DRONES WORLD

India's first bi - monthly E magazine for Drones

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Mr. Venkatesh Sai
Founder & Technical Director
Zuppa Geo Nav Tech

In Conversation with

Mr. Sajid Mukhtar,

Chairman & Managing Director, Roter Group of Companies

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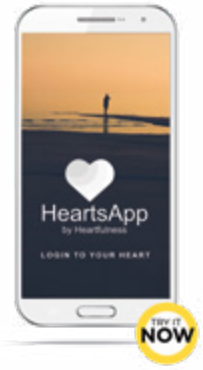

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DRONES WORLD is published by - B. Kartikeya

Hello Readers, Welcome to yet another issue of Drones World

Drone based deliveries are something that is gaining traction lately. Isn't it a best way to provide you the updates starting with them? You have been asking for it and we heard you. Not just heard, but also added a couple of pages dedicated to provide you the latest happenings in and around global drone industry.

Our exclusive conversation with Mr Sajid Mukhtar chairman and managing Director of Roter Group of Companies will make you think why he has said "Do not Re-invent the wheel". Personally, I do agree with Mr. Sajid. you can find another conversation we had with Mr Venkat Sai Founder and Technical Director of Zuppa Geo Navtech who is busy with Type Certification process for Ajeet Mini Drone which is going to game changer in the Indian Drone Business says Growth opportunities are there for the taking for all types of skill sets and talents. Definitely Indian Drone ecosystem is in the process of taking a good shape in near future.

I am happy to see in the industry Drone Events, Expos, webinars are picking up like never before. We would like to surprise you by saying Drones World magazine is coming up with Special Drone Directory in the magazine itself. All Start-ups, Manufacturers and Service providers can approach us featuring in the upcoming issue. Don't forget to check out the cool product releases and the acquisitions as well in the remaining pages.

Watch out for us at Drone Expo 2022 at Gandhinagar as we would always love to interact with you amazing people. Looking forward to sharing my views with you over there. Let me say a goodbye till you hear from me in the next issue. Ciao.

Thanks

B. Kartikeya
Editor

Innovators and 3D modeling enthusiasts come together at the Pix4D Conference 2022 in Denver

Pix4D, the major player in mobile and drone mapping, is pleased to announce that it will be hosting its flagship conference at the pop-culture themed The Curtis hotel in Denver, Colorado on 13 October 2022. The agenda includes 3D modeling and photogrammetry expert guest speakers, personal consultations, networking opportunities, the latest from key players in mapping hardware, and how Pix4D technology is changing the way industries including construction, inspection, agriculture, and public safety are using digital models in their everyday workflows.

This will include discussing the fast adoption of digital twins, the accessibility of modern hardware, and the challenges of different industries during various sessions. The new terrestrial mapping solution for mobile phones, the viDoc RTK rover - combining single point measurement, photogrammetry, and LiDAR with centimeter accuracy - will also be exhibited with hands-on live demonstrations. Thanks to presentations by thought leaders in 3D modeling, attendees will share ideas with other innovators and go home with insightful tips and tricks on how to get the best out of mapping technology. Sessions range from beginner to advanced, so everybody is welcome to take their mapping knowledge to the next level.

"More than 60% of employees in Pix4D work in R&D, and this has allowed us to put innovation first. The Pix4D User Conference is a great window for us to share what we have been working on, exchange ideas and welcome feedback from industry professionals who have always played an active role in the development of our solutions." - Christoph Strecha, CEO of Pix4D The Pix4D Conference was first hosted in 2019 in Denver and the 2021 meetup took place online with over 4,000 registrants worldwide. The 2022 Pix4D Conference in Denver will be hosted at pop-culture themed The Curtis hotel, with a training session about its next-generation software for large scale mapping and fast vectorization, PIX4Dmatic and PIX4Dsurvey on October 12th and the main event on October 13th. Surveyors, GIS experts, 3D modeling enthusiasts, and people passionate about photogrammetry are all welcome to attend, regardless of being a Pix4D user.

ANA Group drones to fly medical & daily supplies to remote regions around the world

ANA Group launched an internal project team to explore new business opportunities using drones. Initially, the Group utilized the drones to inspect aircraft and conduct bird's-eye view filming. Drone usage has evolved to include conducting feasibility tests that deliver basic commodities to those who live on remote islands or in mountainous areas of Japan.

Since 2018, delivery services utilizing drones have become a pillar of this new venture. The Group has operated 15 test flights to transport medicines to remote islands and daily supplies to areas struck by disaster.

Currently, drone delivery services are too costly for day-to-day use. In addition, aviation related regulations and restrictions are a hurdle for the business to be accessible to the general population. Fortunately, automating the service operation is expected to lower the cost significantly and licensing drone operators will ease regulations. ANA Group will continue to operate the drone delivery service on a trial basis while prioritizing emergency usage and preparing for the day when the service becomes available for a wider market.

As Drone Project Director, Mitsutoshi Nobuta leads a team of 15 at ANA HOLDINGS Digital Design Lab, and points to one project in particular that stands out for having the most potential to contribute to society. Partnered with Takeda Pharmaceutical Company, Nagasaki University and City of Goto in Nagasaki Prefecture, Digital Design Lab conducted a trial to deliver necessary pharmaceuticals between Nagasaki's remote islands (approximately 10 miles apart) in 2021, using an electrical fixed-wing VTOL (Vertical Take-Off and Landing) aircraft developed by Wingcopter, a German drone manufacturer.

ANA led the trial by operating the drone remotely and managing the delivery tracking system. Currently, it takes about 45 minutes to make such deliveries with a regularly operated ferry and ground transportation. Drones would be able to cut the delivery time down to 10 minutes.

The trial required three people to operate the drone, four to monitor the flight and two for administration and coordination. Once the regulations are revised, the project would no longer need such a large team to monitor the drones and take only one person to operate.

"We started the drone business with the intention of leveraging ANA Group's strength and skillset as an airline," said Nobuta. "It is not an easy task for those who live on remote islands to get the medicines they need. It is our mission to put the service into practical use for all so that we can provide a solution for this social issue in Japan."

Hyundai Motor Group Launches Boston Dynamics AI Institute to Spearhead Advancements in Artificial Intelligence & Robotics

Hyundai Motor Group announced the launch of Boston Dynamics AI Institute with the goal of making fundamental advances in artificial intelligence (AI), robotics and intelligent machines. The Group and Boston Dynamics will make an initial investment of more than $400 million in the new Institute, which will be led by Marc Raibert, founder of Boston Dynamics.

As a research-first organization, the Institute will work on solving the most important and difficult challenges facing the creation of advanced robots. Elite talent across AI, robotics, computing, machine learning and engineering will develop technology for robots and use it to advance their capabilities and usefulness. The Institute's culture is designed to combine the best features of university research labs with those of corporate development labs while working in four core technical areas: cognitive AI, athletic AI, organic hardware design as well as ethics and policy.

"Our mission is to create future generations of advanced robots and intelligent machines that are smarter, more agile, perceptive and safer than anything that exists today," said Marc Raibert executive director of Boston Dynamics AI Institute. «The unique structure of the Institute — top talent focused on fundamental solutions with sustained funding and excellent technical support — will help us create robots that are easier to use, more productive, able to perform a wider variety of tasks, and that are safer working with people.»

To achieve such advances, the Institute will invest resources across the technical areas of cognitive AI, athletic AI and organic hardware design, with each discipline contributing to progress in advanced machine capabilities. In addition to developing technology with its own staff, the Institute plans to partner with universities and corporate research labs.

The Institute will be headquartered in the heart of the Kendall Square research community in Cambridge, Massachusetts. The Institute plans to hire AI and robotics researchers, software and hardware engineers, and technicians at all levels.

Long-endurance reconnaissance drones from German manufacturer Quantum-Systems in operation in Ukraine

Munich-based drone manufacturer Quantum-Systems has received an order from Ukraine for the delivery of reconnaissance drones. Part of the ordered drones is already in use in Ukraine. Delivery of the larger part of the ordered quantity is still in the preparation and processing stage and will take place after the training of Ukrainian forces and drone pilots.

The details of modalities and logistics will be clarified in close consultation between the partners involved. Training on the use of the Vector reconnaissance drone usually takes no more than four days. For security reasons, no further details on the quantity and timing of the deliveries will be given until the handover has taken place.

Florian Seibel, founder and CEO of Quantum-Systems, himself deployed for 16 years with the German Armed Forces, also as an army pilot, on the current situation: "It is important to me to be able to supply the Ukrainian army with a system that supports in the defense of their country. Due to the state of emergency on site and thanks to the support of the German Ministry of Defense, we were able to serve and realize the order from Ukraine very quickly. This applies not only to the financing, but also to the coordination of the training services and the export license. The solidarity with Ukraine and the defense of our common democratic values has led to a much faster procedure than would normally be the case."

The high-tech Vector drone meets the Ukrainian Army's requirement profile for aerial reconnaissance. It flies without almost any noise emission and delivers high-resolution video images from the air via an encrypted data link, contributing to an accurate situational awareness. The Vector long-range reconnaissance drone also is equipped with state-of-the-art digital connectivity to communicate in real time with other systems and achieve an increased combat performance for the whole network.

Eve holds first Urban Air Mobility Advisory Board in Lisbon

Eve Holding brought together representatives from its customers and partners to debate important aspects of the Urban Air Mobility ("UAM") environment, including operations, services and support, aircraft performance, Urban Air Traffic Management ("UATM"), cabin design and passenger journey.

The event took place in Lisbon, Portugal, where more than 20 participants from over 10 countries gathered to help shape our shared approach to urban air mobility. Eve's broad spectrum of customers joined the event, including fixed-wing and rotorcraft operators, rideshare platforms and lessors, all with the objective of co-creating the future of UAM.

"We have been passionately working on our vision for the future of UAM. Eve's first advisory board is the epitome of our human-centric design mindset valued by our customers and significantly contributed by them. Interactions like this throughout the development of our solutions are essential to creating the right products and services for the market needs," said Flavia Ciaccia, Vice President of User Experience of Eve.

Companies such as Republic Airways, Halo Aviation, Blade, Falko, Fahari Aviation (a subsidiary of Kenya Airways), Bristow Group, Helisul Aviação, Flapper, Helipass, Widerøe Zero, Falcon Aviation, Avantto and others joined multiple collaborative workshops and presentations where votes and feedback were captured to incorporate insights into the development processes.

Andre Stein, Co-CEO of Eve, said: "It was incredibly constructive spending those couple of days with our customers and partners who could collaborate with insights on our UAM solutions based on their

experience within their respective fields. All the feedback gathered will contribute to the evolution and maturity of our programs, including the eVTOL, services & support and UATM software. The result was extraordinary, reinforcing that we are on the right path with our collaborative approach toward the future of urban air mobility."

Included in this event was the unveiling of Eve's cabin mock-up, the most advanced yet, allowing the Advisory Board's participants to share their operational knowledge and advocate on behalf of their end customers. The mock-up will be also featured in the next Farnborough International Airshow.

Zenith AeroTech Delivers Two Tethered Aerial Vehicles to Federal Law Enforcement Agency

Zenith AeroTech, a leader in heavy-lift tethered aerial vehicles (TAVs), announced that the company has completed delivery of two Quad 8 TAVs to a Federal law enforcement agency for use as a command overwatch solution during emergency response missions.

Each Quad 8 was designed to meet the customer's need for a long-endurance aerial platform that could carry electro-optical/infrared video (EO/IR) video cameras, a communications relay system, and overhead, high-intensity light panels—all at the same time.

"The client wanted an overwatch capability to help secure their area of operations during emergency response efforts," said Kutlay Kaya, chairman of Zenith AeroTech. "And unlike regular, untethered drones, our TAVs can stay in the air for days at time while carrying a variety of payloads."

The Quad 8 can lift up to 20 pounds of customer-defined payloads. That's more than enough capacity to carry a long-range EO/IR camera, a communications relay, and two 17,000-lumen, weather-resistant LED panels.

"These high-powered lights are ground-controlled for intensity and on/off functions," said Doganc Kucuk, lead designer for Zenith AeroTech. "And when they are activated, it becomes like daytime on the ground."

Hovering at altitudes of 200 to 400 feet, the Quad 8 TAV draws its power from the Ground Power Unit (GPU), which converts AC voltage into high-voltage DC power for the TAV and its payloads. The GPU also

runs an automated management system designed to operate even under inclement weather conditions.

"This smart tether system allows the operator to focus completely on the mission, which at the end of the day, is the most important thing," Kaya said.

Zenith AeroTech has been engaged recently with universities, military organizations, and large communications providers. Company officials estimate the market for these systems will see rapid growth as more end-user applications are developed and successfully fielded.

Drone Delivery Canada launches dangerous goods transportation for UBC's remote communities DTI program

Drone Delivery Canada is pleased to announce the successful approval and implementation of dangerous goods transportation for the University of British Columbia («UBC») Faculty of Medicine›s ‹Remote Communities Drone Transport Initiative› («DTI»).

The DTI is currently utilizing the Company's drone logistics solution to enable a defined two-way delivery flight route, using the Sparrow drone and its DroneSpot™ takeoff and landing zones, to transport a variety of cargo for the benefit of the Stellat'en First Nation and the Village of Fraser Lake, located in Central Northern British Columbia, Canada.

All operations will be conducted in accordance with the Transportation of Dangerous Goods ("TDG") Directorate approvals, the Canadian Aviation Regulations and Transport Canada special flight operations certificates.

"This is another significant achievement by the organization to be the only Remotely Piloted Aircraft System ("RPAS") operator that has been issued a TDG Certificate. We're very happy to further support our customer, UBC, with the flexibility of transporting dangerous goods via our drone solutions. This makes DDC the only RPAS operator in Canada to conduct beyond visual line of sight and dangerous goods operations simultaneously,» says Steve Magirias, CEO of DDC. "We want to thank Transport Canada for their continued support to the industry.

We continue to demonstrate our leadership and innovative approach by offering the flexibility of transporting any types of goods, including medication and lab specimens classified as dangerous goods, for our customers."

NASA Partners with Zipline to Shape Future Operations of Autonomous Fleets

NASA recently signed a Space Act Agreement with San Francisco-based Zipline to pursue a future vision of U.S. aviation that includes delivery drones and air taxis.

To fully realize this vision, NASA researchers are developing tools and techniques to enable m: N operations – where a small number of humans (m) effectively manage many autonomous vehicles (N). This research includes close coordination with the aviation community to understand industry and public needs for these types of operations.

"These collaborations are quite important," said Kelley Hashemi, the technical lead for autonomous systems at NASA's Ames Research Center in California. "It's critical for NASA to gather the community's input in order to achieve meaningful progress towards this future vision of U.S. aviation."

Zipline, an instant logistics company that makes deliveries via drone, currently uses m:N operations to transport medical supplies and consumer goods in Northwest Arkansas, Japan, Ghana, and Rwanda. Zipline wants to continue to give back to the aviation community by sharing its lessons learned.

Through this partnership, NASA will use Zipline's experience to find solutions for broadly implementing m:N operations in the U.S. airspace. In return, Zipline can leverage NASA's tools and research to determine what is needed to expand its fleet operations in the United States.

"Public-private cooperation is essential to expanding drone delivery and unlocking its benefits for more people," said Conor French, general counsel of Zipline. "This partnership is an important step in that direction. We're excited to work with NASA to accelerate growth in drone delivery, both in the U.S. and abroad."

Growth opportunities are there for the taking for all types of skill sets and talents.

An exclusive conversation with Mr. Venkatesh Sai, Founder & Technical Director, Zuppa Geo Nav Tech.

Can you brief us about Zuppa and its journey since its inception?

The guiding principals for Zuppa in its journey since inception have been globally contemporary technology, products and innovation. Zuppa has achieved this time and again by developing cutting edge products across various industries from Automobiles to unmanned systems for Defence.

As India's only fully Aatmnirbhar developer and manufacturer of autopilots for drones Zuppa is leading India's evolution as a global drone hub by manufacturing drones and autopilots that rival global peers like DJI , Parrot , Autel , Skydio to name a few .

What are the various products and services Zuppa is offering civil and defense sectors?

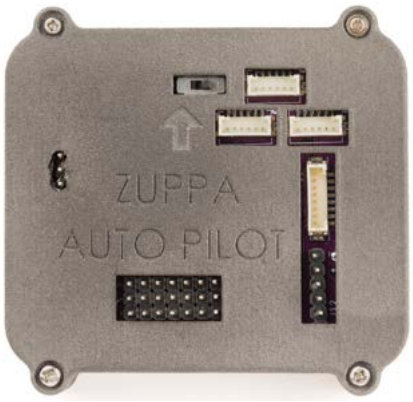
Having developed a globally unique technology of Distributed Parallel Control computing in real time Zuppa has applied it to produce 3 motherboards for Unmanned Systems, Vision Guidance and IoT.

These mother boards are at the heart of every product developed and manufactured by Zuppa or its partners and joint ventures.

Zuppa is all set to launch Ajeet Mini India's first commercial off the shelf drone to rival the global brands like DJI.

Zuppa's vision guidance motherboard Drishya is deployed in products like the See Through Armor (STA) and the 360 deg visual drone radar as a counter drone system with leading defence technology organizations like DRDO, ADB to name a few .Zuppa's IOT motherboard EDGE has been deployed in over 10,000 IoT and Vehicle Telematics products that are currently being used by customers across India.

What are the most innovative projects Zuppa is currently working on? What kind of futuristic products can be expected from Zuppa in the following 5-10 years?



Zuppa is working across multiple projects in both the civilian and Defence space on a range of products covering various

a. Drones applications like surveillance, loitering munitions, heavy lift

b. Unmanned ground systems

c. Vision guidance system

d. Internet of Military Things

Zuppa is in the process of expanding applications for its motherboards across industries in the areas of ADAS, Drones, IoT and connected mobility and foresees a strong demand for them given its unique position as a core computing Technology Company in 5th Generation electronics.

With the number of drones flying in the sky growing rapidly, how do we Keep Indian airspace safe and secure?

The Drone regulations already have segregated Airspace along both altitude and Radial distance from key assets into green, yellow and red zones.

All applications falling within the green zones i.e. 200 ft. within 8-12 km from airport perimeter and 400 ft in all other green zones can easily be tracked and monitored by use of GSM tracking systems while for all other applications involving operation of drones in yellow and red zones could have more stringent UTM requirements based on ADS B protocols.

How do you think Indian drone manufacturers can reach the benchmarks set by DJI? Will they ever be able overthrow the DJI to become the new industry leaders?

Zuppa's Ajeet Mini Drone is specifically developed with DJI drones as a benchmark. Ajeet's performance in terms of ease of operation is already achieved with functionality planned to be incorporated as an evolutionary process

An interesting point to be noted is the fact that till 2014 the year when drones were banned in India the gap between the Indian drone manufacturers and DJI was not significant. The Indian Drone ban of 7-8 years has set back the domestic drone industry significantly, but now with the positive support from the government by way incentives and policy the industry is all set grow exponentially to ensure the countries emergence as a global drone hub.

Indian companies have the potential and the opportunity to surpass companies like DJI given the strong projected growth of the global drone industry and the negative sentiment towards China.

What advice would you like to give to the entrepreneurs tied to the budding drone companies?

The Drone industry of today is filled with opportunities for exponential growth all the way from Electronics/ component manufacturing to drone data analytics. Growth opportunities are there for the taking for all types of skill sets and talents. Hence it is very critical to understand your sweet spot and choose your opportunity wisely to leverage this opportunity.

AeroVironment Acquires Planck AeroSystems, a Leading Provider of Advanced Unmanned Aircraft Navigation Solutions

AeroVironment, Inc. A global leader in intelligent, multi-domain robotic systems, announced it has acquired Planck AeroSystems, Inc a leading provider of advanced unmanned aircraft navigation solutions. The acquisition will significantly accelerate AeroVironment's development of advanced autonomy capabilities.

Founded in 2014, Planck has worked closely with customers from the U.S. Department of Defense, security agencies, allied governments and offshore industrials to develop customer-centric unmanned aircraft solutions. Planck's products include embedded technologies and fully integrated unmanned aircraft systems (UAS) and leverage their deep technical expertise in UAS guidance and navigation, autonomy and artificial intelligence.

Planck is a small technology company based in San Diego, California and will be acquired by AeroVironment's Petaluma-based medium unmanned aircraft systems (MUAS) business segment to focus on integrating its flight autonomy solutions, such as ACE™ (Autonomous Control Engine), into AeroVironment's offerings to enable safe, autonomous takeoff and landing from moving platforms on land or at sea in GPS-denied environments. Other solutions include AVEM™, a fully integrated mobile tethered sensor platform designed for persistent autonomous operation from moving vehicles and vessels in any environment, and a suite of machine-learning object detection and tracking systems that are customized for specific end-user needs.

"Planck has a compelling product and technology roadmap with valuable capabilities that we plan to deploy and integrate with AeroVironment's existing portfolio of intelligent, multi-domain robotic systems," said Wahid Nawabi, AeroVironment chairman, president and chief executive officer. "The Planck team has developed advanced unmanned autonomy and navigation solutions for various defense and commercial customers and by working together, we believe we offer more compelling and differentiated solutions to our customers moving forward."

"This transaction accelerates AeroVironment's innovation in flight autonomy, increasing the effectiveness of our solutions in contested environments and reducing the cognitive load of operators, and adds a tethered SUAS to our portfolio of systems, creating exciting opportunities for upcoming programs of record," Nawabi added.

"AeroVironment's heritage of creating innovative solutions to meet customer needs is an ideal fit for the Planck team," said Josh Wells, Planck chief executive officer. "We couldn't be more excited about joining forces with AeroVironment to deliver innovative, multi-domain unmanned systems to the next generation of U.S. and allied warfighters. AeroVironment's reach, technical capabilities and portfolio of unmanned systems will enable the Planck team to scale our products to more customers, and to provide better solutions in less time."

Edge Autonomy Acquires Adaptive Energy, a Leader in Solid Oxide Fuel Cell Technology

Edge Autonomy announced that it has acquired Adaptive Energy (or "the Company"), a globally recognized designer and manufacturer of solid oxide fuel cells (SOFC) for backup, off grid and UAV power. Terms of the transaction were not disclosed.

With more than two decades of fuel cell manufacturing expertise and nearly 2,000 SOFC systems deployed worldwide, Adaptive Energy is the leading provider of SOFC for low-watt power. The Company's innovative solutions are used in military, critical infrastructure and transportation end-markets by U.S. federal agencies and commercial customers. In addition, Adaptive Energy's lightweight, energy dense SOFC have been integrated as critical technology in Edge Autonomy's UAV platforms for more than 10 years.

Based in Ann Arbor, MI, Adaptive Energy's proprietary technology is based on 12 active patents that were developed by some of the world's foremost authorities in microtubular solid oxide fuel cell technology. Adaptive Energy CEO Michael Edison and Chief Engineer Tom Westrich, Ph.D., will remain with the Company.

This marks the first add-on acquisition for Edge Autonomy since its formation after the merger of UAV Factory and Jennings Aeronautics in February 2022. Edge Autonomy is a portfolio company of AE Industrial Partners ("AEI"), a U.S.-based private equity firm specializing in aerospace, defense & government services, space, power & utility services and specialty industrial markets.

"Having used Adaptive Energy's SOFCs for years, we know first-hand the value the team will bring to Edge Autonomy and our customers," said John Purvis, CEO of Edge Autonomy. "Adaptive Energy has done an impressive job investing in R&D, and we plan to leverage the Company's technology and research as we look to find new ways to further extend the duration and improve the performance of our autonomous systems. I look forward to working with the Adaptive Energy team as we continue to innovate together."

Edge Autonomy brings a diverse ecosystem of unmanned platforms, EO/IR camera payloads and global reach with manufacturing and flight test facilities that service customers with innovation, speed and agility. With a talent pool that includes some of the worlds top unmanned systems engineers and payload sensor experts, Edge Autonomy is well positioned to support customers' Intelligence, Surveillance and Reconnaissance (ISR) operations in innovative and cost-effective ways.

"The support that both Edge Autonomy and AEI can offer will allow us to continue our focus on developing cutting-edge SOFC power solutions for industry and military," said Mr. Edison. "We are confident that joining Edge Autonomy will provide our customers with a path for greater growth, and we're excited for what lies ahead."

"Adaptive Energy has been a pioneer in developing highly reliable, durable and lightweight power sources, which can extend the duration and effectiveness of UAV missions and transform the industry," said Jeffrey Hart, Principal at AEI. "AEI is proud to support this partnership, which will allow both companies to gain significant competitive advantages by working together."

AIF Approves First-ever Agriculture Drone Loan for Chennai-based Garuda Aerospace

History was created at PUSA as the first ever drone loan facilitated by Agri Infra Fund was sanctioned for a Made in India Kisan Drone, manufactured by Garuda Aerospace in the presence of Union Minister for Agriculture and Farmer welfare Mr. Narendra Singh Tomar, Ministers of State Ms. Shobha Karandlaje and Mr. Kailash Choudhary.

"Ever since Prime Minister Narendra Modi Ji flagged off the Garuda Kisan Drone Yatra in February this year, where the PM flew 100 drones' simultaneously in 100 villages across the country, our goal has been to get loan approval sanctioned for our Type Certified Kisan Drones. Garuda Aerospace has already pre-booked over 2500 drones and firmly is on the path to manufacture 1 Lakh Made in India Kisan Drones by 2024" said Agnishwar Jayaprakash, Founder and CEO, Garuda Aerospace. Garuda Aerospace has commenced its $30 million Series A Funding Round at $250 million valuation making the company India's most valuable drone startup and is aiming to achieve Unicorn status by 2023. Mahendra Singh Dhoni recently invested in Garuda Aerospace and has become the Brand Ambassador.

Demand for Garuda Aerospace Kisan Drones has been fueled by the progressive government policies such as 40-100% subsidy schemes on Kisan Drones unveiled during the recent Parliamentary budget session, ban on import of foreign drones and the 120 Crore production linked incentive scheme.

Ram Kumar, one of the 25 drone service providers who has received sanction letters for Agri drone loans expressed immense gratitude by saying "My dream has come true and we will now be able to use the loan to buy Garuda Aerospace Kisan Drones which are the most advanced and affordable in the market". He added by saying "Kisan drones cover 25 acres per day for precision spraying operations, save pesticide usage by 70%, save water usage by 80% and I'm generating Rs.1 lakh a month in revenue which is better in packages from Byjus, Swiggy, Zomato or Ola".

The Agri Infra Fund functions under the Ministry of Agriculture and Farmer welfare and this has spearheaded many novels funding schemes that are farmer-centric. Joint Secretary Samuel Praveen Kumar who has been well known for his proactive and progressive policy recommendations highlighted that Agri drone loans could be a massive game changer for the farming community. "AIF has a target to facilitate loans upto Rs.1 lakh crore into the Agri Infra ecosystem and recently we crossed Rs.10,000 crore. The advanced Agri drone manufactured by Garuda Aerospace has a unique affordable service model which will motivate thousands of drone service providers like Ram Kumar to avail these Kisan drone loans in quick time" concluded Mr. Praveen.

PIX4Dfields 2.0: the hybrid drone & satellite solution

PIX4Dfields 2.0 introduces Satellite Data Import for unlimited access to your fields. This hybrid workflow is unique to PIX4Dfields.

PIX4Dfields offers accurate and offline crop insights based on imagery taken with drones. Now, thanks to the new "Satellite Data Import" feature, the drone data can be consolidated or pre-scouted with satellite imagery.

Using satellite and drone imagery for mapping in agriculture

The new update means you can now check on your crop from wherever you are and get invaluable information about what it needs in minutes. Our hybrid solution offers you full control over your time and money. The satellite data can be used to check on a crop prior to flying with a drone, or instead of drone imagery on days where weather prevents a drone flight.

Get plant health maps with vegetation indices and plan your fertilizer treatments from the comfort of your home or office. In addition to maps based on drone imagery, you can freely access satellite data for your fields. The satellite data is provided by Sentinel-Hub and includes multispectral imagery.

How PIX4Dfields' unique hybrid solution leverages your workflow

This new update gives you the opportunity to take advantage of data taken from either drone or satellite imagery. Revisit your field on a regular basis via satellite imagery without having to travel there. Keep track of the progress of your crop, plant health and stress status, as well as evaluate the effectiveness of a treatment you have applied.

Plan your crop's fertilization or get insightful data from anywhere and evaluate whether you should visit your field to further investigate a problem. Being able to regularly analyze your crop beyond RGB imagery with multispectral data and vegetation indices can give you valuable insights. See what the cause of a problem might be and how severe an issue has the potential to become before it has too great an impact. Take advantage of the best of drone data and combine it with satellite imagery to stay on top of your fields, all year round.

DroneUp Appoints David Guggina to Company Board

DroneUp, LLC, an autonomous drone delivery platform and leading drone services provider, announced the appointment of David Guggina, Senior Vice President of Innovation and Automation at Walmart, to the company's board of directors.

David brings a deep level of operational and customer-facing expertise from market-leading brands. Following a role in the warehouse group leader program at Anheuser-Busch, he spent nine years at Amazon, beginning in fulfillment operations before advancing to general manager of customer service operations. Over the last four years as Walmart's SVP of Innovation and Automation, he has led the roll-out of automation technology within their supply chain network and the implementation of last mile delivery capabilities. He has also held senior roles overseeing product, engineering, and operations at Walmart.

"Over the course of his career, David has been at the forefront of transformational changes that have delivered extraordinary warehouse and operational efficiencies to improve the customer service experience," said Tom Walker, founder and CEO of DroneUp. "We are thrilled to welcome David to our board at a time when DroneUp is pushing the boundaries of delivery and customer expectations."

"DroneUp has been a key player in making customer delivery via drone a reality for millions of customers across the country," said Guggina. "I am honored to join the DroneUp board as the company builds on its reputation of reliability and convenience for businesses and consumers."

David joins existing board members: Eric Grubman, Chairman of SGHC Limited, Thomas Walker, CEO, DroneUp; Thomas R. Ward, EVP E-Commerce, Walmart US; Thomas R. Frantz, Partner, Williams Mullen; and Jerrold

Dronamics appoints chief communications officer

Cargo drone firm Dronamics has appointed Blanca Garcia to its executive committee in the role of chief communications officer. Garcia joins Dronamics with over 25 years' international experience working in consumer-facing and B2B global companies in the automotive, aviation, technology, financial services, pharma, hospitality, and FMCG sectors.

"Blanca brings with her a wealth of experience having worked for many international leading brands. Her strong communications skillset will play a key role in the growth of Dronamics as we accelerate the cargo industry with our innovative and revolutionary unmanned aircraft and first international drone delivery network," said founder and chief executive Svilen Rangelov.

Garcia served in a number of global communications roles for Nissan and the Renault-Nissan-Mitsubishi Alliance in Mexico City, Paris and Bangkok – most recently as vice president of communications and corporate social responsibility for Nissan Asia & Oceania.

She has also led creative teams at Fisker Inc. in Europe and worked as a communications consultant for Boehringer Ingelheim in over 30 countries and British Airways in 42 markets.

Garcia has also published two books on women's empowerment and has given several courses and conferences on this topic.

Dronamics became the first cargo drone company to obtain a European drone airline license, and is gearing up to launch commercial operations in Europe before the end of this year, before entering Australia from 2023.

Transport Canada approves Volatus BVLOS operations with ground-based detect and avoid

Volatus Aerospace has received a Beyond Visual Line Of Sight (BVLOS) Special Flight Operations Certificate (SFOC) from Transport Canada to operate a remotely piloted aircraft (RPAS, drone) without a visual observer, using a ground-based optical detect and avoid system. This is a key milestone in the commercialisation of the Aerieport nesting station and a necessary and important step toward commercialising drone technologies at scale in Canada, says the company press release.

Volatus is experienced in BVLOS operations and currently holds authorization to conduct BVLOS training at several locations across Canada. This new SFOC will enable Volatus Aerospace to remotely pilot a Volatus M300 drone integrated with FlightOps' remote operations software and a CASIA G Optical Detect and Avoid system from IRIS Automation at the Lake Simcoe Regional Airport.

"An SFOC is an authorization, usually on a one-time, single location, or risk level basis given by Transport Canada to operate above and beyond current regulations," explained Richard Podolski, VP of Flight Operations for Volatus Aerospace. "It's a very well regulated and safety-oriented method for developing new functionality in an industry or accomplishing what nobody thought to write rules for."

"For drone technology to be successful long-term, it needs to improve upon current methods and applications, be affordable, and scalable," stated Glen Lynch, CEO of Volatus Aerospace. "Today's achievement has broken through a major barrier and opened the door to commercial opportunities that have only been dreamed about but until today have been just out of reach. Remote operations beyond visual line of sight are now a reality for Volatus. Commercialisation begins now."

Censys Technologies Integrates LiDAR into its Fixed-Wing VTOL Drone

Censys Technologies Corporation is bringing LiDAR to its list of universal payload options. Censys, a trailblazer in the commercial beyond visual line of site (BVLOS) unmanned aerial systems (UAS) industry, offers a one-of-a-kind remote sensing package to revolutionize the way aerial information is collected for infrastructure, agriculture, public safety and more, by bringing together the best software and hardware solutions in the world of airborne intelligence. Now, it is integrating LiDAR into its Sentaero family of fixed-wing vertical take-off and landing (VTOL) aircraft capable BVLOS.

LiDAR – Light Detection and Ranging – is a remote sensor camera payload that uses pulsed laser light for 3D mapping. The LiDAR measures the time it takes that reflected laser light to return to the receiver after bouncing from the ground and measures the intensity of the pulses to provide readings of the terrain and points on the ground. This technology is especially useful for land surveying, power line inspection, topographic surveys, forestry and wildfire mitigation, precision agriculture, and mining.

"In a fixed-wing VTOL with a history of BVLOS approvals, this is a huge addition to the Sentaero line," said Censys Technologies CEO and Co-Founder Trevor Perrott. "We've been working hard to integrate LiDAR over the past year to fill customer needs, and now operators who had been chained to quadcopters have a new option to do more."

In a single flight, fixed-wing drones carrying a LiDAR payload have a system precision of 2.5 centimeters and system accuracy of 3 centimeters at 100 meters above ground level (AGL).

Nordic Unmanned becomes the first drone operator to have four simultaneous BVLOS deployments in Europe

Nordic Unmanned is under contract to the European Maritime Safety Agency (EMSA) to assist the Spanish Ministry of Transport, Mobility and Urban Agenda (Ministerio de Transportes, Movilidad y Agenda Urbana) with conducting multipurpose maritime surveillance in the Strait of Gibraltar. The campaign will include the monitoring of sulphur oxide (SOx) and nitric oxide (NOx) emissions and assisting in Search & Rescue operations for the Spanish Maritime Safety Agency (SASEMAR) as needed.

The operation in Spain will be conducted in the area around the Strait of Gibraltar, whose waters are busy with considerable amounts of large and medium-sized vessels, notably oil tankers and freighters. The Estrecho de Gibraltar (Strait of Gibraltar) is one of the busiest maritime areas in the world and only 15km wide at its most narrow point, separating Africa from Europe. This is the fourth simultaneous Beyond Visual Line of Sight (BVLOS) operation conducted by Nordic Unmanned in Europe.

"Our customers see the value of having frequent data delivered through daily operations. Our BVLOS operations allows critical decision makers to have the latest and most detailed information. It is with great satisfaction that we can now share that we are currently operating four BVLOS drone operations in Europe. We are proud to be working with such a forward-leaning authority as EMSA in providing the Spanish Ministry of Transport, Mobility and Urban Agenda with cutting-edge drone services."

Knut Roar Wiig, CEO at Nordic Unmanned

The drone operation, using the CAMCOPTER S-100, registers potential violations of IMO regulations. The onboard sniffer samples a plume from the exhaust of the vessel in transit and measures if the sulphur content is higher than the allowed concentration of 0.5%. Indications of non-compliance made by this emission control service may trigger an inspection at the next port of call to verify whether an infringement has taken place. From 1 January 2025 the Mediterranean Sea will become a Sulphur Emission Control Area, limiting the allowed sulphur content in marine fuels to 0.1%.

FAA Grants Ondas Holdings American Robotics Part 107 Waiver for Expanded Automated BVLOS Operations

Ondas Holdings Inc. , a leading provider of private wireless data, drone, and automated data solutions through its wholly owned subsidiaries, Ondas Networks Inc. and American Robotics announced that the FAA has granted American Robotics a Part 107 Waiver for expanded Automated Beyond-Visual-Line-of-Sight (BVLOS) operations.

This approval is an amendment to American Robotics' original FAA waiver granted in 2021, which made American Robotics the first company authorized to operate its autonomous drone technology BVLOS with no pilots or visual observers on-site. The new waiver builds upon American Robotics' portfolio of existing regulatory achievements, increasing the range that its autonomous drone technology can operate, further demonstrating the company's industry-leading position. With greater operating authority granted to the Scout System, customers will experience an increased ROI with the ability to collect high resolution data over larger areas of assets.

For the past six years, American Robotics has been testing advanced autonomy and BVLOS-related technologies, working closely with regulators to reach goals and milestones. After being granted this new waiver from the FAA, the American Robotics Scout System can operate autonomously at ranges up to 10 miles, unlocking inspections over large industrial sites and linear assets such as pipelines, railways, and electrical transmission lines. With a larger range and the ability to customize operations to fit unique customer site geographies, American Robotics is enabling key industries to take advantage of autonomous drone operations and analytics that are critical to propel their businesses forward. The impact of the Part 107 Waiver is immediate for current customers and will enable American Robotics to accelerate its solution offerings to new customers in 2023 and beyond.

"American Robotics believes that autonomy, safety, and government approval are the bedrocks of a scalable commercial drone business, and we continue to execute on this mission with additional approvals from the FAA," said Reese Mozer, co-founder and CEO of American Robotics. "This achievement is not only a milestone for our company and our customers, but it's also a signal that the commercial drone industry is progressing in the United States, an achievement that American Robotics is honored to be leading."

uAvionix and AIRmarket complete BVLOS trials over 200km in Alberta, Canada

In trials by uAvionix and UTM partner AIRmarket, a series of long range Beyond Visual Line of Sight (BVLOS) flights over 200km in Alberta Canada, leveraged several key uAvionix technologies and the AIRmarket UTM framework. In 2021, uAvionix joined AIRmarket and partners TC Energy and TELUS to develop a Canadian UTM framework for long-range inspections of pipeline infrastructure.

The trials, with extensive participation by representatives from Transport Canada and NAV Canada, included the uAvionix skyLine Command & Control (C2) system, enhanced with detect & avoid data from pingStation3. In upcoming flights and expansion of the scope the TELUS LTE infrastructure will be enhanced with SKYLINK C-band protected spectrum radios for fully redundant long-range C2 capabilities that can be managed simultaneously with LTE links through the skyLine system for optimal predictability and performance of the link for safety of flight.

For the Concept of Operations (CONOPS), AIRmarket equipped their ARTL03 platform with certified truFYX GPS and a ping200X ADS-B transponder for integration into mixed mode airspace ensuring visibility by participating crewed aircraft equipped with a Sentry ADS-B receiver. When operating in controlled airspace, TSO certified ping200X also enables Air Navigation Service Providers such as NAV Canada to visualize the ARTL03 when operating in controlled airspace.

The flights and concept of operation highlighted the significant safety value of equipping crewed aircraft with ADS-B to aid detect & avoid (DAA) by uncrewed aircraft. A Luscombe chase-plane used in the long range flights was equipped with a uAvionix tailBeaconX Mode-S ADS-B transponder, ensuring full visibility of the manned aircraft via ADS-B IN on the drone and in the UTM system through pingStation3.

As part of the flights, a network remote-ID technology was used to further contribute to visualize all participating aircraft, by ingesting telemetry from the AIRmarket SKYLINK UTM system directly into a Traffic Information System Broadcast (TIS-B), established by uAvionix. Leveraging technology widely used by general aviation in the US, the TISB-B system in Alberta enhances the traditional FAA system using 978 MHz (UAT) to broadcast traffic and flight information by adding drone position data from the UTM system when they are relevant to crewed aircraft for added safety and situational awareness.

“The full uAvionix ecosystem of avionics for general aviation and UAS has been designed to drive safety enhancements and enable integration of crewed and uncrewed aircraft” said Christian Ramsey, President of uAvionix, “The concept of operations leveraging our combined technology is uniquely suited for large infrastructure customers such as TC Energy but is equally applicable to other commercial drone operations and will be a major catalyst for commercial drone operations in Canada”

“AIRmarket has relied on uAvionix for several critical aspects of these flights” said Lindsay Mohr, CEO of AIRmarket”, “The Canadian drone industry needed a repeatable and scalable C2 and conspicuity solution. This week we demonstrated to Transport Canada how we can safely integrate large long range drones in class G airspace, which will ultimately lead to commercialization of long range infrastructure inspections in Canada”

The flights mimic similar concepts of operations used by uAvionix with multiple partners in the world, where reliable and monitored C2, electronic conspicuity and DAA sensor data have shown to be critical components in the safe integration of drones with crewed aviation.

Drones World Editor Kartikeya in conversation with Mr. Sajid Mukhtar, Chairman & Managing Director, Roter Group of Companies

Could you brief our readers about Roter Group of Companies and your role in leading it?

Roter group of companies is an Indian-grown constellation of seven global companies focusing on various verticals such as hardware, software and services majorly in the surveying and mapping industry. Myself the 3rd Generation entrepreneur and the chairman of the group visions to provide the best of providing the best of the technology to the end user, 'the surveyor', be it Drone, Laser scanners, Ground Penetration Radar or more, so that he becomes more efficient and effective in designing and developing New India.

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

A company that started with manufacturing of drawing and mathematical tools in 1936 then went on to producing surveying equipment in 1978 from where we ventured into more niche products such as LiDAR, Surveillance solutions and systems, Photogrammetry, Ground Penetrating Radar and now UAV's. We very recently opened India's largest drone factory because of which we were able to bring down the manufacturing cost of our drones and make them more affordable and help the government achieve its vision of "Make in India"

UAVs in general are either fixed wings or multi rotors. Is there any specific reason for choosing the Fixed Wings over the other designs?

Since, we are primarily mappers, we have worked with both multi rotors and fixed wings and after analysing data and experience, we were able to comprehend that a fixed wing UAV is a much safer and efficient than other designs. A multi rotor, as the name suggests, has multiple motors attached to it which make it more unstable platform because of the vibrations from the motors whereas a fixed wing is a very stable platform which is able to capture more accurate data and imagery. The crash ratio in a multi rotor UAV is much higher than a fixed wing as even if one motor fails, the entire UAV will crash.

The weights of these multiple motors on a drone decreases its speed. A fixed wing UAV has more speed and gliding ability because of which it covers a far more distance and area and is a much safer option.

Would you be expanding your product lines by adding other categories of unmanned offerings?

We at Roter, have always believed and worked towards finding and developing new technologies. There is no greater investment than the one which helps in making our nation great. Currently, we are venturing into surveillance drones for military and civil security application. We will adding be more products and solutions to our portfolio in the upcoming years and you will

have to look out for upcoming announcements on the same.

How do you see India as an upcoming market? Which market according to you is the best; Defence or Civilian?

The dynamics of geopolitics of the world are rapidly changing and India is one the most crucial strategic locations in the world. With the need of the moment, The Government of India is aggressively investing in indigenous defence production and manufacturing at the moment, hence, the new and upcoming market for India is the Defence sector but civilian usage of drones will be the ruling market in the coming years.

Where do you see Roter Group of Companies in the next five or ten years in the Indian market?

Roter group of companies will still be providing "Precision By Tradition" in the next five to ten to how many years as the company values are as such that they need not change itself with them but be relevant throughout the years. In the next 10 years, Roter will be on bringing niche technology to India and is aiming at a 100% Indian manufacturing and processing content of the same.

Can you give us some valuable suggestions for the Drone-prenuers and the Drone pilots?

To all the Drone-prenuers out there, "Do not Re-invent the wheel." We have so much information and technology available in the world today but we often forget that and get stuck on building everything from scratch. We should be investing our time and energy in solving problems and providing solutions. On some days, it's better to work smarter than harder and vice versa. It's important to maintain the balance between the two.

Short Bio

A Third Generation Entrepreneur in THE ROTER GROUP OF INDUSTRIES Estd 1936. Surveyor, Manufacturer, Academician, Researcher, philanthropist, who worked for the development of Industries in Uttarakhand. Identified and developed various industries Clusters under UNIDO & Government of India program.

Worked for India's first Land Record Digitizing work in the Land Survey Departments along with Commissioners in Andhra and Karnataka states. Introduced modern surveying systems and customized software(s) for first handheld land information system (LIS).

Engaged in research and development of 3D LiDAR instruments with Franhaufer Research Institute, Germany for state-of-the-art sensors in the field of Pavement & Clearance Profile scanning and UAV scanning, GPR, UAV/Drones. Engaged in the design and development of professional grade UAV/ Drone for large scale mapping since 2015 and now working on military grade stealth drones.

He can be reached at info@apiroter.com

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DroneShield Announces First Deployment of DroneSentry Counter Drone Tech at U.S. Airport

DroneShield is pleased to announce it has sold and deployed its DroneSentry counterdrone system at a U.S. international airport. This is the first permanent deployment of DroneSentry at a U.S. airport. The name and location of the airport is undisclosed.

The DroneSentry system configuration provides advanced detection capability, in compliance with current U.S. legislation for civilian airports.

The deployed system includes DroneShield's RfOne passive long-range drone detection sensors integrated with DroneSentry-C2 command-and-control enterprise software. The system provides near real-time drone detection, tracking and reporting assisting airport authorities with security and risk assessment throughout the airspace.

Jayde Wilks, DroneShield Sales Executive, commented, "As more drones take to the sky every year, it increases the risk profiles for airports. Drones can damage, or even bring down, an airliner with contact. Reports of airport disruptions due to drones continue to rise, and the safety risk and cost involved from plane diversions and flight disruptions can be significant. With this and future airport deployments, we look forward to helping address this risk."

Israel Aerospace Industries Awarded Contract to Supply DroneGuard ComJam Systems for the Detection and Flight Disruption of UAS to a Country in Asia

Israel Aerospace Industries (IAI) has been awarded a contract to supply DroneGuard ComJam systems for the long-range detection and disruption of Unmanned Aerial Systems (UAS) to an Asian country. The contract comprises several dozens of mobile systems.

In recent years, the use of UAS has increased dramatically, and they have become a potential threat to borders, sensitive facilities, maneuvering forces and major events. UAS may be used for hostile purposes such as gathering intelligence, smuggling or even carrying armaments. Furthermore, their detection is often difficult because of their small physical size, slow air speed, and low altitude flight.

To deal with this threat, IAI's ELTA Division has developed DroneGuard ComJam: an advanced system for locating and disrupting UAS communications and navigation capabilities, whether they are operating independently or in groups (swarms), without impacting civilian communications and GPS in the same area.

The system detects hostile UAS, identifies their mode of operation, and disrupts their communications and navigation so that they are essentially shut down. DroneGuard ComJam offers the advantage of long-range operation, whereby the UAS is disabled while it is still far away – long before it poses a threat to the protected site.

Hundreds of IAI's DroneGuard systems have been delivered to customers around the world, where they are used to protect critical installations, as well as major events such as the G20 Summit held in Argentina in 2018.

Adi Dulberg, VP & General Manager, IAI/ELTA Intelligence, and Communications & EW Division: "IAI's Electronic Warfare systems are a force-multiplier when dealing with modern airborne threats. They are a key component in operational deployment by armies and security forces worldwide. Unauthorized border penetration by hostile UAS, or the ability to target maneuvering forces or crowded areas, could cause significant harm. Our customer's ability to defend against such threats will be significantly enhanced by the long-range detection and disruption capabilities that DroneGuard ComJam delivers."

Counter drone systems included in USD3 billion US government additional aid for Ukraine

VAMPIRE Counter-Unmanned Aerial Systems (C-UAS) form part of USD3 billion additional security assistance for Ukraine announced by the Department of Defense (DoD) under the Ukraine Security Assistance Initiative (USAI) on 24 August 2022.

This USAI package announced on Ukraine Independence Day underscores the US commitment to supporting Ukraine over the long term – representing a multi-year investments to build the enduring strength of Ukraine's Armed Forces as it continues to defend its sovereignty in the face of Russian aggression. Unlike Presidential Drawdown (PDA), which DoD has continued to leverage to deliver equipment to Ukraine from DoD stocks at a historic pace says the government press release, USAI is an authority under which the United States procures capabilities from industry.

This announcement represents the beginning of a contracting process to provide additional priority capabilities to Ukraine in the mid- and long-term to ensure Ukraine can continue to defend itself as an independent, sovereign and prosperous state. It is the biggest tranche of security assistance for Ukraine to date. Capabilities include:

- Six additional National Advanced Surface-to-Air Missile Systems (NASAMS) with additional munitions for NASAMS;
- Up to 245,000 rounds of 155mm artillery ammunition;
- Up to 65,000 rounds of 120mm mortar ammunition;
- Up to 24 counter-artillery radars;
- Puma Unmanned Aerial Systems (UAS) and support equipment for Scan Eagle UAS systems;
- VAMPIRE Counter-Unmanned Aerial Systems;
- Laser-guided rocket systems;
- Funding for training, maintenance, and sustainment.

The US is sending Ukraine "Vampire" kits that transform pickup trucks and other non-tactical vehicles into highly portable missile launchers, according to a report by *Defense News* following a Department of Defense (DoD) press briefing. Colin Kahl, undersecretary of defense for policy, said the Vampire system is a kinetic counter-UAS system "that uses small missiles essentially to shoot UAVs out of the sky". The Vampire kit includes a four-pack APKWS mounted with an EOS Defense Systems R150 gimbal. The vehicle-agnostic modular palletized ISR rocket equipment system is a portable kit that can be installed on most vehicles with a cargo bed for launching the Advanced Precision Kill Weapons System (APKWS) or other laser-guided munitions.

The United States has committed more than USD13.5 billion in security assistance to Ukraine since January 2021. In total, the United States has committed more than USD15.5 billion in security assistance to Ukraine since 2014.

Through both PDA and USAI, DoD continues to work with Ukraine to meet both its immediate and longer-term security assistance needs.

DeTect, Inc Announces World's First Dual-Function Bird and Drone Radar System – MERLIN™BDR-DDR

DeTect Inc announced the introduction of the world's first dual function bird and drone radar operational on US Military Installations – MERLIN BDR-DDR. Developed in 2003 for real-time, tactical operational birdstrike avoidance, MERLIN now has TRUE3D for simultaneous bird and drone detecting capabilities.

The proven technology can be integrated with radar-directed electro-optic, infrared (EOIR) camera system and DroneWatcheräRF-DR radiofrequency drone detection & interdiction. The system comes in a fixed or mobile design, fully self-contained with all system hardware, software and integration included.

Recently returned from installing the system at a US Air Force Base in California, Project Manager Mike Bierman said "The dual configuration is a game changer for air bases and commercial airports that can now have a two-in-one system for tracking both birds and drones. DeTect's dynamic multibeam TRUE3D radar scans and updates target data across the entire 3D volume, continually out to 5+ km in all weathers 24/7."

U.S. Army Selects AeroVironment JUMP 20 Medium

AeroVironment, Inc. announced it received an Other Transaction Agreement award by the United States Army on Aug. 18, 2022 for Increment 1 of the Future Tactical Unmanned Aircraft System (FTUAS) program. The contract encompasses the purchase, testing and delivery of one JUMP® 20 medium unmanned aircraft system (MUAS) to a selected Army Brigade Combat Team (BCT) and associated services, training and support.

"With Increment 1 of the FTUAS program, the Army will be testing and fielding the JUMP 20 on an accelerated schedule as they seek a replacement for the RQ-7B Shadow UAS currently fielded in Brigade Combat Teams," said Gorik Hossepian, AeroVironment vice president and product line general manager for MUAS. "The combat-proven JUMP 20 is a rapidly deployable, runway independent, vertical takeoff and landing solution for the Army. Its ability to be deployed, operated and sustained from anywhere is a game-changer in theater and in situations where the enemy has invaded or destroyed infrastructure."

The AeroVironment JUMP 20 is the first fixed-wing unmanned aircraft system capable of vertical takeoff and landing (VTOL) to be deployed extensively in support of U.S. military forces. Ideal for multi-mission operations, JUMP 20 delivers 14+ hours of endurance, a standard operational range of 115 miles (185 kilometers) and is runway independent. The system can be set up and operational in less than 60 minutes without the need for launch or recovery equipment and has a useable payload capacity of up to 30 pounds (13.6 kilograms). The JUMP 20 also features a common autopilot and ground control system architecture providing a highly customizable, modular platform that can be custom configured to meet operational or customer requirements.

Autonomous Flight Technologies develops low-cost target for counter drone tests

The Tactical High Reconnaissance Aerial Evasive Target (T.H.R.E.A.T) developed by Autonomous Flight Technologies is designed to provide a target for Counter-Unmanned Aerial Systems (C-UAS) test activity. Developed by Autonomous Flight Technologies, T.H.R.E.A.T is designed to be flown over federal test sites instead of higher cost consumer-rated drones. The company's initial target audience is prime contractors with the goal of becoming compliant with government performance requirements, says a *UAS Vision* report.

According to Autonomous Flight Technologies, THREAT is not reliant upon being connected to the internet or a cloud-based service. It is point to point between the aircraft and ground station. The data stream is also encrypted for complete security. All materials are sourced based on keeping costs low, as well as utilizing recycled plastics. By reducing cost, budgets for expendable targets can be stretched to allow for more testing within a static budget, reports Autonomous Flight Technologies.

The equipment uses common 18650 Lithium-Ion battery cells. If pushed past their limits, these safety features help prevent thermal runaway events and uncontrollable battery fires. They also provide long duration flight for their size and weight, trading high performance for flight duration allows this sUAS to fly farther and stay on station for extended durations.

The airframe consists of carbon fibre plate and tube, as well as printed 3d components. It can be flown via hands on radio control, ground station with telemetry data link, or a hybrid of both. The base model of THREAT is simply a flight capable airframe with localization and telemetry capability.

DroneShield delivers follow-on counter drone systems under US Government agency order

Counter drone company DroneShield reports the delivery of a follow-on order by a US Government agency for the company's portable and handheld Counter-UAS (C-UAS) solutions. DroneShield supplied counter unmanned aerial systems (C-UAS) such as RfPatrol and DroneGun MkIII, and has received previous contracts from DoD, DHS, Federal and State level Law Enforcement agencies.

DroneShield recently deployed C-UAS solutions at the World Economic Forum (WEF) in Davos, Switzerland, and Ironman Texas 2022.

Tom Branstetter, Director of Business Development for DroneShield, commented, "We're grateful for the continued trust that this organization has placed in us to help address a unique set of operational challenges. Our customer relationships are what fuel our commitment to push the boundaries of what's possible in the counter unmanned space," he added. "Every teammate at DroneShield understands the significance of the problems we're solving for our end-users and it's something we're proud to support."

Matt McCrann, U.S. CEO of DroneShield added, "We're a mission driven and user focused team here at DroneShield. Strengthening our partnership with an existing user and being able to deliver in full, within days, on an order like this is the direct result of that commitment to our users, their needs and mission."

"Our team emphasizes operating with speed and purpose, and speed doesn't just apply to tech development; it applies to the ability to deliver end to end, from factory to field," McCrann added. "We look forward to continuing to work closely with our U.S. Government partners."

DroneShield also recently announced deployments of its solutions for high profile

GA-ASI Tests PT6 E-Series Engine from Pratt & Whitney on MQ-9B RPA

General Atomics Aeronautical Systems, Inc. (GA-ASI) tested a PT6 E-Series model turboprop engine from Pratt & Whitney Canada on GA-ASI's MQ-9B Remotely Piloted Aircraft (RPA). Multiple full-power engine tests were performed at GA-ASI's Desert Horizon flight operations facility in El Mirage, California.

"We've enjoyed a long-term relationship with Pratt & Whitney," said GA-ASI President David R. Alexander. "Integrating their PT6 E-Series engine onto our MQ-9B SkyGuardian® aircraft offers an alternate option for future customers that includes a 33 percent increase in power, dual channel electronic propeller and engine control system, as well as all the benefits of the PT6 engine family.»

The PT6 E-Series is a reliable and versatile turboprop engine family that will deliver the performance characteristics required as GA-ASI continues its development of MQ-9B capabilities.

"Our PT6 E-series is the ideal engine for this mission and we look forward to working with General Atomics on this important program," said Jill Albertelli, president of Pratt & Whitney Military Engines.

MQ-9B represents the next generation of RPA system having demonstrated airborne endurance of more than 40 hours in certain configurations, automatic takeoffs and landings under SATCOM-only control, as well as a GA-ASI developed Detect and Avoid system. Its development is the result of a company-funded effort to deliver an RPA that can meet the stringent airworthiness certification requirements of various military and civil authorities.

GA-ASI has enjoyed a long-term collaboration with Pratt & Whitney for over a decade with their turbofan engine for GA-ASI's MQ-20 Avenger RPA.

Raytheon Technologies venture capital group invests in VerdeGo Aero

Raytheon Technologies' corporate venture capital group, RTX Ventures, signed an agreement to invest in VerdeGo Aero to accelerate the development of hybrid-electric propulsion technologies for advanced air mobility applications. This investment will also provide opportunities for VerdeGo Aero to collaborate with Pratt & Whitney on future product development.

Established in 2017, the Daytona Beach, Fla.-based company specializes in delivering powerplants that efficiently convert jet fuel or sustainable aviation fuel into electric power, enabling greater performance and mission capability for a wide range of electric aircraft segments including drones, electric vertical-take-off-and landing (eVTOL), short-take-off-and-landing (STOL) aircraft, regional aircraft, and high-speed VTOL airframes. VerdeGo Aero's current hybrid powertrain programs range from 150kW up to multiple megawatts of continuous electrical output.

"Delivering sustainable aviation technologies to help our customers bend the emissions curve remains one of Raytheon Technologies' most important priorities," said Daniel Ateya, managing director of RTX Ventures. "Our investment represents one of the ways we're working to deliver a more sustainable future."

RTX Ventures is the lead investor in VerdeGo Aero's $12 million Series A funding round, which will support VerdeGo Aero›s expansion and development of its growing portfolio of hybrid-electric powertrain systems, including the VH-3 185kW powerplant. Other investors participating in the funding round include DiamondStream Partners, Avfuel Technology Initiatives Corporation, Seyer Industries, and Standish Spring Investments.

"VerdeGo Aero is excited about the opportunity to continue to develop technologies that convert aircraft engines into hybrid powerplants, and to expand our portfolio offerings and customer base," said Eric Bartsch, CEO of VerdeGo Aero. "As VerdeGo continues its recruiting of technical and commercial aerospace experts, our growing team is looking forward to leveraging a strong relationship with Pratt & Whitney to address the needs of the hybrid-electric aircraft segment at multiple power levels."

VerdeGo Aero is currently developing its third generation of full-scale hybrid-electric powerplant hardware, having already delivered pre-production powerplants for flight test operations. Employing a high-speed development culture, the company is significantly expanding its team of industry-leading electric propulsion experts, creating numerous opportunities for engineering, marketing, finance, and project management professionals working among a world-class team of innovators.

"VerdeGo Aero is helping to pioneer the emerging field of hybrid-electric propulsion technology, which has an important role to play in enabling the aviation industry's goal of reaching net zero CO2 emissions by 2050,» said Graham Webb, chief sustainability officer at Pratt & Whitney. «This investment has promising potential to enhance our technology and capability in segments of our small engine business while moving quickly and nimbly to advance our hybrid-electric propulsion strategy.»

Skyports secures USD 3.13M in investment from Singapore heavyweight in the final close of Series B

Skyports has completed the final close of its Series B capital raise with fresh investment from ST Engineering through its Corporate Venture Capital unit, ST Engineering Ventures.

ST Engineering, which has over 45 years of experience in the aerospace industry, will join as the final investor in Skyports' Series B funding round, following the first close in March this year. The addition of the Singapore heavyweight to Skyports' roster of investors brings the total funding to USD $26.13 million. The heavily oversubscribed Series B round highlights confidence in Skyports' offering and industry direction.

ST Engineering's investment in Skyports builds on a history of strong collaboration between the two companies in Singapore. Since early 2021, Skyports has worked closely with ST Engineering to jointly operate reservoir monitoring and inspection drone services for Singapore's Public Utilities Board (PUB). The collaboration brings together Skyports' expert flight operations capabilities and ST Engineering's drone system solution, DroNet, to implement autonomous Beyond Visual Line of Sight (BVLOS) flights across the city-state's network of reservoirs. Expanding on the partnership, Skyports, ST Engineering and Sumitomo Corporation formed a consortium in early 2022 to provide unmanned aircraft services for ship-to-shore parcel delivery in Singapore.

Duncan Walker, CEO of Skyports, said: "The Asian market is a critical area of growth for AAM, and one we are committed to cultivating. Investment from Kanematsu Corporation, and now ST Engineering, demonstrates that our confidence in and focus on this market is well-founded and supported by industry leaders from across the region. ST Engineering has been a strong partner of ours for some time now and we are honoured to develop that relationship further with the company joining Skyports as an investor. We look forward to bringing our expertise together to expand our capabilities."

Soo Soon Teong, VP & Head of Unmanned Air Systems at ST Engineering, said: "Our investment in Skyports stems from our confidence in the future of Advanced Air Mobility, and the expertise that Skyports has and continues to grow in building towards that future. With even stronger ties now between ST Engineering and Skyports, we will accelerate efforts in marrying our complementary strengths in Advanced Air Mobility and advanced the DroNet solution globally."

DarkPulse, Inc. Enters Into Agreements to Increase Equity Stake to 100% of Drone Based A.I. Companies

DarkPulse, Inc., a technology company focused on the manufacture, sale, installation, and monitoring of laser sensing systems based on its patented BOTDA dark-pulse sensor technology (the "DarkPulse Technology") which provides a data stream of critical metrics for assessing the health and security of infrastructure, today announced it has entered into agreements to increase its equity ownership to 100% in both Remote Intelligence, Limited Liability Company and Wildlife Specialists, LLC, which, when closed, will make both firms wholly owned subsidiaries of the Company. Together, both companies offer fully integrated, drone-based, geo-rectified, 3D modeled mapping for industrial applications specializing in the energy and environmental survey service. Initially specializing in the Oil & Gas industry, the companies will expand offerings into the home drone delivery markets.

Remote Intelligence provides premier unmanned aerial services as part of their holistic intelligence consultation and solutions. Remote's focus is aerial drone systems offering rapid comprehensive site mapping and aerial inspection services. They specialize in fully integrated, geo-rectified, 3D-modeled mapping for industrial applications in the energy and environmental industries. Remote also provides aerial survey, video inspection services, emergency support services, wildlife and habitat surveys, and comprehensive system design, training, and sales for both the commercial and private sectors. Integrating the latest tech solutions including artificial intelligence, Remote Intelligence is globally connected with a base of operations in Pennsylvania.

"We are excited to work more closely with both Remote and Wildlife as wholly owned subsidiaries of DarkPulse as the Company begins the launch of DarkPulse Aero Services through a new website "DarkPulse.Aero"," said DarkPulse CEO, Dennis O'Leary. Mr. O'Leary continued, "We are looking for additional acquisition opportunities in the Aerospace sector as we continue to build a presence within the drone market with expansion to include home drone delivery services. The Company is also developing a ruggedized version of its patented BOTDA sensor systems to be utilized in both Aerospace and Aviation applications."

Archer Receives $10 million Pre-Delivery Payment from United Airlines for 100 eVTOL Aircraft; Advances Path to Commercialization

Archer Aviation announced that it has received a $10 million pre-delivery payment from United Airlines for 100 of the company's initial production eVTOL aircraft. The payment represents a watershed moment for the eVTOL industry, validating confidence in the commercialization of eVTOL aircraft and Archer's leadership. United is making the deposit on 100 of Archer's production aircraft which it agreed to purchase in 2021.

Archer recently completed its production aircraft's Preliminary Design Review (PDR) and is now advancing to the next stage of its development and commercialization efforts. The PDR is a meticulous review of the aircraft design to ensure the program is on track and the design is mature enough to proceed to the next development phase and kick-off of production of long lead time hardware. The PDR lays out all aspects of the aircraft's specifications and manufacturing requirements, necessary pre-conditions for determinations that the design is feasible for regulatory compliance and viable to bring to market. United's decision to place a deposit for 100 of Archer's eVTOL aircraft signals its desire to be one of the first airline operators in the U.S. to bring eVTOL aircraft to market.

The pre-delivery cash deposit continues a trend of strong support by the airline throughout development of its aircraft. Recently, United formed a Joint eVTOL Advisory Committee with Archer, allowing the parties to work more closely on eVTOL maintenance and operational matters. Committee members include Archer's operations and maintenance leadership, as well as leadership from United's maintenance, materials, and engineering groups.

"I am incredibly proud of the entire Archer team as we reach this milestone in our partnership with United Airlines. To receive a cash deposit is validation of Archer's achievements to date, not only with flight testing and product development, but also a great signal of confidence in our roadmap to commercialization," said Adam Goldstein, Archer's CEO. "We're thankful to United for their continued partnership as we usher in this new era in air travel."

"This announcement marks a new important phase in our relationship with Archer, and our commitment to eVTOL technology. We are witnessing an inflection point where consumers, businesses, and policymakers are all aligned to prioritize technology that reduces the impact of climate change," said Michael Leskinen, President of United Airlines Ventures. "United Airlines Ventures has invested in a diverse roster of companies working in support of our goal to reach carbon neutrality by 2050, without the use of traditional carbon offsets. We believe eVTOLs have the potential to both help achieve carbon-neutral travel and serve as an innovative new tool to change how United customers experience comfort, convenience, and efficiency during their commutes within cities across the globe."

Censys Technologies Raises More Than $8 Million in Series A Funding Round

Censys Technologies Corporation, a leading provider of remote sensing solutions, announces the closing of its Series A Funding Round goal for $8.3 million; a round that was oversubscribed and only expected to raise $8 million.

A trailblazer in the commercial Beyond Visual Line of Sight (BVLOS) Unmanned Aerial Systems (UAS) industry, Censys Technologies offers a one-of-a-kind remote sensing package to revolutionize the way aerial information is collected for infrastructure, agriculture, public safety and more.

These new funds will be used to help Censys transition from a drone company to an airborne intelligence company. It will bring together the world's best software and hardware solutions bringing the world closer to omniscience of assets. The Series A funds will also allow for more flexibility in how customers can buy from Censys, enabling a powerful subscription model for customers to focus on useful information specific to their business.

"This Series A takes us a big step closer to bringing a wiser world into existence," said Censys Technologies CEO and Co-Founder Trevor Perrott. "It all ties back to our mission of enriching lives through technology because we believe the cornerstone of value creation is knowing the quantity, quality, location and history of its assets. Once you know that, it is easier to understand and envision how to employ those assets to create value."

The Series A funding round was led by Kirenaga Partners, an early-stage venture capital firm focused high-growth potential, post-validated, pre-commercial, technology-enabled companies in the AgTech, AI, Advanced Materials, CleanTech, Photonics, Robotics and Space verticals.

"After leading Censys' seed round, Kirenaga is thrilled to lead their Series A funding," said David Scalzo, Kirenaga Partners Founder and Managing Partner. "This new round will help expand their manufacturing capacity and continue their advancements in imaging, data processing and machine learning. In the rapidly growing drone and imaging marketplace, Censys continues to be one of the industry leaders."

Another major investor was Collective Capital Ventures, a self-directed venture capital firm providing investors with the foundation to build a strong portfolio of high-growth technology companies. Clay Corman, Managing Partner at Collective Capital, says the company is very excited to partner with Censys, as its hardware/software combination is proving to be disruptive in the beyond visual line of sight market.

"We are very bullish on the direction of Censys," said Corman. "Trevor has assembled a smart and motivated team who are customer-centric with everything they do, and we are eager to see what they can accomplish."

This Series A funding round will also help Censys complete its Type Certification, which will allow its drones to fly over buildings and roadways without special permissions.

Teledyne FLIR Announces the Neutrino LC CZ 15-300 Demonstrating Rapid MWIR Integration Capability

Teledyne FLIR announced the release of the Neutrino LC CZ 15-300, the latest Neutrino IS series model of mid-wavelength infrared (MWIR) camera modules with integrated continuous zoom (CZ) lenses. Designed for integrated solutions requiring crisp, long range, SD or HD MWIR imaging, the ITAR-free Neutrino IS series offers size, weight, power, and cost (SWaP+C) benefits to original equipment manufacturers (OEM) and system integrators for airborne, unmanned, C-UAS, security, ISR, and targeting applications.

"The Neutrino IS series portfolio and our ability to combine our off-the-shelf MWIR cameras and lenses provide integrators faster time to market, superior performance, and lower cost," said Dan Walker, vice president of product management, Teledyne FLIR. "This model launch demonstrates our rapid integration capability from a single supplier, taking what once required multiple suppliers and more than two years to complete."

Based on Teledyne FLIR HOT FPA technology, the Neutrino LC CZ 15-300 offers high performance, 640x512 HD MWIR imagery and 15 mm to 300 mm CZ capability for ruggedized products requiring long life, low power consumption, and quiet, low vibration operation. The long-life FL-100 linear cryocooler drives reliable operation and an industry-leading two-year warranty, further reducing integration risk and cost of ownership.

All Neutrino IS products include a Teledyne FLIR CZ lens integrated with a Neutrino SWaP Series camera module (VGA or SXGA). The camera module and lens are designed for each other, providing optimal performance not achievable when buying and integrating cameras and lenses from multiple sources. Teledyne FLIR also provides highly-qualified technical services teams for integration support and expertise throughout the development and design cycle.

All Neutrino series are classified under US Department of Commerce jurisdiction as EAR 6A003.b.4. and are not subject to International Traffic in Arms Regulations (ITAR). To learn more about the entire Neutrino family visit www.teledyneflir.com/neutrino.

TÜV Rheinland certifies world's first unmanned aircraft system under new EU drone regulation

TÜV Rheinland has granted the world's first certification for a drone in accordance with the new EU regulation for civil unmanned aircraft systems (UAS). Experts from the international testing service provider comprehensively tested the Mavic 3 system from manufacturer DJI for compliance with the drone class C1 requirements of the new regulation (EU) 2019/945. The scope of the so-called EU type examination in the laboratories of TÜV Rheinland included features such as mechanical strength, safe controllability in a wide range of flight and operating conditions, and compliance with the sound power level and thus the volume on the device of a maximum of 83 decibels. To be certified, Class C1 systems must also have, among other things, a remote identification system and a reliable data link as well as a data interface for a geo-awareness system to comply with airspace limitations.

"TÜV Rheinland is an official Notified Body allowed to certify unmanned aircraft systems for classification according to the requirements of the new regulation which makes things easier for manufacturers and pilots," says Stephan Scheuer, Head of the Technical Competence Center of Unmanned Aircraft Systems (UAS) at TÜV Rheinland. "For TÜV Rheinland, this certification is also special because it is the first time in our 150-year history that we have certified an aircraft for its flight safety characteristics."

Certification as an advantage when flying in open category A1

The C1 designation associated with the certification means DJI's Mavic 3 series UAS can now fly in the open A1 category. Previously, drones of this design could only be operated there with an official permit to fly for most flight maneuvers. Sub category A1, as defined in the EU regulation for drone operation, covers environments in which the aircraft never overflies assemblies of people. Another advantage is that pilots of certified C1 drones do not need to hold a certificate of remote pilot competency to fly in sub category A1, nor do they have to maintain a minimum horizontal distance of 50 meters from people, as actually is required without a C1 classification. The certification also applies to previously purchased Mavic 3 series UAS if users have updated the firmware required for C1 certification and request appropriate marking from the manufacturer, which is confirmed upon completion.

The EU regulation divides UAS into classes C0 to C6. Class C1 devices have to weigh below 900 grams and are popular for professional use – for example, photography and filming. TÜV Rheinland is accredited by the German Accreditation Body (DAKKs) for all seven classes of drones and is thus qualified to carry out the

Sentera Announces Increased Availability of 6X Sensors

Sentera, the industry leading real-time ag analytics platform powered by machine learning announced increased availability of its 6X sensors, which captures high-resolution imagery with eight channels of image data, to meet demand caused by supply chain issues.

"Supply chain challenges have drastically impacted the sensor market for agriculture, and we're excited to continue to deliver our 6X sensors to our customers for the coming season," said Ryan Nelson, chief mechanical engineer, Sentera. "With both multispectral and thermal options available, our 6X sensor has transformed data collection for researchers since its launch in 2019."

The Sentera 6X Multispectral sensor provides science-grade multispectral imagery with high radiometric accuracy, delivering fast-rate performance for quicker data capture and post-processing analysis. The 6X Thermal sensor extends optics with pixel-level temperature measurement, adding a radiometric lens.

Compatible with DJI Inspire and Matrice series, once drone pilots capture high-resolution imagery with the 6X sensors, Sentera's proprietary machine learning platform transforms it into deep analytics that are then used to validate performance and outcomes.

Key analytics generated by imagery captured by the 6X sensor include:

- Stand Count to provide insight into crop emergence and uniformity
- Crop Health to quantity the effects of products and treatments
- Canopy Cover to showcase the fraction and uniformity of green vegetation
- Flowering to monitor flowering development throughout the entire season to characterize crop growth stage, development, and maturity
- Residue Cover to showcase the extent and fraction of residue covering bare soil prior to crop planting or following harvest

"For key crops, including corn, soybean, cotton, and canola, our 6X sensors provide our customers with the industry's most accurate and timely analytics," continued Nelson. "As a result, they can validate outcomes and make the critical decisions they need to support plot trials and other product development priorities."

Flex Force's latest Dronebuster hand-held counter drone device features satellite navigationv

Flex Force Enterprises has launched a new Dronebuster SNA hand-held drone countermeasure. The Dronebuster SNA provides a satellite navigation attack feature used in lieu of, or in combination with, existing full spectrum jamming already available in the Dronebuster. The size, weight and ease-of-use of the system was also focus of the design team, with existing Dronebuster controls maintained while hardening the housing. The new system is both programmable and interfaceable with other C-UAS sensors, says the company press release.

Since delivering its first Dronebuster over five years ago, Flex Force reports ongoing design improvements to the Dronebuster to improve performance. Flex Force has continued to work with end-users to understand requirements and release product capabilities that increase performance and reliability while maintaining ease-of-use. The Dronebuster has sold over 1200 systems around the world. Flex Force Chief Engineer George Schwartz noted, "Adding this navigation attack capability while maintaining the jamming performance was a remarkable achievement by our engineering team. This new Dronebuster SNA provides significantly improved capability while shrinking the size & weight of an already market-leading system." The Dronebuster is marketed for authorised US Government and International Government users only. Flex Force will have the Dronebuster SNA at the upcoming Counter UAS Summit in Alexandria, VA 17-18 August 2022 and EW LIVE 22 event in Estonia in September

DJI Unveils DJI Avata, the Ultimate Immersive Drone Experience

DJI introduces DJI Avata, a transformational new drone that offers an unparalleled experience of immersive flight. DJI Avata creates a new paradigm for first-person view (FPV) drone flight, allowing every pilot to race through the skies and feel its astonishing performance, agility, and easy control. Coupled with the new DJI Goggles 2 and the intuitive DJI Motion Controller, DJI Avata delivers a flight experience that was unimaginable until now.

"DJI Avata was built to awaken a desire to fly in everyone, with immersive flight technology that allows anyone to explore the almost out-of-body experience of FPV flight," said Ferdinand Wolf, Creative Director at DJI. "DJI Avata is breathtaking to fly for even a novice pilot, and includes enhanced safety features that give anyone the freedom to try creative aerial moves. Paired with the DJI Goggles 2[1] and the DJI Motion Controller, DJI Avata seems to ride with the wind. Whether you fly for the fun of it, to make great clips for social media, or to dazzle viewers in the production studio, DJI Avata will show you why its engrossing flight experience pulls you into a new world of soaring possibilities."

DJI Avata opens new creative directions for beginners and professionals alike. Its unique and compact design strips down

the chassis of a traditional drone into a body built for speed and agility, weighing only 410 grams while still integrating aerodynamic propeller guards for added safety. Its powerful stabilized camera, featuring a 1/1.7" CMOS sensor with 48 million effective pixels, delivers premium imaging features like 4K/60fps and 2.7K/50/60/100/120fps[2] video, giving creators a scorching new tool for smoothly capturing premium video content. And with a flight time of up to 18 minutes, it can deliver a thrill ride full of power on every flight.

DJI Avata is designed to be paired with DJI Goggles 2 – DJI's newest flight control technology – and the DJI Motion Controller, which steers the drone according to the movement of your hand. Users can also control the drone with the existing DJI FPV Remote Controller 2 and the DJI FPV Goggles V2.

DJI's unequaled flight technology means DJI Avata can hover like a traditional drone, accelerate like a racer, zoom in and out of tight spaces, and stop in a fraction of a second. If DJI Avata is pushed beyond its limits and lands upside down, a new Turtle mode allows it to flip back up and take off again. Together, DJI Avata's flight control and stabilization technology make it the ultimate drone for fun, all while capturing vivid, professional-quality video:

DJI Goggles 2: High Resolution and Low-Latency Transmission

DJI Goggles 2 is a next-generation video headset that offers a smaller, lighter, and more comfortable fit, with a crystal-clear FPV image comparable to those from other DJI drones.[3] DJI Goggles 2 features a clearer Micro-OLED screen with adjustable diopters, so people who normally wear glasses do not need to use them with the goggles. When used with the DJI Motion Controller, you can control the aircraft and the gimbal camera freely to meet your shooting needs in various scenarios. An intuitive touch panel on the side of the goggles enables you to easily control its settings with only one hand.

DJI Avata and DJI Goggles 2 connect using DJI O3+ transmission, the most powerful and reliable technology for precise control, ultra-low latency, and detailed video at 1080p/100fps with H.265 decoding. It offers the lowest transmission delay of approximately 30 milliseconds, the longest transmission distance of 10 kilometers,[4] auto-switching dual frequencies, a high bitrate of 50 Mbps, and state-of-the-art anti-interference methods to ensure a reliable feed. DJI Goggles 2 also offers a Wireless Streaming function to view the live feed from your mobile phone or computer on the goggles screen, bringing you an immersive viewing experience.

DJI Motion Controller

The DJI Motion Controller is a completely reinvented flight control device that allows the pilot to precisely fly complex maneuvers based on the natural motions of one hand. The system is so intuitive that even complete beginners can get started quickly and learn to fly in continuous fluid motions, even when swooping close to the ground, whizzing past obstacles, and gliding through tight enclosures into open spaces.

Upgraded 4K Imaging System With Super Stabilization

DJI Avata has an outstanding imaging system that outstrips that on any FPV racer – a 1/1.7-inch 48MP Photo CMOS sensor with f/2.8 aperture, and an ultra-wide-angle lens with a viewing angle of up to 155°. The wider field of view enables immersive aerial photography and videography at up to 4k/60fps, as well as slow-motion footage at 2.7K/100fps. Equipped with D-Cinelike color mode, DJI Avata allows a broad color palette that enables detailed chromatic adjustments to your works.

Even during high-pressure aerial maneuvers, DJI Avata keeps your video sharp and stable with two flagship stabilization technologies. DJI RockSteady eliminates overall picture shake, and DJI HorizonSteady keeps the picture oriented toward true level. All that data flows to 20 GB of internal storage space, allowing extra freedom and spontaneity when the opportunity for a creative shot arises, even without a microSD card installed in the onboard drive.

Fly Safe With Confidence DJI Avata's built-in propeller guards make the fuselage more durable and greatly reduce the probability of risk, allowing you to fly more confidently with a craft that can withstand minor collisions and even right itself after a flip in Turtle mode.

When DJI Avata is in the air, pilots can rely on a suite of safety features that make flying a memorable and safe experience. A dedicated Emergency Brake and Hover feature is available in all flying modes, stopping the drone and hovering in place at any time during the flight. Failsafe Return to Home brings the drone back to its home point automatically with a press of a button, or in the event that transmission is lost or the battery reaches a critically low level.

Even at its small size, DJI Avata includes the industry-leading safety technology that DJI pioneered

and has kept the world's skies safe in the drone era. DJI Avata uses DJI's GEO 2.0 geofencing system to advise pilots of airspace restrictions and potential hazards, and to automatically prevent drones from flying near certain high-risk locations, such as airports. DJI Avata also features DJI's AirSense ADS-B receiver system to warn drone pilots when airplanes or helicopters are nearby, and broadcasts DJI's AeroScope signal to help authorities monitor airborne drones in sensitive locations. The overwhelming majority of drone pilots fly safely and responsibly, and DJI Avata's high-speed performance can warrant extra attention and care from drone pilots to be aware of their surroundings. Drone pilots flying with FPV goggles should pair with a visual observer to act as a spotter, and many jurisdictions require a visual observer to watch for airspace hazards. Always fly safely and responsibly, and be sure to understand and follow the legal requirements for flight.

DJI Avata is equipped with both an Infrared Sensing System and a two-camera Downward Vision System. They help the aircraft maintain its current position, hover more precisely, fly indoors or in other environments where satellite navigation is unavailable, and identify areas such as bodies of water that are not suitable for landing. To remain oriented during flight while wearing goggles, DJI Avata and DJI Goggles 2 also display the Home Point where the drone took off from. This Augmented Reality (AR) perspective gives an extra sense of orientation to help the pilot locate the immediate environment in seconds.

An Immersive Flight Experience for Every Skill Level

DJI Avata allows pilots from beginners to professionals to choose from multiple flight modes to match their skill level:

Normal (N) Mode: During N mode operation, DJI Avata operates similarly to other DJI drones, hovering in place with the use of satellite navigation and/or visual positioning systems (VPS) on the bottom of the drone.

Manual (M) Mode (only with the DJI FPV Remote Controller 2): Fly in M mode for complete, limitless control and the full FPV immersive flight experience. Experienced users can customize parameters and enjoy flight and footage unlike anything else.

Sport (S) Mode: A new hybrid blend of M and N mode, S mode offers some of the dynamic movement capabilities that come with M mode along with some of the key safety features of N mode. S mode is the middle step between the three modes and was developed to give pilots more room to explore their skills as they get accustomed to the drone.

Become an FPV Master With the DJI Virtual Flight App

DJI Avata is controlled with the DJI Fly app, which includes detailed tutorials on how to operate the drone. The DJI Virtual Flight App is a free simulator app that familiarizes new pilots with drone flying movements in an easy, fun and risk-free environment. The simulator allows pilots to fly DJI Avata in various settings using the dedicated controller.

Accessories to Boost Your Flight

An array of new DJI Avata accessories offers pilots extra technology to get the most out of every flight and make the most of their equipment: [5]

DJI Avata Intelligent Flight Battery

DJI Avata Battery Charging Hub

DJI Avata Propellers

DJI Avata Upper Frame

DJI Avata Propeller Guard

DJI Avata ND Filters Set (ND8/16/32)

DJI 65W Portable Charger

DJI 65W Car Charger

DJI Goggles Carry More Backpack

DJI Avata is the easiest to fly and most exciting FPV immersive flight experience drone for anyone who ever dreamed of flying like a bird. It gives creators a transformational tool to confidently capture the rapturous feeling of flight, indoors or out. With the birth of DJI Avata, anyone can experience the thrilling experience of moving through the world unbound.

Price and Availability

DJI Avata is available from store.dji.com and most authorized retail partners in several configurations. A standalone version of DJI Avata retails for $629 USD without a remote controller, motion controller, or goggles, which is ideal for those who already have a compatible model to control and view from the drone. The DJI Avata Pro-View Combo retails for $1388 USD and includes DJI Avata, DJI Goggles 2 and the DJI Motion Controller. The DJI Avata Fly Smart Combo retails for $1168 USD and includes DJI Avata, the DJI FPV Goggles V2 and the DJI Motion Controller. The DJI Avata Fly More Kit retails for $279 USD and includes two DJI Avata Intelligent Flight Batteries and one DJI Avata Battery Charging Hub.

For more information on all the new features, accessories, and capabilities, please visit www.dji.com/Avata

Volocopter Opens First Public VoloCity Exhibition in Asia

Volocopter, the pioneer of urban air mobility (UAM), announced that it has partnered with Singapore's Institute of Technical Education (ITE) to launch a VoloCity public exhibition including free guided tours in the Lion City. This is Volocopter's first exhibition to feature its commercial air taxi model in Asia, and the company's first-ever long-term exhibition to open its doors to the public anywhere in the world.

Located at Aerospace Hub, ITE College Central, the exhibition features a 3D VoloPort scale model and detailed information on both the UAM industry and Volocopter. Visitors will also have the chance to sit in the aircraft and get a sense of what this new form of transportation will be like.

Minister for Trade and Industry Mr Gan Kim Yong, and German Ambassador to Singapore Dr. Norbert Riedel, both attended the opening ceremony alongside other senior representatives from Singapore government agencies and Volocopter's partners.

Minister Gan Kim Yong said: "Singapore welcomes innovative companies like Volocopter which seek to build entirely new industries here. We are excited about the prospects of developing an Advanced Air Mobility (AAM) ecosystem in Singapore, and hope that through this exhibit, the public can learn more about this new form of urban mobility."

Dr. Norbert Riedel, German Ambassador to Singapore, said: "Singapore and Germany enjoy excellent bilateral relations and are important trade partners. We are pleased to see continued cooperation in various sectors, especially in emerging industries such as urban air mobility. We believe both countries stand to benefit from these deepened collaborations."

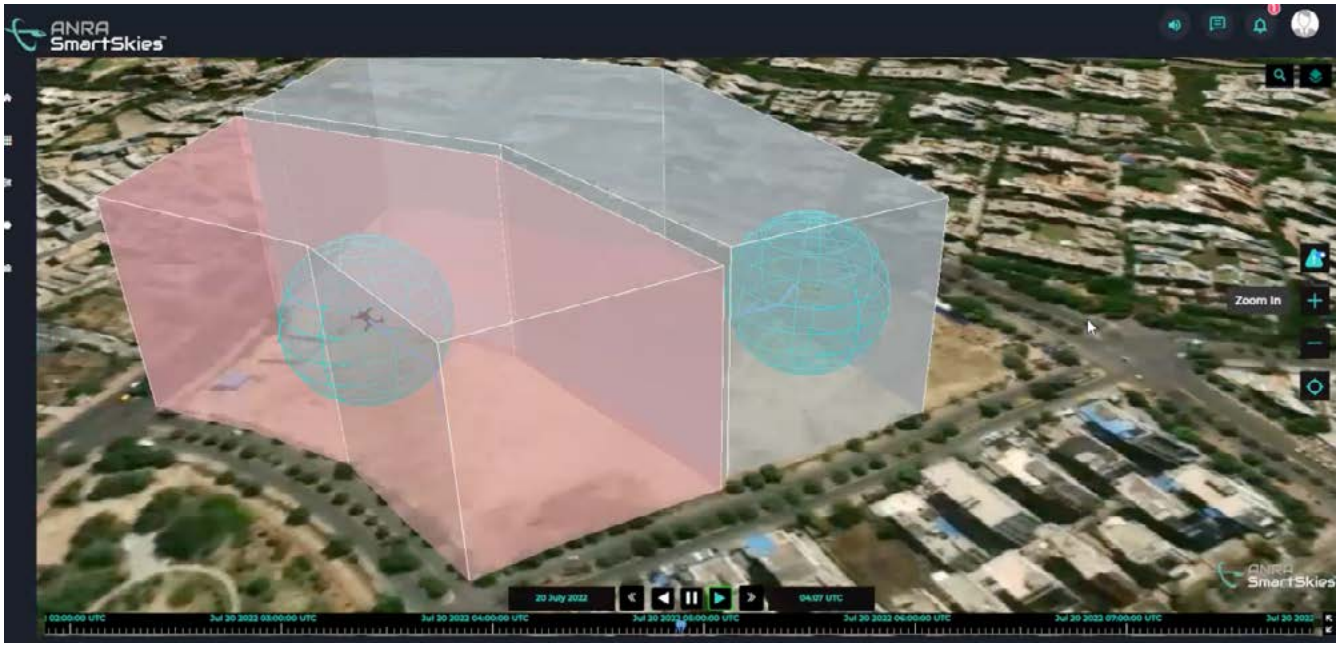
Singapore is one of the first launch cities for Volocopter. The German company conducted Asia's first crewed public test flight of an air taxi in a city centre over Singapore's iconic Marina Bay in 2019, and has been working very closely with the city. It is committed to launching the UAM services in Singapore in the next couple of years. It has recently released a dedicated roadmap that revealed its UAM services could generate an estimated SGD 4.18 billion in cumulative economic benefits and create up to 1,300 jobs in Singapore by 2030.

Christian Bauer, Chief Commercial Officer of Volocopter, said: "This is the perfect time to showcase our VoloCity in Singapore, as our latest local market survey showed a significant uptick in the proportion of respondents who are excited to try an air taxi service. We hope to increase public awareness and education on this new form of mobility and the many ways it will benefit Singapore.

We are partnering with local institutions and organizations as we build our UAM ecosystem. ITE is an ideal place to display our aircraft, as we hope to inspire the next generation of aviation talent to engage with the emerging UAM industry."

Low Khah Gek, Chief Executive Officer of ITE, said: "ITE is privileged to host the VoloCity's first Asian exhibition on our campus. It will boost our plans to equip students with the relevant skill sets and provide the industry know-how and exposure that will encourage applied learning. There is no better way to inspire a visionary approach to technology than having the cusp of it physically in the campus."

With its two seats and 18 rotors, the fully electric VoloCity is Volocopter's first commercial product and is currently working toward achieving certification from the European Union Aviation Safety Agency (EASA), with the aim of launching commercially in the next couple of years.



Drone Tracking – A new Milestone for ANRA Technologies and Indian Drone Manufacturers

ANRA Technologies, a leader in integrated airspace, mission management and delivery systems for uncrewed aircraft, along with participation from the ideaForge and Asteria Aerospace, demonstrated live tracking of drones in India's national airspace. The demonstrations showcased two options; a software plugin as well as a small strap-on hardware module showcasing the various approaches possible for a tracking solution. Equipped with these capabilities, drones manufactured by ideaForge, Asteria Aerospace and ANRA were connected using ANRA's SmartSkies Tracker Platform, enabling authorized users to view and track simultaneous drone operations happening in National Capital Region (NCR) and Bangalore.

As part of the demonstration, a drone manufactured and operated by Asteria Aerospace in Bangalore and another drone operated by ANRA in the NCR were integrated via the software plugin. A third drone manufactured and operated by IdeaForge was integrated using a strap-on hardware module, which showcased the diversity of integration options and a tracking solution.

Each of the drones were tracked in real-time with their locations and other associated flight details available on the SmartSkies Tracker App. Drone operators were able to turn the tracking option on or off and only authorised and privileged users were able to view the tracking information using the SmartSkies Tracker App.

"Today, we took another step forward for the Indian drone industry by demonstrating a tracking and Remote ID solution that addresses some of the key operational concerns for the government of India," stated Amit Ganjoo, Founder and CEO of ANRA Technologies. "Our Tracker platform is network-based so authorized users anywhere in India can view tracking any of the integrated drones."

"Testing various solutions for Remote ID in the real world is a key first step towards arriving at a Remote ID ecosystem that delivers its objectives to Drone OEMs, operators & regulators. Using the strap-on device, we were able to derive key insights, which can help Industry players recommend the right approach to building a Remote ID ecosystem within Indian unmanned airspace" said Ankit Mehta, the CEO & Co-founder of ideaForge.

Small drones are difficult to track using traditional methods such as radar and not every drone is connected using a solution that transmits its telemetry to a network that is subsequently shared. Using a software plugin at the drone's control station or strap-on hardware that electronically shares the drone's position and other associated details at regular intervals offers a new option and today's demonstration successfully proved this capability in two different cities.

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