defence in Europe. This

major order also highlights Rheinmetall's key role in reequipping the armed forces of Europe in response to new threats. Our solutions for stationary and mobile air defence are part of this."

Skyguard Next Generation belongs to the Skynex family of products from Rheinmetall Air Defence, the global leader in close-range air defence technology. The order package for Austria comprises a total of seven tactical units, each consisting of four 35mm guns, a sensor unit for monitoring airspace and a command post. In the process, twenty-eight 35mm guns currently in the customer's inventory will be upgraded to the latest state of the art. The contract also includes spare parts, training support and 35mm ammunition. A contractually agreed option for ordering an additional tactical unit exists as well.

In the words of Oliver Dürr, CEO of Rheinmetall Air Defence AG in Zürich, "We greatly appreciate the trust of our friends and partners in Austria. The Austrian Army's decision in favour of Skyguard Next Generation is more than just a quantum leap - it opens the door to a whole dimension in anti-aircraft and counter-drone capabilities."

Austria is getting a custom-built,

pathbreaking solution for close-range air defence. "The order is a significant gain for our company", declares Dürr, "and especially for our Zürich plant, which is responsible for carrying out the project, where it will make a decisive contribution to capacity utilization."

The Skyguard Next Generation system is based on existing weapons systems owned by the Austrian Army. As part of a service life extension programme, its existing 35mm Oerlikon twin guns will be completely modernized and linked to a high-performance target tracking capability and Rheinmetall's Skymaster command system.

Extraordinarily high-precision sensors make it possible to detect and identify aerial targets at an early stage. The command system lets the operator build up a local picture, evaluate the threat situation and, in close coordination with high-echelon elements, open fire. Guided missiles can also be incorporated into the system. The complete system is highly mobile, assuring maximum efficiency during military planning. The guns can be dismantled and/or operated remotely, keeping troops well out of harm's way while simultaneously improving combat effectiveness.

# Anduril Unveils Roadrunner & Roadrunner-M

**A**nduril Industries is excited to announce Roadrunner and Roadrunner-Munition (Roadrunner-M). Roadrunner is a modular, twin-jet powered autonomous air vehicle with extraordinary performance at low cost. Vertical takeoff and landing capability gives Roadrunner the flexibility to rapidly launch from and return to any location, pairing high subsonic speed with exceptional agility and stability. Like all Anduril products, Roadrunner is designed to be future proof. The modular payload system can carry a variety of payloads to accomplish broad sets of missions and can be constantly updated to meet the threats of tomorrow.

Roadrunner-M is a high-explosive interceptor variant of Roadrunner for ground-based air defense that can rapidly identify, intercept and destroy an array of aerial threats that are up to 100 times more expensive, or be recovered and reused at near-zero cost. Malicious actors are increasingly using state-owned and commercially-available drone technology to threaten the personnel, infrastructure and assets of the United States and our allies around the world. Anduril already provides a counter UAS family of systems to protect against such threats, and Roadrunner-M is our newest addition to that family. Roadrunner-M was designed to address threats that extend across legacy air defense echelons, combating adversary attempts to design around gaps in current air defense architectures. Similar to traditional approaches to deter and defeat incoming aerial threats like scrambling expensive and airfield-dependent jets, Roadrunner-M can take off, follow, and intercept distant targets at the first hint of danger, giving operators more information and time to assess the target and rules of engagement. If there is no need to destroy the target, Roadrunner-M can simply return to base and land at a pre-designated location for immediate refueling and reuse. If the target does need to be destroyed, Roadrunner-M will swiftly do so. Unlike legacy missile systems, you can reuse all craft that are launched but not consumed. This radical shift in thinking allows for large-scale defensive launches at extraordinarily low cost, increasing redundancy for higher probability of lethality and enhancing the ability to simultaneously engage many targets.



Roadrunner-M's performance capacity is far superior than competing air defense solutions and is already an overmatch capability against current and emerging threats. Its employment methodology significantly increases the operator's engagement decision space which is critically constrained with current capabilities. Roadrunner-M innovations include faster launch and take-off timing, three times the warhead payload capacity, ten times the one way effective range, and is three times more maneuverable in G force, compared to similar offerings on the market. A single operator can launch and supervise multiple Roadrunner or Roadrunner-M squadrons. Roadrunner-M can be controlled by Lattice, Anduril's AI-powered software suite for command and control, or be fully integrated into existing air defense radars, sensors, and architectures to provide immediately deployable capability.

Roadrunner is ready to deploy today and we look forward to continuously iterating on this technology for military forces around the world. Roadrunner went from a napkin sketch to an operationally validated and fieldable solution in less than two years, which is much faster than most traditional defense contractor timelines. Anduril uses our own money for research and development, which means we can outpace competitors and deliver operationally ready capabilities within a fraction of usual timeframes.

With a track record for automating the operations of thousands of robotic systems deployed in tactical environments globally, Anduril is a proven leader in developing and fielding integrated software and hardware solutions across a wide range of first and third-party sensors, effectors, and assets in all domains.

## DroneShield Releases DroneSentry-C2 Tactical

**D**roneShield is pleased to release DroneSentry-C2 Tactical (DroneSentry-C2T), in response to significant end user demand. DroneSentry-C2T is a ruggedised, on-the-edge version of DroneShield's main Command-and-Control solution DroneSentry-C2. The system provides operators with real-time C-UAS situational awareness from a single device or network of DroneShield and third-party devices, such as the RfPatrol MK2 body worn drone detector and the DroneSentry-X on-the-move and expeditionary fixed site drone detection and defeat system.

The C2T provides an intuitive satellite map-based display, with 2-way communication between the user and the distributed network of counter-drone devices, demonstrating drone detections from a network of sensors back to a central point anywhere to a rugged user tablet, as well as ability (where lawful) to activate drone defeat systems. The launch of the DroneSentry-C2 Tactical enables existing DroneShield end users to enhance their solutions as an 'add-on' capability. Additionally, the DroneSentry-C2 Tactical offers a new entry level C2 solution to customers who do not require the full DroneSentry solution.

Angus Bean, DroneShield's CTO, commented "The release of the DroneSentry-C2 Tactical solution is in line with modern defence technology trends, pushing enhanced situational awareness and decision-making tools to the operator at 'the edge'. It allows personnel on the ground to take a more strategic view of the area of operation."

"DroneShield is both a sensor maker and a developer of C2/sensor integration systems, which enables us to provide an optimised experience for the end-user. The release of the DroneSentry-C2T enables us to utilise our position as the global leader in the C-UAS handheld systems, and introduce the world's first command-and-control system for a hand-held C-UAS environment."

"As we are seeing in Ukraine and other places around the world, handheld C-UAS devices enable cost-effective, mass-scale drone detection and defeat capability. DroneSentry-C2T enables to network these groups of devices together, without a limitation on size of the amount of devices, to provide central point of awareness and response, either in hands on a single master user, or distributing information amongst multiple users in the field."



# Hensoldt Enters into Strategic Collaboration with Wings for Aid

Sensor solution provider HENSOLDT and the Dutch company Wings for Aid have entered into a strategic partnership. The aim of the two-stage cooperation is to improve the air safety of cargo drones. Wings For Aid has developed the "MiniFreighter", a 650-kg Remotely Piloted Aircraft System (RPAS) that delivers humanitarian goods to people isolated by natural disasters and man-made crises.

In the first phase, these cargo drones will be equipped with the "SferiRec LCR 100" flight data recorder. Equipped with this, the drone will have a significantly improved recording capability of the flight attitude data and the flight control system. The drone has already completed successful flight tests at various locations, including Magdeburg-Cochstedt airfield. This is home to the DLR's National Test Centre for Unmanned Aircraft Systems, one of Wings For Aid's partners.

In a possible second step, further technical upgrades will be added to increase aircraft autonomy and improve the Wings For Aid flight test capability as



Original Equipment Manufacturer (OEM) and global system provider. The operational data collected from test and flight missions up to that point can be used directly for this purpose. Capabilities such as "Detect and Avoid" (DAA) and the improvement of the Drop Zone Safety Automation System should then ensure that the operational range is increased and the workload of the pilot-operator is significantly

reduced. This is essential to scale up so-called BVLOS (beyond visual line of sight) flights with multiple aircraft.

"We are very proud to be making a contribution that will enable relief supplies to be transported to crisis areas even faster and more cost-effectively in the future," says Steffen Kolditz, Head of the Airborne Solutions business unit at HENSOLDT.

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# Silent Arrow<sup>®</sup> Awarded AFWERX Contract to Develop a Long-Range Powered Cargo Drone

**S**ilent Arrow announced it has been selected by AFWERX for a SBIR contract focused on the Silent Arrow CLS-300 (“Contested Logistics System, 300 Nautical Miles”) to address one of the most pressing challenges in the Department of the Air Force (DAF).

The CLS-300 is based on the commercially successful Silent Arrow GD-2000, the world’s first heavy payload, autonomous and attritable cargo delivery aircraft designed to carry 1,500 lbs. of cargo over 35 nautical miles when deployed from cargo aircraft such as the Lockheed Martin C-130, Boeing C-17 and Airbus A400M.

Whereas the GD-2000 is a glider, the new CLS-300 can travel nearly 10 times as far by utilizing an innovative propulsion unit and propeller system that are inexpensive enough to allow the entire cargo drone to be attritable. In addition to being air droppable, it will also be capable of taking off from



the ground including from unimproved surfaces, naval vessels and other launch points.

“We’d like to thank the U.S. Air Force, AFWERX, AFRL and our Air Force Customer and End-User organizations for their confidence in awarding this disruptive program,” said Chip Yates, Silent Arrow’s Founder and CEO. “We are

looking forward to a compressed schedule with propulsion tests in the first half of 2024 followed by flight tests in the second half of 2024 so that we may rapidly deliver this critical capability to warfighters operating in harm’s way as well as to humanitarian and disaster relief organizations serving those in need.”

## Drone delivery canada completes first milestone of the canary contract with the department of national defence

**D**rone Delivery Canada Corp. is pleased to announce, further to its press release dated September 7, 2023, that it has completed the first of two milestones as part of the contract (the “Contract”) with the Department of National Defence and the Canadian Armed Forces’ (“DND/CAF”) Innovation for Defence Excellence and Security (“IDEaS”) program. The Company has been authorized to move to the second phase of the Contract which is expected to be completed in the first quarter of 2024.

The completion of the first milestone of the project involved nine test objectives pursuant to which the Company completed a total of 145 flights with an overall flight distance of almost 800km.

With the completion of the test environment milestones during the first phase of the Contract, the Company will move to the real-world operation phase of the Contract to demonstrate the Canary’s ability to deliver just in time medical equipment



and supplies.

As part of the IDEaS program, DDC’s Canary drone has been selected to potentially play a crucial role in supporting the DND/CAF’s delivery of medical equipment and other necessary supplies during mission-critical operations. The Contract, with a value of \$200,000, will run for a 6-month duration and contains two milestones. A successful outcome of this initial Contract could lead to a follow on 12-month contract valued up to \$1 million.

“We are immensely proud of the achievement in completing the first phase of the DND contract.

This success is a result of the hard work, dedication, and exceptional skills of the entire DDC team. We look forward to continuing this successful effort as we move into the next phase of the Contract.” said Steve Magirias, CEO of Drone Delivery Canada.

The Company also announces that Debbie Fisher has resigned from the Company’s Board of Directors effective December 31, 2023. “We thank Debbie for her support of DDC during her tenure on our board specifically around the establishment of our people governance and compliance procedures,” said Michael Della Fortuna, Chairman of the Board of Director for Drone Delivery Canada.

# RELIABLE ROBOTICS FLIES LARGE CARGO AIRCRAFT WITH NO ONE ON BOARD

**R**eliable Robotics, a leader in aircraft automation systems, today announced a significant milestone in its work to bring advanced safety-enhancing technologies to market in the United States. Last month's successful flight of a Cessna 208B Caravan with no one on board was a first for aviation. A remote pilot supervised the uncrewed aircraft from Reliable's control center 50 miles away. For a 360° experience inside the cockpit, view and scroll around at: <https://youtu.be/OW5JHIHq40Q>

The Reliable autonomous flight system enables the aircraft to be remotely operated by a pilot on the ground and improves safety by fully automating the aircraft through all phases of operation including taxi, takeoff and landing. Reliable's system is aircraft agnostic and utilizes multiple layers of redundancy and advanced navigation technology to achieve the levels of integrity and reliability necessary for uncrewed flight. The system will prevent controlled flight into terrain (CFIT) and loss of control in flight (LOC-I), which account for the majority of fatal aviation accidents.

The Cessna Caravan is designed and manufactured by Textron Aviation Inc. Reliable Robotics has been collaborating with Textron Aviation, which includes the Beechcraft, Cessna and Hawker brands, and Textron eAviation focused on sustainable flying. Textron Aviation has delivered more than 3,000 Caravans, proving it to be the world's most popular turboprop utility aircraft.

"Textron Aviation is committed to delivering continuous aviation improvements and our relationship with Reliable Robotics advances this work," said Chris Hearne, Senior Vice President of Engineering and Programs, Textron Aviation. "Reliable's successful flight of an uncrewed Cessna 208 Caravan represents a milestone for the industry in bringing new technology to aviation."

The Caravan, and other regional cargo aircraft like it, serve an essential role connecting communities and businesses



across the United States and around the globe. With a useful load of over 3,000 pounds, and a take-off performance to operate from shorter runways, these aircraft deliver time-sensitive shipments to many places that would otherwise not have next-day or same-day service. Remote piloting will allow even more areas to benefit from this critical service.

ASL Aviation Holdings is a global aviation services company with airlines based in Europe, Asia, Africa and Australia, and has been working with Reliable Robotics since 2022 to explore bringing advanced aircraft automation into its operations. ASL operates a fleet of over 160 aircraft and provides cargo services for the world's leading express parcel integrators and eCommerce platforms. Reliable Robotics is an original member of ASL's CargoVision forum of companies involved in pioneering new aviation and propulsion technologies.

"ASL is always innovating to better serve customers, and our partnership with Reliable Robotics is aimed at enabling us to provide reliable, flexible and cost-efficient time-sensitive cargo delivery to smaller unserved

areas," said Dave Andrew, Chief Executive of ASL Aviation Holdings. "This historic flight is a testament to Reliable's focused leadership in advancing aviation innovation and capability for the industry."

Reliable Robotics and the U.S. Air Force are working to leverage the significant progress on remote piloting for the Cessna Caravan to jointly examine how this commercially derived technology can be applied to large multi-engine aircraft for cargo logistics, aerial refueling and other missions. Reliable has been working under a series of contracts with the Air Force since 2021.

"This monumental aviation achievement is a great example of how AFWERX accelerates agile and affordable capability transitions for the world's greatest Air Force," said Col. Elliott Leigh, AFWERX Director and Chief Commercialization Officer for the Department of the Air Force. "This milestone accelerates dual-use uncrewed flight opportunities, increasing aviation safety and enabling us to bring a broad range of autonomous military capabilities into denied environments."

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