

Global monthly E-magazine for Drones



DRONES

WORLD

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Mr. Sajid Mukhtar

Chairman & Managing Director
Roter Group of Companies

PG 24



Mr. Kiran Raju

Co-Founder & CEO
Indrajaal Drone
Defence India Pvt Ltd.

PG 31



Balaji Nagarajan

Serial Entrepreneur Founder - Latrics

PG 15



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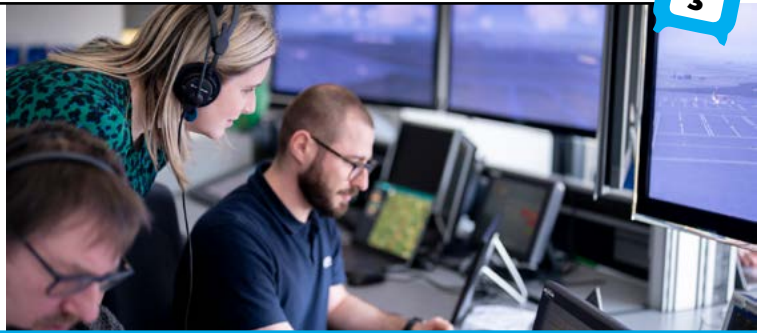
Lt Gen RKS Kushwaha, PVSM, AVSM (Retd.) : +91 7827869114

Kartikeya B. : +91 9444499221

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Editor-in-Chief ♦ B. Kartikeya

EDITORIAL

Associate Editor ♦ Rohith Reddy

Special Editor ♦ Naheda Imtiyaz

Special Editor Sanjay Singh

Correspondent ♦ B. Martin

CREATIVE HEAD ♦ Swati Sharma (Design Garage)

PHOTOGRAPHER ♦ Krishanth

MARKETING

marketing@futureaviation.in

India : Mr.Sanjay Singh, Trade Promotion Council For Geospatial & Space Industry | secretariat@tpcgsi.com | Mobile:- +91 9910990553

SUBSCRIPTION

Asst.Manager, Subscription ♦ Sony

FINANCE & ADMINISTRATION

Sr.Manager ♦ Karunandhi

Asst.Manager ♦ Md. Wajid Ali

Editorial & Advertising Offices

**EDITORIAL & ADVERTISING OFFICES
DRONES WORLD**

99 FUTURE DREAMS MEDIA LTD, 128 City Road, London, EC1V2NX For all magazine related enquires
For all magazine related enquires

E-mail: dronesworldmag@gmail.com

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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.

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.

"We foresaw the growth of the global commercial drone market, Projected to reach \$54.81 billion by 2030 from \$10.98 billion in 2023". Says Mr. Kiran Raju, Co-Founder & CEO, Indrajal Drone Defence India Pvt Ltd. Mr. Sajid Mukhtar, Chairman & Managing Director, Roter Group of Companies says "There's a wave of excitement brewing at Roter this year, with numerous ground breaking developments in the pipeline. Stay tuned for what promises to be a major leap forward in these domains." "Latrics Aerospace, a division of Latrics India dedicated to pioneering drone technology, integrates a host of innovative technologies to address various real-world challenges effectively. Latrics Aerospace aspires to not just lead in technology development but also to inspire positive change, setting new standards for the beneficial use of drones in society." Balaji Nagarajan, Serial Entrepreneur Founder - Latrics

XPONENTIAL is a yearly gathering of global leaders and end users in the uncrewed systems and robotics industry. It is founded on the belief that cross-pollination drives innovation, it features opportunities to connect and problem-solve with experts across markets and domains.

At XPONENTIAL, more than 7,500 of the world's top experts in autonomous technology come together to change the course of human progress. You will get an opportunity to meet technologists, users, buyers, policymakers, and strategists from over 20 industries and 60 countries. No matter your role, XPONENTIAL will help you stay competitive and take advantage of immediate business opportunities. Event will be happening on April 22 - 25, 2024 at San Diego Convention Center

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

Till then, stay safe, God bless.

IDEA FORGE'S Q6 QUADCOPTER RECEIVES DGCA TYPE CERTIFICATION



ideaForge Technology Limited, a leading global drone technology and manufacturing company, announces Type Certification for one of its flagship products, the Q6 UAS by DGCA (Directorate General of Civil Aviation).

Renowned as India's foremost quadcopter, the Q6 has garnered acclaim across Defence and Civil sectors for its unparalleled performance, reliability and autonomy in diverse applications. The recent DGCA Type Certification assures customers of the Q6's adherence to the most stringent safety and quality standards, further solidifying ideaForge's position as a pioneer in the drone industry.

Its design and extensive area coverage capabilities facilitate the rapid completion of large-scale mapping projects, surpassing the efficiency of other UAVs in the field while being capable of operating even in hilly areas with its negative altitude capability.

On achieving this significant milestone, Mr. Sunil Jha, Senior Director, Engineering, ideaForge Technology Limited, commented, "We are delighted to announce the DGCA Type Certification for the ideaForge Q6 UAS. This certification underscores our steadfast commitment to delivering high-quality, reliable solutions to our customers. With its established track record and cutting-edge features, the Q6 sets new standards for excellence in unmanned aerial solutions by delivering performance, reliability, and autonomy."

Q6's capabilities align it to play a pivotal role in supporting the Government's ongoing and upcoming surveillance and mapping initiatives.

Equipped with advanced EOIR (Electro-Optical and Infrared) and mapping payloads, the ideaForge Q6 offers enhanced operational capabilities, making it an ideal solution for a wide range of applications, including security, mapping, inspection and surveillance. With extensive applications ranging from border surveillance and policing for homeland security, mining operations, infrastructure inspection, surveying, and 3D surface mapping, the ideaForge Q6 continues to redefine the possibilities of aerial technology.



MIRA AEROSPACE AND VEDA AERONAUTICS COLLABORATE TO BRING ADVANCED HIGH ALTITUDE PSEUDO SATELLITE (HAPS) SOLUTIONS TO INDIA

Mira Aerospace, a joint venture between Bayanat and UAVOS to develop and manufacture High Altitude Pseudo Satellites (HAPS), and VEDA Aeronautics, an Indian Aerospace & Defence company involved in Unmanned Systems, have announced a collaboration to deliver the world's most advanced High Altitude Pseudo Satellite (HAPS) solutions designed for the Indian market.

Through this collaboration, Mira Aerospace will pair its cutting-edge ApusNeo HAPS technology with VEDA Aeronautics' local development capabilities. The offering will be available to both Indian Defence and civilian clients. Under this agreement, the companies have committed to deliver a HAPS platform specific to the Indian market within the first half of 2024. Mira Aerospace and VEDA Aeronautics previously performed test flights in the Indian airspace, where the technology demonstrator HAPS unit flew in the Indian stratosphere. This test continues to be the only such flight in India to date.

VEDA Aeronautics has recently participated in the Make-1 project, an initiative launched and funded by the Indian Airforce, where the company looks to design and develop a HAPS solution capable of carrying a minimum 35KG payload and sustaining operations at 18,000m altitude for minimum of 30-45 days. Under the Make-1 project, the HAPS developed through the partnership with Mira Aerospace could potentially be used for strategic persistent monitoring of the Indian borders.

Hasan Al Hosani, Managing Director of Bayanat said: «We see India as an important market in Mira Aerospace's international growth strategy. Covering huge areas of diverse terrain, we see a clear opportunity to provide cutting-edge, AI-powered geospatial solutions to our partners in the region. The collaboration between Mira Aerospace and VEDA Aeronautics demonstrates the growing need for intelligent geospatial solutions, and we are excited to expand into the Indian market and showcase our world-leading, specialized solutions.»

Dipesh Gupta, Managing Director of VEDA Aeronautics, said: "We are thrilled to announce our strategic partnership with Mira Aerospace, which marks a significant milestone in India's journey towards accelerating the deployment of HAPS technology. This endeavor underscores our unwavering commitment to innovation, heralding a new era of technological advancement and strategic prowess in the aerospace domain.

ONDAS HOLDINGS' AMERICAN ROBOTICS PARTNERS WITH SENHIVE TO ELEVATE AUTONOMOUS UAS OPERATIONS THROUGH ADVANCED INTEGRATION OF AIRSPACE SURVEILLANCE SYSTEMS



Ondas Holdings Inc. a leading provider of private industrial wireless networks and commercial drone and automated data solutions, announced that its wholly owned subsidiary American Robotics Inc. («American Robotics») is proud to announce a strategic partnership with Belgium-based Senhive BV, (“Senhive”) a leading provider of innovative airspace security solutions. This partnership represents a significant milestone for both companies, enhancing their product and service offerings and advancing safe and autonomous uncrewed aircraft systems (UAS) operations across defense, government, and commercial sectors.

The collaboration between American Robotics and Senhive enables integrated autonomous drone operations, incorporating cutting-edge Detect and Avoid (DAA), airspace safety and surveillance, and Counter Unmanned Aircraft Systems (C-UAS) solutions. Senhive products are trusted and used throughout the world and have been selected to provide airspace security and safety in Europe’s biggest harbors like the Port of Antwerp, as well as in locations spanning from Antarctica to significant global events hosting millions of people.

Notably, this partnership was front-and-center this past week, where American Robotics conducted a demonstration in collaboration with the Massachusetts Department of Transportation Aeronautics (MassDOT) and hosted by Massachusetts Maritime Academy (MMA), where the combined team flawlessly operated Beyond Visual Line of Sight (BVLOS) drone missions under an FAA-approved waiver, completing challenging and wide-ranging data collection for maritime and infrastructure inspection, perimeter security, emergency management, and more using American Robotics’ Optimus sUAS and the Senhive suite of products. This demonstration showcased the effectiveness of both companies’ technologies in real-world scenarios, highlighting their commitment to innovation and safety.

Commenting on the partnership, American Robotics CEO, Timothy “T3” Tenne stated, “We are thrilled to engage with Senhive, aligning with our shared vision of advancing autonomous UAS operations. Senhive’s expertise in airspace management and safety perfectly complements our commitment to delivering world-class autonomous technologies. Together, we are poised to redefine the standards in autonomous drone operations, enhancing safety and efficiency across multiple sectors.”

Senhive CEO, Thomas Petracca stated, “Senhive’s systems have been trusted and proven for over 5 years in more than 14 countries, and we believe the combined offering between American Robotics and Senhive is one of the safest autonomous systems on the market, complying to the highest standards within aviation and UAS industries.”

As part of the collaboration, American Robotics and Senhive will integrate airspace safety technologies into American Robotics’ product portfolio and will offer customers a multitude of standalone solutions. This integration will empower customers with enhanced capabilities, including real-time monitoring, streamlined operations, advanced DAA and C-UAS functionalities, Remote ID monitoring, and revolutionizing UAS operations in complex environments.

SHIELD AI CONDUCTS AI-PILOTED FLIGHTS ON SIXTH AIRCRAFT, THE KRATOS MQM-178 FIREJET



Shield AI, a defense technology company building the world’s best AI pilot, and Kratos Defense & Security Solutions, Inc. a Technology Company in the Defense, National Security and Global Markets and an industry-leading provider of high-performance, jet-powered unmanned aerial systems (UAS) announced the successful completion of the first phase of Shield’s AI-piloted flight-testing on-board Kratos platforms as the two companies move toward productizing Shield AI’s pilot for the XQ-58 Valkyrie.

Having successfully flown AI pilots on five aircraft – three classes of quadcopters, the MQ-35A V-BAT, and the F-16 in fully autonomous air combat training – Shield AI’s Hivemind AI pilot has now successfully flown on and controlled the Kratos MQM-178 Firejet. These successful flights are a major milestone in the comprehensive integration project as Shield AI and Kratos look to ultimately productize another configuration of the Valkyrie, in this case with Shield AI’s Hivemind AI pilot.

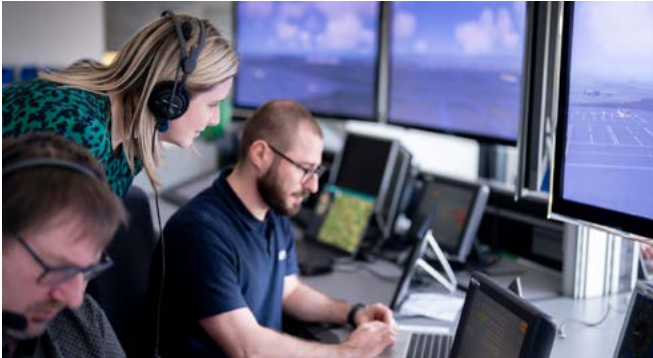
“Our substantial investments in autonomy and AI design tools, infrastructure, and pipelines are what enable Shield AI to rapidly integrate Hivemind onto different classes of aircraft and most importantly, fly them safely. We’re getting faster and faster. It was over three years from signing the contract to flying the F-16; now, it’s less than 180 days for the Kratos Firejet. The vision of portable autonomy software for military hardware has been realized, flown, and deployed by Shield AI,” said Ryan Tseng, Shield AI’s CEO and Co-Founder.

“AI pilots will eventually fly all aircraft and will have a larger global impact than self-driving cars. The MQM-178 Firejet marks the sixth type of aircraft that our AI pilot Hivemind has flown. It is the second jet-powered aircraft after our AI piloted F-16 dogfights. The AI-piloted XQ-58 Valkyrie flights later this year will be the seventh aircraft and then the Kratos BQM-177 will be the eighth. Kratos and Shield AI’s joint focus on the rapid development of AI-piloted aircraft has been a terrific collaboration that is helping redefine military force structures,” said Brandon Tseng, Shield AI’s President and Co-Founder and a former Navy SEAL.

The MQM-178 Firejet fills a variety of end-to-end weapons-release training roles as a jet target aircraft system, supporting surface-to-air and air-to-air engagements. Additionally, the Tactical Firejet offers an offensive/defensive jet UAS system in the sub \$500K price range per aircraft with substantial mission systems and performance capabilities. In either mission configuration (target/tactical), the Firejet delivers a high-speed, high-maneuverability, low-signature solution for replicating threats or enabling no-risk-to-American-life operational effectiveness with a level of contested environment capability.

“The collaboration between Kratos and Shield AI over these past months has been nothing short of exceptional and represents the rapid development and testing possible when motivated commercial technology company’s work together with a common objective—being first to market with relevant systems to support U.S. National Security. Our joint efforts have brought together the best of both worlds – Kratos’ proven jet-powered uncrewed aircraft and Shield AI’s expertise in AI and software development. We’re thrilled about the progress we’ve made and even more excited to share further breakthroughs in the near future,” said Steve Fendley, President of Kratos’ Unmanned Systems Division.

PIONEERING SIMULATIONS PAVE THE WAY FOR ROUTINE DRONE FLIGHTS IN THE UK



The simulations, run at NATS' head office in Hampshire, demonstrated how drones could be seamlessly integrated alongside other air traffic at a busy airport. This included drone operators filing flight plans, flying in and out of the airport and being safely deconflicted with other aircraft.

The leading work forms part of Project CAELUS, a UKRI industry collaboration of 16 partners including AGS Airports, University of Strathclyde, NATS and NHS Scotland, aiming to use drones to transport essential medical supplies throughout Scotland.

The project's first test flight occurred at Glasgow Airport last year, with a drone flying to the nearby NHS Golden Jubilee hospital. The concept development and simulation work NATS has led on is essential to understanding how that one-off flight could be safely scaled up to include dozens of drones flying 'Beyond Visual Line of Sight' and delivering medicines and blood tests to patients across Scotland and potentially beyond.

The airspace integration was overseen by a new Airspace Manager function using new technology developed by NATS. As part of this proposed 'concept of operations,' direct voice communication between a drone operator and air traffic control would only be required by exception - including the kind of emergency scenario demonstrated during the simulations.

Richard Ellis, NATS New Airspace Users Director, said: "Everything we're doing is striving towards enabling the seamless, safe integration of drones and other new airspace users into our skies. There is a lot of work still to do, including the development and approval of new technology and regulations, but I believe what we and our Project CAELUS partners are doing will help support that process and is taking us a step closer to an exciting future."

Fiona Smith, AGS Airports Group Head of Aerodrome Strategy and Project CAELUS Director, said: "We have continued to see some valuable collaboration and innovation across Project CAELUS and this latest work led by NATS truly demonstrates our ambition to forge a new path."

"Our first live flight trial last year was incredibly important and demonstrated a means of integrating drones into an airport environment."

"This year, we look forward to showcasing many more demonstrations including a ramped up flying programme across Scotland and we are delighted to kick start that programme with this exciting NATS showcase".

Hazel Dempsey, Caelus National Programme Manager from NHS Grampian added: "Exploring how drone technology could be usefully used as a way of delivering care to people who live in urban, remote, rural and island locations, is edging ever-closer to a reality."

Project Caelus is a Future Flight Challenge programme jointly funded by UK Research and Innovation. Further test flights are planned for later this year.

DATABEACON AND UAVIONIX COLLABORATE TO DELIVER LOW-LATENCY, CLOUD SITUATIONAL AWARENESS WITH ROMEO5 FLIGHT INFORMATION DISPLAY SOLUTION

DataBeacon and uAvionix, announced the planned availability of uAvionix's validated FlightLine ADS-B data from cooperative aircraft as a sensor feed for DataBeacon's Romeo5 airport and Air Navigation Service Provider (ANSP) Flight Information Display solution. The data provides enhanced situational awareness to air traffic service providers by visualizing the traffic in the airspace they manage mimimising their infrastructure investments. Reliable, trusted and cost effective traffic feeds are a key enabler for airports and ANSP's wishing to take advantage of new surveillance technologies.

David Perez, CEO of DataBeacon, says, "Safety is our top priority at DataBeacon but this is only achieved if we also balance the importance of cost-effectiveness for our customers. With the collaboration between DataBeacon and uAvionix, we are able to provide reliable and trusted traffic feeds that minimize infrastructure investments for air navigation service providers and airports, allowing them to take full advantage of new surveillance technologies. By leveraging the validated ADS-B data from uAvionix, our solutions offer a unique value proposition that sets our solution apart from traditional legacy technologies."

The uAvionix FlightLine service provides validated ADS-B track data from a first-of-its-kind high integrity surveillance network of dual-band ADS-B receivers. FlightLine's truSky™ validation score provides airports and ANSP's confidence in the track data for airspace surveillance while the Romeo5 system displays system and connectivity status. The cloud-based system performs at low latencies with redundancy to ensure timely and reliable delivery of ADS-B data from cooperative aircraft. With traceability to certified avionics for ADS-B, the combined Romeo5 and FlightLine surveillance data-as-a-service is a trusted solution for airports and ANSP's.

The innovative uAvionix truSky validation process inside FlightLine uses the network of multiple low-cost and low-profile deployed dual-frequency (1090MHz and 978MHz) ADS-B ground receivers to evaluate ADS-B signals transmitted from an aircraft. The system then instantly compares the received signals to confirm that the signal originated from the aircraft's position. When enough sensors are available, truSky uses a number of methods to backwards calculate the aircraft's position and compares it to the position contained within the ADS-B transmission. Using Doppler information, multilateral timing, and aircraft kinetics, the calculation produces a validation score on each aircraft to provide the confidence and safety margin required for trusted use by airports and ANSP's operators.

Compliant with UK CAA CAP670 regulation, Romeo5 is a low-complexity Flight Information Display (FID) for aerodromes and airports in the UK. Romeo5 has been built upon the foundation of DataBeacon's Romeo5 tower and airport solution. The on-premise system is easily deployed on a variety of computer operating systems and offers a cost-effective alternative to a traditional radar and surveillance data processing systems. Utilizing multiple data sources, including ADS-B, Romeo5 delivers a next-generation user-friendly interface providing increased visibility to AFISOs and ATCOs.

Customers wishing to take advantage of DataBeacon Romeo5 with FlightLine validated ADS-B Data should contact David Perez of DataBeacon for further information on the benefits of the combination and how to add FlightLine coverage to their airspace.

India's First Logistics Drone Achieves Type Certification with PDRL's AeroGCS Software

PDRL proudly unveils the successful Type Certification of India's first logistics drone equipped with AeroGCS, the leading drone software developed by PDRL. This milestone marks a significant leap in drone technology and also underscores the collaborative efforts between PDRL and industry leaders in revolutionizing logistics through innovative solutions.

AeroGCS, a completely Made in India revolutionary software, introduces a suite of insightful features that redefine every stage of drone missions, from meticulous planning to precise execution and comprehensive post-mission data analysis. This accomplishment is a testament to PDRL's commitment to advancing the drone industry and fostering partnerships that drive transformative change.

With approximately 50% of Indian drone manufacturers Type-certified with AeroGCS and

an impressive 75% of Indian agriculture drones Type-Certified with AeroGCS Green, the demand for AeroGCS remains constant. AeroGCS, proudly made in India for the global stage, signifies a commitment to cutting-edge technology in the drone industry.

Empowering Logistics and Beyond:

As the agricultural landscape undergoes a transformation with Agri Drones, the logistics sector is set for a parallel revolution through drones. Drone technology is on the verge of reshaping Civil and Defence logistics, with PDRL spearheading this transformative journey alongside its esteemed drone OEM partners. PDRL and its partners are pioneering positive disruptions in agriculture and now in the logistics market with drone technology.

Quote from Mr. Anil Chandaliya, CEO, PDRL: "PDRL is excited to announce the upcoming release of a dedicated edition of AeroGCS tailored for logistics

operations with drones. This edition will introduce features such as autonomous flights, a complete command and control centre, drone tracking, delivery tracking, and more, further solidifying PDRL's commitment to technological advancement in the drone industry."

PDRL's AeroGCS Enterprise has already empowered numerous industry players, streamlining their drone operations and enhancing operational efficiency. Thousands of daily drone flights are currently managed, monitored, and tracked with the AeroGCS Enterprise SaaS platform of PDRL, paving the way for a dynamic future in the drone industry.

The collaboration with various partners represents a significant milestone for PDRL. PDRL expresses gratitude while eagerly anticipating more groundbreaking achievements in the ever-evolving landscape of the drone industry.

Manna Drone Delivery Partners with Boojum, Expands To Blanchardstown

Manna Drone Delivery, Europe's largest and most-advanced drone delivery operator announced a new partnership with Boojum, Ireland's most loved Mexican-inspired burrito chain, in addition to an expansion of service to include Blanchardstown. The service will allow around 100,000 people to have fresh burritos delivered to their doorstep in just a handful of minutes. The company already offers its drone delivery services in Fort Worth, Texas, in the United States.

"Food delivery today can be expensive and slow. With more than 150,000 deliveries under our belt across two separate countries, we are more than ready to provide delivery service to another market - and Blanchardstown is that spot," said Bobby Healy, CEO and Founder for Manna Drone Delivery. "Boojum is also the perfect partner to help us kickstart our expansion to the Blanchardstown area - we are both Irish-born pioneering brands, collaborating to drive innovation in the food delivery industry - and we are excited to see the reaction from the community as we get started."

Manna is revolutionising last-mile logistics - by creating a fast, sustainable, and low-cost drone delivery service that brings people the things they need, when they need it. The service reduces the number of cars on the road, bringing down the number of traffic accidents, and lowering carbon



emissions. The operator also provides businesses like Boojum with a whole new way to reach customers.

"Innovation is a core part of Boojum's culture and has been since the early days of pioneering the Mexican dining market in Ireland. As we grow, we're always looking for ways to improve our offering and continue to delight our customers. What better

way to take this to the next level than to partner with Manna Drone Delivery," said David Maxwell, Managing Director for Boojum. "Looking forward to Boojum taking to the skies thanks to Manna!"

Service is available seven days a week - weather permitting - beginning with select eircodes in the Dublin 15 area, and will gradually expand across Dublin in the coming months.

DOORDASH AND WING ANNOUNCE DRONE DELIVERY PILOT IN THE US



DoorDash and Wing announced the launch of their drone delivery partnership in the U.S., starting in Christiansburg, VA. Select local consumers will be able to order eligible menu items from Wendy's® – the pilot's first restaurant partner – through the DoorDash marketplace and have them delivered via drone. This follows the drone delivery pilot program that DoorDash and Wing launched in Australia in 2022 and has since expanded to three locations in Queensland with over 60 participating merchants, marking the first time that Wing integrated its drone delivery service within another marketplace.

"We are excited to expand our partnership with Wing in the U.S. to integrate drone delivery into DoorDash's ecosystem," said Harrison Shih, Senior Director of DoorDash Labs. "At DoorDash, we are committed to advancing last-mile logistics by building a multi-modal delivery platform that serves all sides of our marketplace. We're optimistic about the value drone delivery will bring to our platform as we work to offer more efficient, sustainable, and convenient delivery options for consumers."

"Expanding our partnership with DoorDash and launching in the U.S. is a direct result of the success we've seen from our initial collaboration in Australia, where Wing has served tens of thousands of customers via the DoorDash app for over a year now," said Cosimo Leipold, Head of Partnerships, at Wing. "Wing has now made over 350,000 deliveries across three countries and looking ahead we are focused on providing a fast, affordable and safe service to our partners so they can better serve their customers. This moment continues our meaningful expansion of this service in the U.S. and advances our shared goal to better the last-mile delivery ecosystem."

Beginning today, when DoorDash customers with an eligible address in Christiansburg, VA, place a qualifying order in the DoorDash app from the Wendy's located at 2355 N. Franklin Street, they will see the option to have their meal delivered by drone on the checkout page. Once they select drone delivery and place their order, it will be prepared and packaged at the Wendy's location and delivered via a Wing drone, typically in 30 minutes or less.

Through this partnership, DoorDash aims to provide access to an innovative delivery solution for consumers and merchants, complementary to traditional Dasher-fulfilled orders. The new offering provides a quick and sustainable delivery option for small, short-distanced orders while creating the potential for incremental order growth across the platform. The pilot will initially be available in Christiansburg with plans to explore other cities in the U.S. later this year.

The drone delivery partnership with Wing was born out of DoorDash Labs, DoorDash's robotics and automation arm. DoorDash sees automation as a means to develop the right platform solution to satisfy consumer demand, while improving efficiencies within the platform

Tele2 and foodora in revolutionary collaboration – connected drones deliver food from the sky to the doorstep



Tele2 AB and the q-trade platform foodora announce today that they will launch food deliveries using IoT and 5G connected drones. The deliveries will be made wherever possible to the customers' property or garden and lowered with a cable from the drone, with the first deliveries taking place already in the spring on Värmdö, outside Stockholm

Now launching foodora Air, which is a fleet of electric drones that, with the help of 5G technology from Tele2, will provide fast and efficient delivery service of food from a number of restaurants on Värmdö, outside Stockholm. Aerit, a technology leader in the drone industry, has developed advanced drones integrated into foodora's technology platform to create a seamless and efficient delivery experience connected with the latest 5G technology from Tele2.

"«This marks a new era in how people receive deliveries, and we believe we can see more applications in other industries. For us at Tele2, the partnership with foodora is a perfect example of how we can use our 5G connectivity and expertise to drive future delivery services in a simple, sustainable, and smart way, while providing customers with an extraordinary experience," says Stefan Trampus, Executive Vice President B2B at Tele2.

The drones have a range of 21 kilometers and emit 2 grams of carbon dioxide per kilometer, which can be compared to traditional gasoline or diesel-powered delivery vehicles that emit 143 and 110 grams of carbon dioxide per kilometer, respectively.

"Technology and connectivity have the potential to break many of the limitations that currently exist in rural areas, where access to various services and products has decreased in line with rapid urbanization," Stefan Trampus concludes.

Deliveries will, where possible, be made directly to customers' properties or gardens and lowered with a cable from the air. Deliveries will commence in May on Värmdö, and food can be ordered through the foodora app. The goal is to expand to more areas in Sweden so that more locations can have access to the same service available in major cities.

"We are proud to be the first in Europe to launch real drone deliveries, and we are excited to have Tele2 and Aerit as partners on this exciting journey. Fast home deliveries are a democratic issue, in my opinion. Regardless of where you are in the country, it should be possible to quickly get what you need, such as medicines or groceries. It should not only be available to people who have chosen to settle in big cities," concludes Daniel Gustafsson Raba, Director Operations at foodora.

Tele2 will provide continuous connectivity for the drones based on 5G IoT (Internet of Things) technology. Drones require both short response times and the ability to send and receive large amounts of data to handle deliveries safely, supported by 5G.

Archer and Falcon Aviation to Jointly Develop Vertiport Network in Dubai and Abu Dhabi for the Launch of Flying Car Operations in UAE As Soon As 2025

Archer Aviation Inc. a leader in electric flying cars, announced that Falcon Aviation, a prominent Aviation Services Operator in the UAE, has been selected as their vertiport infrastructure partner for critical locations in Dubai and Abu Dhabi. This collaboration marks a significant step towards launching Archer's Midnight flying car with Falcon Aviation in the UAE and across the MENA region as soon as 2025.

Under this partnership, Archer and Falcon Aviation will start by developing state-of-the-art vertiport infrastructure at Falcon Heliport at Atlantis, the Palm in Dubai and the Marina Mall heliport in Abu Dhabi's Corniche. Driving between the two cities during peak traffic can take more than 2 hours. Archer and Falcon Aviation plan to offer passenger service in Archer's Midnight flying car between these two Falcon vertiports, which will operate almost entirely over water with scenic views of both cities and clock in at as little as 30 minutes from takeoff to landing. Archer believes it is the first to announce a flying car service on this route between Abu Dhabi and Dubai, one of the world's most prominent and congested commute corridors.

"Partnering with established operators such as Falcon Aviation, as well as the capital of the Emirates with the Abu Dhabi Investment Office, has been key to quickly building our presence in the region," said Archer



founder and CEO Adam Goldstein. "We look forward to paving the way for the introduction of our Midnight aircraft to the region which will set the stage for the UAE to become a global leader in urban air mobility."

Falcon Aviation CEO Captain Ramandeep Oberoi commented, "For nearly two decades, Falcon Aviation has been at the forefront of helicopter passenger transport in the UAE. Our partnership with Archer is a leap into the future, as we prepare to offer flying car services together in Dubai and Abu Dhabi, continuing

our tradition of world-class transportation solutions."

On March 8th, Falcon Aviation also announced the inauguration of its state-of-the-art Renovated Heliport Terminal, extending its presence at Atlantis, the Palm. The companies unveiled a vision of what the future vertiport and service will look like at what will transform into a key hub for Midnight flights, helping bring urban air mobility to the region.

Today's announcement reinforces the memorandum of understanding (MOU) signed last year, where Falcon Aviation agreed to operate scores of Archer's Midnight flying cars. This venture is part of Archer's strategic expansion, with the UAE set to be its first international launch market as soon as next year. This follows a significant preliminary deal announced by Archer last year with the Abu Dhabi Investment Office which promised economic incentives to help accelerate Archer's growth in the region as part of Abu Dhabi's Smart and Autonomous Vehicle Industry (SAVI) Cluster.

Archer Chief Commercial Officer, Nikhil Goel, said: "We have made rapid progress in the UAE over the past three months since announcing Abu Dhabi and Dubai will be home to our first international Midnight flights as soon as 2025. We're proud to be the first to announce plans to operate between Dubai and Abu Dhabi, along with vertiport infrastructure at both ends of the commuter journey."

LIFT Aircraft Launches World's 1st eVTOL Pay-Per-Flight Experience

LIFT Aircraft, the trailblazing leader in electric vertical takeoff and landing (eVTOL) technology, has made history with the launch of the world's first customer eVTOL flights. The announcement was made during another global "first" - a live broadcast flight on Good Morning America. As GMA's Rob Marciano piloted HEXA, he remarked, "This is amazing! This is the future of personal air transportation!"

Following the successful live broadcast, LIFT is thrilled to announce the commencement of its eagerly awaited U.S. Tour. This tour marks a monumental milestone in the company's journey to democratize personal flight and redefine urban transportation.

LIFT's revolutionary pay-per-flight experiences are now available to the public. The company's inaugural mobile location will be operating through April 28 at Lakeland Linder Airport - home of the famed Sun N Fun Aerospace Expo, where LIFT will also



be seen flying in air shows and allowing customers to fly during the renowned event (April 9-14). Customer flights will continue in Austin, Texas in May, with further expansion into additional cities to be announced in the near future.

Anyone can train and fly LIFT's aircraft, HEXA.

The experience, which lasts approximately 2 hours and includes comprehensive ground training, allowing customers to familiarize themselves with the aircraft and its controls before flying the aircraft in a virtual reality flight simulator, offering a realistic preview of what's next. Once trained, participants pilot HEXA themselves, all under the guidance of experienced flight instructors - and all with no pilot's license required. Flights can be booked through the company's newly revealed mobile app (Apple App Store and Google Play) or directly through the company's website (www.liftaircraft.com).

"We are incredibly excited to bring the future of personal aviation to life with the launch of our customer eVTOL flights," said Matt Chasen, CEO and Founder of LIFT Aircraft. "We're not just providing entertainment, we're offering the chance to step into a new era of mobility. We're pushing the boundaries of what's possible in aviation."

Eve Air Mobility Presents Vector and Provides Updates on the Urban ATM Software Development

Eve Air Mobility has released at the Airspace World in Geneva the name of its Urban Air Traffic Management (Urban ATM) software and provided updates on the solution's development. Vector will be an agnostic software solution designed to safely address the unique air traffic and network management challenges of current and future Advanced Air Mobility (AAM) operations, focusing on fleet and vertiport operators, and future service providers for AAM, including Air Navigation Service Providers (ANSPs). The company is advancing towards an operational version of the software which customers can test and trial to help progress the market.

"Electric vertical take-off and landing (eVTOL) aircraft flights will become an established transportation mode for communities worldwide. Eve expects first deliveries and entry into service as soon as 2026 and has been addressing the airspace and Air Traffic Management (ATM) challenges to support the introduction and growth of the market in a harmonized and safe way. Vector will streamline AAM operations from day 1, coordinating all stakeholders involved to enhance safety, optimize performance, and maximize resource usage," said Johann Bordais, Eve's CEO.

Vector will allow eVTOLs to be integrated with other aircraft flying in low-level urban airspace from day 1 of operations and provide the automation needed to enable Urban Air Mobility (UAM) market scalability. To date, Eve has 14 (fourteen) customers for the solution, including fleet operators, vertiports and airspace



and flow management providers. With Vector, eVTOL operators will make their operations more efficient; vertiports will manage resource availability with all operation stakeholders involved; and ANSPs and Providers of Services (PSU) for UAM will optimize the airspace and air traffic network for all users.

In November 2023, Eve partnered with Flexjet to conduct a simulation to validate and refine Vector's capabilities under real-scenario conditions and better understand the software's commercial viability and applications. The simulation took place in the UK and involved 18 flights across eight aerodromes, exercising 26 different routes with alternative landing locations to test the standby flight plan functionality. The team also tested delays at departure and destination with impacts on incoming flights, flight cancellations due to airspace and weather constraints, and in-flight emergencies, including alternative landing location requests.

The Eve-Flexjet simulation has found gaps between current ATM systems and those required to support UAM operations from Day 1, such as the lack of integration between fleet and vertiport operator systems to coordinate eVTOL flights safely and efficiently. Therefore, Eve is prioritizing the development of services that address these gaps, including integrated flight planning with airspace and vertiport resource availability; management of alternate landing locations built into the flight planning to support the endurance limitations of electric aircraft; and conformance management to inform stakeholders when flights deviate from their plan and may affect other flights.

"Flight dispatchers are responsible for nearly all aspects of an operation, which requires extensive decision-making and tracking abilities. Urban ATM services can support these activities in preparation for AAM operations through increased levels of automation and an integrated view of the relevant information tied to a specific flight. Eve has been actively incorporating features, including feedback received through user testing, into Vector to ensure the value of its services translates directly to the end users", added Brenden Hedblom, Eve's head of traffic management solutions.

As Vector matures, Eve continues to pursue additional opportunities to trial the solution with its customers and partners. Testing it in real-world scenarios is the best way to ensure the services provide optimal value. The company expects this year to advance towards an operational version of the software which customers can test and trial to help advance the market and prepare the UAM ecosystem for initial operations.

EHang's EH216-s Pilotless eVTOL successfully completed its Debut Flight in Latin America



EHang Holdings Limited the world's leading Urban Air Mobility ("UAM") technology Platform Company, announced the debut flight of EH216-S pilotless electric Vertical Take-Off and Landing ("eVTOL") aircraft, in Latin America, for demonstrating the safe, environmentally friendly and accessible Advanced Air Mobility ("AAM") in the region.

The EH216-S demonstration flight took place at the impressive Reserva Conchal resort, in Guanacaste province of Costa Rica, in front of national authorities and media. Framed under a dedicated ceremony to highlight the advantages of AAM, on the sustainable and innovative development and growth of countries, and how this new mean of mobility can enhance the quality of life of its citizens and the experience of its visitors.

This event was organized jointly by Bluenest by Globalvia, a prominent player in AAM landscape designing and managing vertiport networks globally, Guanacaste Airport, a subsidiary of VINCI Airports, a world leading private airport operator, and the hospitality division of FIFCO, a Costa Rican publicly traded company, with diversified investments and operations in Central and North America.

During the ceremony, EH216-S successfully completed its debut flight in Latin America for aerial sightseeing and intra resort transportation use cases. The demonstration not only showcased its suitability for aerial tourism, but also underscored its versatility for applications such as airport to city and resort commuting, medical delivery services and emergency response operations.

Ms. Victoria Xiang, COO of EHang Europe and Latin America, said, "EHang is pleased to see EH216-S pilotless eVTOL flying for the first time in Latin America, demonstrating safe, efficient and sustainable Advanced Air Mobility for everybody, in Costa Rica. We are convinced of the enormous benefits that EHang's UAM technology can bring to Latin America, and we are determined to continue collaborating closely with local stakeholders of the region, for making this new mean of air mobility accessible to everybody in the continent."

LILIUM AND ATLANTIC AVIATION UNITE TO ELECTRIFY REGIONAL AIR MOBILITY ACROSS THE US

Lilium N.V. developer of the first all-electric vertical take-off and landing (“eVTOL”) jet, has teamed up with Atlantic Aviation, a leading fixed-based operation (FBO) and aviation services provider, to prepare Atlantic’s network of more than 100 FBOs for the Lilium Jet’s regional upcoming air mobility service launch in the United States.

This strategic partnership will work to ensure seamless compatibility between the Lilium Jet and Atlantic’s network of aviation assets across North America, enabling Advanced Air Mobility operations at current and future locations. Atlantic operates sites at more than 30 airport locations within Lilium’s planned launch markets in Florida, Southern California, the Northeast corridor, and Texas.

Lilium and Atlantic will focus on infrastructure deployment and operations, with an eye toward passenger experience, at existing and upcoming sites. Strategic planning will revolve around key drivers including aircraft flight paths, charging capabilities, passenger facilities, operations forecasting, and more. This comprehensive approach will ensure Lilium Jet operators have access to strategic points within Atlantic’s network of aviation facilities, working to both optimize the passenger experience and usher in a new era of air travel.

“Our partnership with Atlantic Aviation is a critical step toward realizing our vision for a sustainable and accessible mode of high-speed regional travel,” said



Sebastien Borel, Lilium’s Chief Commercial Officer. “Atlantic’s extensive presence across major U.S. cities and expertise in ground infrastructure development and premier customer service will be invaluable in establishing a robust network that supports the Lilium Jet throughout the U.S.”

“Atlantic Aviation is eager to work alongside Lilium, a pioneer in the burgeoning eVTOL sector, to construct the necessary infrastructure for their regional air mobility service in the United States,” said John Redcay, Chief Commercial and Sustainability Officer at Atlantic. “This collaboration underscores our firm conviction in the transformative potential of eVTOL technology in reshaping regional travel, and we are dedicated to furnishing the technology-agnostic infrastructure and assistance required to bring this vision to fruition.”

Lilium’s planned commercialization approach focuses on manufacturing and selling the Lilium Jet to various individuals and companies for private, premium, and shuttle operations and thereafter providing aftermarket support and services. This go-to-market strategy will allow for a diverse revenue stream and is predicated on aviation facilities being ready for the Lilium Jet, emphasizing the value of partnering with Atlantic.

Lilium’s strategic collaboration with Atlantic will pave the way for a smooth entry into service of the Lilium Jet that will help usher in a new era of regional air transportation that connects travelers from city to city and saves passengers hours in travel time. This MOU follows several partnerships between Lilium and other providers globally, as well as the commencement of production of the Lilium Jet late last year.

CITYAIRBUS NEXTGEN MAKES ITS DEBUT

Airbus has presented its full electric CityAirbus NextGen prototype to the public, ahead of its maiden flight later this year. The two-tonne class CityAirbus, with a wing span of approximately 12 metres, is being developed to fly with an 80 km range and to reach a cruise speed of 120 km/h, making it perfectly suited for operations in major cities for a variety of missions.

The unveiling coincided with the opening of the new CityAirbus test centre in Donauwörth, which will be dedicated to testing systems for electric vertical takeoff and landing vehicles (eVTOLs). The centre, which is part of Airbus’ ongoing and long-term investment in Advanced Air Mobility (AAM), began its operations with the CityAirbus NextGen’s



power-on in December 2023 and it will be now used for the remaining tests required before the prototype’s maiden flight later in the year. These tests cover the electric motors with their eight rotors as well as the aircraft’s other systems such as flight controls and avionics.

“Rolling out CityAirbus NextGen for the very first time is an important and very real step that we are taking towards advanced air mobility and our future product and market. Thank you to our community, team and partners all over the world for helping us make this a reality,” said Balkiz Sarihan, Head of Urban Air Mobility at Airbus.

At the same time, Airbus is expanding its global network and partnerships to create a unique ecosystem that will foster a successful and viable AAM market. Airbus recently signed a partnership agreement with LCI, a leading aviation company, to focus on the development of partnership scenarios and business models in three core AAM areas: strategy, commercialisation and financing.

Dubai-Based Company Orders Over 100 Flying Cars



Aviterra, a Dubai-based company concluded a historic deal with PAL-V to bring the Liberty flying car to the Middle East and Africa. Aviterra is acquiring over 100 PAL-V Liberty flying cars, making an investment, and formalizing a partnership for the Middle East and Africa.

Aviterra, run and backed by one of the founders of Jetex, a global leader in executive aviation, sees PAL-V's appeal in its last-mile solution and regional air mobility offerings. Mouhanad Wadaa, Managing Director of Aviterra, explains, "The PAL-V is the perfect tool for our customers' regional travel requirements, offering a combination of flying and driving. It's truly an innovation that will change mobility as we know it."

Wadaa emphasizes the enhanced travel options the Liberty provides, with customers having the flexibility to FlyDrive themselves or utilize Aviterra's services. The PAL-V Liberty, known as the world's first real flying car due to the combination of a gyroplane and a car, addresses the need to travel independent from (congested) roads and enhance travel flexibility. With a flight range of 500 km and a maximum airspeed of 180 km/h, the Liberty shortens commute and travel times.

"While running a business aviation company, we've always kept a close eye on the emerging Advanced Air Mobility industry," notes Wadaa, highlighting the unique opportunity PAL-V presents. "PAL-V's long-standing presence and adherence to existing regulations allow our customers to safely FlyDrive using existing air and road infrastructure. Furthermore, PAL-V is the only player that combines flying and driving into one vehicle. No other player in the market offers this combination and can realistically deliver the vehicles in the near future."

Loggia Investment, the investment arm of Aviterra, has made a strategic investment in PAL-V and established partnership for the Middle East and Africa region.

PAL-V's CEO and Founder, Robert Dingemans, welcomes the partnership, stating, "Aviterra and Mr. Wadaa have vast experience in aviation, understand our certification process, and have an excellent reputation in the business aviation industry. They are a strong partner to support our sales and marketing activities in the Middle East and Africa, which is headed by our VP Middle East, Khalil Malaeb."

PAL-V is setting up regional offices around the world to grow its flying car business. These regional offices will be hubs for PAL-V's sales, maintenance, flight training, and assembly locations. Dingemans teases forthcoming highlights, saying, "In the coming months, we have more updates on development and certification successes, confirming our lead in the emerging AAM market."

SkyDrive Signs Pre-Order with Bravo Air



SkyDrive Inc. a leading Japanese eVTOL aircraft manufacturer, and Bravo Air, a well-established private air charter service operator based in Augusta, GA, USA, have signed a letter of intent for the purchase of up to (5) "SD-05 "SKYDRIVE" aircraft. The agreement also includes the formation of a "Partnership" to conduct joint studies in the development of use cases originating from Augusta Regional Airport to scale Advanced Air Mobility (AAM) within the region including the adaption of SkyDrive's business model for air taxi services.

This collaboration builds off our existing relationship with key stakeholders in South Carolina and the progress made to make its Air Taxi Services available to potential customers within the region marking a significant milestone in SkyDrive's journey to bring safe, sustainable, efficient air travel to local communities.

The partnership with Bravo Air represents a bold step forward in expanding our presence beyond South Carolina and into Georgia. SkyDrive aims to establish a thriving eVTOL air taxi network that connects Augusta Regional Airport to various destinations across the region, providing a seamless last-mile mobility experience for commuters and travelers alike. This exciting venture would not have been possible without the overwhelming support from state and local governments. SkyDrive is committed to collaborating closely with Bravo Air and the State of Georgia to cultivate a robust operational AAM infrastructure that benefits regional airports and operators with the goal of creating a connected, environmentally friendly Air Taxi network that serves the needs of local communities while promoting economic growth and opportunity.

SkyDrive has indicated their intent to continue working alongside key stakeholders in both Georgia and South Carolina to make this vision a reality and invites all Part 135 Operators and related stakeholders interested to join us on this thrilling journey into the future of the Advanced Air Mobility (AAM) industry.

Dann Standard, VP Operations of Bravo Air said, "Bravo Air is thrilled to be working with SkyDrive on revolutionizing AAM in the United States. Bravo Air was honored to have recently visited SkyDrive in Japan and had the opportunity to meet the teams working diligently to bring AAM development into a reality. We are excited to be a part of a collaborative effort to bring more environmentally conscious air travel options to the Augusta area and beyond."

"We are pleased to welcome SkyDrive to the Augusta Regional Airport and the Central Savannah River Area," said Mayor Garnett Johnson. "We see our vision for a greener future coming to fruition with companies starting to adopt these new electric aircraft and embracing these new eco-friendly technologies."

"We would like to congratulate SkyDrive and Bravo Air on their new partnership," stated Mr. Herbert Judon, Executive Director. "The Augusta Regional Airport staff have worked diligently to prepare the infrastructure necessary to support the needs of this new industry. We are pleased to see this nascent industry start to grow and expand in our market."

Tomohiro Fukuzawa, Founder and CEO of SkyDrive said, "As we embark on this new partnership with Bravo Air, we are thrilled to witness not only the growth of SkyDrive but also the broader eVTOL industry in the U.S. market. This collaboration with Bravo Air marks a significant step forward in our shared objective of advancing AAM development, particularly in the Southeast region in the U.S. We are excited about the transformative potential of this partnership and the opportunities it presents for innovation, sustainability, and continued progress in our industry."

Joby Widens USAF Partnership, Will Deliver 2 eVTOL Aircraft to MacDill AFB

Joby Aviation, Inc a company developing electric air taxis for commercial passenger service, announced it will deliver two aircraft to MacDill Air Force Base ("AFB") in 2025 as part of the Company's AFWERX Agility Prime contract with the U.S. Air Force.

MacDill AFB is home to the U.S. Special Operations Command ("USSOCOM"), U.S. Central Command ("CENTCOM"), and units from the Air Mobility Command ("AMC"), along with numerous logistics-oriented units. Personnel will test and train with the aircraft based at MacDill AFB, on base and in the surrounding area.

Joby delivered its first aircraft to Edwards Air Force Base in California in September 2023, with a second aircraft expected to be placed on the base this year. At Edwards, the Joby team is working closely with the 412th Test Wing on testing and experimentation that will inform future operational testing at MacDill AFB in Tampa, Florida. Joby's Agility Prime contract includes the provisioning of up to nine aircraft total to the U.S. Air Force and other federal agencies. In 2020, Joby became the first eVTOL developer to receive military airworthiness approval for its pre-production prototype aircraft.

At MacDill AFB, Joby will be working directly with DoD operational units for the first time, enabling units to carry out representative logistics missions and test use cases in personnel transport, casualty evacuation, and support of security forces. Initial evaluations have demonstrated that



the low maintenance requirements and operating costs, high speed, and low acoustic footprint of eVTOL aircraft like Joby's can enable a diverse array of DoD use cases. Joby will continue to train USAF pilots and maintainers, and other government partners, on this new category of electric aircraft.

"The early investment and vision by the US government in this critical technology is proving foundational as we continue our path toward commercial passenger service. We're grateful to our partners at the Department of Defense for their ongoing support and continued leadership in adopting eVTOL technology," said Joe Ben Bevirt, Founder and CEO of Joby. "We're looking forward to working with units at MacDill Air Force Base as we further explore the potential use cases for our aircraft, demonstrating its capabilities in realistic settings."

"This work will provide Joby with valuable early operational experience, while providing the USAF with firsthand understanding of the performance of our aircraft and its potential applications," added Bevirt.

Joby's electric 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 zero operating emissions.

"The Agility Prime team is very excited to progress through a novel acquisition approach," said Lt Col John Tekell, Agility Prime Branch Chief. "These two aircraft at MacDill AFB allow the program to take the next steps in learning to maximize the operational opportunity of eVTOLs."

U.S. Air Force, Marine Corps, and Army aviators, ground crews and program managers have made multiple visits to Joby's manufacturing and flight test facilities in Marina, CA for ongoing flight training and mission analysis regarding potential logistics, medical, and personnel transport applications of the aircraft. Joby's longstanding partnership with the Department of Defense (DoD) dates back to its 2016 engagement with the Defense Innovation Unit (DIU), which granted the Company early funding as well as access to test ranges and expertise that have aided its aircraft development program. Since then, Joby has expanded its work to include the AFWERX Agility Prime program, with Joby's current and previously completed work with the DoD representing a total potential contract value of \$163 million, the largest in the industry. Joby announced in February that it has completed the third of five stages of the type certification process required by the Federal Aviation Administration (FAA) for commercial service.

EHANG ANNOUNCES JAPAN'S FIRST UAM CENTER IN TSUKUBA

EHang Holdings Limited the world's leading urban air mobility ("UAM") technology Platform Company, announced that Japan's first UAM Center has been established in Tsukuba City, Ibaraki Prefecture. This state-of-the-art facility serves as a demonstration flight site, ground infrastructure, and maintenance base for EHang's various pilotless electric vertical takeoff and landing ("eVTOL") aircraft in the region, including EH216-S. This UAM center is a milestone in Japan's advanced air mobility industry.

During the inauguration ceremony attended by Mr. Tatsuo Igarashi, mayor of Tsukuba City, the EH216-S pilotless eVTOL successfully completed its first flight in the Kanto region for aerial sightseeing.

The establishment of the UAM Center is the result of a strategic partnership between EHang and AirX Inc. ("AirX"), a leading Japanese air mobility digital platform company. Situated on the site of the former Helicopter Control and Command Center owned by Ibaraki Prefectural Government, the UAM Center houses hangars with capacity for approximately 25 units of EH216-S aircraft. The shared landing platform, used by



both helicopters and eVTOLs, covers an area of around 30,000 square meters. Developed by AirX in collaboration with Tsukuba Airlines, the UAM Center is designed to meet the evolving needs of next-generation air mobility that encompasses pilotless eVTOL aircraft, helicopters and private jets.

EHang has been actively expanding its presence in the global market. To date, the EH216-S pilotless eVTOL aircraft has successfully conducted flights across 12 cities in Japan, showcasing its versatility in various use cases, including aerial sightseeing, island transportation, aerial logistics, and emergency services.

In 2023, EHang became a member of Japan's Public-Private Committee for Advanced Air Mobility. This recognition underscores EHang's pivotal role in driving the advancement of Japan's innovative air transportation

initiatives, particularly as the unique pilotless eVTOL provider among the 56 committee members.

Kiwamu Tezuka, Founder and CEO of AirX, commented, "Through the establishment of this UAM Center, our goal is to showcase air mobility flight experiences to the public. In the future, we plan to offer aerial sightseeing services with the cutting-edge EH216-S eVTOL aircraft at this location. Looking ahead, AirX is gearing up to launch additional UAM Centers in Tokyo, solidifying our commitment to spearheading the development of UAM and transforming the future of transportation in Japan."

Huazhi Hu, Founder, Chairman, and CEO of EHang, remarked, "Congratulations on the inauguration of Japan's first UAM Center. This is a key milestone in UAM, bringing us one step closer to introducing a new era of transportation to the public. EHang will continue collaborating with our partners in promoting safe, autonomous, and environmentally friendly UAM solutions in Japan, as we aim to offer our pilotless eVTOLs to a global audience and enhance the lives of people worldwide."

Drones World Managing Editor
Sanjay Singh In conversation with

Balaji Nagarajan Serial Entrepreneur Founder - Latrics



Q Could you describe your entrepreneurial journey, from the inception of Geokno and its challenges in pioneering LiDAR technology within the Indian market?

A Starting my journey in the small town of Devakottai, Tamil Nadu, I always had a deep interest in science. This passion led me to pursue advanced degrees in physics and remote sensing, setting the stage for my entrepreneurial path. It was during my master's studies that I met Prof. Bharat Lohani from IIT Kanpur, who shared my enthusiasm for ground breaking technology. Together, we launched Geokno, a venture aimed at leveraging LiDAR technology for practical, impactful uses beyond the academic realm. Our collaboration marked the beginning of an exciting venture to bring this advanced technology into the mainstream market.

The early days at Geokno were challenging, as LiDAR was a novel concept in India, with its potential largely unrecognized. Our mission was not just about establishing a business; it was about introducing a revolutionary technology to the country. I travelled extensively, engaging with officials and industry leaders to showcase LiDAR's value in irrigation, urban planning, infrastructure, and agriculture, among other fields. Through perseverance and a commitment to innovation, we were able to transform LiDAR from an obscure research tool into a vital component for various industries, contributing significantly to the country's development and planning efforts.

Q How did your leadership at Geokno, coupled with key milestones like the investment from GMR Group and prestigious recognitions, drive the company's evolution into a LiDAR market leader?

A The year 2012 marked a significant milestone in the journey of Geokno, as it caught the attention of GMR Group, a leading player in the infrastructure sector. The group, under the visionary leadership of Mr. G.M. Rao, recognized the untapped potential of LiDAR technology and its transformative impact on various industries. This pivotal investment by GMR Group not only provided a substantial boost to Geokno but also underscored the industry's recognition of LiDAR technology's importance.

The establishment of Geokno as a market leader in the LiDAR business is a testament to the power of vision, perseverance, and the relentless pursuit of innovation. We were not just founding a company; we were laying the groundwork for a future where technology and data-driven insights could lead to smarter decisions for the environment and society.

The journey has been marked by significant accolades and moments of pride, including being among the 200 Entrepreneur's selected for the Prime Minister's Champion of Change Program. Moreover, representing India at the Global Entrepreneurship Summit 2017 was not just an honour but a tribute to our commitment and contribution in developing a new powerful LiDAR industry and entrepreneurial ecosystem in India.

As CEO of Geokno, I spearheaded the company through a decade of innovation, growth, and leadership in the LiDAR domain. Our efforts culminated in Geokno becoming synonymous with quality, precision, and technological advancement. Under my stewardship, we navigated the company through various phases of growth, exploring new territories and expanding our horizons beyond traditional application of LiDAR technology.

Q Transition from leading Geokno to founding LATRICS mark a significant shift in your focus towards new age technologies. What drives your vision for using these technologies?

A After a highly rewarding journey with Geokno, I decided to shift my focus towards exploring new age technologies that are poised to shape the future. Driven by a passion for innovation and a vision to contribute to building a better tomorrow, I embarked on a new entrepreneurial venture LATRICS. This decision was fuelled by my belief in the transformative power of technologies such as drones, artificial intelligence, IoT, and blockchain. I set forth on a mission to harness these forces for building a better tomorrow. Our new venture LATRICS is not just a continuation of my entrepreneurial journey but a leap into the future, driven by the belief in technology's power to shape a more



sustainable, efficient, and connected world.

Q Could you share some insights, how the LATRICS has evolved since its inception?

A Since its inception, Latrics has evolved into a multifaceted organisation with three distinct verticals: Latrics Aerospace, Latrics AI, and Latrics Digital. Each vertical specializes in leveraging its core technology to innovate and deliver solutions tailored to the needs of various sectors.

Latrics Aerospace focuses on the development and manufacturing of advanced drones, such as the Licopter and the Guardian, which are designed for a range of applications from LiDAR mapping to AI-enabled monitoring and surveillance.

Latrics AI (Formerly Mobionix AI) is incubated at IIM Calcutta, emphasizing the development of AI solutions targeted at enhancing operational efficiencies and customer experiences in the hospitality and healthcare industries.

Latrics Digital integrates sensor fusion and geospatial technologies, employing LiDAR, cameras, and other IoT sensors to provide comprehensive solutions for mining, warehousing, and other industrial sectors.

The journey of Latrics, from its founding to its current state, showcases a trajectory of growth underpinned by innovation, collaboration, and a deep commitment to leveraging technology for the greater good. It embodies a vision of not only advancing technological frontiers but also creating solutions that are sustainable, impactful, and pave the way for a better tomorrow.

Q It is interesting to see LATRICS's expertise in various advanced technologies, how will AI and Sensor technologies benefit its aerospace division?

A The synergy between Latrics' diverse technological pursuits and its aerospace division underscores a strategic approach to innovation, where advancements in artificial intelligence (AI) and Sensor technologies play a pivotal role. The integration of AI and advanced sensors across Latrics' operations brings forth a host of enhancements to its aerospace offerings, particularly in the development and operation of drones.



AI technology, with its capabilities in data analysis, pattern recognition, and autonomous decision-making, significantly enhances the functionality of drones manufactured by Latrics Aerospace. These drones can undertake complex tasks with greater accuracy and efficiency, ranging from real-time data collection to automated surveillance and monitoring. The AI-driven analysis of data captured during flights enables precise decision-making, improving the drones' utility in various applications such as agriculture, disaster management, and infrastructure monitoring.

Moreover, advancements in sensor technology augment the capabilities of these drones by providing them with enhanced perception and environmental awareness. High-resolution cameras, LiDAR sensors, and other IoT devices allow for the collection of detailed and accurate data from the environment. This data, when processed through AI algorithms, facilitates detailed mapping, object detection, and even predictive analytics, enabling drones to operate in diverse and challenging conditions.

Q Latrics Aerospace is known for its focus on integrating cutting-edge technologies into drone solutions. Can you elaborate on some of the innovative technologies incorporated into your drones and their significance in addressing real-world challenges?

A Latrics Aerospace, a division of Latrics India dedicated to pioneering drone technology, integrates a host of innovative technologies to address various real-world challenges effectively. The

drones developed by Latrics Aerospace, such as the Licopter – Advanced LiDAR Drone and Guardian – An AI drone for Security and Surveillance with 100X zoom, are not just flying machines; they are advanced solutions designed to solve complex problems in several sectors, including infrastructure, surveillance, geospatial and agriculture.

Key Technologies Incorporated into Latrics Aerospace Drones:

Artificial Intelligence (AI) and Machine Learning (ML): Our AI and ML algorithms with onboard processing empower drones with intelligent object detection and autonomous decision-making capabilities. This is crucial for security and surveillance tasks, allowing drones to identify and track unauthorized activities without human intervention. In precision agriculture, AI and ML enable real-time monitoring of soil and plant health, providing farmers with actionable insights for optimizing crop yield. By processing algorithms onboard, drones can swiftly analyze data and deliver optimal solutions, enhancing efficiency and productivity across various industries.

Advanced Sensor Fusion: Latrics Aerospace drones leverage a sophisticated sensor fusion approach, integrating data from depth and ultrasonic sensors to enable real-time environmental mapping for autonomous planning and the fusion of data from high-resolution cameras, high-density LiDAR, tactical grade IMUs, and GNSS sensors facilitates precise terrain mapping, infrastructure inspection, agriculture, and disaster management. The resulting high-resolution, real-time data is invaluable for informed decision-making in various applications.

Internet of Things (IoT) Integration: With 5G capabilities, Latrics Aerospace, achieve seamless communication with diverse devices and



platforms worldwide, fostering a connected ecosystem. This integration proves vital for accessing real-time data across multiple stakeholders in smart city initiatives, search and rescue missions, and extensive monitoring projects. By connecting multiple drones, systems, and ground-based sensors/platforms, these initiatives ensure coordinated operations and gather comprehensive real-time data, enabling informed decision-making.

Blockchain for Data Security: Integration of blockchain technology guarantees the integrity and security of data captured by drones, rendering the system transparent and impervious to tampering or unauthorized access. This feature holds particular importance in sensitive applications such as surveillance, legal land surveying, and compliance monitoring, where ensuring tamper-proof data integrity is paramount

Q One of Latrics Aerospace's key focus areas is autonomous and AI-based drones. How do these technologies enable greater autonomy and efficiency in drone operations, particularly in scenarios requiring minimal human intervention?

A At Latrics Aerospace, we are proudly more than halfway through our journey towards achieving full autonomy in our drone operations. This significant milestone underscores our unwavering commitment and focus on pioneering fully autonomous drones, capable of navigating from charging through to mission completion with minimal human intervention. This ambition drives our innovation,

as we are dedicated to creating drones that can independently navigate, make decisions based on AI algorithms, and safely complete tasks in complex environments.

The benefits of reaching this level of autonomy are multifaceted including streamlined efficiency, enhanced safety, scalability and precision in operation. By concentrating on fully autonomous systems, Latrics Aerospace aims to revolutionize industries with drone solutions that offer unparalleled efficiency, safety, and reliability. Our commitment to this vision underscores our role as leaders in leveraging technology for impactful advancements in drone applications

Q Could you shed light on Latrics Aerospace's approach to ensuring data accuracy and resolution in drone-based surveys and inspections, especially in critical sectors such as infrastructure and security?

A With a decade of experience in cutting-edge sensor technologies including LiDAR, cameras, IMUs (Inertial Measurement Units), and GPS, we at Latrics have a strong base to build from. This experience lets us pick the best sensors for the job and make sure they work together perfectly. This way, our drones can do their tasks really well, especially for important areas like infrastructure and safety.

Our seasoned understanding of diverse sensor technologies guides our approach, ensuring we harness the right tools for precise data collection and analysis. This strategic selection and integration of sensors underscore our commitment to innovation and our ability

to provide actionable insights, reinforcing our position as innovation leaders. This profound understanding not only enhances the accuracy and resolution of the data collected but also ensures the operational efficiency and reliability of our drones, allowing us to deliver actionable insights with precision. This experience is key to our innovation, pushing us forward in using technology to solve real problems.

Q In your opinion, what are the most promising future applications of drone technology, and how is Latrics Aerospace positioned to address these emerging opportunities?

A Drone technology is rapidly evolving, significantly impacting various sectors by offering innovative solutions to longstanding challenges. From enhancing security measures with surveillance capabilities to revolutionizing agriculture through precision farming, drones are setting new standards in efficiency and effectiveness. In the logistics sector, drones promise to redefine cargo delivery, particularly in remote or difficult-to-access areas, providing faster and more eco-friendly options. Additionally, drones are becoming indispensable tools in project monitoring, offering detailed aerial views that facilitate better decision-making and oversight for construction and environmental projects.

At Latrics Aerospace, we are keenly focused on leveraging these advancements to their fullest potential. Our approach in security utilizes drones for comprehensive area surveillance and threat detection, employing AI to analyze data in real time for rapid response. In smart agriculture, our drones are equipped with advanced sensors to monitor crop health and optimize resources, directly contributing to increased efficiency and reduced environmental impact. For cargo delivery, we're developing solutions that not only speed up the process but also significantly reduce the carbon footprint associated with traditional transportation methods. Lastly, in project monitoring, our drones provide critical insights through high-resolution imaging and data analysis, enabling stakeholders to track progress accurately and make informed decisions. Through these endeavors, Latrics Aerospace is not just embracing the future of drone technology but actively shaping it, delivering solutions that drive progress across industries.

Q Is Latrics Aerospace involved in anti-drone technology development? Could you elaborate on the challenges posed by rogue drones and how your solutions mitigate these threats effectively?

A While Latrics Aerospace is not currently focusing on anti-drone technology, we recognize the growing concern around rogue drones is an essential part of understanding the broader security landscape that drones operate within. Rogue drones—those used maliciously for spying, unauthorized surveillance, or as threats to privacy and security—pose significant challenges. They can disrupt commercial airspace, invade sensitive areas, and even compromise critical infrastructure.

Considering the implications of these challenges, anti-drone technologies, which can detect, identify, and neutralize rogue drones, are emerging as a crucial field. These solutions often involve radar systems, RF scanners, jamming devices, and even other drones designed for interception. As the drone industry evolves, the development of such counter-drone measures will become increasingly important to ensure the safety and security of airspace, infrastructure, and sensitive areas.

Although not a current focus, the development of anti-drone capabilities remains a key area of interest for the future at Latrics Aerospace. The company's expertise in drone technology, sensor integration, and autonomous systems positions it well to explore and potentially contribute to the field of anti-drone solutions.

Q Finally, what is the vision for Latrics Aerospace in the coming years, and how do you envision the company's role in shaping the future of the aerospace industry, particularly in the context of drones and related technologies?

A Latrics Aerospace is poised to become a transformative leader in the aerospace industry, focusing on the innovative use of drone technology and its applications. Our mission is to pioneer advancements in drone efficiency, capability, and accessibility through relentless innovation. We're dedicated to integrating the latest in sensor technology, artificial intelligence, and autonomous navigation to unlock new possibilities. Looking ahead, we aim to leverage our technologies to make a significant impact, addressing critical challenges and improving lives. From humanitarian aid delivery to enhancing disaster response and promoting sustainable agriculture, our goal is to use drones to create a more connected and resilient community. By driving ethical and responsible innovation in the aerospace industry, Latrics Aerospace aspires to not just lead in technology development but also to inspire positive change, setting new standards for the beneficial use of drones in society.

SHIELD AI SELECTED BY NAVAIR PMA-281 TO INTEGRATE HIVEMIND AI PILOT ONTO 8TH AIRCRAFT: THE KRATOS BQM-177A



Shield AI, the defense technology company building the world's best AI pilot announced it has been selected by NAVAIR PMA-281 to integrate its AI Pilot onto the Kratos BQM-177A to enable advanced AI-based autonomy. Shield AI will work closely with the original equipment manufacturer (OEM), Kratos, to contribute to the U.S. Navy's objective of increasing capabilities to provide fleet protection by utilizing AI-powered crewed-uncrewed teaming (CU-T) capabilities.

"This will be the eighth different type of aircraft integration we've done; it will be the fourth jet aircraft. We are getting faster and faster at integrating our AI pilot onto other aircraft because we deliberately architected our AI pilot product and associated software infrastructure as an open, modular platform play that can be systematically reused across DoD hardware. The last integration we did was about 165 days from contract award to first AI-piloted flights, and so we're hoping to top that. I'm also excited to see what our AI pilot will do with the Kratos BQM-177 — an amazing aircraft capable of flying .95 Mach and as low as 6.6 feet above the ocean. Kratos has been a terrific partner in rolling out our AI pilot onto jet aircraft," said Brandon Tseng, Shield AI's President/Cofounder, a mechanical engineer, and a former U.S. Navy SEAL.

Shield AI's innovative technical approach for the Navy contract employs an AI architecture that starts with foundational autonomy behaviors. These core behaviors, essential for both administrative and tactical operations, are enhanced to support advanced, collaborative tactics among multi-agent systems. Utilizing Expert Systems and Reinforcement Learning, this method enables precise, autonomous coordination of multiple sensor-equipped or shooter-equipped uncrewed aircraft, marking a significant advancement in collaborative tactical behaviors for defensive counterair (DCA) operations.

Shield AI's flagship product, Hivemind, is an AI pilot that enables teams of intelligent aircraft to operate and complete missions autonomously in high-threat environments, without the need for remote operators or GPS. Hivemind is an aircraft-agnostic autonomy stack similar to the self-driving technology found in cars. It has flown on six different aircraft and deployed on hundreds of aircraft. The different aircraft include three quadcopters, the MQ-35A V-BAT, the F-16, and Kratos MQM-178 Firejet. Later this year, it will fly Kratos' XQ-58 Valkyrie. Shield AI's work as part of the DARPA ACE Team, where its AI Pilot won the DARPA AlphaDogFight and later flew F-16 completely autonomously, has been named a finalist for the Collier Trophy — an annual award given to the "greatest achievement in aviation and astronautics."



HII RECEIVES ORDER TO BUILD A REMUS 620 UUV FOR INTERNATIONAL CUSTOMER

HII has received an order for a REMUS 620 unmanned underwater vehicle (UUV) from an international customer in the Indo-Pacific Region. The customized, medium-class REMUS 620 UUV will be built and delivered in 2024 by HII's Mission Technologies division and will be used for monitoring and data collection missions.

Unveiled in 2022, the REMUS 620 has a battery life of up to 110 hours and a range of 275 nautical miles, providing unmatched mission capabilities for mine countermeasures, hydrographic surveys, intelligence collection, surveillance and electronic warfare. The REMUS 620 achieved two significant development milestones in 2023 with a successful in-water test in October and first sea test in December.

"The REMUS 620 is the premier medium-class UUV designed for adaptability, versatility and long range operations," said Duane Fotheringham, president of Mission Technologies' Unmanned Systems business group. "Its adaptability to a wide range of missions, from oceanographic research to defense operations, showcases the innovative spirit of our team and the advanced capabilities of our technology."

This is the second REMUS 620 order. In August 2023, the U.S. National Oceanic and Atmospheric Administration (NOAA) announced the order of two REMUS 620 UUVs for higher-resolution mapping of the Gulf of Mexico and NOAA's effort to restore the seafloor habitats damaged by the 2010 Deepwater Horizon oil spill. The agency has previously used other REMUS models for habitat characterization, marine archeology and other ocean mapping and exploration activities. The REMUS line of UUVs has been successful around the world supporting scientific research and operations and is currently in use in more than 30 countries.

The Netherlands to Upgrade Their MQ-9A Capabilities

The Royal Netherlands Air Force (RNLAf) is working with General Atomics Aeronautical Systems, Inc. (GA-ASI) to make important upgrades to their growing fleet of MQ-9A Remotely Piloted Aircraft (RPA). The RNLAf announced in 2023 that they will double their number of MQ-9A Reapers from four to eight and now are making upgrades to their aircraft to include capabilities such as maritime radars, a communications relay, extended range fuel tanks, electronic support measures (ESM), and weapons. The upgrades will take place incrementally over the next three years.

"The RNLAf is using the MQ-9A for an increasing set of NATO missions," said Lieutenant-Colonel Jan Ruedisueli, commander of the RNLAf's 306 Squadron. "With these upgrades, we will support NATO's ISR and maritime surveillance missions throughout Europe."

GA-ASI will integrate the new payloads for the RNLAf, including a maritime radar currently operating in other areas of the world, ESM, weapons, and a communications relay that is purpose-built to connect all services of the Netherlands Ministry of Defence.

"We're excited to continue upgrading and



increasing the mission capabilities of the RNLAf's fleet of Reapers," said Jaime Walters, vice president of International Strategic Development at GA-ASI. "One of the key aspects of our aircraft is the modularity of our platforms allowing them to rapidly meet the full spectrum of customer requirements."

The MQ-9A Block 5 has a 3,850-pound (1,746-kilogram) payload capacity that includes 3,000 pounds (1,361

kilograms) of external stores. It provides a long-endurance, surveillance capability with full-motion video, Synthetic Aperture Radar/Moving Target Indicator/Maritime Radar, and ESM. An extremely reliable aircraft, MQ-9A Block 5 is equipped with a fault-tolerant flight control system and a triple-redundant avionics system architecture. It is engineered to meet and exceed manned aircraft reliability standards.

GA-ASI ADDS NEW CAPABILITIES TO ITS PREDATOR MISSION TRAINER

In a move that will be welcomed by many of its international customers, General Atomics Aeronautical Systems, Inc. (GA-ASI) has installed enhanced operating software into its Predator Mission Trainer (PMT) simulator that resides at GA-ASI's Flight Test & Training Center (FTTC) in Grand Forks, North Dakota. The new PMT Plus software was developed jointly by GA-ASI and CAE-USA allowing international flight crews to train on the latest version of Operational Flight Program (OFP) software and as well as the latest capabilities including Automatic Takeoff and Landing Capability (ATLC).

"With this upgrade, our international customers can now train on the latest version of OFP for their fleets of MQ-9A Remotely Piloted Aircraft," said GA-ASI President David R. Alexander. "For our MQ-9A customers, the PMT Plus will be an exciting enhancement for them, enabling cutting-edge mission training. In addition, the new software will enable us to efficiently upgrade to future OFPs to meet our customers' operational needs."

In addition to its OFP and ATLC capabilities, PMT Plus improves the visual graphics for conducting operationally realistic Intelligence, Surveillance, and Reconnaissance (ISR) mission training, including the addition of maritime entities. The improved user interface at the Instructor Off-board Station (IOS) allows instructors to add elements



into scenarios more rapidly, either during a lesson or immediately before a lesson, which saves time and enables a more student-centric learning experience.

"Collaboration is critical to delivering efficient mission training at the point of need," said CAE Defense & Security Group President Dan Gelston. "Our longstanding relationship with GA-ASI enables agile development and rapid integration so customers not only gain enhanced training capabilities but also benefit from efficiencies like a smaller hardware suite, which adds additional value."

The enhanced software also reduces the PMT's footprint, enabling a reduction in electrical and Heating, Ventilation, and Air Conditioning (HVAC) demand, while producing a quieter learning environment for students and instructors.

The PMT was purchased from CAE and has been a core component of GA-ASI's customer training at the FTTC since 2020. The FTTC has been the centerpiece of GA-ASI's customer training capability since its founding. In 2023, GA-ASI announced the opening of a new hangar at the FTTC specifically to support international crew training.

RED CAT ANNOUNCES \$2.5M IN CONTRACT AWARDS FOR TWO NATO ALLIED COUNTRIES



Red Cat Holdings, Inc. a drone technology company integrating robotic hardware and software for military, government and commercial operations, announces a total of \$2.5 million in new contract awards with two NATO allied countries. As part of its expanded global sales strategy, Red Cat will provide the new customers with Teal 2 drone systems, training, and accessories with an anticipated delivery by the end of March.

"Our American-made, rucksack-portable drones are providing warfighters with rapidly deployed reconnaissance and situational awareness to enhance the effectiveness and safety of their operations," said Jeff Thompson, Founder and CEO of Red Cat. "It's an important part of Red Cat's mission to support our NATO allies and we look forward to equipping these new customers and many other countries with our advanced Teal 2 systems."

Red Cat subsidiary Teal Drones manufactures the Company's flagship Teal 2 platform, which is cost-effective, man-portable, and optimized for night-time use. It is designed to support U.S. and allied military operations, public safety organizations, and government agencies in a variety of environments. The platform is both Blue UAS Certified and FAA Remote ID approved.

"Our Teal 2 systems is the right choice not only for the U.S. military but also our NATO allies that are looking for small, portable, cost-effective drones that they can deploy quickly, repair in the field and are upgradable with a fully modular design which means not being locked into stale technology over time," said George Matus, CTO of Red Cat. "Additionally, Teal 2 systems are at the forefront of night vision and thermal imaging, as well as multi-vehicle control and artificial intelligence capabilities."

These contract awards underscore Red Cat's focus on expanding global sales. As part of that strategy, Red Cat will be exhibiting at the FIDAE 2024 conference in Santiago, Chile in April to amplify its international business development and push further into markets and geographies including LATAM, Middle East and Indo-Pacific.

GA-ASI TESTS SONOBUOY DISPENSING SYSTEM WITH MQ-9B SEAGUARDIAN



General Atomics Aeronautical Systems, Inc. (GA-ASI), in cooperation with the Naval Air Systems Command (NAVAIR), conducted a series of tests on GA-ASI's Sonobuoy Dispensing System (SDS) using the MQ-9B SeaGuardian® Unmanned Aircraft System (UAS) on the U.S. Navy's W-291 test range in southern California. GA-ASI's SeaGuardian flew the full test flight event configured with the SDS pod and SeaVue multi-role radar from Raytheon, an RTX business. During the test, the SDS pod dropped eight AN/SSQ-53 and two AN/SSQ-62 sonobuoys. Upon dispensing, the sonobuoys were successfully monitored by the SeaGuardian's onboard Sonobuoy Monitoring and Control System (SMCS).

"This was a very successful demonstration of our SDS capability," said GA-ASI President David R. Alexander. "The demonstration helped us prove out the SDS, which is an important component for our Anti-Submarine Warfare capability."

The SeaGuardian was flown under a NAVAIR Interim Flight Clearance. The SDS pod is fitted with an advanced pneumatic ejection system developed, designed, and manufactured by AEREA in Italy. AEREA also supplies the internal structure assembly.

MQ-9B SeaGuardian is a medium-altitude, long-endurance RPA system. Its multi-domain capabilities allow it to flex from mission to mission. SeaGuardian has been used by the U.S. in several recent demonstrations, including Northern Edge, Integrated Battle Problem and Group Sail. The aircraft is currently being operated by the Japan Coast Guard (JCG) and the Japan Maritime Self-Defense Force (JMSDF).

KRATOS RECEIVES \$57.6M CONTRACT FOR 70 BQM-177A AERIAL TARGETS

Kratos Defense & Security Solutions, Inc. a Technology Company in the Defense, National Security and Global Markets and industry-leading provider of high-performance, jet-powered unmanned aerial systems, announced that its Unmanned Systems Division has received a \$57,673,542 modification to a previously awarded firm-fixed-price contract. This modification exercises options to procure full rate production Lot Five of the BQM-177A Surface Launched Aerial Targets to provide for the production and delivery of 70 BQM-177A Surface Launched Aerial Targets and 70 Rocket-Assisted Takeoff attachment kits, as well as associated technical and administrative data in support of weapons system test, and evaluation and fleet training for the Navy.

Steve Fendley, President of Kratos Unmanned Systems Division, said, "It's exciting to be a major part of this critically important capability for the U.S. Navy with our BQM-177A Sub-Sonic Aerial Target (SSAT) aircraft system (target). The 177A continues to push the envelope delivering leading edge realistic threat-representative capabilities to support today's peer-level threat environment. We look forward to the increased production rate and continuing to evolve the system with our customer as the threats evolve."

Greg Crewse, Program Manager for the Navy's Aerial Targets program office (PMA-208), said, "In partnership with the Navy Aerial Targets program office, Kratos Defense and the BQM-177A Air Vehicle are true assets to the Navy and, together, we have the opportunity to engage in critical training exercises that will prepare our personnel to face a multitude of scenarios in a challenging, cost-effective test environment prior to engaging real-world threats, should the need arise. As recent real-world events have proven, these target presentations are growing ever more critical to prepare our warfighters to go into harm's way - and prevail."

Thales Provides e-POC Demonstrator to French Navy for Drone-based Mine Countermeasures Missions



The French defence procurement agency (DGA) placed an order with Thales, via the Organisation for Joint Armament Cooperation (OCCAR), for the provision of an Expeditionary Portable Operations Centre (e-POC) to meet the French Navy's new requirement for a drone-based mine countermeasures capability. The system was developed in less than six months and has been accepted by the DGA and OCCAR after completing sea trials and delivered to the French Navy. The e-POC demonstrator enables naval forces to conduct mine countermeasures missions quickly and efficiently using only unmanned underwater vehicles (UUVs).

Thales's e-POC demonstrator is an easily transportable solution that will ultimately enable the French Navy to deploy underwater drones for mine countermeasures missions in any theatre of operations. It will provide a flexible mission management capability from outside the zone of operations, helping to keep naval personnel out of harm's way. The e-POC demonstrator runs software developed for the M-Cube1 and MiMap2 systems on a single computer equipped with three control screens to plan, execute and analyse missions requiring the simultaneous deployment of up to three UUVs. The system can be set up on board a ship or at a shore station, and is small enough to fit into just six transport cases for deployment into the theatre of operations. The transport cases are stowed inside the UUV container to streamline logistics and boost mission effectiveness.

"Thales has combined the power of innovation with the agility of its development teams to augment the defensive capabilities of the French Navy. The e-POC solution is designed for rapid deployment into any theatre of operations, making a valuable contribution to future mine countermeasures missions and helping to guarantee the safety of naval personnel." Gwendoline Blandin-Roger, Vice-President Underwater Systems, Thales.

QINETIQ REPORTS 1ST SUCCESSFUL FLIGHTS OF NEW DESIGN RATTLER SUPERSONIC TARGET



QinetiQ, in partnership with the United States Department of Defense and White Sands Missile Range High Energy Laser Systems Test Facility (HELSTF), announces the successful flights of the first two Rattler Supersonic Target MkIs.

As part of the High Energy Laser Measurement (HELM) Rattler program and a QinetiQ funded Research and Development project, the flights provided the first data for this design variant of the uncrewed target. It also presented opportunities for the HELSTF Tracking Illuminating Laser System to acquire, track and queue from a supersonic target at a short slant range, aiding the program's Rattler variant development.

Graham Ollis, Managing Director, Threat Representation, QinetiQ said: "This flight represents an important milestone in the Rattler transition to service project, and demonstrates our supersonic target capability in action for our US customer, as part of the HELM Rattler program, to meet the requirement for evolving threats."

Owen Price, Project Manager Target Systems, QinetiQ said: "I am proud of the significant progress we've made with our development partners and customer in fielding this flight trial. We have been able to showcase QinetiQ's technical and operational expertise and teamwork, launching the new Rattler ST MkI product and as part of developing the HELM Rattler test and evaluation target system for the war fighter, as requirements for more realistic, instrumented threat representation become ever more important."

Emulating a variety of advanced missile threats, Rattler ST is a cost-effective supersonic target platform designed for threat replication, operational training and system evaluation. QinetiQ is customising the platform to support the US Department of Defense's HELM Rattler Program, integrating a third-party target board to measure high-energy laser characteristics in flight, at supersonic speeds. The \$10 million (USD) program started in February 2022 and is due to conclude in mid-2024.

QinetiQ's portfolio of targets are built in line with customers' requirements to meet the current and evolving threats that they are needing to defend and train against, delivering realistic Threat Representation.



Drones World Special Editor Sanjay Singh In conversation with

Mr. Sajid Mukhtar

Chairman & Managing Director

Roter Group of Companies

Q Can you please introduce yourself and give us a brief overview of your background in the drone industry?

A I am Sajid Mukhtar, a third-generation entrepreneur and the managing director of Roter Group of Companies. Beginning my career as a surveyor, I have consistently strived to embrace and incorporate the latest technologies, bringing them to India and developing comprehensive software solutions around them.

With a legacy of being a prime solution provider spanning three generations, Roter Group remains dedicated to fulfilling my grandfather's ambition of manufacturing high-end equipment within the country. Additionally, we are aligned with our Prime Minister's vision of Atmanirbhar Bharat (Self-reliant India), ensuring that our focus remains on contributing to the nation's self-sufficiency goals.

Q What inspired you to enter the drone technology sector?

A Having witnessed the effective use of drones in the mapping industry overseas, I was determined to introduce this technology to our country. The catalyst came in June 2013 during a catastrophic event in my home state—a devastating flash flood at the Kedarnath shrine, marked as one of India's most disastrous floods in history. The calamity left countless pilgrims dead & stranded, and despite the substantial resources deployed for rescue and infrastructure reconstruction, the progress was far from satisfactory, especially in terms of locating individuals and efficiently allocating resources.

Drawing from my background in the surveying industry, I recognized that the primary deficiency in the relief efforts was the lack of reliable information, 'eyes' on-site, and accurate maps. Subsequently, during my



next visit to Germany, I took the initiative to undergo training in utilizing drones for mapping purposes.

And the rest is history.....

Q Could you provide us with an overview of Roter Precision and its role in the drone industry?

A In 2017, Survey of India sought an aerial platform for large-scale mapping via photogrammetry. At that time, we were collaborating with a German company, utilizing their innovatively designed Fixed wing Drone. We pioneered the introduction of this advanced tool to Survey of India, subsequently providing comprehensive training to their staff at GISTC Dehradun, covering both flight operations and data processing. Our involvement didn't stop there. We embarked on the ambitious SVAMITVA project, a vision championed by our Honorable Prime Minister, which aimed to map over 600,000 villages on a large scale. Leveraging our extensive expertise in surveying and mapping, we successfully tailored the Trinity drone to suit Indian conditions (challenging dust, temperature, wind conditions) and began manufacturing it domestically. This endeavour proved to be immensely successful, underscoring our commitment to innovation and our capability to meet the demands of significant national projects.

Q What sets Roter Precision apart from other companies in the same space?

A While I won't generalize to say all, many companies in this industry in India tend to rely on products imported from China for their competitive pricing, often rebranding them as "made-in-India." Some companies attempt to develop their own systems, but they face

significant hurdles, particularly in terms of resources such as finances and support. Roter, being one of the first movers in this field, had a distinct advantage from the outset. We were able to leverage technology transferred from Germany, renowned for its reliable engineering standards. However, our challenge lay in building and customizing these systems within India, along with providing comprehensive training, support, and ensuring certification for each component. This journey involved significant effort and investment but positioned us as leaders in providing indigenous solutions tailored to the specific needs of the Indian market. When we created RC08, we adhered to a precise design statement, ensuring that every step from incubation to production was entirely Indian-based.

Q What are some of the latest technological innovations that Roter Precision has been working on in the drone industry?

A There's a wave of excitement brewing at Roter this year, with numerous ground breaking developments in the pipeline. While I won't reveal all the details just yet to keep the anticipation alive, I can hint at significant advancements in Artificial Intelligence and Robotics. Stay tuned for what promises to be a major leap forward in these domains.

Q What are some of the biggest challenges you've faced as CEO of Roter Precision, and how have you overcome them?

A Honesty & Emotions: still working on them!!

Q Can you share any specific examples of how Roter Precision has tackled challenges in the drone technology?

A There are many, but the first that comes to mind...During the initial supplies of Trinity drones in India, all was good until summer arrived and we had a few cases of drone failures. Without hesitation we took a proactive step to ground all the units in the country. With the multitude of onboard sensor's on the unit, our engineers were able to trace the location of thermal overload quickly and the design & analysis team were quick in re modelling the internal airflow without any change of components.

Q How do you navigate the complex regulatory landscape surrounding drones, and what

Impact do these regulations have on Roter Precision's operations?

A As with all tools, drones are very useful for growth and development of the nation. Yet in the hands of a callous user (malevolent/malicious), the same tool can be used in ways that are contrary to the manufacturer's vision for the product. When DGCA introduced the regulation, we welcomed it, and we strive to comply with the regulations. With rapid growth in technology, we believe that corresponding changes in regulation will be made to regulate from time to time to ensure public safety. We believe that compliance to regulation, will increase user confidence in the product and will streamline the use of the technology.

Do you think that a strong Voice of Industry should intervene and work closely with Industry and Government to address challenges and suggest solutions?

A I applaud the principle of minimal government intervention for maximizing governance. However, I'm cautious about the formation of a potentially overbearing federation that could encroach upon both the market and governmental functions. Our government has introduced a comprehensive drone policy that surpasses regulations seen in other nations. Moreover, it's been adaptive, evolving to meet consumer needs while fostering innovation and safety. Introducing additional intermediaries between industry and government, or consumers and government, doesn't align with my interests. Such entities could potentially complicate matters and pose challenges for entrepreneurs who join the fray later on.

Are there any notable collaborations or partnerships that Roter Precision has engaged in to further its goals in the drone industry? How do these collaborations contribute to Roter Precision's success?

A Roter has consistently prioritized cultivating enduring partnerships and joint ventures. Among our most successful collaborations in the drone sector is our ongoing partnership with Quantum Systems Germany, now entering its eighth year. We have YellowScan a French company jointly developing LiDAR sensors for our drones. We have Z&F another German legend in the field of LiDAR with us since ages. We've established a strong foundation built on trust, innovation, and mutual benefit with these partners. Currently, we're in

the process of finalizing agreements with few of AI and robotics companies. Stay tuned for further announcements as these partnerships unfold.

How does Roter Precision address environmental and ethical concerns related to drone technology, such as privacy and ecological impact? What steps does Roter Precision take to ensure responsible and sustainable use of drones?

A In a world where there's increasing fascination with the militarization of drones, I stand firm in my opposition to the development of destructive technologies. I firmly believe that drones should never be weaponized in any context. Instead, I'm proud to say that our focus remains on utilizing this technology for positive and constructive purposes. We've showcased to the world the incredible potential of drones in various beneficial applications. From granting land titles to impoverished landowners to locating natural streams for clean drinking water, mitigating flood risks, aiding in irrigation, surveying railways and power lines, and even mapping crocodile habitats, we've demonstrated the immense versatility and utility of drone technology. Our commitment lies in using drones as tools for progress, empowerment, and environmental stewardship.

What advice would you give to aspiring entrepreneurs looking to enter the drone industry?

A It's all about finding contentment. Some find satisfaction in high-tech, reliable products, while others prioritize monetary gain. Every day, I observe numerous companies boasting on social media platforms like LinkedIn, making superficial claims in an attempt to attract investors. However, the true quality of their products becomes evident in the user market.

Creating a product requires time and consistent effort. Some opt for assembling off-the-shelf components or importing Chinese goods through the grey market to quickly penetrate the market and attract investors. While this may offer rapid entry, companies often discover they've inherited subtle flaws from the components, making it challenging to standardize the product and provide long-term support to customers. This downfall has been witnessed by several startups. It's crucial to invest the necessary effort in research and analysis to develop a sustainable product that can be supported over the years. It's a vast field, and there's room for everyone; there's no need to rush into things prematurely!

HYSKY SOCIETY TO CO-LOCATE WITH COMMERCIAL UAV EXPO IN 2024

CO-LOCATION ANNOUNCEMENT

COMMERCIAL
UAV EXPO 

 HYSKY

HYSKY Society is bringing the **FLYING HY Conference** and **Hydrogen Aviation Course** to Commercial UAV Expo

SEPTEMBER 3-5, 2024 / CAESARS FORUM / LAS VEGAS

New strategic collaboration brings the world's largest hydrogen aviation conference to the leading commercial drone event

Organizers of Commercial UAV Expo have announced a strategic collaboration to bring HYSKY Society hydrogen aviation education to Commercial UAV Expo in Las Vegas, NV, September 3-5, 2024. Commercial UAV Expo is the leading global commercial drone trade show and conference, and HYSKY Society produces the world's largest hydrogen aviation event focused on zero-emission aviation. Together, they aim to enhance the collaborative opportunities for professionals in the commercial drone and hydrogen aviation sectors and advance the future of hydrogen-based flight.

"Co-locating the FLYING HY Conference 2024 with Commercial UAV Expo is huge for HYSKY. It's not every day a small startup nonprofit gets to share our passion for hydrogen aviation with nearly 4000 people! We're beyond thankful for the Commercial UAV Expo's support—it's exactly the boost that hydrogen aviation needs to spread the word about this magical little molecule and get everyone as excited about clean skies as we

are," said Danielle McLean, Founder & CEO of HYSKY Society.

"It's imperative to recognize hydrogen as a power source for the commercial drone space, making HYSKY Society a perfect fit as a collaborative event partner with Commercial UAV Expo," said Lee Corkhill, Group Event Director at Diversified Communications, organizer of Commercial UAV Expo. "Adding the FLYING HY Conference and a Hydrogen Pavilion will allow attendees to get a closer look at technological progression and future opportunities."

HYSKY Society will host a myriad of offerings as part of the co-location including a full-day Hydrogen Aviation Course, and the FLYING HY Conference, which is the world's largest hydrogen aviation event featuring two days of education for the hydrogen aviation ecosystem. Attendees will learn how to source hydrogen, fly safely with hydrogen, benefit from tax credits, and build and position their businesses as leaders in the hydrogen market. Additionally, a Hydrogen Pavilion on the exhibit hall floor will showcase top vendors and technology in the space.

The HYSKY Society event co-location will

complement three days of robust commercial UAS offerings, including the Commercial UAV Expo Conference Program, Keynotes, the DRONERESPONDERS Public Safety Summit, outdoor flying demonstrations, pilot training, add-on workshops, 225+ solutions providers, Exhibit Hall Theater programming, and networking events.

Learn more about the HYSKY Society and Commercial UAV Expo event collaboration at www.expouav.com/hysky. Full event information will be available soon, including workshops, conference programming, networking events, and more.

Registration opens in May - stay in the know.

About HYSKY Society

HYSKY Society is a 501(c)(3) non-profit whose mission is to advance hydrogen aviation and emphasize that hydrogen can achieve zero-emission flight. HYSKY Society's vision is to usher aviation into an era of hydrogen-powered aircraft, UAVs, eVTOLs, and flying cars.

HYSKY Society utilizes research and public education to showcase hydrogen's potential to eliminate aviation's carbon footprint. Learn how HYSKY Society focuses on creating the future of aviation with hydrogen at www.hysky.org.

ELBIT SYSTEMS' ADVANCED C4I SOLUTION SELECTED FOR EUROPEAN ARTILERY UPGRADE



Elbit Systems' solution for Artillery Command, Control, Communications, Computers, and Intelligence (C4I) has been selected by a European country. Under the agreement, Elbit Systems will enhance 155mm howitzer battalions with advanced Digital Fires capabilities, by seamlessly integrating its C4ISR Artillery Suite including the Torch-X Fires application and E-LynX Software Defined Radio (SDR) radios.

Torch-X Fires is a multi-layer, integrated solution that incorporates industry-standard mature technology, based on Elbit Systems' state-of-the-art C4ISR platform. It enables highly effective cross-force coordination, quick and precise planning and execution with quick and effective sensor-to-shooter capabilities.

Complementing Torch-X Fires to a full digital solution, E-LynX™ family of SDR radios is the latest generation of tactical communication solutions, supporting the operational requirements of the modern battlespace, these radios ensure fast, resilient and secure communications for simultaneous voice, data and video capabilities in any terrain.

Haim Delmar, General Manager of Elbit Systems C4I & Cyber: "The customer's decision to select Elbit Systems' artillery C4I solution will empower them to command their artillery battalions with enhanced effectiveness, increasing operational efficiency, and maximizing the performance of artillery platforms through a fully digitalized process. Additionally, it will facilitate the integration of their artillery forces with Elbit Systems' comprehensive Networked Warfare Systems, ensuring seamless interoperability with other assets within the customer's army."

IAI AND CZECH MINISTRY OF DEFENCE SIGNED A CONTRACT FOR SUSTAINABILITY AND MAINTENANCE OF MMR RADARS



Israel Aerospace Industries and Czech Ministry of Defence signed a contract for Sustainability and maintenance for the Czech MMR radars. The contract is valid for 20 years and includes Czech companies that will be responsible for a wide range of processes as local subcontractors.

Eyal Shapira, VP& GM Air Defense & Naval Systems division, IAI ELTA: "Israel Aerospace Industries' MMR radar is part of all the State of Israel's defense systems, and has proven its accuracy and precision again and again, saving many lives over the years. These systems will provide the Czech Republic with the most advanced protection for its citizens. We are proud of the important degree of cooperation achieved with local companies: the knowledge- and technology-sharing will help both our countries and provide more precise aerial surveillance. The advanced Czech Republic radars can simultaneously identify and classify hundreds of targets, detect unmanned platforms, missile barrages, rockets, and other new threats in the arena."

The MMR radars can handle multiple operations conducting different missions at the same time: air-defense against aircraft, unmanned aerial vehicles and drones, artillery ranging against various enemy targets, identification and localization of enemy rocket, artillery, and mortar fire - and all this while identifying the firing and expected target location, and guiding interceptor missiles against these threats. The MMR radar is the 'brain' behind the most advanced Air defense systems such as the Barak, Iron Dome, and David's Sling: to date, over 200 systems have been sold to customers around the world. The MMR radar, has proven operational experience in Israel. It provides Air-defense and Air situation picture to users around the world, and is interoperable with NATO systems.

Northrop Grumman and Diehl Defence to Collaborate on Integrated Air and Missile Defense Capabilities

Northrop Grumman Corporation and Diehl Defence GmbH & Co. KG signed a Memorandum of Understanding (MOU) formalizing their commitment to work together to support innovative layered air and missile defense capabilities for Germany.

Northrop Grumman's expertise in IAMD and control capabilities, such as the U.S. Army's Integrated Battle Command System (IBCS), complements Diehl's state-of-the-art ground based air and missile defense systems, such as IRIS-TSLM, by enabling integration and interoperability with allied systems.

The MOU facilitates collaboration by allowing the companies to use their expertise to explore advanced technologies that would support the seamless integration of Germany's air and missile defense systems. The memorandum also addresses the critical need for NATO and European allies to modernize IAMD capabilities.

Experts:

Rebecca Torzone, vice president and general manager, global battle management and readiness, Northrop Grumman: "Today marks a pivotal moment in our commitment to advancing defense capabilities together with German industry. By joining forces with Diehl Defence, we embark on a collaborative journey to shape the future of integrated air and missile defense."

Torsten Cook, senior vice president, ground based air defense business unit, Diehl Defence: "We are excited about this partnership which offers new options to our IRIS-TSLM customers. For example, utilizing several GBAD systems such as IRIS-TSLM and Patriot in parallel, improves interoperability and thus increases the combat value of the systems used."

Terra Drone Invests in Aloft Technologies to Enter U.S. Market, Boost Global UTM Development



Terra Drone Corporation (Terra Drone), a leading drone and Advanced Air Mobility (AAM) technology provider headquartered in Japan, has announced an investment in Aloft Technologies (Aloft), a company focusing on developing UTM, and a market leader in drone fleet and airspace management in the United States.

This investment makes Terra Drone the largest shareholder in Aloft, with Aloft becoming an affiliate company of Terra Drone. In addition, the board of directors of Aloft has appointed Yuki Ueno, Terra Drone's executive officer in charge of domestic and international Unmanned Aerial System Traffic Management (UTM) business, to the Aloft board.

This partnership also marks Terra Drone's official entry into the US, which is considered the world's largest market for drones and AAMs. Together with Aloft and Unifly, a Belgium-based UTM provider that became a Terra Drone subsidiary in July 2023, Terra Drone is positioned to contribute to the development of the UTM ecosystem on a global scale.

Toru Tokushige, Founder and CEO of Terra Drone, says, "We see a future where drones and AAMs become a part of our daily lives. The implementation and seamless operation of a UTM system are essential to make this dream a reality. We have been focusing on UTM technology since the dawn of drones, with our earliest investment in Unifly dating back to 2016. Now, as drones and AAMs move into a new phase of development, UTM has become a priority for aviation authorities around the world. By investing in Aloft and becoming its largest shareholder, we intend to further evolve UTM on a global level. We also plan to expand aggressively in the U.S., considered to be the largest market for drones and AAMs."

"The integration of UTM systems is pivotal for the expansion, scalability, and sustainability of global drone operations," stated Jon Hegranes, Founder and CEO of Aloft. "Our collaboration with Terra Drone positions us at the forefront of this evolution, offering us the unique opportunity to harmonize operational standards and leverage technology to enhance the efficiency and reach of drone flights on an international scale."

Compared to Japan, there are approximately 2.4 times as many registered drones and 62 times as many registered manned aircraft in the U.S. (Figure 1). Additionally, a number of U.S. companies are developing and manufacturing drones and UAMs. In July 2023, the FAA released an implementation plan "Innovate 2028" providing the steps it and others will need to take to safely enable advanced air mobility operations in the near term.

EVE AIR MOBILITY PRESENTS VECTOR AND PROVIDES UPDATES ON THE URBAN ATM SOFTWARE DEVELOPMENT



Eve Air Mobility has released at the Airspace World in Geneva the name of its Urban Air Traffic Management (Urban ATM) software and provided updates on the solution's development. Vector will be an agnostic software solution designed to safely address the unique air traffic and network management challenges of current and future Advanced Air Mobility (AAM) operations, focusing on fleet and vertiport operators, and future service providers for AAM, including Air Navigation Service Providers (ANSPs). The company is advancing towards an operational version of the software which customers can test and trial to help progress the market.

"Electric vertical take-off and landing (eVTOL) aircraft flights will become an established transportation mode for communities worldwide. Eve expects first deliveries and entry into service as soon as 2026 and has been addressing the airspace and Air Traffic Management (ATM) challenges to support the introduction and growth of the market in a harmonized and safe way. Vector will streamline AAM operations from day 1, coordinating all stakeholders involved to enhance safety, optimize performance, and maximize resource usage," said Johann Bordais, Eve's CEO.

Vector will allow eVTOLs to be integrated with other aircraft flying in low-level urban airspace from day 1 of operations and provide the automation needed to enable Urban Air Mobility (UAM) market scalability. To date, Eve has 14 (fourteen) customers for the solution, including fleet operators, vertiports and airspace and flow management providers. With Vector, eVTOL operators will make their operations more efficient; vertiports will manage resource availability with all operation stakeholders involved; and ANSPs and Providers of Services (PSU) for UAM will optimize the airspace and air traffic network for all users.

In November 2023, Eve partnered with Flexjet to conduct a simulation to validate and refine Vector's capabilities under real-scenario conditions and better understand the software's commercial viability and applications. The simulation took place in the UK and involved 18 flights across eight aerodromes, exercising 26 different routes with alternative landing locations to test the standby flight plan functionality. The team also tested delays at departure and destination with impacts on incoming flights, flight cancellations due to airspace and weather constraints, and in-flight emergencies, including alternative landing location requests.

The Eve-Flexjet simulation has found gaps between current ATM systems and those required to support UAM operations from Day 1, such as the lack of integration between fleet and vertiport operator systems to coordinate eVTOL flights safely and efficiently. Therefore, Eve is prioritizing the development of services that address these gaps, including integrated flight planning with airspace and vertiport resource availability; management of alternate landing locations built into the flight planning to support the endurance limitations of electric aircraft; and conformance management to inform stakeholders when flights deviate from their plan and may affect other flights.

"Flight dispatchers are responsible for nearly all aspects of an operation, which requires extensive decision-making and tracking abilities. Urban ATM services can support these activities in preparation for AAM operations through increased levels of automation and an integrated view of the relevant information tied to a specific flight. Eve has been actively incorporating features, including feedback received through user testing, into Vector to ensure the value of its services translates directly to the end users", added Brenden Hedblom, Eve's head of traffic management solutions.

As Vector matures, Eve continues to pursue additional opportunities to trial the solution with its customers and partners. Testing it in real-world scenarios is the best way to ensure the services provide optimal value. The company expects this year to advance towards an operational version of the software which customers can test and trial to help advance the market and prepare the UAM ecosystem for initial operations.

AIRSERVICES AUSTRALIA COMMENCES BUILD OF AUSTRALIA'S CUTTING-EDGE DRONE TRAFFIC MANAGEMENT SYSTEM

Airservices Australia is preparing for an anticipated influx of drones over the next 20 years with the appointment of Frequentis Australasia to develop world-leading, digital air traffic management to safely integrate millions of uncrewed aircraft flights into Australia's busy airspace. A new analysis commissioned by Airservices predicts that drone flights in Australia will surge from around 1.5 million currently to more than 60 million by 2043, requiring the latest technologies to manage the significant increase in air traffic.

Frequentis has been selected to develop a Flight Information Management System (FIMS) that will enable Airservices to seamlessly incorporate drones, air taxis and other uncrewed aircraft into Australian airspace. The FIMS will be at the core of Australia's Uncrewed Aircraft Systems Traffic Management (UTM) ecosystem. It will enable Airservices to share flight information between air

traffic control, traditional aircraft, and uncrewed airspace users.

Frequentis was selected after a comprehensive selection process, which included prototype development and in-field trials. The company has proven experience in the delivery of operational UTM systems around the world.

Jason Harfield, Airservices Australia Chief Executive Officer, said the new system would support the safe integration of current and future air traffic with the rapid growth of uncrewed aircraft.

"Drones are the biggest growth area in aviation and our partnership with Frequentis to develop a FIMS will enable us to integrate traditional and new airspace users into increasingly busy airspace," Mr Harfield said.

"With Frequentis, we will develop a FIMS that meets the needs of Australian airspace users and ensures we can safely integrate millions of drone

flights with other users. I'm confident the new FIMS will encourage the growing drone market to reach its full potential in Australia."

Martin Rampl, Managing Director, Frequentis Australia said the company was delighted to have been chosen to develop the new system.

"Frequentis is the only company worldwide to have successfully delivered UTM solutions to multiple Air Navigation Service Providers. This strategic partnership with Airservices Australia represents another important milestone in our mission to support the Australian airspace ecosystem with safe, efficient and compliant integration of drones while fostering innovation and economic growth," Mr Rampl said.

"We are looking forward to working with Airservices to jointly develop the system, pushing technological innovation in the uncrewed aviation domain, including the ability to integrate new services in the future."

NATS SERVICES AND ALTITUDE ANGEL PARTNER TO DELIVER INTEGRATED TRAFFIC MANAGEMENT SERVICES PORTFOLIO

NATS Services, the commercial arm of the UK's leading ANSP and Altitude Angel, a global leader in unified traffic management (UTM) and creators of the 165 mile UK drone superhighway, have chosen the first day of Airspace World Expo in Geneva to announce a strategic commercial partnership which will revolutionise the way the sky is managed for new airspace users. The combination of Altitude Angel's GuardianUTM suite of technologies and NATS Services' leading airspace management expertise will enable competitive and innovative services to integrate new airspace users, while maintaining safe operations for its existing commercial aviation customers.

This deal will also see GuardianUTM Flight Approval Services being deployed at some NATS-controlled airports later in 2024, allowing for digitally managed UTM flight requests and approvals and enhanced situational awareness. The partnership will also accelerate Altitude Angel's roll-out of its transformative ARROW technology, which when fused with its GuardianUTM platform, detects



and identifies all airspace users, enabling drones to fly BVLOS and share the airspace with crewed aviation safely and securely.

On the strategic partnership, Guy Adams, Managing Director of NATS Services, said: "Supporting the development of New Airspace Users through airspace integration and the provision of new services is one of our strategic priorities. This partnership with Altitude Angel is a milestone in UK aviation, bringing together the technology, operational expertise and innovation that will allow us to further support the industry.

"The combination of Altitude Angel's UTM technologies and NATS' deep understanding of air traffic and airspace management will allow us to further embrace the integration of this new generation of airspace users, while also continuing to deliver the very highest standards of safety and efficiency."

Richard Parker, Altitude Angel, CEO and founder, added: "Through this alliance, NATS and Altitude Angel bring together the unparalleled strength of air traffic control expertise with the world leading innovation of UTM.

"This partnership brings together in-depth knowledge, real-world experience, and, most importantly, a shared vision for a future where the skies are not just open but interconnected, where traditional and emerging aviation seamlessly coexist. Together, we will create an airspace which reflects the harmony of collaboration and the promise of a safer, more sustainable aviation future for all. We are pleased our leadership and innovation has been recognised by NATS as important to not only its future, but to the future of UK airspace."



Drones World Editor kartikeya in conversation with

Mr. Kiran Raju

Co-Founder & CEO

Indrajaal Drone Defence India Pvt Ltd.



Q Can you provide a brief overview of Grene Robotics and its mission in the context of autonomous technologies and drone security?

A Grene Robotics is a multinational autonomous robotics company providing a wide range of bespoke aerial and ground autonomous solutions to the defence sector, government, and enterprise sectors globally.

Founded in 2008, Grene Robotics specialises in creating AI-based, nature-inspired solutions that merge people, processes, things, and data. Our mission is to empower organizations with autonomic systems that utilize drones, droids, bots (both digital and physical), and intelligent machines, reducing carbon footprint by up to 53.4% and optimizing resource utilization by up to 30%.

Our flagship product, greneOS, is a hyper-automation platform enabling autonomous decision-making, and orchestrating real-time flows of individuals, processes, data, systems, and machines. This enabled AI and robotics to solve challenges and foster collaboration between humans and machines in various workplace settings.

In the defence arena, the first-ever drone-based terror attack at Jammu Air Base highlighted the pressing need for enhanced drone security measures. This incident underscored the critical role of advanced technologies like UAVs and Smart Swarms in modern defence strategies.

We foresaw the growth of the global commercial drone market, projected to reach \$54.81 billion by 2030 from \$10.98 billion in 2023. As the first Indian company in C5ISRT defence, we introduced DefOS, an AI-driven system transforming defence operations. With solutions like AMDL and Indrajaal™, the world's only AI-powered Counter-Unmanned Aerial System, we offer unmatched protection against unauthorized drone intrusions, leveraging decades of radar expertise and innovative AI technology.

Q What inspired the development of Indrajaal™, and how does it address the existing challenges in drone security?

A Indrajaal™, our autonomous drone security system, is a response to the increasing threat posed by hostile UAVs in India. Over the past few years, there has been a worrying rise in incidents involving drones attempting to breach our borders and deliver illicit payloads. India must stop adopting reactive measures and embark on responsive and autonomous systems to be prepared for modern warfare. Manual weapons and point-based defence systems cannot fight modern warfare driven by AI and Robotics. Rogue forces are using easily available autonomous UAVs for unconventional attacks on military assets, such as during the Jammu Air Base attack on 27 June 2021 wherein explosives were dropped next to a Mi-17 hangar.

Today, everyone looks at anti-drone systems as if drones are the only low RCS threat in a tactical space. However, Grene Robotics believe that all low RCS threats should be grouped and dealt with using a single system.

Traditional defence systems fall short in dealing with the diverse challenges presented by modern warfare scenarios. Moreover, protecting India's vast border stretch, spanning over 4000 miles with Pakistan and China, demands a sophisticated and cost-effective approach.

One of Indrajaal™'s key features is its wide-area coverage, which extends beyond its initial deployment location, making it a network-centric system. Its command control doesn't have

AUTONOMOUS DRONE DÉFENSE DOME SYSTEM: “INDRAJAAL”

to be confined within the deployed network, offering flexibility and scalability. This extensive range enables Indrajaal™ to cover hundreds of square kilometres as a single node, providing an efficient and robust defence mechanism.

Beyond its detection capabilities, Indrajaal™ excels in drone identification, a crucial aspect given the increasing use of drones in both military and civilian contexts. It seamlessly transitions from detection to identification and response, ensuring a comprehensive protective shield against evolving drone threats.

Q Could you elaborate on the key features and capabilities of Indrajaal™ and how it differs from other anti-drone systems available in the market?

A Indrajaal™, a wide-area system powered by artificial intelligence, integrates 12 unique layers of technology to detect, identify, classify, track, and neutralize threats in real-time. Covering up to 4000 sq. km with 360-degree protection, it defends against various autonomous drones, including low RCS, medium to high-altitude UAVs, loitering munitions, smart bombs, nano, micro, and swarm drones. Its multi-dimensional perspective enables detection in diverse scenarios, from silent drones to those emitting radar or controlled through ESM, even in thermal conditions for nocturnal operations. Some of its features set it apart from other C-UAS solutions:

- a) Real-time situational awareness
- b) Distributed, decentralised and mobile
- c) Integrated and Intelligent meshed network
- d) Ability to integrate with all current weapons suites and

infrastructure

e) Honeycombed cell structure seamlessly built over a combination of 12 technologies

f) 24x7x365 persistent and autonomous monitoring, tracking and action

Indrajaal™ possesses the unique ability to detect drones even in challenging environments like hilly terrains, significantly boosting India's defence capabilities along sensitive borders. Effective counter-drone systems must consider threat assessments, terrain features, and environmental conditions.

Artificial intelligence is pivotal in Indrajaal™, enabling real-time decision-making and precise identification of friendly drones. This ensures that only hostile drones are targeted and neutralized, optimizing defence efforts. Furthermore, ongoing efforts aim to integrate active short-range missiles and boron pellets, enhancing the system's flexibility in countering various aerial threats.

Q Can you share any specific success stories or case studies that demonstrate the effectiveness of Indrajaal™ in real-world scenarios?

A Indrajaal™ has demonstrated its effectiveness in real-world scenarios, showcasing its capabilities at our 70-acre test facility in Hyderabad, India. We presented the Indrajaal™ framework to top Indian military agencies, with representatives from all armed forces present. This presentation was documented, affirming that Indrajaal™ is the way forward for handling sub-conventional threats.

We are actively deploying Indrajaal™ at critical locations across India, highlighting its practicality in enhancing national security. Indrajaal™ was recently deployed at a major oil refinery in India. Indrajaal™ also signed an MoU with a reputed Southeast Asian defence firm for the exchange of technology.

While we aim to deploy Indrajaal™, our commitment remains steadfast in meeting industry requirements and advancing security technology.

Q What were some of the major challenges encountered during the development of Indrajaal, and how were they overcome?

A Indrajaal was developed with the primary objective of addressing a multifaceted three-dimensional problem. This encompassed the determination of the rogue drone's dimensions, assessment of the operational terrain, and consideration of local regulations. These factors vary significantly for each installation, thereby necessitating a solution that is both adaptable and cost-efficient. The solution had to be comprehensive yet customizable to meet diverse needs. As a result, overcoming this obstacle demanded meticulous design, planning, and innovative problem-solving strategies.

To address these challenges, we adopted a LEGO block approach for technology design. This approach allowed us to modularize our solution, enabling it to accommodate various combinations of individual components in real time. By structuring our solution in this manner, we ensured that Indrajaal could adapt seamlessly to different environments and regulatory frameworks while remaining effective and efficient. This innovative design strategy played a crucial role in addressing the complexity of the problem and ensuring the success of Indrajaal in real-world deployments.

Q How do you envision the future of autonomous technologies, particularly in the realm of drone security, and what role do you see Indrajaal™ playing in this future landscape?

A The future of autonomous technologies, especially drone security, is experiencing significant advancements set to reshape security measures. With drones utilized for military

attacks and smuggling, robust security solutions are imperative. The global commercial drone market is projected to surge from \$10.98 billion in 2023 to \$54.81 billion by 2030, highlighting the urgency for effective security measures.

Autonomous technologies will bolster drone security, offering detection, tracking, and neutralization capabilities. AI-powered systems analyze data in real time, enabling precise responses to threats, with machine learning algorithms continuously improving detection accuracy.

Indrajaal™ leads the way with its groundbreaking hard-kill system and innovative drone versus drone capabilities. Its wide-area coverage, advanced sensors, and autonomous decision-making position it as a formidable force against modern warfare. With the capability to detect and neutralize diverse aerial threats, Indrajaal™ safeguards critical infrastructure, making it a top contender among counter-drone systems worldwide.

As we expand in the defence industry, Indrajaal™'s deployment underscores its role in enhancing national security. We believe the defence sector's readiness to adopt technologies aligns with our commitment to meeting its needs.

Q What trends do you foresee in the field of autonomous drone security in the coming years, and how is Grene Robotics positioned to stay ahead of these trends?

A In autonomous drone security, we foresee several trends. Firstly, there will be a focus on autonomy-driven threat detection and response systems, utilizing advanced algorithms for real-time analysis and autonomous mitigation. Secondly, the integration of machine learning and predictive analytics will increase, allowing systems to anticipate threats and take preventive actions.

Another trend is the development of swarm technology for drone defence. These autonomous drones can collaborate to detect, track, and neutralize threats more effectively than individual drones, providing enhanced security coverage over larger areas.

Additionally, regulatory frameworks governing autonomous drone security will evolve to ensure responsible deployment of these technologies.

Our innovation, Indrajaal™™, operates autonomously, offering

real-time detection, identification, classification, tracking, and swift neutralization of threats. This autonomous capability positions it as a formidable presence in drone defence. By leveraging AI, ML algorithms, and cognitive computing, the system can self-learn, analyze, adapt, and evolve in real-time, marking a significant step forward in defence capabilities.

Q Can you discuss some of the major projects that Grene Robotics has undertaken in the past, and what impact have they had in advancing the company's mission?

A Grene Robotics has undertaken significant projects, advancing our mission of technology-driven autonomy and innovation.

In its initial years, from 2008 to 2011, Grene Robotics concentrated on developing an IoT platform aimed at unifying various devices, laying the groundwork for autonomy. This effort culminated in the deployment of India's inaugural autonomous smart micro-grid in partnership with Echelon, USA, showcasing Grene Robotics' prowess in achieving autonomous load balancing within residential communities.

From 2012 to 2015, Grene Robotics expanded its platform to include home automation and interoperability within gated communities, highlighted by "Project Palm Meadows," emphasizing our commitment to enhancing connectivity and user engagement.

From 2015 to 2019, Grene Robotics spearheaded "Project Blueflock," revolutionizing nationwide emergency management by connecting and managing employees, ambulances, citizens, and hospitals across 15 states. In 2017, we introduced "Project Desker," transitioning to a fully virtual office setup, reducing carbon emissions and eliminating physical assets and liabilities.

In 2019, GreneOS™ replaced Vodafone India's critical order management system, marking a significant milestone in the telecom sector. GreneOS™ expanded into the defence vertical in 2020, introducing GreneOS™ Defence and spin-offs like AMDL and Indrajaa™—India's premier unified AC6ISRT platform and an AI-powered wide-area Counter-Unmanned Aerial System, respectively. In 2021, we introduced Forest Conservation Dome to combat modern threats like unauthorized deforestation and wildlife poaching, starting with its implementation at Fringe Ford, Kerala.

The official launch of Indrajaa™ in 2023 further solidified our position as an industry leader in autonomous drone defence, reflecting our dedication to advancing defence technology.

Q Are there any upcoming projects or initiatives that Grene Robotics is currently working on, and what can we expect from these endeavours?

A Indrajaa™ recently started operations at a significant oil refinery in India and signed an MoU with a well-known Southeast Asian defence firm for technology exchange.

Additionally, we've secured several undisclosed mandates, including partnerships with a data centre, a major airport, and an atomic energy plant, focusing on strengthening security measures.

Moreover, we're actively involved in securing the Indian border and collaborating on projects with an Indian naval ship, an Air Force base, and a rocket launch site, demonstrating our commitment to enhancing national security. Furthermore, our responsibilities extend to safeguarding critical infrastructure such as a VVIP Chief Ministerial Residence, an oil refinery, and a government building, highlighting our dedication to innovation and safety across various sectors and aiming to establish new benchmarks in autonomy and security.

As the CEO of Grene Robotics and with your extensive background in technology and innovation, could you share some insights into your contribution to the development of the nation, particularly in areas such as technological advancement, job creation, or societal impact?

Through our solutions, we utilize Artificial Intelligence, Machine Learning, and Cognitive Computing to develop future autonomic systems that can self-learn and self-adapt, aligning with our vision for a sustainable planet.

At Grene Robotics we aimed to integrate people, processes, things, and data into a unified platform managed by an AI CEO. Today, our solutions empower governments and organizations worldwide to operate with efficiency. We believe the defence sector is particularly open to adopting new technologies, and we're dedicated to advancing our expertise in this domain to meet its evolving needs.

Autonomy represents the future, and we're delivering it now.

TELESPAZIO OBTAINS AUTHORISATION FROM ENAC AS A DRONE OPERATOR FOR BVLOS FLIGHT SCENARIOS

The Italian National Civil Aviation Authority (ENAC) has granted Telespazio, a joint venture between Leonardo (67%) and Thales (33%), the generic PDRA (Pre-Defined Risk Assessment) authorisation as a drone operator in a Beyond Visual Line of Sight (BVLOS) scenario, i.e. a flight mode in which the pilot has no visual contact with the vehicle.

The goal, which will allow the company to enrich its geo-information services through remotely piloted aircraft, was achieved thanks to the use of the proprietary T-DROMES® platform, created by Telespazio for the management of end-to-end services with drones. Among other features, this platform can also be used to assess risks on the ground and in flight.

Obtaining the authorisation is a key pillar for the expansion of Telespazio's services in the areas of infrastructure monitoring, environmental protection and smart farming. In addition, it will contribute to the development of the biomedical drone delivery sector, which is strategic in the context of the European #U-ELCOM project.

Lastly, the authorisation represents an advanced solution for BVLOS operations, because the company will be able to extend the distances it can cover

and offer a greater number of possible operational scenarios. Telespazio will further expand the operation of unmanned aircraft over even greater distances, with the use of the Telespazio AIR 100 BOX, which allows satellite communications to be used for vehicle control by applying cutting-edge technology.

"I would like to thank ENAC for the authorisation granted to Telespazio, which represents a real qualitative leap for the services offered by our company in the field of geo-information services with the use of drones. This authorisation will significantly reduce the time required to obtain approvals for flight missions and shifts the company into a new dimension, in which it can fully act as a drone operator also offering integrated solutions, relying on the portfolio of satellite communication products," said Paolo Minciacci, SVP of Telespazio's Geo Information Line of Business.

Aermatica-3D contributed to the achievement of this important certification by supporting Telespazio with the innovative FTS that is compliant with specific EASA requirements. The FTS guarantees safety in the areas adjacent to operations in which people are assembled, thus expanding the operational capacity of flight missions.

ROBOTICAN & ELSIGHT ANNOUNCE PARTNERSHIP FOR OPTIMIZED BEYOND THE VISUAL LINE OF SIGHT (BVLOS) COUNTER UAS MISSIONS

Robotican, a leading autonomous robotics and drone innovator, and ASX-listed Elsieght Ltd the recognized industry leader in uncrewed system connectivity solutions, have announced their partnership for optimized connectivity in BVLOS counter UAS military and defense missions.

Military and defense organizations around the globe have added counter UAS systems to their arsenals to identify and disrupt adversarial drones. A leading example is Robotican's Goshawk, a fully autonomous drone, which flawlessly executes interception missions by snaring adversary drones' mid-flight (Surgical Discreet C-UAS mitigation). Its autonomous repertoire includes in-flight target detection, precise tracking, secure locking, target pursuit and capture.

Optimizing the Goshawk's flight performance is Elsieght's Halo, a platform for robust, secured connectivity using multi-link bonded communications, creating a bonded tunnel of available links from LTE, 5G, SatCom and RF channels for continuous uptime and connection between the drone (UAV or UAS) and the ground control station.

"Even in regions with minimal signal coverage, Elsieght's Halo can provide a quick and consistent connection between the Goshawk aircraft and its control station," said Robotican's CEO Hagai Balashi. "Elsieght's Halo system delivers the most solid LTE link that Robotican had ever experienced, in addition to high-quality data streaming. The Halo performed seamless handover of the aircraft control from one pilot to another, thereby reducing the risk of C2 failure significantly."

"Elsieght is proud to partner with Robotican in its dedication to maintain safe skies with its Goshawk system, an exceptional example of hostile drone interception capabilities," said Yoav Amitai, Elsieght's CEO. "By working together, we have significantly accelerated the 'detect, react, and eliminate' process by enhanced situational awareness."

ONDAS HOLDINGS' AMERICAN ROBOTICS ENTERS STRATEGIC PARTNERSHIP WITH RESILIENX

Ondas Holdings Inc. a leading provider of private industrial wireless networks and commercial drone and automated data solutions, announced that its wholly-owned subsidiary American Robotics Inc. is entering a strategic partnership with ResilienX Inc. a leader in data quality assurance and in-time aviation safety management systems (IASMS) for highly automated and autonomous systems.

"We are thrilled to join forces with ResilienX in our shared commitment to advancing the reliability and safety standards of autonomous solutions," Tim "T3" Tenne, CEO of American Robotics. "ResilienX's specialization in autonomy assurance services perfectly complements our dedication to delivering advanced and secure autonomous technologies. Through this collaboration, we aspire to set new benchmarks in the monitoring and assurance of autonomous systems operating within complex environments, including our premier Drone-in-a-Box (DiAB) solution, the Optimus System."

"Teaming up with American Robotics means unlocking new avenues of efficiency and reliability for drone operators. Through this partnership, we're



poised to offer enhanced solutions that increase safety, elevate performance, and ultimately enhance airspace management for American Robotics customers," said Ryan Pleskach, CEO of ResilienX.

ResilienX's state-of-the-art software offers continuous monitoring of complex system-of-systems, ensuring the immediate detection and mitigation of adverse or off-nominal conditions, either autonomously or with human intervention. This critical safety assurance layer equips advanced mobility ecosystems with bolt-on fault tolerance and proactive risk mitigation capabilities, thereby enhancing the reliability and performance of the American Robotics Optimus System.

uAvionix Awarded FAA Contract to Advance BVLOS Operations

UAvionix, a leader in avionics solutions for uncrewed and crewed aircraft, announce that it has been awarded a Federal Aviation Administration (FAA) Broad Agency Announcement (BAA) contract to advance the commercial use of Uncrewed Aircraft Systems (UAS) in the National Airspace System (NAS). The contract aims to develop highly reliable Command and Control (C2) communications for extended Beyond Visual Line of Sight (BVLOS) operations across challenging terrains. Partnering with the University of Alaska Fairbanks UAS Test Site, uAvionix will employ its Link Executive Manager (LEM) to fuse LTE, Iridium SATCOM, and C-Band communications links to deliver uninterrupted and reliable C2 during long-range BVLOS flights along an Alaskan pipeline.

"Reliance on a single link or common infrastructure isn't always feasible in remote and mountainous terrain. Having multiple, seamless connections to the aircraft from airborne and ground-based communications provides the safety and flexibility needed to reliably perform these complex operations," noted Cyriel Kronenburg of uAvionix. "Flying for extended ranges with many transitions between communications paths and

frequencies will provide the data needed to support FAA rule making and reinforce the concept that using UAS technology can be used safely and economically across all types of terrain and infrastructure."

The current practice for BVLOS flights in the National Airspace involves obtaining FAA waivers or exemptions, which often rely on a single active C2 link with a single alternate standby link. Challenging terrain conditions, such as those found in Alaska, can significantly impact the availability of both the primary and alternate links resulting in difficulties satisfying the risk analysis for the BVLOS approval, or worse a lost link condition and failure of the UAS mission. uAvionix, in collaboration with the FAA, will work on a system that integrates cellular networks, Iridium SATCOM, and aviation protected C-Band into an assured C2 communications system consisting of multiple concurrent links using both frequency and path diversity to minimize the risk of lost links over adverse topography.

This innovative system will be controlled by a Link Executive Manager (LEM) through the SkyLine cloud-based platform, ensuring seamless and automatic switching between radios to maintain optimal and uninterrupted

communication irrespective of ground conditions. Test flights will take place at the Alaska UAS test site, where achieving path and link diversity is challenging due to limited cellular coverage, high tower installation costs and mountains that block radio frequency signals.

Christian Ramsey, Managing Director for Uncrewed Aviation at uAvionix, stated, "We have a consistent track record of collaboration and success with the FAA. This contract builds upon that success and demonstrates our commitment to advancing BVLOS operations for the industry. By developing Command and Control Communications Service Provider (C2CSP) infrastructure, we are advancing the commercial viability of UAS operations while maintaining safety and efficiency for UAS operators."

The initiative represents a significant step towards making BVLOS operations a more regular part of the UAS industry and follows swiftly on the heels of uAvionix receiving an FAA Exemption to fly BVLOS on the Vantis network that utilizes the uAvionix C2CSP infrastructure to connect other technologies for mission control and detect and avoid.

Carbonix lead Australian-first, CASA-approved BVLOS flight performing over 150km of powerline inspections in South Australia

Carbonix and South Australian Power Networks (SAPN) have been working together to push the limits of what's possible for Uncrewed Aerial Systems (UASs) on long-range flights. Their 18-month partnership culminated in a recent Civil Aviation Safety Authority (CASA)-approved Beyond Visual Line of Sight (BVLOS) mission to inspect over 150km of powerlines in one hop – an Australian first and a significant step toward securing regional power reliability in South Australia.

For countries like Australia with large remote populations, powerline inspections and maintenance can be a major challenge. For SAPN, which has 30% of its customers in regional areas, the ability to conduct efficient and effective powerline monitoring brings significant benefits to customers and the environment.

Currently, inspections are conducted by conventional crewed aircraft (helicopters and light planes) or ground crews. As Paul Roberts, Head of Corporate Affairs for SA Power Networks, explains: "Our crews drive about 20 million kilometres annually patrolling and maintaining our vast network. Being able to deploy over-the-horizon drone patrols will drive greater efficiency in our asset management program and provide genuine safety benefits for our people and community."



Replacing traditional monitoring methods with Carbonix aircraft will bring an up to 80% reduction in operating costs and up to 98% reduction in CO2 output for SAPN. Carbonix aircraft also improve safety by removing people from arduous manual monitoring missions and risks from helicopter and light plane accidents. There are also wildlife and farm animal benefits as well, with less noise shock and environmental impact. "Drones like Carbonix present an opportunity to reduce the many millions of kilometres our staff travel on the road each year, reducing our carbon footprint, eliminating biohazard to our customers' properties, reducing costs and importantly improving safety for our staff." Paul Roberts, SAPN

However, flying BVLOS isn't a simple mission. In Australia, CASA approval is mandatory and involves

scrutinising aircraft capabilities, remote pilot training and supporting systems. Once approval is in place, power providers can become more operationally efficient, enabling them to fly over more powerlines without having to land, pack up, relocate, and fly again. Furthermore, UAS operations offer quicker deployment, faster asset inspection cycles and can significantly improve response times to outages, fault detection, and early bushfire identification and mitigation.

These long-range missions are suited for Carbonix's purpose-built aircraft, which have longer endurance than standard Remotely Piloted Aircraft Systems (RPAS). Carbonix RPAS are able to fly for more than eight hours without refuelling, while carrying high-resolution multi-sensor payloads. Carbonix UASs are also manufactured to fly low and slow, enabling them to capture the best picture quality and data insights available. Carbonix CEO Philip van der Burg stated the recent flight was the dawn of commercialisation reality for the Australian RPAS industry: "We've addressed the risks and barriers, both regulatory and technical and proven the capability. Long-range drone adoption means improved safety, faster response times and reduced carbon footprint for companies like SA Power Networks. We're thrilled to have partnered with them to achieve this Australian first."

Enhanced Compatibility - SingularXYZ Introduces New Upgrade for X1-Series Radio Modem

SingularXYZ has introduced the latest upgrade of its X1-Series GNSS receivers, featuring an upgraded UHF version that designed to support LoRa TX & RX as well as common UHF RX, significantly improving its compatibility. In previous versions of the product line, the X1-Series offered two radio versions:

	Working Range (Internal mode)	Compatibility of Radio Mode
LoRa UHF (default)	Up to 15km	Exclusively compatible with Lora versions of X1-Series
Common UHF	3 – 5km	Compatible with mainstream GNSS receivers

To further enhance user convenience and allow them to enjoy compatibility and long working range at the same time, SingularXYZ has upgraded the UHF version - supports LoRa 15km long working range, and is compatible with LoRa UHF in TX (transmit) & RX mode and common UHF in RX (receive) mode.

It's important to note that the coverage range of the radio mode is contingent upon the transmission capabilities of the RTK base station. So if you are using a RTK base of common UHF, the coverage depends on its transmit range.

With this type of radio upgrade, users can now benefit from an up to 15km working range when utilizing the X1-Series as both base and rover. Moreover, when collaborating with receivers from other brands, the X1 series can also work seamlessly in rover mode.



MILEMAKER, POWERED BY RAND MCNALLY, EXPANDS DEVELOPER OFFERING WITH NEW MAP SOFTWARE DEVELOPMENT KIT

MileMaker, a leading provider of commercial transportation routing, mileage, and rating software announced the release of its Map Software Development Kit (SDK) for developers. The toolkit will enable companies within the transportation and logistics sector to enhance their proprietary web applications with MileMaker's best-in-class commercial vehicle-specific map tiles and route displays.

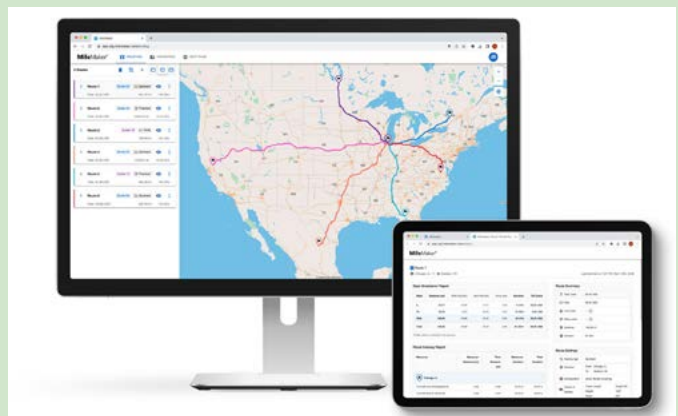
MileMaker's Map SDK is comprised of a JavaScript code library that allows for seamless integration of interactive map displays, including several map style options and overlays of real-time weather and traffic information. Developers will have the ability to craft a fully tailored user experience within their applications without incurring additional resources or costs.

By providing access to commercial vehicle-specific mileage and routing data, MileMaker ensures that companies within the industry can deliver optimal routes that account for vehicle dimensions, weight restrictions, hazardous materials regulations, and other critical factors.

Key features of MileMaker's SDK include: JavaScript Code Library: Available via a JavaScript library, MileMaker's Map SDK allows for integration with other JavaScript-coded programs.

Truck-Specific Data: The Map SDK harnesses MileMaker's vast database of commercial vehicle-specific mileage and routing data, enabling developers to generate routes tailored to the unique requirements of commercial vehicles, including trucks, buses, and other large vehicles.

Rich Mapping Functionality: Developers can leverage MileMaker's rich set of mapping features, including real-time weather alerts, traffic updates,



route optimization, and more, to enhance the functionality and user experience of their applications.

Customizable Solutions: The SDK offers flexibility for developers to customize and tailor MileMaker's mapping features to suit the specific needs and preferences of their applications, ensuring seamless integration and optimal performance.

Commenting on the launch, Eugene Feld, VP of Engineering at MileMaker, stated, "We are excited to introduce this Map SDK and expand our product offering and capabilities. Paired with MileMaker search and routing services, MileMaker Map SDK offers a simple and powerful solution for developers to incorporate location-awareness and mapping into their proprietary applications for the transportation and logistics industry."

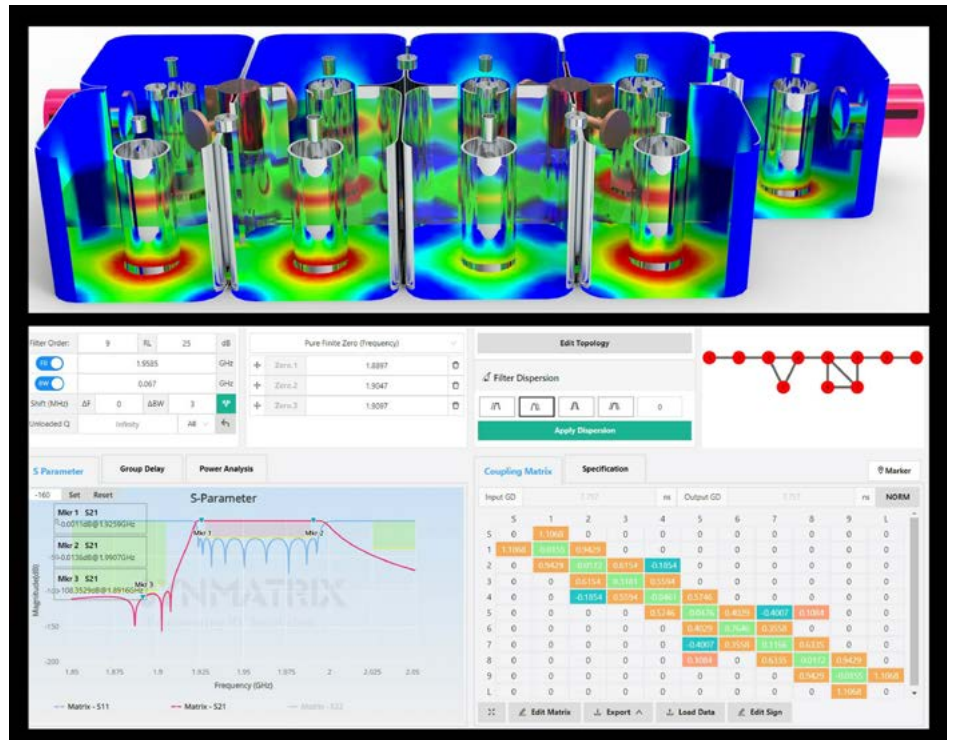
Ansys Forms OEM Partnership with SynMatrix to Accelerate RF Filter Design

Ansys announced a new OEM partnership with SynMatrix to streamline RF filter design workflows for wireless communications applications. SynMatrix develops industry-leading RF filter design and optimization tools that integrate with HFSS electromagnetic simulation. Available through Ansys, SynMatrix software enables accelerated development, helps reduce project risk, and fosters the design exploration of new filter technologies.

The demand for 5G/6G wireless communications systems is growing exponentially. RF filters are essential for quality systems including satellite communications, radar, and aerospace and defense, but meeting design requirements can be challenging. In the past, RF engineers used complex calculations and multiple software tools to design filters. They then meticulously assembled these filters and physically tested them in a lab.

The SynMatrix partnership simplifies the workflow and reduces the number of software tools throughout the entire development cycle. It automates HFSS integration and AI optimization workflows to reduce design time by over 50%, enabling more design throughput and exploration. The integration automatically generates parameterized HFSS 3D models of common filter types to deliver predictively accurate simulation results.

"SynMatrix and Ansys are all about accelerating R&D times in a cost-effective way," said David Shin, Director of Global Business Development at SynMatrix. "Integrating our RF filter design solution into the Ansys portfolio will help our joint customer's future-proof their investments through our low-risk approach. The partnership with Ansys ensures accessibility and reliability and empowers innovative



design exploration."

"MDA is very pleased with the SynMatrix software performance," said Jean-Daniel Richerd, RF engineering, MDA Space. "Not only is the product robust, but the support is also proactive and efficient. SynMatrix capabilities go beyond quick filter design; they also encompass the development of complex R&D designs with demanding requirements for shape, size, and electrical specifications."

In addition to offering SynMatrix software to industry customers, it is also accessible to students and educators through the Ansys Academic

Program and to qualified participants in the Ansys Startup Program.

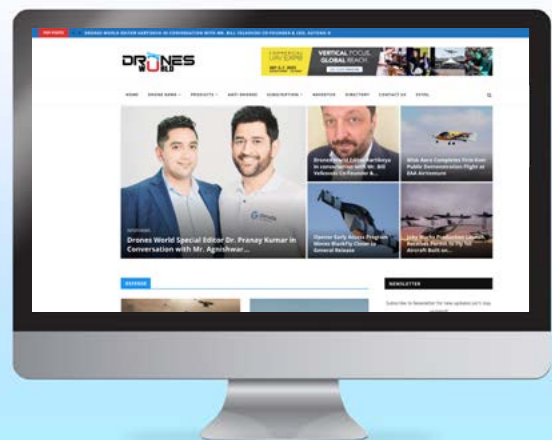
"We are happy to strengthen our partnership with SynMatrix by offering their world-class filter synthesis software," said Shane Emswiler, senior vice president of products at Ansys. "The coherence of the SynMatrix-HFSS integration empowers our customers to explore new filter technologies to remain competitive in their rapidly evolving markets. With this partnership, Ansys offers the deepest and broadest set of tools, workflows, and solutions to the RF simulation industry."

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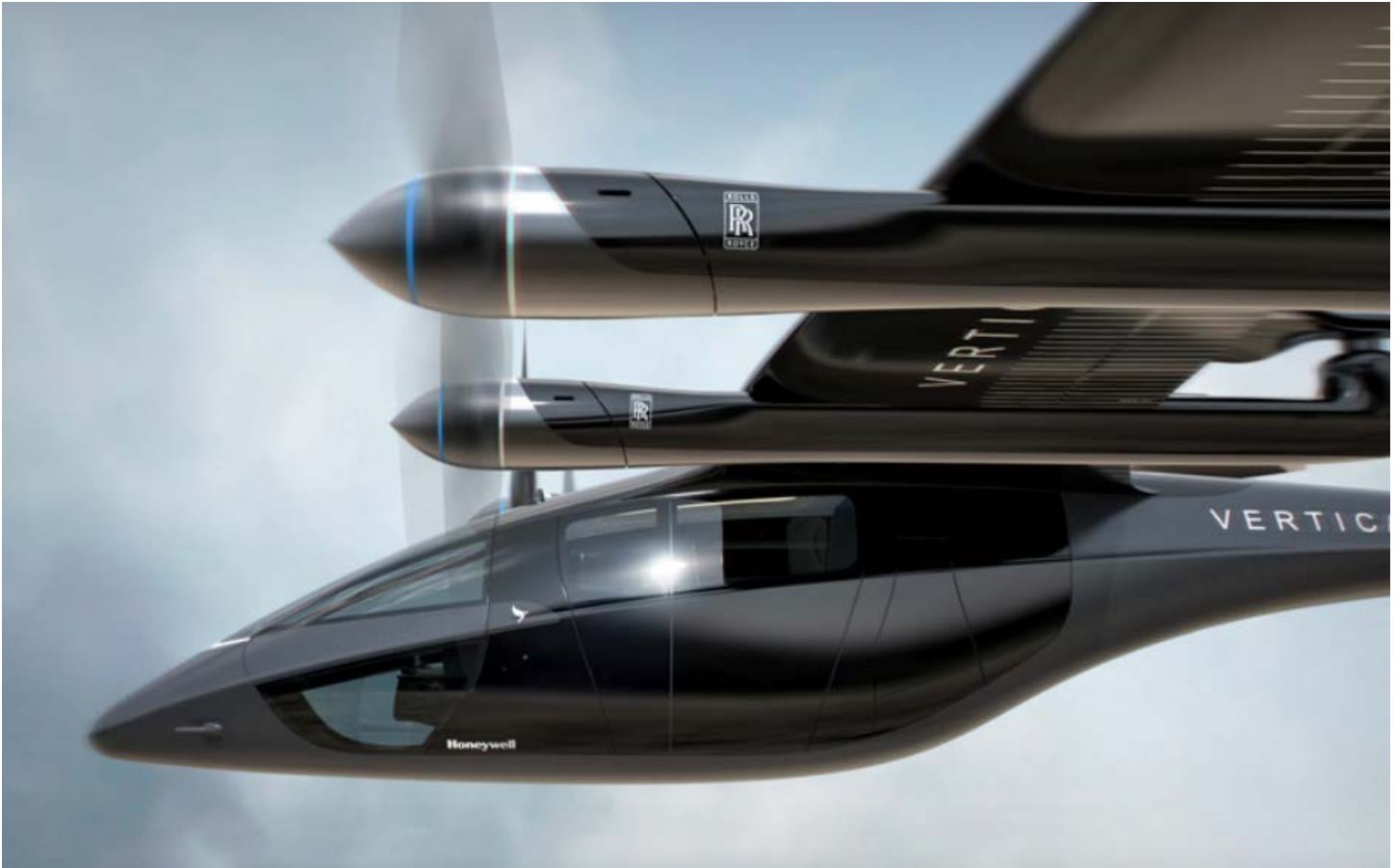
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Honeywell to Acquire Civitanavi Systems to Strengthen Autonomous Operations Offerings in Aerospace And Expand European Footprint



Honeywell announced the intention to acquire the entire share capital of Civitanavi Systems S.p.A. Honeywell will initiate a voluntary tender offer to acquire all outstanding shares of Civitanavi for a purchase price of €6.30 per share in cash (an equity value of approximately €200 million at closing).

The acquisition will further strengthen Honeywell's capabilities to help its customers create autonomous operations in aircraft and other vehicles. It also supports Honeywell's alignment of its portfolio around three compelling megatrends, including the future of aviation and automation. Together with Civitanavi, Honeywell will be able to offer a broader set of technologies to its customers across the globe, whether they are traditional operators seeking to increase the autonomous capability of their existing fleets or are new entrants in the Advanced Air Mobility space.

The purchase price payable at closing represents a premium of approximately 27.1% to the 30-day volume-weighted average trading price of Civitanavi's stock ended on March 26, 2024, the last day of trading before

the announcement of the transaction. Honeywell has already secured the commitment of Civitanavi's controlling shareholder, which owns approximately 66% of Civitanavi's outstanding shares to tender its shares.

The transaction is not subject to any financing condition and is expected to close in the third quarter of 2024, subject to customary closing conditions, including among the others: (i) receipt of required antitrust clearance; (ii) receipt of required clearances pursuant to the foreign direct investment regulations in Italy, United Kingdom and Canada and; (iii) the tender of at least 95% of Civitanavi's outstanding shares.

Civitanavi is a leader in position navigation and timing technology for the aerospace, defense and industrial markets. Both Civitanavi and Honeywell have a successful history of developing innovative inertial navigation solutions, which can track the position and orientation of a vehicle by using accelerometers, sensors and gyroscopes. Civitanavi's product offerings of inertial navigation, geo reference and stabilization systems will complement technologies in Honeywell's existing

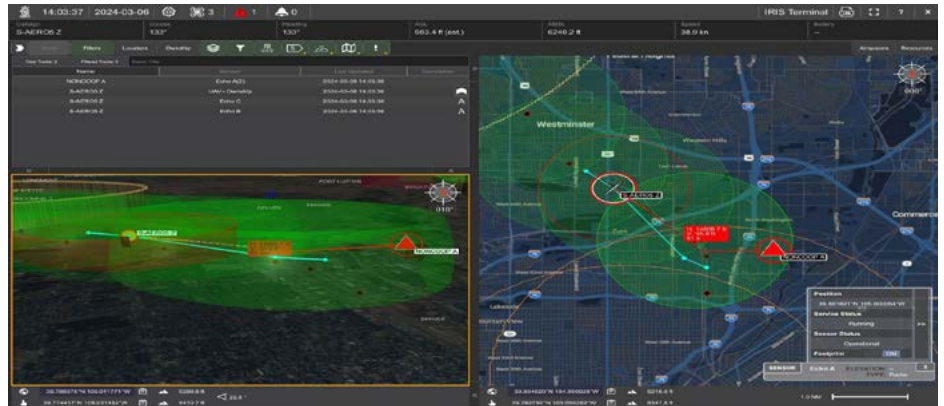
navigation and sensors business. Civitanavi specializes in high-performance Fiber Optic Gyro technology that Honeywell has not previously offered in its navigation portfolio. "By integrating Civitanavi's inertial technologies and sensors across Honeywell's existing commercial, military, space and industrial platforms, our customers across the globe will now have access to a more robust portfolio of aerospace navigation solutions in support of their journey toward autonomous operations," said Honeywell Aerospace Technologies President & CEO Jim Currier.

"With this acquisition, we will be able to immediately expand our offerings to customers in the European Union through Civitanavi's navigation solutions, a capability we intend to further build out in the near-term. We look forward to adding this critical technology to our portfolio to help accelerate the growth of our Aerospace business. We are excited to welcome Civitanavi's talented workforce as our newest Honeywell Futureshapers," Currier added.

Kongsberg Geospatial adds Echodyne Radar to IRIS Terminal

Kongsberg Geospatial (KG), developer of the IRIS Terminal and IRIS GCS airspace deconfliction solutions, has partnered with Echodyne, the radar platform company, to accelerate and extend Beyond Visual Line of Sight (BVLOS) operations for Advanced Air Mobility (AAM) applications. The collaboration will provide enhanced situational awareness to Unmanned Aircraft System (UAS) operators by visualizing all airspace movement, cooperative and noncooperative, to ensure safe and reliable UAS operations.

IRIS Terminal, now in its second generation, has been adapted from its defense origins to the enterprise UAS sector for visualizing airspace traffic, as well as controlling uncrewed systems in its GCS format. Ownship, cooperative, and non-cooperative traffic are all visualized inside IRIS Terminal's multiple viewing configurations, along with useful features such as Detect-and-Avoid(DAA) sensor footprints, terrain awareness, or potential conflict warnings. Where the same aircraft produces multiple tracks (one track per sensor), IRIS Terminal's 'smart correlator' feature correlates these multiple tracks into one single track to ensure the user interface (UI) remains uncluttered and the operator can focus on the work at hand. Radar uniquely captures all airspace movement, regardless of weather or lighting conditions, and Echodyne's patented met materials electronically scanned array (MESA®)



radars create an exceptionally detailed picture of airspace movement. Proven in Defense and National Security markets, Echodyne's patent-protected MESA radar extends electronically scanned array (ESA) performance to civilian security and airspace management applications at COTS (commercial off-the-shelf) price points for the first time. Adding Echodyne radars as pre-integrated components for IRIS enables Kongsberg's customers to rapidly extend operations by combining extraordinary radar accuracy with market-leading visualization tools for managing enterprise-scale UAS operations.

"The benefits of combining market-leading data and spatial visualization capabilities with radar images showing such great detail of the airspace are enormous," said Leo McCloskey, VP

Marketing, Echodyne. "AAM applications requiring BVLOS approvals need to present the safety case for comprehensive airspace situational awareness and this collaboration delivers that for customers."

"We couldn't be more driven to forge this collaboration between two UAS industry leaders, and are excited about the BVLOS prospects to arise from this new relationship," said Thomas Jimenez, Market Director for UAS at Kongsberg Geospatial. "Leveraging EchoGuard inside IRIS Terminal is truly the marriage of performance solutions to provide Electronic Observers with robust airspace deconfliction tools. Ground-based EchoGuard DAA is our starting point and we are very excited about the potential of EchoShield and more complex onboard solutions in the near future."

GENEQ INC UNVEILS THE SXBLUE GLOBE: A REVOLUTIONIZING SOLUTION FOR GIS AND SURVEY FIELD APPLICATIONS

Geneq Inc proudly introduces SXblue GLOBE, the pinnacle of innovation in GNSS positioning and GIS technology. Engineered to excel in the most challenging field conditions, SXblue GLOBE sets a new standard for performance, efficiency and reliability. With an impressive array of features, SXblue GLOBE stands as a testament to Geneq Inc's commitment to pushing the boundaries of technological advancement. Carrying a 448 channel GNSS board, SXblue GLOBE ensures unparalleled accuracy and integrity in positioning, even in the most demanding environments.

One of GLOBE's standout features is its cutting-edge technologies for multipath mitigation, reducing the effects of signal reflection and ensuring the integrity of positioning service, even in

SXblue

challenging environments. Furthermore, SXblue GLOBE incorporates an advanced anti-jamming and interference monitoring system, safeguarding against disruptions and ensuring uninterrupted operation in any scenario.

Moreover, SXblue GLOBE uses global or local coverage of correction services SBAS, RTK with an update rate up to 100Hz, empowering users with enhanced accuracy and reliability in their positioning activities. Another GLOBE's new feature innovation is its Wi-Fi connection which enables its parameters to be easily configured via a Web User Interface.

"SXblue GLOBE represents a significant milestone in our ongoing commitment to innovation and excellence," said René Parisé, President at Geneq Inc. "We are proud to offer a solution that not only meets but exceeds the expectations of professionals in the GNSS positioning, Survey and GIS industry." Like its predecessor Platinum, the SXblue GLOBE has an upgraded field replaceable battery and is compatible with all mobile applications and data collection software usually used by GIS and survey field activities.

Geneq Inc invites professionals, enthusiasts, and industry experts to experience the power and accuracy of SXblue GLOBE receiver by discovering how it can elevate the Survey and GIS works to new heights of performance and reliability.

DRONESHIELD AWARDED \$4.3 MILLION U.S. GOVERNMENT CONTRACT

DroneShield is pleased to announce it has received a repeat order of \$4.3 million from a U.S. Government customer for a number of its handheld C-UAS systems. The delivery is expected to be complete over the next 15 days, using available stock on hand.

DroneShield has been working with this customer for several years, with a number of smaller preceding orders. This is the first material contract from the customer, and subsequent material larger orders are expected in near term. The exact timing and quantum of future orders will be advised to market as further

information becomes available.

"Widespread global conflict continues to provide clear evidence of the rapid evolution of unmanned systems." Tom Branstetter, Director of Business Development stated, "This U.S. government end-user has and always will require cutting-edge capabilities to maintain its decisive advantage. This initial order is a testament to our team's unwavering commitment to addressing complex challenges and further highlights our key position in the counter-unmanned systems space."

Matt McCrann, DroneShield US CEO, commented: "DroneShield products have undergone extensive evaluations from a number of U.S. Government agencies in the last several years, and we're honored by the customer relationship we have and pleased to start seeing the results of these efforts." McCrann continued, "In addition to market leading product performance, the ability for us to rapidly deliver DroneShield solutions was important to the customer. We're proud to be able to do so in support of their urgent operational requirements, as drone threats continue to rapidly escalate."

AZERBAIJAN ACQUIRES ISRAELI-MADE SKY DEW HIGH-ALTITUDE AEROSTAT FOR ADVANCED MISSILE AND AIRCRAFT DETECTION

The primary mission of Sky Dew is to detect cruise missiles, drones, and other advanced aerial threats flying at low altitudes, providing early warning. To achieve this, the aerostat is equipped with an AESA (Active Electronically Scanned Array) radar capable of long-range detection.

The aerostat can maintain continuous surveillance for several days and is capable of tracking up to 500 targets with a detection range of over 250 km.

It is also able to avoid ground clutter interference, making the aerostat particularly useful for detecting low-flying threats. At the same time, its upper altitude limits far exceed those of ground-based radars, offering a much greater visibility range to the horizon.



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Editor-in-Chief

B. Kartikeya, +91 94444 99221
dronesworldmag@gmail.com

Mr. Sanjay Singh

Trade Promotion Council For Geospatial & Space Industry
secretariat@tpcgsi.com | Mobile:- +91 9910990553

Defence Ministry signs over ₹200 Crore deal with Big Bang Boom for Indigenous Anti-Drone Technology



Big Bang Boom Solutions Pvt Ltd (BBBS), India's fastest-growing defence sector startup, has secured a significant order worth more than ₹200 crores from the Indian Air Force and the Indian Army, for its cutting-edge anti-drone technology. This historic contract, the largest under the Indian Defence Exhibition (iDEX) initiative, and one of the largest signed by the Indian MoD with an Indian startup is a testament to BBBS's unmatched expertise in deep-tech products especially, anti-drone solutions.

The Indian Defence Ministry's decision to place this order underscores the country's commitment to strengthening its security infrastructure and investing in Atmanirbhar cutting-edge defence technology. Specifically, the anti-drone technology provides a game-changing response to the mounting threat posed by drones and unmanned aircraft systems (UAS).

"We are immensely proud of this milestone in our startup journey, and are

grateful for the trust placed in our capabilities by the Indian Air Force and Indian Army through the aegis of iDEX the MoD's flagship innovation platform," said Dr R. Shivaraman, Director and CTO, BBBS. "Big Bang Boom is committed to serving our nation with the highest level of innovation and technology. The BBBS Anti-Drone Defence System is a testament to our commitment to innovation, and we are proud to contribute to the security and self-reliance of our armed forces", he further added. BBBS's Vajra Sentinel System is a state-of-the-art solution designed to detect, track, and neutralise drones at extraordinary ranges. It utilises passive RF sensor technology to eliminate false alarms, and its sensor and jammer combination meets stringent mil standard specifications for durability and reliability. It has a number of state-of-the-art tech improvements such as AESA radar and kamikaze drones which can be upgraded on demand by the user.

The system's core sensor built around

artificial intelligence (AI) and computer vision algorithms enables precise identification, classification and location identification of drones. Additionally, its sophisticated decision making matrix enables autonomous decision-making for countermeasures such as signal jamming and other counter measures.

"This is a significant milestone for us. Our product pipeline and mix for the next 10 years are robust and the team is rearing to go. We have already started discussions on repeat orders and export opportunities. We will now reopen our doors to financial players who can come along in this next leg of nation building," said, Praveen Dwarakanath, CEO, BBBS

BBBS will commence execution of the order immediately, with a focus on timely delivery, comprehensive training, and unwavering support to the Indian Air Force and Indian Army to ensure seamless integration of this vital technology into their defence strategies, added Gaurav Sharma VP sales, BBBS.

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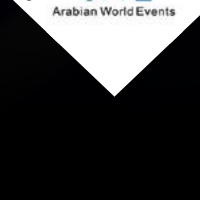
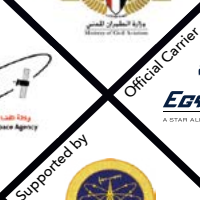
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Mr. Sanjay Singh
Trade Promotion Council For Geospatial & Space Industry
secretariat@tpcgsl.com
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Kartikeya
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Meeting Quality & Reliability Standards for Space & Defence programs
Dr. SUBBA RAO PAVULURI, CHAIRMAN & MANAGING DIRECTOR,
E-mail : subbarao@ananthtech.com

Headquarters

ANANTH TECHNOLOGIES PVT LTD.

Ananth Info Park, Plot No.39,
Phase-II Madhapur

Hyderabad – 500 081

Tel:+91-40-6615 6615

Fax:+91-40-6615 6531

E-mail: subbarao@ananthtech.com

mail@ananthtech.com

Satellite Facilities

ANANTH TECHNOLOGIES PVT LTD.

No:64, KIADB Bangalore
Aerospace Park, Singahalli Village,
Budigere Post, Bangalore
North Taluk

Bangalore – 562129

Tel:+91-80-6616 6616

E-mail: mail@ananthtech.com

Launch Vehicles Facilities

ANANTH TECHNOLOGIES PVT LTD. Plot No.51(b) KINFRA Park ,
Menamkulam Sub-Dist : Kazhakuttom Thiruvananthapuram, Kerala

Tel:+91-471-2315913 E-mail: mail@ananthtech.com

