


Global monthly E-magazine for Drones



# DRONES WORLD

VOL 05 ■ ISSUE 1  
FEBRUARY 2024

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**Kratos Receives  
\$50M in Awards for  
Counter UAS and Air  
Defense Systems**

PG 19



**BAE AMPV Prototype  
Successfully Fires C-UAS  
during Live Multi-scenario  
Demonstration**

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# DRONES WORLD

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



**B. KARTIKEYA**

Hello my dear readers,

The monthly e-magazine Drones World documents the rapid expansion of the drone market by showcasing the most recent product introductions, evaluations, and UAV-focused initiatives. Current news on developments in the drone industry is given to our readers in this issue. The publication covers the most recent advancements in defence, including work in fields like anti-drones and EVTOL.

Many people find drone technology intriguing, and some amazing product promises are made by it. In the end, the most effective and economically viable technology matters, not the most attractive. The industry must create viable business models, and artificial systems must find their market.

The material has significant worth thanks to several enhancements introduced in this edition. We constantly endeavour to discuss and expose industry-related issues crucial to the drone sector's expansion.

Drones World Magazine helps link manufacturers, suppliers, component makers, technology providers, installers, purchasers, and consumers by reaching thousands of industry professionals across the commercial drone business.

DRONES WORLD has traveled a long way to become the publication we know today. Beginning in the year, Drones World will be the magazine for the drone economy that appeals to the masses.

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

Till then, stay safe, God bless.

# Teri Bristol Joins ANRA Technologies Board of Directors

**A**NRA Technologies, a global leader in uncrewed traffic management and operation solutions announced the appointment of Ms. Teri Bristol to its Board of Directors. Ms. Bristol brings a wealth of executive experience and expertise from her illustrious career in aerospace, technology, and government.

With a distinguished background in leadership roles within the Federal Aviation Administration (FAA), Ms. Bristol retired in February 2022 as the Chief Operating Officer (COO) for the Air Traffic Organization, overseeing the delivery of air traffic services and operational support for US civil aviation. Her tenure was marked by exceptional achievements, including substantial cost-saving initiatives, providing congressional testimony, and a remarkable track record of safety advancements within the aviation



industry.

"Ms. Bristol's unparalleled expertise in aerospace operations, strategic leadership, and her commitment to innovation make her an invaluable

addition to our board," said Amit Ganjoo, CEO of ANRA Technologies. "Her visionary approach and deep understanding of the industry will be instrumental in guiding ANRA's strategic direction as we continue to revolutionize and enable uncrewed system operations globally."

Beyond her FAA tenure, Ms. Bristol's extensive board and leadership experience includes serving on the boards of UFA, Inc., Civil Air Navigation Services Organization (CANSO), MITRE Corporation, and RTCA, among others.

"Joining the board of ANRA Technologies is an exciting opportunity to contribute to the advancement of autonomous aviation," stated Ms. Bristol. "I look forward to collaborating with the team, leveraging my expertise to drive innovation and safety in this dynamic sector."

## Vertical Aerospace Founder Backs Company with Additional \$50M Investment Commitment

**V**ertical Aerospace (Vertical) a global aerospace and technology company that is pioneering zero-emissions aviation, announces that it has secured \$50 million in committed funding from founder, majority owner and CEO, Stephen Fitzpatrick. The investment provides the platform for further funding rounds and extends Vertical's projected cash runway into Q2 2025, supporting the continued development of the certification aircraft design following prototype testing this year. This certification aircraft will then go into final regulatory testing before production.

This funding comes at an important period for the company as it nears the completion of its second generation, full-scale piloted VX4 prototype at GKN Aerospace's Global Technology Centre. The aircraft will conduct a series of key public flight demonstrations in 2024, including the intention to fly at Farnborough International Airshow and to and from Heathrow Airport. These flights are expected to demonstrate the significant technical and engineering advancements made to the VX4. Following this flight test programme and planned public demonstrations, Vertical expects to be in position to refine and finalise its aircraft design.

Stephen Fitzpatrick, CEO & Founder of Vertical,



said: "Since founding Vertical in 2016 I have continued to believe in the enormous potential the company has to pioneer zero carbon aviation. The company has achieved significant technical progress both in its prototype programme and its certification plans in 2023 that I believe is not reflected in our share price. Given the success I have seen in the past 12 months, I am more confident than ever in our world-class team, and I am delighted to further support the company with additional funding."

Mike Flewitt, Chairman of Vertical, said: "I am delighted that Stephen has committed to further funding Vertical. His vision and funding to date have enabled Vertical to be a frontrunner in the Advanced Air Mobility industry and I look forward

to both our demonstrations and the completion of additional funding rounds to deliver on the promise the VX4 has to offer our customers and their passengers. We are on track to deliver a transformative UK developed electric aircraft to our customers across the globe."

The funding comes off the back of several major milestones achieved by the company in 2023:

- Opening the Vertical Energy Centre in January and building a complete battery powertrain with Molicell cells

- Receiving Design Organisation Approval (DOA) from the UK Civil Aviation Authority (CAA) in March

- Completing the thrustborne test campaign with the full-scale VX4 prototype by August

- Pre-orders for 1500 VX4 aircraft worth over \$5bn from more than a dozen customers worldwide by October

- Completing initial Technical Familiarisations with five global aviation regulators and proceeding to a key design review for the VX4

- Starting final assembly for the second VX4 full-scale piloted prototype - which includes the technologies from the majority of the VX4's certification aircraft partners

## Marut Drones and NMDC Propel Indian Mineral Exploration into the Future with Innovative Drone Collaboration



**M**arut Drones, a prominent drone manufacturer in India, has partnered with the National Mineral Development Corporation (NMDC) to introduce drone-based mineral exploration in the country. This collaboration represents a significant advancement in the field, utilizing custom-designed drones with advanced sensors to enhance precision and sustainability in mining operations.

NMDC has acquired two custom Octacopter drones from Marut Drones, which the company says marks the initiation of drone-based mineral exploration in India. The collaboration introduces advanced sensors, including Magnetometer, Hyperspectral, and Lidar, for the first time in the country.

The Mineral Exploration Drone developed by Marut Drones features innovative aspects such as a coaxial design for stability and precise maneuverability, essential for effective mineral exploration. Mr. Prem Kumar Vislawath, CEO of Marut Drones, highlighted the importance of this collaboration, stating, "This is the first time in India where we have built a drone specifically for mineral exploration. It's an Octaquad Coaxial X8 drone, specially designed for NMDC. Every aspect of this drone, including the motors and propeller systems, has been made in India. We believe this is a significant breakthrough in the mining and exploration space."

The drones are poised to transform exploration approaches, particularly in prospecting for critical minerals such as lithium, copper, gold, diamond, rare earth elements, and other essential minerals. NMDC's adoption of drone-based hyperspectral magnetic exploration, calibrated by Marut Drones, marks a notable shift in data acquisition and processing methods.

The collaboration between Marut Drones and NMDC is set to modernize mineral prospecting, making magnetic surveys faster and more cost-effective. The technology enables drones to fly closer to the surface, improving data collection resolution and enhancing the efficiency and affordability of surveys.

### SWaP Optimized MWIR Optical Gas Imaging Camera Module Neutrino® LC OGI



**M**ade in the USA, the ITAR-free Neutrino LC OGI provides 640x512 VGA-resolution MWIR optical-gas-imaging (OGI) and is easily integrated into a wide range of solutions to detect, measure, and visualize gas emissions. Teledyne FLIR's High Operating Temperature (HOT) FPA technology and linear micro-cooler provide integrators with the industry-best, two-year warranty and significantly longer endurance in the leading size, weight, and power (SWaP) module available today. Quick cool down and time-to-image combined with low-power and quiet, low-vibration operation make Neutrino LC OGI the choice for battery-powered handhelds, UAVs (unmanned aerial vehicles), small gimbals, and fixed-mounted gas leak detection systems within processing facilities, refineries, pipelines, tank farms, and well pads for the oil and gas industry.

Designed to meet EPA performance requirements, the narrow 3.3  $\mu\text{m}$  infrared (IR) spectral band accurately detects hydrocarbons including methane, propane, butane, and other greenhouse gases and volatile organic compounds (VOCs). The Neutrino LC OGI can be operated in VGA mode to maximize scene awareness or Bin mode to improve sensitivity to an industry-leading  $<20$  mK. Backed by a standard two-year warranty and a professional technical support team for integration assistance, the Neutrino LC OGI is the lowest-risk and highest-performance OEM camera module for integrators developing methane monitoring and other gas imaging solutions today.

# Mitsubishi Electric US, Inc. Announces Launch of AnyMile™ Drone-based Logistics Operations Management Platform

Mitsubishi Electric US, Inc. announced the launch of the full suite of its AnyMile™ drone-based logistics and operations management platform. Drone operators, corporate shippers, and transportation and logistics companies can now tap into AnyMile’s comprehensive feature set that provides access to shipment, fleet and service management applications, enabling operators to profitably accelerate and scale operations while reducing their carbon footprint. An Alpha version of AnyMile was announced at the 2023 Consumer Electronics Show (CES).

In addition, the new AnyMile Manufacturer Portal enables drone manufacturers to promote their vehicles to prospective buyers that are expanding or maintaining their fleet operations. They can educate potential buyers about various vehicles with marketing collateral, performance and warranty information, usage instructions, maintenance schedules and procedures, and more. Financing options may be made available on the platform.

“As the industry continues its rapid growth, management of drones, terminals, routes and every other aspect of operations will become increasingly more complex, which speaks to the



need for an all-encompassing logistics operations management platform like AnyMile,” said Zafer Sahinoglu, vice president and general manager of Mitsubishi Electric Innovation Center (MELIC). “AnyMile aligns with Mitsubishi Electric’s mission to achieve truly global and interconnected sustainable smart society, while decreasing our carbon footprint.”

AnyMile supports all known categories of drones – multi-rotor, fixed-wing, single-rotor or fixed-wing hybrid VTOL, and eVTOL – to provide an end-to-end resource planning and management system.

The platform is integrated with an Uncrewed Traffic Management System (UTM) from OneSky for the safe and efficient operations of drones, in low-altitude airspace. Additional AnyMile features include the ability to schedule cargo pick up at a specific location, tracking delivery to multiple destinations; live maps; set up of terminal and station locations; management of drone maintenance tasks; and performance of routine operational tasks, such as generating customer invoices, key performance indicators (KPIs), booking services for drones including refueling, servicing and much more.

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# DRONES WORLD

**FOR EDITORIAL & MARKETING**

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## HERE Technologies announces partnership expansion with what3words to enable seamless access and use across industries

**H**ERE Technologies, the world's leading location data and technology platform announced an expansion of its global partnership with innovative addressing system what3words. Starting this year, customers using the HERE platform's Location Services application programming interfaces (APIs) will be able to easily activate their what3words license via HERE.

HERE is making what3words available in its platform amid increasing consumer demand for the innovative location technology. HERE's automotive customers are already able to activate their what3words license via their HERE account managers, and the latest agreement between the two companies will bring this offering to customers across other verticals.

what3words is revolutionizing the way the world communicates location. It has divided the globe into a grid of 3 meter x 3 meter squares, and given each one a unique combination of three words: a what3words address. For example ///wished.propeller.powerful will take you to a bench with one of the best viewpoints in the Red Rock Canyon National Conservation Area in Nevada, near Las Vegas.

What3words enables users to easily convey locations as specific as delivery entrances, parking spots and stadium gates, and it provides easy location references in places with no street addresses, such as beaches, parks and remote hiking trails.

HERE and what3words first partnered in 2020 to offer automotive customers the next generation of precision in-car navigation. Since this announcement, the joint solution has already enabled major players including Jaguar Land Rover to enable the technology with ease.

The HERE location platform is recognised as the most complete in the industry, powering location-based products, services and custom maps for organizations and enterprises across the globe. Customers of HERE include nearly every global automaker, leaders in e-commerce, transportation and logistics, and public sector agencies worldwide. By adding what3words functionality to its platform, HERE is making it as quick and easy as possible for these clients to introduce the tech to their own systems. This has proven to be increasingly important to customers as consumer demand for what3words continues to grow across the globe.

Clare Jones, Chief Commercial Officer at what3words commented "Our partnership with HERE has proven to be a major accelerant to our growth in the automotive industry. Integrations that would have taken years of development can now be done in months, and innovative updates can even be delivered over-the-air. The speed and ease offered by this partnership will enable what3words to leapfrog slow legacy processes that have held back innovation in other industries, and we're incredibly excited by the opportunities this partnership presents."

Remco Timmer, Vice President of Product & Technology at HERE Technologies commented "As the world's leading location platform, we're committed to providing our customers with best-in-class products and services. what3words' innovative technology creates another layer of precision in the way the world communicates location and we see so much potential in making what3words readily available for thousands of our customers around the world\*."

## TECHTREE LAUNCHES 3D GEOSPATIAL MAP PLATFORM

**T**echtree Innovation has launched AROUND, a high-precision, high-resolution 3D geospatial map platform designed to improve the quality and accuracy of existing 3D maps.

According to the company, AROUND is based on its existing 3D map generation and rendering technology. It offers four solutions for various industrial applications, such as urban or smart city planning, simulation, military and disaster management.

AROUND intends to provide high-precision, high-resolution 3D geospatial maps rendered with satellite maps, GIS data, 3D scanning using the photogrammetry software mapping (PSM) method, and high-end graphic production technology using the Unreal Engine, a 3D rendering platform.

The mapping platform aims to increase realism by implementing various visual geospatial information data – including terrain, buildings, vegetation, roads, transmission towers, traffic lights, signs and signboards, weather conditions, sunlight, coordinate data, elevation differences, and more from the real world. It is characterized by having accuracy and resolution within 5 cm and unifying all high and low altitude resolutions.

AROUND can be used for digital twins, smart city construction, autonomous driving, aviation, military training and education, disaster prediction, smart city or urban planning, review, architecture, design and more.





# Placer.ai and Esri Partner to Deliver Geospatial Analytics

Placer.ai, the leader in location analytics, and Esri, the global leader in geographic information system (GIS) technology announced a major strategic partnership. The relationship is aimed at enabling new and advanced analytics, allowing customers to leverage the integration of consumer behavior analysis capabilities for site specific and trade area intelligence. The agreement will also trigger collaborations aimed at unlocking additional features by bringing together our respective products.

Retail and commercial property operators are under pressure to maximize their physical presence, and location data and analytics have become a critical piece of this process. The combination of Esri's ArcGIS system with Placer's location analytics helps bring this information to life to enable even more effective decision-making. The goal of this partnership is to support the needs of these professionals, accelerating decision-making and improving business performance with integrated solutions that yield analysis seamlessly



## Placer.ai

at scale.

Esri is the global leader in supporting organizations that want to unlock the full potential of data by combining geography and analytics to improve operational and business results. "Placer.ai has become the industry standard for leveraging location analytics with foot traffic insights. By integrating this content into Esri's ArcGIS system, this empowers a level of visualization and decision-making for many organizations that wasn't possible before," said Danny Spillmann, Esri Director of Global Business Development. "We believe that the strategic partnership will unlock tremendous value for the business community and serve as a starting point for even more impactful innovation moving forward."

"Location analytics has fundamentally improved

the way businesses and organizations make decisions, and we are constantly expanding upon this critical foundation. From layering in new data perspectives like Psychographics, Transaction, Construction Pipeline and more, to widening the types of questions that can be answered with these analytics. Partnering with Esri is the next step in broadening the vision of what location analytics can accomplish, allowing industry professionals to leverage industry-leading mapping capabilities, better visualize our data, and add significantly more depth to their analysis," said Koby Ben-Zvi, President and Co-Founder of Placer.ai. "The partnership is centered around a natural synergy between our respective strengths and we look forward to leveraging our enhanced collaboration to redefine what businesses and civic organizations expect from these solutions."

The companies are currently working on initial product launches while also laying the groundwork for ongoing collaboration on features that would enhance the capabilities of both companies.

## HERE Technologies named by Uber as a global location provider focused on improving mapping and geolocation functionalities

HERE Technologies, the leading location data and technology platform, and Uber Technologies, Inc announced a long-term collaboration to enhance Uber's mapping capabilities globally for rideshare and food deliveries. The agreement builds on HERE and Uber's existing partnership and will help bring further advanced location-aware tools and functions to the Uber platform.

With millions of rides a day, this means HERE will help work together to help provide safe and more accurate drop-off and pick-up points at locations, including airports, stadiums, arenas and high-traffic areas globally.

"The mapping capability is key to creating a fast and intuitive experience for on-demand mobility and delivery solutions," said Ajay Dalvi, Senior Director of Business Development at Uber. "Ultimately, it's all about ensuring end-users, from drivers to couriers to consumers, have the best possible experience when they're using the Uber apps. In a fast moving world, Uber's partnership with HERE helps enable Uber to remain a leader in this space with heightened fresh and accurate data, and



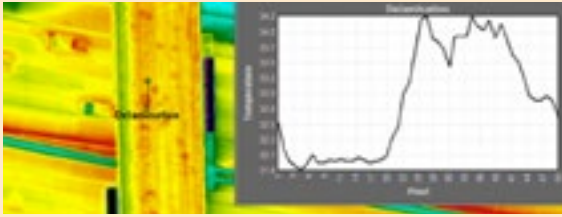
we're excited to continue building with them."

"We are proud to provide Uber with HERE's robust point address and Points of Interest datasets," said Stuart Ryan, SVP and General Manager of the Americas at HERE Technologies. "The HERE platform uniquely offers Uber the ability to customize the app offering, improving the customer experience

with better precision and fresh maps data. This partnership will continue to build and improve on the Uber platform, making it safer and more efficient for rides and deliveries around the world."

Uber and HERE are also exploring new ways to bring additional location-based tools to continue to grow the capabilities of the Uber platform.

## NV5 Geospatial's Thermal Infrared Solutions Gain Traction for US Infrastructure Challenges



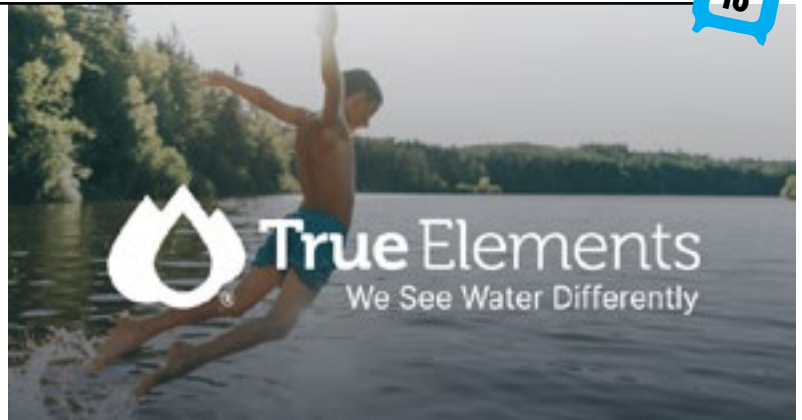
**N**V5 Geospatial, North America's most comprehensive geospatial data firm announced ahead of the 103rd Transportation Research Board (TRB) Annual Meeting that NV5 Geospatial's thermal infrared (TIR) Solutions for transportation infrastructure challenges are being implemented in transportation projects analyzing concrete bridges in the Midwest. This remote sensing technology offering enables local, regional and governmental transportation agencies to identify structural problems well before they reach the surface of concrete bridge decks.

This groundbreaking work comes at a time when 42% of U.S. bridges are over 50 years old and more than 46,000 of them are considered "structurally deficient" according to the American Society of Civil Engineers (ASCE) "2021 Report Card on Infrastructure." The ASCE report also found that "178 million trips are taken across these structurally deficient bridges every day," potentially endangering countless lives. The U.S. was ranked by the World Economic Forum 13th globally when it comes to the overall quality of infrastructure.

Concrete bridge decks are critical components of the structure that require periodic inspections for continuous maintenance, rehabilitation, and replacement work. TIR is integral to non-destructive inspection (NDI) techniques for analyzing concrete bridge decks and identifying potential delamination made quicker and more efficiently by aerial collection.

"For decades NV5 Geospatial has been trusted to provide on-target geospatial solutions for roadways, airports and all modes of rail infrastructure. Our clients trust us because we've proven time and time again that we can find a better way to ensure the right solutions for their specific needs," said Bob Vandermeer, vice president, State & Regional Lead, NV5. "We believe that our new bridge inspection approach enabled by our TIR Solutions is defining a new path for cost effective, highly accurate analysis that is sure to reap considerable benefits for departments of transportation and more importantly, support safer roads across America."

NV5 Geospatial recently conducted two separate pilot projects with two Midwestern states' Departments of Transportation utilizing aerial data collection to identify thermal anomalies of potential delamination for 200 bridge concrete surfaces. Both projects were completed by flying a fixed-wing aircraft at a low elevation with the thermal sensor mounted to its floor and without having to use ground based support.



## True Elements and Carahsoft Partner to Bring Water Intelligence Solutions to the Public Sector

**T** rue Elements, the leader in Water Intelligence, and Carahsoft Technology Corp., The Trusted Government IT Solutions Provider® announced a partnership. Under the agreement, Carahsoft will serve as True Elements' Master Government Aggregator®, making the company's industry-leading Water Intelligence SaaS solutions and data sets available to the Public Sector through Carahsoft's reseller partners and NASA Solutions for Enterprise-Wide Procurement (SEWP) V, National Cooperative Purchasing Alliance (NCPA) and OMNIA Partners contracts.

"The partnership with Carahsoft will provide Water Intelligence to Public Sector agencies, enabling them to better understand current water challenges and effectively prepare for a very different water future," said Kim Patrick Kobza, CEO of True Elements. "The key is to provide agencies with dynamic workflow solutions that are cost effective and easy to procure so they can succeed in assessing the present and forecasting the future. With Carahsoft as a partner, we can accomplish our mission to ensure all agencies have the best decision support available when responding to rapidly changing climate conditions."

**The Value of Water Intelligence** : Water Intelligence is a unique combination of state-of-the-art technology, scientific analysis and AI capabilities that continuously aggregates, synthesizes and transforms expansive amounts of complex water data into easily understandable, increasingly precise analyses and forecasts via scores and visualizations. These analyses and forecasts produce deep, clear insights that help decision-makers better understand water resources to make fully informed decisions about how to manage and optimize resources.

**Water Intelligence Helps Public Sector Leaders Ensure a Water-Resilient Future** : Changing weather patterns are creating climate crises across the globe. Ninety percent of those crises are experienced through water. True Elements' SaaS solutions and data sets quickly and easily provide Public Sector leaders with in-depth insights necessary for fully informed, confident decision-making to address water challenges at the local, regional and national levels.

Insights into current water quality and quantity challenges (pollution, demographic considerations, etc.) as well as future disruptive events or long-term changes to water resources (drought, sea level rise, flood risk, etc.) help Government leaders make the strategic decisions necessary to ensure their organizations, assets, operations and communities can adapt and thrive in a climate with rapidly changing hydrologic cycles. True Elements' Water Intelligence platform easily, efficiently and cost-effectively delivers the understanding decision makers need with color coded scores and visualizations.

"The Public Sector is currently facing water-related challenges that are expected to increase in number and severity if left unaddressed," said Harjeet Khalsa, Sales Director, Google ISV Ecosystem at Carahsoft. "Through collaboration with our reseller partners and the addition of True Elements' Water Intelligence solutions to our offerings, Government agencies are empowered to procure the resources necessary to proactively address existing water related challenges and work toward a water-resilient future."

# PRECISELY LAUNCHES PSYTE™ US GEODEMOGRAPHIC DATA, ENABLING BUSINESSES TO REACH THEIR IDEAL AUDIENCE

precisely



Precisely, the global leader in data integrity, today announced the launch of its PSYTE™ US geodemographic segmentation data product, providing easy-to-understand classification of populations in target geographies across all 50 U.S. states and the District of Columbia. Part of an extensive data enrichment portfolio, the product's expertly curated dataset enables businesses to deepen customer relationships by providing personalized services, save time and money with more accurate audience targeting, and fuel confident decisions by uncovering greater levels of context from audience insights.

The dataset unlocks additional value through its integration with the PreciselyID, a unique and persistent identifier from Precisely that allows tagged addresses to be seamlessly linked to its comprehensive data enrichment portfolio.

Consumers increasingly expect the brands they engage with to offer a more relevant customer experience, with McKinsey reporting that 71% of consumers look for personalized communications. However, many organizations struggle with ever-growing volumes of data for useful customer insights -

The addition of the PreciselyID exponentially increases the valuable insights derived through PSYTE US geodemographic data by allowing it to easily connect to over 400 Precisely datasets, containing more than 9,000 attributes," said Adams. "It's a powerful combination that provides premium levels of data context for organizations seeking to make confident location-based decisions.

particularly alongside the added pressure of staying compliant in an evolving regulatory landscape.

"The past few years have transformed the way in which people live, work, and travel - with companies challenged to derive meaningful insights from increasingly complex and multi-dimensional data," said Dan Adams, SVP - Data Strategy & Operations at Precisely. "The PSYTE US geodemographic dataset helps simplify enrichment and access to insightful data, using proprietary techniques to help ensure that all foundational data is kept up-to-date, and accurately reflects the ever-changing nature of the US population."

The new dataset can help businesses improve efficiencies through lower costs and greater time savings by leveraging geodemographic segmentation data with a rich understanding of the population in an area. Aggregated data can help accelerate insights on socio-economic and behavioral characteristics, helping to increase customer engagement and loyalty. The product also classifies segments into 12 lifestyle groups and 63 mutually exclusive neighborhood types that are easily identified by a common naming convention.

**This highly curated data from precisely supports organizations in a wide variety of critical uses, including:**

**Customer Insights** - better understand audiences based on lifestyle, interests and other factors needed for personalized marketing and product strategies.

**Location Planning** - analyze demographics of different vicinities when establishing the ideal location for new stores or services.

**Investment Analytics** - assess new markets for potential risks and opportunities based on economic and social conditions.

**Logistics and Delivery Planning** - identify preferences of selected audiences, to better manage stock levels and availability of products in different locations.

**Emergency Planning** - access insights into the demographics of specific regions for more effective governmental and public sector policy planning, emergency services deployment, route evacuations, and more.

## EagleView and RapidSOS Partner to Provide High-Resolution Aerial Imagery for Emergencies

EagleView, a leading provider of aerial imagery, software and analytics, and RapidSOS, the intelligent safety platform securely linking over 500 million devices to more than 16,000 first responder and 9-1-1 agencies announced an integration of EagleView's high-resolution orthogonal imagery into RapidSOS Premium.

EagleView's proprietary camera systems capture superior quality imagery compared to standard satellite images. These detailed images offer higher resolution, greater spatial accuracy, and a clear date stamp, providing critical context in emergency situations.

"Our collaboration is dedicated to one crucial goal, and that's keeping field responders safe and saving lives," said Joe Oddi, Director of Partner Strategies at



EagleView. "By integrating EagleView imagery with RapidSOS Premium, we help public safety professionals respond in the most accurate and efficient way to citizens in distress."

RapidSOS Premium enhances the 9-1-1 response system by consolidating critical data such as real-time location, local GIS data, and caller profiles into a single, comprehensive mapping solution. This integration with EagleView will enable RapidSOS users to access high-

resolution aerial imagery directly in their workflow, offering unparalleled insights into emergency locations and streamlining decision-making for telecommunications and field responders.

"Through this alliance with EagleView, telecommunications can provide more accurate intelligence and directions to support their field responders," said Karin Marquez, Chief Public Safety Brand Officer at RapidSOS. "With high-resolution aerial imagery in RapidSOS, public safety officials can make faster, smarter, and safer decisions to aid those in the field."

Both parties are looking forward to further enhancing the alliance to bring new and innovative solutions to the market.

## YELLOWSCAN ENTERS HYDROGRAPHY MARKET WITH BATHYMETRIC UAV-LIDAR SOLUTION

YellowScan, a familiar name in the mapping and land surveying realm, is making a noteworthy entrance in the hydrographic sector with the introduction of its pioneering UAV-based bathymetric Lidar solution. The YellowScan Navigator made its debut at CES 2024, marking a new step for the French company.

Since its inception in 2012, YellowScan has become a household name in the geospatial industry, pioneering innovative Lidar mapping from drones. The company has consistently delivered precise instruments that significantly enhance the day-to-day operations of numerous surveyors. It has earned a reputation for its commitment to developing outstanding products that effectively address the evolving needs of the market.

Now taking a significant stride into the hydrographic sector, YellowScan has introduced the YellowScan Navigator. This dedicated solution fulfils the critical need of surveyors to map underwater topography in rivers, ponds and coastal areas. This new venture underscores YellowScan's continual commitment to innovation and meeting the demands of diverse surveying environments.

Built on proven technology

According to Tristan Allouis, CTO of YellowScan, the YellowScan Navigator addresses an unmet need in the mapping market and supports society



in tackling environmental challenges. "As someone who started his career working on bathymetric Lidar data, I've always pursued the vision of developing my own system. Mastering hardware design has enabled us to develop advanced processing algorithms and push the system's performance beyond state-of-the-art."

The YellowScan Navigator can best be described as a high-end bathymetric Lidar solution designed for drone deployment. This advanced system integrates an in-house-developed

laser scanner refined over the past five years and subjected to rigorous testing for optimal performance. The compact design is precisely calibrated to map waterbeds within a depth range of zero to three metres, with the capability to reach depths of 18m in pristine water conditions. Capable of flying up to 100m above the water surface, it provides measurements with exceptional precision and accuracy of 3cm. Additionally, an embedded camera enhances its functionality by providing true-colour data colourization.

## Maxar to provide highly accurate 3D data in NGA partnership



**M**axar Intelligence, a provider of secure, precise, geospatial intelligence announced that it received a contract to provide the National Geospatial-Intelligence Agency (NGA) with a Precision3DTM Data Suite bundle covering 160,000 square kilometers within the U.S. Indo-Pacific Command area of responsibility.

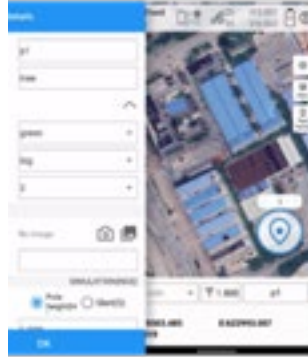
The commercial 3D data provided by Maxar will support the work of NGA's Office of Geomatics, which maintains accurate 3D GEOINT products in support of a diverse group of military and civilian customers.

Maxar's Precision3D Data Suite is built using multiview photogrammetry methods, resulting in highly accurate and detailed 3D models with 50-centimeter resolution and absolute accuracy of 3 meters in all dimensions. The accuracy is achieved without ground control and is consistent on all surfaces and terrain types, including building facades.

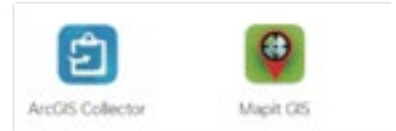
Precision3D data enhances situational awareness and decision-making, providing a precise, true representation of Earth that not only reflects the terrain in all dimensions but also provides an accurate foundation for additional data sources through Precision3D Registration (P3DR™) georegistration.



**Maxar Intelligence is proud to have secured this award to provide the NGA with commercial 3D data, which speaks to the NGA's strong partnership with industry and the growing business case for utilizing unclassified, high-quality commercial geospatial data to support national security needs,"** said Susanne Hake, General Manager, U.S. Government, Maxar Intelligence. **"Precision3D data enhances situational awareness and decision-making, providing a precise, geospatially accurate representation of Earth that not only reflects the terrain in all dimensions but also provides an accurate foundation for additional data sources through georegistration.**



Compatible with common third-party GIS software such as



## ComNav Launches New P6H Handheld for GIS

**C**omNav Technology LTD. introduces its new Handheld P6H, an advanced and rugged device tailored for Geographic Information System (GIS) data collection and outdoor operations. Featuring GNSS high-precision positioning module, rugged IP67-rated design, and 6" sunlight-readable display, the P6H ensures incredible positioning accuracy even in harsh environments.

**High Precision Satellite Tracking and Positioning Technology :** Equipped with SinoGNSS self-developed high precision K8 board and antenna, it tracks all running and planned constellations with 1590 channels, including GPS, BDS, GLONASS, GALILEO, QZAA, IRNSS and SBAS. Its accuracy remains at centimeter or decimeter level.

**Outdoor Excellence with IP67 Protection and Sunlight Readable Screen :** Its IP67 rating offers excellent protection against dust and water, suitable for tough environments. The addition of a 6600mAh removable battery with quick charging extends its operational capacity, ideal for prolonged outdoor use. Reliable in various conditions, such as heavy rain or dust, the device ensures efficiency and durability.

Moreover, the device features a Sunlight Readable screen with a 6-inch display for clear visibility in bright sunlight, reducing glare and reflections. This touchscreen, designed with a 5-point capacitive system, not only enhances user interaction by being intuitive but also accommodates diverse operational needs. It is adept at capturing data in various conditions, whether through the use of a stylus, while wearing gloves, or even with wet hands. Additionally, the device's ability to withstand drops from 1.2 meters height adds to its reliability, especially for professionals working in challenging outdoor conditions.

**Compatibility with Common GIS Software :** The P6H distinguishes itself not only in hardware but also through its exceptional software integration. It comes equipped with Survey Master, boasting robust GIS functions. These allow users to take measurements of geographic elements and store the results as attribute data for subsequent analysis, calculation, and visualization. It also includes a Mock Location function, allowing the sharing of Survey Master's accurate position with P6H. This enables third-party GIS software to access the same accurate position data. The function is suitable for users who prefer some third-party software rather than Survey Master, this ensures users have access to high-accuracy location data, facilitating a more effective and integrated use of various software tools in their professional tasks.

In addition to its integration with Survey Master, the P6H boasts compatibility with common GIS software such as ArcGIS Collector, Mapit GIS, and QGIS. This adaptability ensures its versatility as a tool for collecting and analyzing geographic data. Moreover, the P6H features an 8-core 2.0GHz processor, up to 128GB of storage, and up to 6GB of RAM, ensuring smooth software operation and efficient data processing. This integration enhances task efficiency.

**Precision and Connectivity for Enhanced On-site Efficiency :** The P6H handheld device, featuring a High Precision GNSS Module and Antenna, is tailor-made for efficient and precise on-site work. It incorporates 4G LTE, Wi-Fi, and Bluetooth® 5.0 BLE, enhancing its data transmission and sharing capabilities. This capability reduces data transfer and processing times, improving work efficiency, accelerating task completion, and ultimately boosting overall productivity.

## Joby and Clay Lacy Partner to Bring 1st Electric Air Taxi Charger to Southern California

Joby Aviation, Inc. a company developing electric air taxis for commercial passenger service, announced it has signed a definitive agreement with Clay Lacy Aviation to install Southern California's first electric air taxi charger at John Wayne Airport (SNA) in Orange County, CA.

The installation of electrical infrastructure to support Joby's Global Electric Aviation Charging System (GEACS) comes as part of Clay Lacy's planned \$100 million redevelopment of its fixed-based operator (FBO) terminal at SNA, targeting completion in mid-2025.

The GEACS charging interface, which is already in use at Joby's flight test center in Marina, California and at Edwards Air Force Base, supports the safe and efficient operation of all electric aircraft under development today, including Joby's quiet, emissions-free air taxi.

The Joby aircraft will be deployed on routes of up to 100 miles, and can carry a pilot and four passengers at speeds of up to 200 mph, offering travelers high-speed mobility with no in-flight emissions and a noise footprint that is radically lower than today's helicopters. The installation of a charger at John Wayne Airport will establish the



site as a node in Joby's Southern California air taxi network, which is expected to be one of the first networks to launch in the U.S.

In 2022, Joby announced it was working with Delta Air Lines to deliver seamless airport trips for its customers across several locations, including Los Angeles.

"Today's announcement marks a key moment on the path to delivering our air taxi service in the Greater Los Angeles area," said JoeBen Bevirt, founder and CEO of Joby. "We're taking concrete steps to ensure the right infrastructure is in place to support our future service and we're grateful to

be working with an industry pioneer like Clay Lacy Aviation to lead the way on bringing sustainable aviation to Southern California.

"The charging technology we have developed is optimized to support our whole industry, from air taxis delivering short range city flights to more conventional electric aircraft flying longer distances. Joby made the specifications for the universal charging interface freely available to the wider industry in November 2023, to help accelerate the transition to clean flight. We're therefore very pleased to see it being adopted in this key market," he added.

Scott Cutshall, SVP Strategy and Sustainability at Clay Lacy Aviation, commented: "Since our founding more than 50 years ago, Clay Lacy has been committed to improving lives for our community, employees, and clients; leading the industry on safety and service while taking action to reduce emissions in both our ground and air operations. We're excited to be working with Joby to install Southern California's first air taxi charger and we look forward to the greater convenience it will bring to the Orange County community without additional noise or emissions."

## Joby to Install First Electric Air Taxi Charger in Greater New York City Region

Joby Aviation, Inc. a company developing electric vertical take-off and landing (eVTOL) aircraft for commercial passenger service announced it has signed a definitive agreement with Heli Holdings, Inc. ("HHI"), to install the first air taxi charger in the greater New York City region at the company's heliport in Kearny, New Jersey, located just a two minute flight from Manhattan.

The agreement, which provides Joby with an operational base for its electric air taxi in the NYC region, builds on the partnership already established between Joby and HHI in November 2023, when Kearny served as a temporary home base for Joby's aircraft. Joby completed several flights at Kearny in preparation for the Company's exhibition flight in New York City at an event hosted by the New York City Economic Development Corporation and Mayor Eric Adams. The city has committed to electrify the Downtown Manhattan Heliport to enable electric air taxi operations.

First opened in 2011, the Kearny heliport is the largest vertical-lift facility on the east coast with 27 parking spots for helicopters and plans to expand



to 32. The heliport provides ground services as well as hangar space for maintenance operations to helicopter operators in the NYC region, one of the busiest low-altitude corridors in the world.

As part of the agreement, HHI will upgrade its electrical infrastructure to support the installation of Joby's Global Electric Aviation Charging System ("GEACS"), designed to support the safe and efficient operation of all electric aircraft under development today, including Joby's quiet, emissions-free air taxi.

"We're pleased to expand our partnership with HHI as we prepare to install our GEACS charging system at Kearny Heliport. Kearny is expected to become the first heliport with an air taxi charger in the tri-state area and enable the launch of our quiet, emissions-free air taxi service in the greater New York City region," said JoeBen Bevirt, Founder and

CEO of Joby.

The GEACS charging interface is already in use at Joby's flight test center in Marina, California and at Edwards Air Force Base. Joby recently announced a definitive agreement with Clay Lacy Aviation to install a charging system at John Wayne Airport (SNA) in Orange County, CA.

Jeff Hyman, Founder and CEO of HHI, commented, "We continue to expand our footprint in Kearny in support of one of the busiest low-altitude corridors in the world, and we're thrilled to partner with Joby, one of the leading developers of electric air taxis, to bring the next wave of quiet aircraft to residents of the tri-state area."

In 2022, Joby announced a multi-year, multi-city commercial and operational partnership with Delta Air Lines to deliver seamless airport trips for its customers across several locations, including Los Angeles and New York City. Joby's air taxi is designed to carry a pilot and four passengers at speeds of up to 200 mph, offering high-speed mobility with a fraction of the noise produced by helicopters and no in-flight emissions.

**Horizon Aircraft Enters into LOI to Purchase \$250M of Cavorite X7 Aircraft, with an Option for up to \$500M**



New Horizon Aircraft Ltd. doing business as Horizon Aircraft a leading hybrid electric Vertical TakeOff and Landing (“eVTOL”) aircraft developer, announced that it has entered into a Letter of Intent (“LOI”) with JetSetGo, a regional air operator servicing multiple mission profiles. This LOI allows JetSetGo to purchase 50 Cavorite X7 Aircraft at a purchase price up to \$5M USD per aircraft for a total aggregate consideration of \$250M USD, with an option to purchase an additional 50 aircraft for a total possible consideration of \$500M USD.

Brandon Robinson, Chief Executive Officer of Horizon commented, “We are truly honoured by this commitment from JetSetGo, a leading private aviation operator with a shared vision of a more sustainable and efficient on-demand regional travel. We are confident that our Cavorite X7 eVTOL will operate sustainably and profitably across India as well as many other global locations. As a hybrid electric aircraft, there is no need to install expensive charging support equipment across the travel network; it is a machine designed for challenging, real-world operations.”

Kanika Tekriwal, JetSetGo’s CEO and co-founder, stated, “Our decision to enter into this Agreement with Horizon Aircraft was not taken lightly. We ultimately decided to partner with a company with a deep operational and aerospace technology background that will deliver a product that will help usher in a new era of sustainable air travel while also providing significant value for our customers. This partnership will help JetSetGo profitably enter new markets by leveraging the versatility of the Cavorite platform to bring about the vision of Advanced Air Mobility in India.”

**Archer Aviation and NASA Sign Space Act Agreement To Collaborate on Mission-Critical eVTOL Aircraft Technologies**

Archer Aviation Inc. a leader in electric vertical takeoff and landing (eVTOL) aircraft announced it has signed a Space Act Agreement with the National Aeronautics and Space Administration (NASA). The collaboration will kick off with an initial project focused on studying high-performance battery cells and safety testing targeted for Advanced Air Mobility (AAM) and space applications.

Archer believes that while the supply chain for electric vehicles in the U.S. is maturing, the supply chain for electric aircraft remains nascent not just here in the U.S., but globally, so this testing will help push progress forward. NASA’s goal is to test Archer’s battery cell and system design and share the results to push the entire AAM industry forward. Maturing battery technology is anticipated to be a key enabling factor for the mass production and adoption of electric aviation.

Archer plans to deliver a high-performing battery pack with leading levels of safety to its Midnight electric air taxi, validating that these cells are tailor made for aerospace applications, including electric vertical take off and landing (eVTOL), electric conventional take off and landing (eCTOL) aircraft and potential usage in space.

“We’re extremely proud to partner with NASA, who has pioneered the eVTOL industry over the last 3+ decades, in support of our collective mission to ensure U.S. leadership in aerospace



continues for decades to come,” said Adam Goldstein, Archer’s Founder and CEO. “Many countries around the world are challenging the U.S. in this new era of flight and our country is at risk of losing its global leadership position unless we work together, government and industry, to ensure we seize the moment and pioneer this new era of aviation technology, which stands to benefit all Americans.”

As part of the joint efforts around battery characterization, NASA and Archer will focus on further testing the safety, energy and power performance capabilities of the battery cells. Tests will be performed using one of the most advanced high speed X-ray facilities in the world, the European Synchrotron Radiation Facility (ESRF), to understand how the cells function during extreme abuse cases. Archer has chosen these cells to power the proprietary electric powertrain system Archer has designed, developed and is beginning to mass manufacture for its production electric air taxi, Midnight. The battery cell form factor chosen by Archer, a cylindrical cell, has a track record of safety, performance and scalability proven through decades of volume manufacturing, deployed across many applications globally, including in millions of electric vehicles.



**SkyDrive Signs MoU with Marut Drones to Collaborate on Transformation of Indian Air Transportation**

SkyDrive Inc. a leading Japanese eVTOL aircraft manufacturer based in Japan and Marut Drones, a leading drone technology manufacturer in India signed a memorandum of understanding (MoU) to enter into the partnership to make a significant milestone in the development of futuristic air transportation in India. Under the agreement, SkyDrive and Marut Drones aims to explore and establish mutually beneficial relationships and networks.

## LILIUM AND AJW GROUP FORM STRATEGIC COLLABORATION ON MATERIAL MANAGEMENT AS PART OF LILIUM'S AFTERMARKET SERVICES

**A**JW Group and Liliium N.V, developer of the first all-electric vertical take-off and landing ("eVTOL") jet, have signed an agreement to develop global material services and distribution to support the Liliium Jet's global aircraft operations and Liliium's Aftermarket Services Business.

The strategic collaboration between Liliium and AJW will include the management of Liliium's eVTOL spares inventory, the delivery of unparalleled warehouse and logistics services, repair and asset management, and AJW serving as the exclusive parts distributor for Liliium's worldwide customers. The partnership solidifies AJW's commitment to innovation and excellence in the next-gen aviation industry. The partnership supports Liliium's commitment to best-in-class customer service and Liliium's goal of delivering competitive operating costs and superior parts availability. Material management will be a core component of Liliium's Aftermarket Service Business, comprising also training, digital, ground operations, and in-service support functions.



Scott Symington, AJW Group's Chief Commercial Officer, commented, "Innovation is one of our core values at AJW, deeply embedded in the fabric of our operations. We are driven to pioneer revolutionary products, strategically positioning the Group at the forefront of transforming aviation efficiency. Our partnership with Liliium marks a significant stride towards realizing this vision and steering the industry towards a more sustainable aviation future."

Sebastien Borel, Liliium's Chief Commercial Officer added, "We are delighted to announce this strategic collaboration with AJW Group. This is a very important step as we advance towards our planned

entry into service in 2026 and a major milestone in the development of our strategic and comprehensive support offerings for our customers. AJW's proven world-class expertise in material management and exemplary warehouse and logistics services align seamlessly with our commitment to excellence. Together, we look forward to driving innovation, efficiency, and sustainability in the aviation sector, showcasing our collective dedication to delivering cutting-edge solutions and supporting our customers with attractive unit economics." Liliium began production of the Liliium Jet in late-2023, following Liliium's Design Organization Approval by EASA, evidencing that Liliium has the organization, procedures, competencies, resources, and demonstrated rigor required to certify aircraft according to the very highest safety standards. As the Liliium Jet enters into service and the global fleet size grows, Liliium is expecting material profit contribution in recurring revenue from its Aftermarket Service Business.

## Thales air data solution to enable the smooth and safe flight of Eve Air Mobility's eVTOL aircraft



**E**ve Air Mobility selected Thales air data solution to equip its future eVTOL, providing pilots and onboard systems with critical information, such as airspeed, airflow and altitude, to ensure the safe and efficient flight of the aircraft, in all weather conditions. ?

Electric Urban Air Mobility (UAM) is emerging as a solution to the dual challenge of traffic congestion and reducing the environmental impact of transport in urban areas. 100% electric, EVE's aircraft has seduced the market, amassing letters of intent for more than 2,800 aircraft.

Committed to environmental protection and supporting its customers with innovative and eco-

responsible solution, Thales invents technological solutions to enable new forms of sustainable mobility. Selecting Thales air data solutions to secure its eVTOL flights, Eve is underlining the leading position of the Group's technologies and expertise on the emerging UAM market and the added value of this product range.

Powered by eight lift rotors and one push propeller and featuring fixed wings, the aircraft requires a light and compact air data solution offering superior performance in both the low- and high-speed conditions of vertical flight and cruise flight.

Comprising MEMS sensors (Micro

Electro Mechanical System) and a computer, Thales air data solution inherits from more than 20 years' experience of in-house development and series production of MEMS pressure sensors and millions of flight hours in regional air transportation, military aircraft and helicopters. It offers the lowest Size, Weight and Power ratio (SWaP) on the market and optimized performance for vertical Take Off and Landing as well as cruise speed conditions.

While more than 50,000 air data units have been delivered for conventional aircraft, this new-generation solution extends Thales's recognized product range to the booming Urban Air Mobility Market.

"With Eve, we share an innovative spirit combined with aeronautics expertise that will enable to shaping the sustainable skies of the future," said Yannick Assouad, Executive-Vice President, Avionics, Thales. "We are thrilled to consolidate our partnership and widen Thales portfolio of solutions contributing to environmentally-responsible Urban Air Mobility."



# PABLO AIR Unveils Innovative Versatile Drone 'FB04' at CES 2024

**P**ABLO AIR, a leading expert in autonomous swarm control for unmanned vehicles, is thrilled to announce its participation in CES 2024, the world's largest IT and electronics exhibition.

The 'FB04,' making its debut at CES 2024, is a versatile performance drone crafted by PABLO AIR, the sole company in Korea specializing in fireworks drone shows, leveraging its expertise. Developed with entirely domestic technology, it incorporates key components and solutions, enabling precise formation flights and designed for dynamic maneuvers with swift mobility.

PABLO AIR is commencing mass production and entering the sales phase of the FB04 this year. As the first mass-produced product, it provides insight into the design direction of the upcoming drone lineup. Additionally, it is engineered to ensure convenient operation in all weather conditions by enhancing wind resistance and waterproof capabilities. The drone introduces an innovative charging method aimed at improving efficiency and convenience for battery operation and management.

The award-winning 'UrbanLinkX' is a platform designed to efficiently operate and manage Urban Air Mobility (UAM) by reducing operator workload,



enhancing economic viability, and mitigating operational risks. PABLO AIR has received high praise for 'UrbanLinkX,' recognizing its potential to address future transportation challenges in smart cities and contribute to improving the quality of life in urban areas.

Kim Young-Joon, CEO of PABLO AIR, expressed, "I am honored to receive the innovation award for UrbanLinkX, a technology that can contribute to humanity in this new era." He added, "Starting from today's inauguration ceremony, we aim to expand our drone device export business in the Americas region, ensuring profitability, with CES 2024 as a turning point."

PABLO AIR plans to expand its presence in international markets, including North America, starting this year. In particular, for business expansion in the Middle East, the company has signed a Memorandum of Understanding (MOU) with Saudi Arabia's accelerator 'NMOHUB' for project procurement and the expansion of its fireworks business. Additionally, to facilitate the smooth development of drone art show projects in the Middle East and surrounding countries, PABLO AIR has secured partnerships by signing MOUs with the Spanish fireworks specialist 'IGUAL' and the local events company 'ALBAHIYA PALACE' in Oman.

## Inertial Labs announces commercial launch of a new era of the RESEPI scanner powered by Kudan's 3D Lidar SLAM engine for digitization

**K**udan Inc. (headquarters in Shibuya-ku, Tokyo; CEO Daiu Ko, hereafter "Kudan"), a global leader in advanced SLAM (Simultaneous Localization and Mapping) technology, proudly announces that Inertial Labs, Inc. (hereafter "Inertial Labs"), a leader in sensor fusion and 3D Lidar-based remote sensing solutions with its headquarters in Virginia, USA, has decided to commercially release a new generation of its RESEPI (Remote Sensing Payload Instrument) solution, where Kudan's cutting-edge 3D Lidar SLAM algorithm "KdLidar" is adopted as the engine to generate high-precision and high-resolution point clouds.

Inertial Labs RESEPI is a robust, reliable, and cost-effective solution for remote sensing applications requiring high quality accurate results. While RESEPI was initially developed for UAV (Unmanned Aerial Vehicle, such as Drones) based remote sensing, Inertial Labs identified growing market demands to expand RESEPI's capabilities to support a broader range of sensing modalities,



including integrating handheld and backpack-based mapping capabilities. The requirement to meet these diverse market demands has led to the pursuit of a more sophisticated and robust SLAM processing engine, setting the stage for a pivotal product development collaboration between Inertial Labs and Kudan.

Leveraging KdLidar's proprietary multi-sensor fusion algorithm, along with its adeptness in managing varied motion models during sensing, the new generation RESEPI is capable of producing very high quality point clouds across a diverse range of sensing modalities. The outputs are proven to be accurate with higher resolution and precision under various dynamic mapping environments.

"This partnership brings together leaders in hardware and software capabilities," said Juan Wee, CEO of Kudan USA. "to create and launch a powerful and precise end-to-end 3D mapping solution for a wide range of industries and applications, setting a new standard in the market"

Jamie Marraccini, CEO of Inertial Labs commented, "Innovation in sensor-fusion technology is bringing ever more possibilities to mapping, inspection, autonomous navigation and robotics. This released solution with Kudan is the first step towards further collaboration of integrated APNT\* solutions."

This new generation of RESEPI, with Kudan's SLAM technology, is set to disrupt industries like urban planning, infrastructure monitoring, construction, mining, forestry, and environmental monitoring, by enabling easier collection, processing and visualization of any target environment, in over 25 countries served by Inertial Labs.

## BAE AMPV Prototype Successfully Fires C-UAS during Live Multi-scenario Demonstration

**B**AE Systems successfully tested its Armored Multi-Purpose Vehicle (AMPV) Counter-Unmanned Aircraft System (C-UAS) prototype during a recent live fire demonstration. As part of a collaborative effort with Moog, these positive results exemplify opportunities for future capability growth within the purpose-built modular framework of the AMPV platform.

In various realistic battlefield scenarios at the Big Sandy range in Kingman, Arizona, the AMPV C-UAS prototype demonstrated the ability to accurately detect, track, identify, and defeat or disable stationary and moving aerial and ground targets. The exercise displayed the turret engaging with ground targets and utilizing a slew-to-cue capability to target both stationary and moving small drones with 30mm proximity rounds.

"From the earliest combat capability concept stage of the AMPV program, we intentionally designed a modular and flexible configuration to provide an adaptable and ready-for-growth platform for the warfighter," said Bill Sheehy, BAE Systems



AMPV program director. "In just over one year, our successful collaboration with Moog on the C-UAS prototype showcased the art of the possible of what a rapid response from leading industry providers can drive. When it comes to setting the tone for future integration at a higher standard and better pace for Soldiers, this is just the beginning of what you'll see from the AMPV."

The versatile prototype, which was showcased at the Association of the United States Army Annual Meeting & Exposition in October, was designed with the same proven chassis as the existing variants in the family of vehicles (FoV), but also possesses the key enhancements of BAE Systems' External Mission Equipment Package (EXMEP) top plate. EXMEP demonstrates real options for rapid integration of future technologies and capabilities onto the AMPV.

The integration of the U.S. Army's already validated Maneuver-Short Range Air Defense (M-SHORAD) turret is one example of the more than 30 turret systems EXMEP is capable of adapting at a swift pace.

The EXMEP on the AMPV C-UAS prototype is configured with the Moog Reconfigurable Integrated-weapons Platform (RIWP®) turret.

"The fully-integrated mission capability demonstrated in this RIWP equipment package on AMPV is ready now and poised to meet the current and future needs of our warfighters," said Brandon Gollwitzer, Moog Inc. Turreted Weapon Systems general manager, United States.

Moog's scope of supply and integration for the C-UAS weapon system also includes Leonardo DRS' Multi-Mission Hemispheric Radars (MHR), associated C2 systems, and Northrop Grumman's XM914 30mm cannon—all of which are also common to the M-SHORAD system.

The AMPV program was awarded a full-rate production contract for five different variants in 2023 and is actively fielding the FoV to Armored Brigade Combat Team (ABCT) units. As the underpinning of the future for the Army and its allies, the AMPV provides significant improvements in power, mobility, interoperability, and survivability for Soldiers.

## DroneShield releases the Expeditionary Fixed Site (EFS) Kit for DroneSentry-X Mk2

**D**roneShield is pleased to announce the launch of its Expeditionary Fixed-Site (EFS) Kit for the DroneSentry-X Mk2. DroneSentry-X Mk2 is a multi-mission Counter-UxS solution providing AI driven detection, identification and next generation electronic defeat capabilities engineered for mobile and expeditionary use cases. DroneShield's EFS Kit enables rapid deployment of the DroneSentry-X Mk2 across a wide range of operations, setting a new standard for ease of use among tactical end users.

**Key Features of the DroneSentry-X Mk2 Expeditionary Fixed-Site (EFS) Kit:** AI-Powered Threat Detection: Leveraging advanced artificial intelligence, DroneSentry-X Mk2 excels in detecting and identifying multi-domain UxS threats with unparalleled accuracy, providing operators with crucial intelligence in real-time.

**Expeditionary Fixed Site (EFS) Kit:** The EFS Kit ensures the adaptability of the DroneSentry-X Mk2 for fixed-site or semi-permanent wide area operations. The EFS Kit was designed with operator feedback for an intuitive deployment, making it easy to set-up and versatile, streamlining a variety of scenarios including mobile or on-the-move, at the halt, reconnaissance, force protection and base defense operations.



**Tool-Less Mount and Installation:** The EFS Kit features a tool-less mount and installation, allowing for swift deployment as well as quick disassembly without the need for intricate tools or specialized training. Tactical operators can set up and disassemble the system efficiently in less than 10 minutes, enhancing response times to emerging threats as well as allowing for expedited disassembly if and when the mission changes.

**Portable Battery Solution:** The EFS Kit includes a portable battery solution ensuring uninterrupted operation in remote or temporary settings. This feature enhances the system's mobility, increases deployment options and reduces dependency on fixed power sources.

Benefits for Operators:

**Real-Time Threat Intelligence:** The integration of AI ensures that operators receive real-time intelligence, enabling rapid decision-making and response to UxS

threats.

**Adaptability for Wide Area Operations:** The EFS Kit transforms the DroneSentry-X into a best in class integrated sensor and effector solution for wide area operations, allowing it to be easily deployed in various environments.

**Efficient and Flexible Deployment:** The tool-less mount and installation system streamline the deployment process, minimizing downtime and maximizing the system's availability for mission-critical tasks.

Matt McCrann, DroneShield U.S. CEO, commented, "The DroneSentry-X EFS Kit addresses a huge gap for operators - combining an adaptable Counter-UxS capability with user-friendly features. Our commitment to ease of use is evident in every aspect of the DroneSentry-X EFS, from advanced AI detection to the truly easy to deploy configuration."

Angus Bean, DroneShield Chief Technology Officer added, "We are focused on rapid product development this includes both new technologies and solution refinement based on end user mission sets. We want to execute on the complete solution, considering sequence of operation, deployment life cycle and ongoing support."

# COUNTER UNMANNED AIRCRAFT SYSTEMS: EAGLE SHIELD



Today, the defence and security Forces are facing the growing threat of micro and mini-UAVs with the requirement to discriminate between authorised and unauthorised overflights. The operational efficiency of these UAVs, combined with a broad and affordable offer, leads to a greater sophistication and complexity of this asymmetric threat.

In the field of C-UAS, Thales is a leader in the military and civil domains with modular offerings designed to protect people, property and activities against dangerous and malicious drones. Thales unique positioning combines both its airspace protection and management system expertise.

### Thales EagleShield Suite

The Thales C-UAS EagleShield suite is an integrated nano, micro, mini and small drone countermeasures solution to protect and secure civil and military sites - such as stadiums, airports, critical infrastructures (eg. oil & gas), large cities, high visibility events (e.g. Bastille Day, G7, Olympic Games, World Cup) and military airbases.

It provides a modular and graduated, context-sensitive response to the threat of unmanned systems flying in the airspace.

It provides the adequate and graduated answer to dangerous and malicious drone threats. It is an open and integrated system providing an enhanced and unified drone situational awareness based on a multi-sensor and effector ecosystem allowing the detection, identification, classification and neutralisation of unfriendly drones. It is compliant with severe operational and regulatory constraints both in military/civilian environments, as well as with national and international laws and regulations.

The EagleShield suite is built around a digital C-UAS Command & Control post. This solution is scalable in terms of sensors, effectors and connection to other systems, performing sensor fusion, radio frequency direction finders and night and day cameras. It offers different types of responses, including soft kill and/or hard kill adapted to the criticality of the analysed threat and to the national and international laws and regulations.

It can interoperate with a Thales or other C2 systems (e.g. Air Operation, Air Defense, ATM and UTM systems) at similar, lower or higher security classification level. As scalable and cyber secured open architecture solution, EagleShield Suite can integrate different types of sensors and effectors.

## Kratos Receives \$50M in Awards for Counter UAS and Air Defense Systems



Kratos Defense & Security Solutions, Inc. a Technology Company in Defense, National Security and Global Markets, announced that it has recently received approximately \$50 million in awards for Products and Hardware, including for and in support of Counter Unmanned Aerial System (CUAS), Air Defense and Radar Systems. The \$50 million total includes contracts and programs that were awarded to Kratos on a single award or sole source basis. Kratos is an industry leader in systems, hardware and microwave electronics, including for and in support of CUAS, unmanned aerial drone, missile, radar and air defense related systems. At Kratos, affordability is a technology, with Kratos offerings envisioned and designed up front, for rapid, low-cost manufacturing and production, at scale and in large quantities. Work under these recently received awards will be performed at secure Kratos manufacturing facilities and customer locations. Due to security related, competitive and other considerations, no additional information will be provided.

Eric DeMarco, President and CEO of Kratos, said, "Kratos' technology, products, software and systems are supporting the U.S. warfighter and our allies defense and security related needs and requirements, including in current contested and high intensity conflict areas globally. Kratos' ability to rapidly develop, produce and provide relevant, affordable solutions at scale and in quantity, we believe, is a competitive differentiator for our Company, customers, teammates and partners, and an important element of today's global security and defense environment."



# EDGE Awarded Contract to Deliver Comprehensive Counter-UAS Solution to UAE Ministry of Defence

**E**DGE Group, one of the world's leading advanced technology and defence groups, has announced a contract to deliver several robust, multi-layered counter-unmanned aerial systems (C-UAS) to the UAE Ministry of Defence (MoD) in a significant move towards reinforcing the UAE's national security. Announced at the Unmanned Systems



Exhibition and Conference (UMEX) 2024, the contract includes the delivery of SIGN4L's advanced SKYSHIELD C-UAS and NAVCONTROL-G systems. The state-of-the-art C-UAS provide a high degree of situational awareness and soft-kill capabilities against unmanned aerial threats, enabling the comprehensive protection of critical infrastructure and border integrity.

# Terma Unveils Revolutionary Drone Detection Radar Capability

**T**erma is excited to announce the release of its innovative drone detection capability for yet another radar series, marking a significant leap forward in drone detection technology with a system encompassing a suite of capabilities that redefine the industry with a precision detection that goes beyond conventional radar systems.

In October 2022, Terma launched a similar capability for naval surveillance radars of the SCANTER 6000 series. Now the time has come to augment land-based radars of the SCANTER 5000 series with superb drone detection capability. Armed with artificial intelligence (AI) and machine learning, the radar can comprehensively analyze incoming data in order to detect drones with exceptional accuracy, differentiating between drones and other flying objects e.g. flocks of birds and aircraft.

Offering an astounding detection range of 10 kilometers for 5 kg drones, the SCANTER 5000 series outperform most other products in the market and provides operators with an extended response time, enhancing situational awareness and response capabilities. Notably, the drone detection capability not only determines the direction of the drone or object but also classifies it, empowering operators with invaluable information for informed decision-making.

To consolidate confidence, the counter drone detection capability of the SCANTER 5000 operates



seamlessly in a meticulous process divided into four crucial steps: Detect, Track, Classify, and Identify. This ensures the highest level of confidence in the results, leaving no room for uncertainty. Terma's drone detection stands as a testament to innovation and reliability, delivering results, where many similar solutions have faltered and faced setbacks.

"We are thrilled to introduce our groundbreaking add-on, a true game-changer in drone detection technology. With its unparalleled precision, comprehensive data analysis, and impressive range, our counter drone capability sets a new standard for the industry. We are proud to offer this cutting-edge solution to our valued customers, enhancing security and safety

across a range of applications." says Jesper Tolstrup, Chief Specialist, Radar, Products & Programs at Terma.

Terma's drone detection is tailored for a wide range of radar applications, including operators in ports, coastlines, offshore platforms, and critical infrastructure, proving particularly valuable for safeguarding wind farms and maritime oil platforms. Additionally, it can be deployed in civilian airports for drone detection and bird monitoring, enhancing safety and security.

Our drone detection capability for the SCANTER 5000 series radar is proof of our commitment and dedication to providing cutting-edge solutions that redefine the boundaries of what is possible in defense and security technology.

# SAAB RECEIVES ORDER FROM SWEDEN FOR MOBILE SHORT-RANGE AIR DEFENCE

Saab has received an order for its Mobile Short Range Air Defence (MSHORAD) solution from the Swedish Defence Materiel Administration (FMV). The contract period is 2024-2026 and the order value is approximately SEK 300 million. Saab booked the order in the fourth quarter 2023.

FMV and the Swedish Armed Forces will use the acquired solution for two configurations, both integrated on the BvS10 armoured vehicle, to further define Sweden's future mobile air defence requirements.



"We are proud that our Swedish customer has chosen to use Saab's mobile short range air defence solution for this purpose. Our advanced solution is

truly mobile, providing crucial protection for forces on the battlefield," says Görgen Johansson, head of Saab's business area Dynamics.

Saab's MSHORAD is a vehicle-integrated solution that can identify, counter and neutralise air threats, including UAVs and armoured helicopters, quickly and effectively. The system consists of a mobile radar unit, based on the Giraffe 1X radar and a mobile firing unit, based on RBS 70 NG, all connected with Saab's ground-based air defence command and control solution, GBAD C2.

# AEROVIRONMENT ANNOUNCES 1ST SUCCESSFUL MULTI-DROP, LIVE FIRE GPS-GUIDED SHRYKE MUNITIONS FROM A VAPOR 55 MX UAS

AeroVironment, Inc. announced the first successful multi-drop, live fire GPS-guided Shryke munitions from the VAPOR® 55 MX, all-electric unmanned aircraft system in collaboration with Corvid and L3Harris Technologies. The VAPOR 55 MX carried four rounds simultaneously and flawlessly showcased the live fire effects of this capability. The integration of Shryke munitions on the VAPOR 55 MX allows for multiple targets to be designated in one single flight. "Shryke's size and weight make it the ideal choice for the weaponized VAPOR 55 MX. The lethality of a 40mm anti-armor modular warhead paired with a lightweight glider provides a highly effective, low-collateral damage solution to the front lines," said Kyle Bowen, Corvid's Shryke business development director.

Shryke, developed by Corvid Technologies and L3Harris Technologies, is known for its versatile, multi-mission precision strike capability, meeting the requirement to stay within 1-2 meters of the designated target. Equipped with a MIL-STD-1316 Electronic Safe and Arm Device (ESAD), L3Harris' integrator guarantees safety-critical initiation-on-



command for energetic systems and facilitates the secure post-flight recovery of remaining installed munitions. "Collaborating with our partners to develop the multi-drop Shryke payload to integrate seamlessly with the Modular Open Systems Approach (MOSA) design of the VAPOR 55 MX gives us a real market advantage. Quick integration for the warfighter continues to be our top priority," said Jason

Wright, AeroVironment's senior product line manager.

The open software and hardware architecture provides added versatility to the VAPOR 55 MX and continues to allow customers to integrate third-party payloads of their choice without being impacted by excessive non-recurring engineering costs and schedule delays.

## DroneUp Awarded Landmark FAA Approval for Beyond Visual Line of Sight (BVLOS) in the U.S.

**D**roneUp, a leading autonomous drone delivery and logistics company, announced that the Federal Aviation Administration (FAA) has approved it to conduct Beyond Visual Line of Sight (BVLOS) drone deliveries.

This landmark approval allows DroneUp to immediately commence BVLOS operations at Riverside Health System facilities and paves the path for broader BVLOS rollout at additional locations throughout the country with existing and new customers. DroneUp is now one of the few companies in the country to have a BVLOS waiver for medical deliveries.

This approval permits DroneUp to conduct operations beyond the direct visual line of sight of the remote pilot in command throughout the entire flight. Participating visual observers are also not required to maintain sight of the drones. This breakthrough enhances operational capabilities and



presents a substantial cost reduction in the last-mile delivery process. By reducing the necessary human resources, DroneUp can now accelerate safe and large-scale deployment of autonomous last-mile drone deliveries.

Tom Walker, CEO of DroneUp, expressed enthusiasm about the milestone, stating, "Securing BVLOS approval is a testament to our dedication to safety and innovation. We have some significant

technologies coming out of stealth this year, which when combined with BVLOS, will unlock commercial scalability that the industry and our customers have been eagerly awaiting."

John Vernon, Chief Technology Officer at DroneUp, commented, "Our ability to fly BVLOS propels us into the next level of using drone technology, undoubtedly enhancing the efficiency of medical deliveries, ensuring that crucial supplies reach healthcare facilities and patients promptly."

The approval for BVLOS operations opens up substantial opportunities for the future of drone delivery. DroneUp is committed to exploring new avenues and partnerships to further enhance its capabilities and expand its reach. The company envisions a future where autonomous drones play a crucial role in transforming last-mile logistics for retailers, quick-service restaurants, pharmacies and healthcare organizations.

## DJI'S FIRST DELIVERY DRONE TAKES FLIGHT GLOBALLY

**D**Ji, the world's leader in civil drones and creative camera technology introduces DJI FlyCart 30 (FC30) to the global market. This delivery drone overcomes traditional transport challenges with its large payload capacity, long operation range, high reliability, and intelligent features. Now delivery, such as mountain transportation, offshore transportation, or emergency rescue transportation, can be performed with more efficiency and flexibility.

"From agriculture to construction management and surveying, DJI's industrial-grade drones have transformed industries by improving safety for workers and productivity for businesses," said Christina Zhang, Senior Director of Corporate Strategy at DJI. "We are optimistic that FlyCart 30 will become a trusted solution for aerial delivery, solving complex terrain and terminal transportation problems efficiently, economically, and most importantly, safely from the air."

**Long-range heavy payload capacity** : FC30 adopts a coaxial four-axis, eight-blade, multi-rotor configuration with carbon fiber propellers and can achieve a 20 m/s maximum flight speed. When in its dual-battery configuration, it can carry a 30 kg payload 16 km. In its emergency single-battery configuration, the payload capacity increases to 40 kg for a distance of 8 km. DJI O3 transmission maintains a stable connection between the drone and remote controllers up to 20 km away.



Dual Operator mode allows control to be transferred between two pilots in different locations with a single click.

**Ready for multiple environmental scenarios** : FC30 maximizes product performance and safety in extreme weather and terrain. FC30 has IP55 protection, can operate in temperatures ranging from -20° to 45° C (-4° to 122° F), and can fly in winds up to 12 m/s. The standard propellers are optimized for altitudes from 0-6,000 m and support flight up to 3,000 m with a 30 kg payload. Self-heating batteries maintain optimal performance even in low temperatures.

**Increased operational safety** : FC30's built-in redundancies and intelligent safety features help ensure safety throughout operation. Before takeoff, it evaluates flight route viability based on environmental conditions, and ensures pre-takeoff safety through audio-visual prompts and by delaying propeller launch. During flight, the dual active phased array radar and binocular vision systems enable all-weather multidirectional intelligent obstacle sensing, day or night. The built-in ADS-B signal receiver gives timely

warning of nearby crewed aircraft. In emergencies, an integrated parachute can deploy at low altitudes and land the drone stably, protecting both people and property.

**Flexible configurations for different transportation scenarios** : FC30 folds down for easy transport in a standard-sized vehicle. In Cargo mode, payloads are placed in a 70-liter case that features weight and center-of-gravity sensors to improve balance and safety. In Winch mode, payloads are carried by a winch crane for delivery to areas without convenient landing sites. The winch system includes a 20m cable that can manually or automatically retract at 0.8 m/s and can carry 40 kg. AR Projection assists accurate placement of goods by indicating the projected landing point. During flight, FC30 can intelligently adjust its flight attitude, automatically reducing cargo swing.

**A full software suite to make drone delivery easy** : DJI DeliveryHub systematizes aerial delivery with operation planning, status monitoring, centralized team resource management, and data collection and analysis. It also supports live viewing through the drone's high resolution FPV gimbal camera.

DJI Pilot 2 powers manual flight, and displays real-time flight status, cargo status, and more for safe and efficient operation. In extreme weather or other abnormalities, DJI Pilot 2 alerts operators of risks and supports alternate landing site management.

# Drone Delivery Canada Expands Collaborative Drone Operations at Edmonton International Airport

Drone Delivery Canada Corp. is pleased to announce, that with the assistance of its sales agent Air Canada it has entered into multiple commercial agreements executed by the Company on January 9, 2024 (the "Agreements") with each of Edmonton International Airport ("YEG"), Apple Express Courier Ltd., BBE Expediting Ltd., and MFN Management Inc. (a wholly owned corporation of Montana First Nation) (collectively, the "Customers") to deploy DDC's award-winning and patented drone delivery solution at Edmonton International Airport.

The agreements, with an aggregate value of \$417,000 will run for a 12-month duration. Pursuant to the terms of the agreements, DDC will expand the defined route delivery from YEG with an additional DroneSpot™ at a medical clinic located in the city of Leduc, Alberta. Cargo delivery will take place from YEG to the medical clinic while also maintaining the current delivery route from YEG to the off airport DroneSpot™ in Leduc County, which formed the delivery route for the first phase of the project. The medical clinic is wholly owned by Montana First Nation and provides health care services to indigenous and non-indigenous Canadians.

All operations will be conducted in accordance with applicable Canadian regulations and/or Transport Canada special approvals with flights remotely piloted by DDC from its Operations Control Centre located in Vaughan, Ontario. Additionally, the Canary Remotely Piloted Aircraft ("RPA") will be used on this route once operational. DDC will commence deployment of the site infrastructure shortly and expects to begin providing drone delivery services under the commercial agreements later in 2024. The YEG drone delivery project, which began with the execution of an agreement with YEG in 2019, won an XCELLENCE Award for innovation from the Association for Uncrewed Vehicles Systems International in 2022 and became commercially operational in May 2022. During the first phase of the project, over 2,400 flights with a total flight distance of over 6,500km were completed. The new agreements add a



**As we build out the drone delivery demand, we continue to safely innovate the process through a collaborative approach with our partners. Alongside Leduc County and the City of Leduc, we are proud to advance sustainable solutions to first and final mile delivery at Edmonton International Airport and the surrounding region. Part of our commitment to being net zero by 2040 is creating opportunities for sustainable transportation and aviation, and we are excited to continue supporting and enhancing the future of drone delivery in the Edmonton Metro Region," said Myron Keehn, President & CEO, of YEG.**



second leg to the operations originating out of the central DroneSpot™ at YEG.

Steve Magirias, CEO of Drone Delivery Canada, commented: "We are very pleased to sign these new agreements as part of the next phase of our operations at Edmonton International Airport, as well as introducing two new partners as part of the agreements.

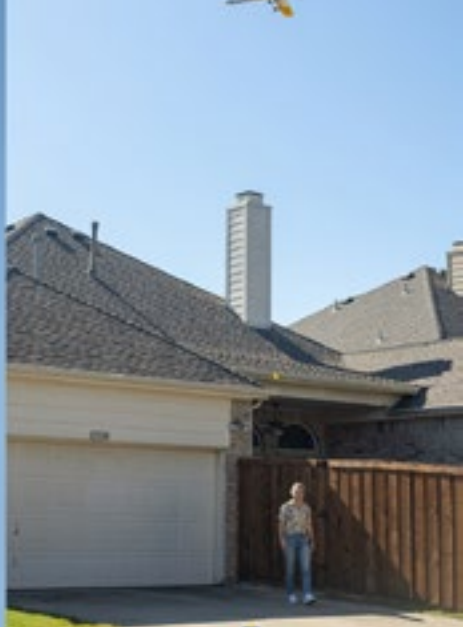
This next phase will enable us to further expand our delivery capabilities, showcase our Canary RPA, and explore new use cases for RPA delivery within the YEG area."

"We are excited to collaborate with our Edmonton partners as we explore novel approaches to meet the growing demands of our healthcare and technology customers. Cutting-edge last-mile delivery solutions are essential in exceeding client expectations today and in the evolving future," stated Nasser Syed, CEO of Apple Express Courier Ltd.

"As we continue to find new ways to digitize the supply chain, BBE is excited to participate in this innovative drone delivery project alongside our partners in Edmonton. Finding ways to push the boundaries on what is possible for remote deliveries is important to the future health of logistics," said Heather Stewart, President of BBE Expediting Ltd.

"MFN Management Inc. is excited to be working with Drone Delivery Canada, Air Canada, BBE Expediting, Edmonton International Airport, Apple Express and the other partners on this project. As a company, we are always looking for innovative and sustainable opportunities for growth. We hope to develop some services and opportunities from this project to support our corporate growth strategy," said George Addai, General Manager, MFN Management Inc.

# Drone Delivery Canada Expands Collaborative Drone Operations at Edmonton International Airport



**W**e're kicking off 2024 by making drone delivery a reality for even more people: Wing and Walmart are expanding service to millions of customers, leveraging Wing's airspace approvals that facilitate service across the Dallas-Fort Worth (DFW) community. Wing and Walmart will launch our newest drone delivery locations in the coming months and plan to complete the expansion within the year.

Last August, Wing and Walmart launched service together at two locations in DFW - reaching 60,000 homes via drone delivery. In our first 4 months of service, the response from Walmart customers has been overwhelmingly positive, using the service to order a range of products, including quick meals, groceries, household essentials, and over-the-counter medicines. And as our customers in Frisco and Lewisville know, on average those deliveries arrived in under 30 minutes and provided a convenient way to get what they needed, when they needed it.

"I had a Walmart delivery from Wing when we were running low on key ingredients for [a] recipe. We were so impressed that our eggs were delivered safely and likely had a safer journey than traveling by car in our trunk." - Customer, Frisco, TX.

Our first months delivering to Walmart customers have made one thing clear: Demand for drone delivery is real. For instance, on a given

**"We ordered through the app and received fresh guacamole and some candy within 15 mins. The kids enjoyed the excitement of watching the drone on the app until it dropped our package safely in our driveway. Will definitely use it again. Much quicker than a drive to the store." - Customer, Frisco, TX.**

Sunday, Walmart customers placed over 130 orders to ensure they were prepped and ready for the big game - receiving items like chicken, sour cream, avocados and limes. Via the Walmart store in Frisco, our regular customers order on average ~2 times per week - with our top 25% customers averaging ~3 orders per week. Our average flight time is 5 minutes!

Wing's drone delivery service offers a safe and convenient way to get your everyday needs (or last-minute forgotten items!) delivered nearly instantly, and our recent regulatory approvals mean we will be able to reach more customers throughout DFW.

In 2019, Wing was the first drone delivery company in the United States to receive a Part

135 Air Carrier Certificate. Now, Wing's new environmental approval in the DFW metroplex marks the first time the FAA has approved an entire metro area for drone delivery. While Wing has already been serving customers at up to a 6-mile radius from nests in Frisco and Lewisville, Wing's recent summary grant enables us to move toward beyond visual line of sight (BVLOS) operations without visual observers across DFW and similar airspace surrounding other major U.S. cities, adding to the momentum of the drone delivery industry at large. This marks a paradigm shift in the way U.S. regulators are approaching approvals for these types of advanced BVLOS drone operations.

We believe 2024 will be the year of drone delivery—and our growing service with Walmart is a huge step forward. "Congratulations to Wing and Walmart on a growing partnership," said City of Frisco Mayor Jeff Cheney. "In 2022, Wing picked Frisco to launch its first commercial drone delivery service in a major U.S. metro area. We consider our entire community an innovation lab and our residents embrace this service. Nowadays, Wing is more than a novelty in Frisco. The drone delivery service has evolved into a welcome, daily convenience for essentials like recipe ingredients, eggs, limes or over-the-counter medicines. The ease and efficiency of Wing's drone delivery service enhances quality of life."





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## GA-ASI Uses Autonomy to Close F2T2EA Engagement Chain

General Atomics Aeronautical Systems, Inc. (GA-ASI) demonstrated its rapidly maturing open standards-based autonomy ecosystem for Unmanned Combat Air Vehicles (UCAVs) on an MQ-20 Avenger® as part of a live flight test on Nov. 2, 2023. The flight combined three autonomy providers, government-provided human-machine interface (HMI) hardware, and GA-ASI's autonomy core to meet multiple objectives for collaborative combat missions and closed the Find, Fix, Track, Target, Engage, and Assess (F2T2EA) engagement chain using a mix of Live, Virtual, and Constructive (LVC) entities.

The flight, which took place from GA-ASI's Desert Horizon Flight Operations Facility in El Mirage, Calif., illustrates the company's commitment to maturing its open standards-based autonomy software ecosystem for Autonomous Collaborative Platforms (ACPs). Designing the system around government-owned and -maintained standards avoids vendor lock and allows rapid integration of best-of-breed capabilities in areas such as Artificial Intelligence (AI), HMIs, and other skills from third-party providers.

"This flight underscores GA-ASI's commitment to proving combat operational readiness for vendor-agnostic autonomy architecture for UCAV platforms," said GA-ASI Vice President of Advanced Programs Michael Atwood. "Ultimately, GA-ASI's series of flight tests demonstrate our unmatched ability to deploy best-



of-breed mission software, autonomy, and hardware capabilities on unmanned platforms, accelerating the operationalization of this critical technology for the warfighter. This most recent test shows multi-service compatibility of the autonomy core through the integration of USAF and Navy software skills together."

Another important goal of GA-ASI's flights is to demonstrate the company's commitment to developing an open government standards-based autonomy ecosystem that enables rapid integration and validation of third-party tactical software applications. GA-ASI is focused on supporting the emerging App Store-based model that allows organizations to rapidly develop and deploy software while maintaining safety of flight and ensuring warfighters have up-to-date access to the industry's best capabilities.

Autonomy skills for the recent flight test were provided by GA-ASI, Scientific Systems Company, Inc. (SSCI), and NAVAIR PMA-281's ARCANE (Architecture and Capabilities for Autonomy in Naval Enterprise)

Team. The PMA-281 ARCANE Team accomplishes Intelligent Autonomy & AI integration, compliance, and sustainment objectives for Naval Aviation UAV Tactical Operations. Different skills on the aircraft were activated based on the F2T2EA phase or via human-on-the-loop interaction using the FOX tablet HMI. A government-furnished autonomy core and Open Mission Systems (OMS) messaging protocols were used to coordinate between provider skills during different F2T2EA phases. Rapid integration of these disparate skills was made possible by utilizing government standards, such as OMS, and adhering to state-of-the-art government autonomy design methods.

Collaborative mission autonomy capabilities provided by SSCI successfully commanded a fully autonomous multi-vehicle Defensive Counter Air (DCA) mission—from Combat Air Patrol (CAP) through detection, identification, tracking, and multiple successful engagements.

"Our Collaborative Mission Autonomy (CMA) development kit enables the team to perform development and integration in short time frames in a tactically relevant way," said David "Heat" Lyons, SSCI's Vice President of Business Development and former F-16 Weapons Officer and combat fighter pilot. "For the warfighter, we are demonstrating mission-ready behaviors on GA-ASI's UCAV that are trustworthy, understandable, and explainable."

## DARPA MOVES FORWARD ON X-65 TECHNOLOGY DEMONSTRATOR

DARPA has selected Aurora Flight Sciences to build a full-scale X-plane to demonstrate the viability of using active flow control (AFC) actuators for primary flight control. The award is Phase 3 of the Control of Revolutionary Aircraft with Novel Effectors (CRANE) program. In December 1903, the Wright brothers flew the world's first fully controllable aircraft, which used wing warping to successfully achieve flight. Virtually every aircraft since then has used a system of movable, external control surfaces for flight control. The X-65 breaks this century-old design paradigm for flight control by using jets of air from a pressurized source to shape the flow of air over the aircraft surface, with AFC effectors on several surfaces to control the plane's roll, pitch, and yaw. Eliminating external moving parts is expected to reduce weight and complexity and to improve performance.

"The X-65 is a technology demonstrator, and it's distinctive, diamond-like wing shape is designed to help us maximize what we can learn about AFC in full-scale, real-world tests," said Dr. Richard Wlezien,

DARPA's program manager for CRANE.

The X-65 will be built with two sets of control actuators - traditional flaps and rudders as well as AFC effectors embedded across all the lifting surfaces. This will both minimize risk and maximize the program's insight into control effectiveness. The plane's performance with traditional control surfaces will serve as a baseline; successive tests will selectively lock down moving surfaces, using AFC effectors instead.

"The X-65 conventional surfaces are like training wheels to help us understand how AFC can be used in place of traditional flaps and rudders," said Wlezien. "We'll have sensors in place to monitor how the AFC effectors' performance compares with traditional control mechanisms, and these data will help us better understand how AFC could revolutionize both military and commercial craft in the future."

The 7,000+ pound, unmanned X-65 will have a 30-foot wingspan and be capable of speeds up to Mach 0.7. Its weight, size, and speed - similar to a

military trainer aircraft - make the flight-test results immediately relevant to real world aircraft design.

"We're building the X-65 as a modular platform - wing sections and the AFC effectors can easily be swapped out - to allow it to live on as a test asset for DARPA and other agencies long after CRANE concludes," said Wlezien.

Aurora Flight Sciences has already started fabricating the X-plane; the X-65 is scheduled to be rolled out in early 2025 with the first flight planned for summer of the same year.

"It's thrilling to be able to say, 'we're building an AFC X-plane,'" said Wlezien. "I came to DARPA in 1999 to work on a program called Micro Adaptive Flow Control, which help pioneer the foundational understanding of fluid dynamics that eventually led to CRANE. I left DARPA in 2003 after managing MAFC, and it's the chance of a lifetime to come back and help see that early work come to fruition in a full-scale physical aircraft. Aerospace engineers live to see their efforts take flight."

## Skydio Enters Final Phase of US Army's Short Range Reconnaissance Tranche 2 Program



Skydio, the leading U.S. drone manufacturer and world leader in autonomous flight technology, today announced it has entered into the final phase of the U.S. Army's Short Range Reconnaissance (SRR) tranche 2 program, where it intends to deliver the powerful Skydio X10D small UAS (sUAS), the next generation of autonomous drone technology.

Skydio remains the solution provider of record for the U.S. Army's Short Range Reconnaissance program, which it won in November 2021. With Skydio X2D, U.S. soldiers today are equipped with a U.S.-manufactured, high-performance sUAS to meet their mission needs, increasing situational awareness, safety, and security across multiple defense applications.

"As the largest manufacturer of small drones in the United States, we are proud to further our work with the U.S. Army. Many US government agencies and international allies have already ordered the X10D and we look forward to delivering Skydio X10D to our service members," said Mark Valentine, President of Global Government at Skydio. "Skydio is dedicated to pushing the boundaries of what military drone technology can do to protect soldiers, increase mission effectiveness, and ultimately aid in stronger security and greater prosperity around the world."

Skydio recently debuted its new enterprise drone, Skydio X10, and Skydio X10D, its new drone for defense and government applications. Skydio X10 combines new, cutting-edge data capture cameras, unparalleled autonomy, and versatile hardware to serve a range of industries, including defense, public safety, and utilities. Skydio X10D meets and exceeds SRR specifications for tactical performance and was specifically designed to create tactical advantages for soldiers at any time of day or night by combining maneuverability with best-in-class sensors. Skydio X10D is the first sUAS to enable worry-free 24/7 operations, with the revolutionary NightSense, which enables autonomous, obstacle-avoidance flight in zero-light environments. It is the first small UAS ever to integrate a FLIR Boson+ sensor, achieving the category's highest thermal imaging quality and more accurate radiometric readings in any location to improve mission success at any time day or night.

Because technology integration is paramount to SRR goals, Skydio X10D delivers enhanced compliance with federal standards, including the Robotics and Autonomous Systems - Air (RAS-A) Interoperability Profile (IoP), and an open, modular platform that supports third-party applications. RAS-A compliance and open MAVLINK protocol enable the use of third-party and government-owned flight application software. Modular ports allow operators to quickly swap attachments in the field for maximum in-field versatility.

The SRR program is designed to equip soldiers with a rapidly deployable small UAS solution to conduct reconnaissance and surveillance (R&S) activities. The Army is executing multiple tranches for its SRR platforms to advance sUAS technology developments and increase overall performance.

In addition to the SRR program with the U.S. Army, Skydio is proud to support every branch of the U.S. military with sUAS systems. Skydio has worked closely with the Defense Innovation Unit (DIU) to make the acquisition of autonomous drones as simple as possible for the DoD, and has established a National Defense Authorization Act-compliant supply chain to ensure trustworthy sourcing for production at scale. Skydio recently hosted Deputy Defense Secretary Kathleen Hicks and DIU Director Doug Beck at its San Mateo, California headquarters where, in addition to visiting Skydio's manufacturing facility, DIU's Artificial Intelligence for Small Unit Maneuver (AISUM) system was demonstrated. AISUM's autonomous technology enables a single operator to simultaneously manage a heterogeneous group of drones.

## Airbus Helicopters to Expand UAS Portfolio with Acquisition of Aerovel



Airbus Helicopters and Aerovel have signed an agreement regarding the acquisition of Aerovel and its unmanned aerial system (UAS), Flexrotor, as part of a strategy to strengthen its portfolio of tactical unmanned solutions. Flexrotor is a small tactical unmanned aerial system designed for intelligence, surveillance, target acquisition and reconnaissance (ISTAR) missions at sea and over land.

"We are looking forward to welcoming Aerovel into the Airbus family. This strategic acquisition aligns with our vision to expand our UAS offering and respond to a growing customer demand worldwide for additional mission capabilities such as manned-unmanned teaming. Aerovel's expertise in autonomous flight technology will undoubtedly complement our UAS development with the VSR700, as well as the work that we have been doing to develop interoperability," said Bruno Even, CEO of Airbus Helicopters.

"Joining forces with Airbus will allow us to scale innovation, accelerate our mission to advance unmanned aviation, and maintain our unwavering support for the US military and its allies. We are proud to become part of an organisation with a rich legacy of aerospace excellence and we look forward to leveraging our combined strengths to define the future of autonomous systems. It will also be a great tribute to our Founder and Chief Technology Officer, Tad McGeer, who has spent the last 30 years committed to delivering innovative unmanned products," said Ali Dian, CEO of Aerovel.

The Flexrotor, a modern Vertical Takeoff and Landing (VTOL) Unmanned Aircraft with a maximum launch weight of 25 kg, has been designed for ISTAR missions for more than 12-14 hours in a typical operational configuration. It can integrate different types of payloads including an electro-optical system and advanced sensors to suit customers' unique mission needs. With the ability to autonomously launch and recover from either land or sea requiring only a 12 by 12 ft. area for launch and recovery, the Flexrotor is ideal for expeditionary missions requiring minimal footprint. Through the support of the US Department of Defense (DoD), and contracted deployment in a variety of maritime security exercises, the Flexrotor is a mission-proven, force multiplier for operations in harsh, high-threat, GPS-denied environments. The Flexrotor can also be used for parapublic missions such as forest fire surveillance (providing firefighters with critical images day or night) and ice navigation (helping guide naval vessels through ice in the Arctic ocean).

Aerovel, based in Bingen, Washington, will remain a US-owned company and continue collaboration with the US DoD under Airbus' Special Security Agreement (SSA). The acquisition has been approved by the relevant bodies of both companies. It remains subject to regulatory approvals, as well as other customary conditions. Transaction closing is expected in 2024.

# Red Cat Integrates Advanced AI Capabilities into Next-Gen Drone System for the US Army's SRR Program

**R**ed Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government, and commercial operations, announces it will integrate advanced AI capabilities into its next generation drone under development for the U.S. Army's Short Range Reconnaissance (SRR) Tranche 2 Program of Record. Red Cat's subsidiary Teal Drones (Teal) will incorporate Teledyne FLIR's Prism™ AI platform, which provides classification, object detection, and autonomous tracking technology in real-time during both nighttime and daytime operations.

Teal was recently selected by the Department of Defense's Defense Innovation Unit and the U.S. Army as one of two finalists competing in the SRR program. The program's goal is to provide small, rucksack-portable sUAS capabilities to Army platoons



for situational awareness beyond the next terrain feature. The Company's collaboration through the Thermal by FLIR® program will enable Teal to move beyond customary ISR (Intelligence, Surveillance and Reconnaissance) capabilities and into the realm of tactical edge capability, battlefield management, and critical decision-making support designed to meet or exceed the SRR requirements.

"Teal's solution is the first to integrate this kind of advanced artificial intelligence and real-time processing onboard the aircraft itself. This allows us to bring as much capability to the tactical edge as possible while lowering the cognitive load of warfighters," said George Matus, Red Cat's Chief Technology Officer.

"Our collaboration with Teledyne FLIR continues to strengthen our product ecosystem and help unlock the powerful future we see with drones."

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 is equipped with Teledyne FLIR's Hadron 640R sensor, which provides end users with the highest resolution thermal imaging with best-in-class night vision. It also has multi-vehicle control support and a fully modular design.

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.

## MILREM ROBOTICS TO SUPPLY WORLD'S LARGEST COMBAT UGV ORDER TO THE UAE MOD

**M**ilrem Robotics, Europe's leading developer of robotics and autonomous systems, has signed a contract to supply 20 tracked robotic combat vehicles (RCVs) and 40 THeMIS unmanned ground vehicles (UGVs) to the United Arab Emirates (UAE) Ministry of Defence. The agreement, which represents the world's largest combat robotics programme, was announced at the Unmanned Systems Exhibition & Conference (UMEX 2024) being held at the Abu Dhabi National Exhibition Centre (ADNEC) until 24 January.

Under the terms of the contract, Milrem Robotics will lead an experimentation and trial programme aimed at integrating unmanned ground capabilities into the UAE Armed Forces' arsenal. This initiative is a significant step towards enhancing the Armed Forces' combat capabilities through the deployment of THeMIS UGVs and tracked RCVs, which are both equipped with advanced autonomy features, third-party payloads and high-quality communication solutions.

Kuldar Väärjä, CEO of Milrem Robotics said: "EDGE Group's investment in Milrem Robotics has



opened new avenues for us in the region, further expanding our international growth and market presence. Initiating the world's largest combat robotics programme with the UAE Ministry of Defence not only demonstrates the competitive edge of our solutions but also highlights the strategic value of incorporating advanced robotic systems into force structure, thereby enhancing their combat capabilities and operational efficiency."

The contract includes the supply of tracked RCVs with 30mm MK44 cannons, THeMIS Combat units equipped with 30mm M230LF Remote Weapon Stations and with Indirect Fire Systems, and THeMIS Observe units with radar and camera systems, including shot detection capabilities. Milrem Robotics will also provide comprehensive training and supervision to ensure the relevant personnel achieve a satisfactory skill level in operating combat unmanned ground systems.

## Data Link Solutions Selected to Provide BAE Firenet Tactical Systems for US Navy



The US Navy has awarded Data Link Solutions, a joint venture between BAE Systems and Rockwell Collins, Inc, a contract to provide small form factor (SFF) Link 16 radios, which will be fulfilled using BAE Systems' FireNet™ Link 16 tactical systems. FireNet is a scalable, secure, and open system architecture communications solution with a unified tactical network to enable Joint All Domain Command and Control (JADC2) operations.

Warfighters today operate in network-centric, information-intensive environments that demand wide data bandwidth, network diversity, and constant connectivity. Large volumes of accurate, reliable information need to be exchanged in real-time to maintain situational awareness. The FireNet system delivers that edge with additional narrow, wide-band, and tactical data link capabilities.

"We have developed a first-of-its kind small form factor system that enables full Link 16 connectivity. FireNet is scalable and modular to give our service men and women a battlefield advantage in network-centric environments across domains," said Amber Dolan, director of Adaptive Communications and Sensing at BAE Systems. "Using the government's program of record waveform, we can reduce lifecycle costs, quickly deliver updated capabilities, and enhance mission survivability across manned and unmanned fleets."

The FireNet system is Crypto Modernization 1 compliant and offers the highest transmit power available in a SFF radio for current and future fleets. The system addresses size, weight, power, and cost (SWaP-C) demands and its applications can extend across rotary-wing aircraft, unmanned vehicles, maritime vessels, and space platforms. It enables additional line-of-sight voice, data, and network communications from very high frequency to S-Band.

With more than two decades of expertise in the radio market, BAE Systems' narrowband and broadband communication technologies span airborne, maritime, and ground applications across the radio frequency and visible spectrum. These battle-proven, highly-reliable systems also feature multi-band, secure anti-jam voice, data imagery transmission, and network-capable communications. The company's family of products merges the latest generation wideband, high speed hardware, and software technologies to provide warfighters with the communication solutions they need in the modern battlefield.

Work on the FireNet system will take place at BAE Systems' Wayne, New Jersey; Austin, Texas; Fort Wayne, Indiana; and Hudson, New Hampshire sites. Qualification and certification will begin in 2024.

## RELIABLE ROBOTICS AWARDED MILITARY AIRWORTHINESS APPROVAL FOR A COMMERCIAL AUTONOMOUS FLIGHT SYSTEM



Reliable Robotics, a leader in autonomous aircraft systems announced that it has received military airworthiness approval to begin flight testing and operational missions of its remotely piloted Cessna 208 Caravan for the U.S. Air Force. This approval signifies a deeper level of engagement with the Department of Defense (DoD) by enabling Reliable to demonstrate dual-use automated flight capabilities for military use cases, including cargo missions.

"Nothing compares to showcasing how our autonomous flight capabilities will immediately enable new ways for the U.S. Air Force and other departments of the military to lead with innovation, improve safety and project power across the globe," said Dr. David O'Brien, Major General (Ret.), and Senior Vice President of Government Solutions at Reliable Robotics.

DoD airworthiness policies require all aircraft and air systems owned, leased, operated, used, designed, or modified for Air Force applications complete an airworthiness assessment in accordance with Air Force standards. In order to meet these requirements, Reliable completed a comprehensive safety analysis, maintenance and operational evaluations and testing of the automated flight technologies. This airworthiness achievement was a key milestone of Reliable's Phase III Small Business Innovation Research (SBIR) contract.

"Our AFWERX partners are developing exciting automation technologies through robust engineering and flight test campaigns," said Hank "Hog" Griffiths, AFWERX Airworthiness and Test Lead. "The technology is maturing rapidly and this airworthiness approval for a certified aircraft retrofitted with an autonomous flight system provides significant opportunities for the military."

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