UAS and SmallSat Weekly News

Contents

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

30Oct21

AgEagle Acquires senseFly Miriam McNabb October 28, 2021 DRONELIFE Staff Writer Ian M. Crosby

Industry leader AgEagle Aerial Systems Inc. and leading European drone group Parrot revealed in a joint announcement that they have signed an agreement under which AgEagle will acquire Parrot subsidiary senseFly in a cash and stock transaction valued at $23 million.

senseFly, founded in 2009, develops and produces a line of eBee-branded high performance fixed wing drones for professional use. These drones are used worldwide in fields such as agriculture, government, engineering, and construction to collect data intelligence. The Switzerland based company employs approximately 90 people, generating total annual revenues of approximately $12.5 million in 2020.

This is just the newest in a series of recent acquisitions by AgEagle, who acquired Measure back in April and MicaSense in January. https://dronelife.com/2021/10/28/ageagle-acquires-sensefly-launches-new-micasense-sensor/

Eve to Start Urban Air Mobility Ecosystem Evaluation Flights in Brazil Next Month Staff Writer | October 28, 2021

Embraer's electric vertical takeoff and landing subsidiary Eve Air Mobility will start operating an Urban Air Mobility simulation with six passenger-carrying flights a day from Barra da Tijuca to the Tom Jobim International Airport – RIOgaleão, according to an Oct. 26 announcement from the company.

The UAM simulation will use a helicopter with flights charged at a "more affordable cost than a conventional helicopter service," Eve said in an Oct. 26 press release. On-demand private aircraft flight provider Flapper has already started selling tickets for the UAM simulation, scheduled to begin on Nov. 8.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Eve is leading the simulation as part of a concept of operations that began in August in Rio De Janeiro and will collaborate with more than 50 specialists from 12 institutions. A key goal for the simulation is to identify the needs of users, the community and other stakeholders involved in the type of operation that Eve is pursuing with the eVTOL aircraft it is developing.

The decision by Eve to launch the helicopter-operated UAM simulation comes several weeks after Brazilian private jet operator Aviation Management Services – Serviços Aeronáuticos Ltda. (Avantto) signed a letter of intention (LOI) to order 100 of its eVTOL aircraft.

Vertiports provider Skyports will be involved in the simulation, along with National Civil Aviation Agency and the Department of Airspace Control that will each be monitoring the operation. Eve is developing an all-electric air taxi that it expects to be ready for entry-into-service by 2026. https://www.aviationtoday.com/2021/10/28/eve-start-urban-air-mobility-ecosystem-evaluation-flights-brazil-next-month/

Volocopter Eyes Air Taxi Operations in Italy Staff Writer | October 28, 2021

Volocopter is exhibiting a scaled version of its VoloCity eVTOL at Fiumicino Airport this week as part of a new partnership with Atlantia and Aeroporti di Roma that seeks to bring electric air taxi operations to Italy in the next 2-3 years.

German urban air mobility developer Volocopter has established a new partnership with the largest airport operator in Italy in an effort to start developing the infrastructure that will enable electric vertical takeoff and landing operations in Rome and other areas of the country, according to an Oct. 27 announcement from the two companies.

Under the new partnership, Rome has become one of the first cities in Europe to commit to establishing electric air taxi operations in the near future—following a commitment made last year by Paris to bring electric air taxis there in time for the 2024 Olympic Games. Together with the Italian authorities and regulators and with Atlantia's full support, Aeroporti di Roma and Volocopter will raise public awareness about UAM and bring it to Italy within the next 2-3 years. https://www.aviationtoday.com/2021/10/28/volocopter-eyes-air-taxi-operations-italy/

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

From pest to pal: FAA praises drones that help firefighters battle wildfires Bruce Crumley - Oct. 29th 2021

Amid the spate of giant blazes that burned over 6 million acres of land in the US this year alone, the flight of private UAVs in emergency zones have been repeatedly blamed for hampering efforts to extinguish the flames. Now the Federal Aviation Administration is also praising the ways drones have become a vital tool for firefighters battling wildfires.

The FAA outlined the drones-for-good contributions of authorized craft operating around wildfires in a pair of related releases. The first was the most recent of its regular *The Air Up There* podcasts titled "Drones Revolutionize Wildland Firefighting." The second was an article partially drawn from that by the FAA's Chris Troxell. Together, they describe how the official view of UAV operating around blazes went from trepidation and expectations of trouble, to increasing enthusiasm for using the craft to fight – and even prevent – fires in open areas.

It wasn't until 2015 that the US Forest Service began experimenting with the craft. "If you look at that 2015 timeframe and the platforms we (are) using now — increased endurance, better sensors, better integration into the airspace — it's an incredible tool to heighten the situational awareness of on-the-ground decision makers," Dirk Giles, the Forest Service's drone program manager, told Troxell.

His unit currently has 65 skilled pilots, and their ranks are expected to double in 2022. The FAA says those drones and hundreds also used by public safety bodies and firefighters across the US provide vital situational data and other information to combat blazes faster, and with reduced danger to humans involved.

The FAA also notes that drones have proven effective to firefighters in a counterintuitive manner: by igniting flames themselves. The Forest Service uses the craft to light backfires in the paths of approaching infernos, consuming grass, trees, and other fuel those would require to continue surging onward once they arrive. https://dronedj.com/2021/10/29/from-pest-to-pal-faa-praises-drones-that-help-firefighters-battle-wildfires/#more-70387

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Draganfly Completes Over 300 EMS Drone Delivery Test Flights in Texas October 29, 2021 News

Draganfly is currently in Phase 1 of its agreement with Coldchain Technology Services, LLC. In Spring Branch, Texas, the Company is working with emergency crews on the development and training of how to properly pilot drones and handle deliveries in emergency, medical and disaster response situations. The intake includes professional drone operators and former US Air Force personnel who have operational and piloting experience on multiple drone systems including the MQ-9 Reaper RPA.

Pilots and personnel are being taken through various scenarios while learning the drone techniques required to meet rigorous standards. Trained operators will support first responders by providing critical equipment, medical supplies and data during active emergency and disaster relief operations.

100 of Draganfly's successful daytime test flights were completed with its innovative temperature managed payload box, which can transport up to 15 pounds of medical supplies including vaccines and testing kits. The Draganfly payload box is uniquely top mounted to make deliveries safer and more accessible. Initial night flight training and testing is being scheduled. https://uasweekly.com/2021/10/29/draganfly-completes-over-300-ems-drone-delivery-test-flights-in-texas/?utm_source=rss&utm_medium=rss&utm_campaign=draganfly-completes-over-300-ems-drone-delivery-test-flights-in-texas&utm_term=2021-10-29

EU drones could drop life rafts to migrants in the Mediterranean Sea Sierra Mitchell Technology 29 October 2021 David Hambling

The European Maritime Safety Agency has contracted drone company Tekever to use uncrewed aircraft for search-and-rescue missions

A Tekever drone

Raft-dropping drones will soon be helping with rescues at sea. The European Maritime Safety Agency has awarded a €30 million contract for uncrewed aircraft to patrol European waters. The remotely piloted aircraft will deploy a new capability, an air-dropped rescue raft to carry up to eight people. It could be used to rescue migrants attempting to cross the Mediterranean Sea. Critics believe the drones may also be used to deter marine migration attempts. EMSA announced the four-year contract on 14 October with the REACT

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

consortium. https://newsakmi.com/news/science/eu-drones-could-drop-life-rafts-to-migrants-in-the-mediterranean-sea/

Vertical Aerospace & Ferrovial reach agreement to rollout electric flight infrastructure PRESS RELEASE PR Newswire Oct. 28, 2021

LONDON, Oct. 28, 2021 /PRNewswire/ -- Vertical Aerospace today announced an agreement with Ferrovial, a global infrastructure operator, to cooperate on creating a network of 25 vertiports across the UK.

Vertiports are dedicated sites that enable the take-off, landing and recharging of electric vertical take-off and landing aircraft. Vertiports are expected to be integrated with other modes of transport to offer efficient travel and increase connectivity to cities and regions across the UK. Vertical will now work with Ferrovial to locate and design a network of UK vertiports, which is expected to allow Vertical's piloted four passenger aircraft, the VA-X4, to operate from these sites for the proposed launch of its UK services with Virgin Atlantic.

By enabling inter-city electric aviation in the UK, the VA-X4 hopes to cut travel times and open up new links across the UK. Vertical's recent report: *The Future of Advanced Aerial Mobility* [**link**], explains how passengers arriving at Heathrow for example could take the VA-X4 to hop to Cambridge from the airport in just 28 minutes, compared with a 90-minute taxi or a two-hour train journey.

Ferrovial invests, develops and operates 33 airports around the world, including being a shareholder of Heathrow, Glasgow, Aberdeen and Southampton airports. Vertical also announced this week, that it is collaborating with Heathrow to explore the launch of its services from the airport from the mid-2020s. https://markets.businessinsider.com/news/stocks/vertical-aerospace-ferrovial-reach-agreement-to-rollout-electric-flight-infrastructure-1030909706

Vertical Aerospace, Heathrow explore airport eVTOL flights [Update] Bruce Crumley - Oct. 29th 2021 EVTOL HEATHROW AIRPORT AIR TAXIS VERTICAL AEROSPACE

The UK's leading electric vertical takeoff and landing (eVTOL) aircraft producer, Vertical Aerospace, has struck a deal with London's Heathrow Airport to examine integration and use of its craft at Europe's biggest passenger air platform.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

The agreement calls for Vertical to look into flying its Vertical's VA-X4 eVTOL vehicles to shuttle travelers between Heathrow and central London destinations. In addition to operational and safety procedures, the joint research will also anticipate regulatory modifications necessary to pilot the craft at the airport; estimate and fully exploit job creation opportunities involved; and interact with local communities to limit potential negative consequences of the new aerial services.

The Vertical VA-X4 eVTOL is designed to carry four passengers at top speeds of 202 mph. Driven by carbon-free battery power, the plane can fly over 100 miles on a single charge and produce just 45 decibels at cruising velocity – 100 times quieter than a helicopter, according to the company. Vertical says its eVTOL will make the London-Heathrow trip in about 12 minutes, around a quarter of the time – but about the same price – of a taxi on an average, traffic-snarled day. Vertical says it has booked pre-orders for 1,350 aircraft worth $5.4 billion.

October 30 Update. In the wake of its Heathrow partnership announcement, Vertical revealed it had received $200 million in new development funding from Mudrick Capital management.

A Vertical press release said that Mudrick, "a global investment firm, will invest $200 million in Vertical through convertible senior secured notes. In addition, Kouros SA, a firm specializing in investments to decarbonize transport and energy production, will invest $5 million in Vertical's PIPE alongside American Airlines, Avolon, Honeywell, Microsoft's M12 and Rolls-Royce." https://dronedj.com/2021/10/29/vertical-aerospace-heathrow-explore-airport-evtol-flights/#more-70413

31Oct21

Free online training course on public safety drone programs Ishveena Singh - Oct. 26th 2021

The National Fire Protection Association, a self-funded nonprofit organization, has released a free online training program to help more than 29,000 fire departments in the US improve existing public safety drone programs and establish new drone initiatives.

Today, fire departments across the nation are leveraging drones to support public safety preparedness efforts and supplement emergency response tactics. But as is the case with any

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

new technology, using drones sometimes presents unexpected challenges for both fire service drone program administrators and the fire personnel charged with operating such aerial technologies.

As such, this new NFPA online learning course is designed to provide recommendations and best practices that would enable fire departments to take their drone programs to a higher level. https://dronedj.com/2021/10/26/free-online-drone-training-public-safety/

1Nov21

Easy Aerial New Drone in a Box Solution: Ultra-Portable Easy Guard Vehicle

Miriam McNabb November 01, 2021 by DRONELIFE Staff Writer Ian M. Crosby

Today, drone-in-a-box solution provider Easy Aerial announced Easy Guard Vehicle (EGV), a new line of ultra-portable models of its trusted unmanned aerial vehicle ground stations.

Specifically designed for installation on mobile platforms, EGV improves upon Easy Aerial's MIL-STD-810G system, which currently sees use in a wide variety of applications across the world. Owing to its compact size and lightweight, EGV's UAVs can quickly mobilize, deploy and land from any vehicle type traveling up to 25 miles per hour, on or off-road. Available in three sizes, each system can be integrated with manned, unmanned and optionally manned systems and are all remotely deployable from any location.

Like previous Easy Guard models, EGV can be configured with a tethered, free flight or optionally tethered UAV, enabling optimization for a variety of payload options. EGV models implement topside doors that deploy a separate landing pad when opened, unfolding to extend beyond the box's footprint. This allows the system to operate a larger UAV with improved safety margins on uneven terrain and on the move. Encrypted data links and non-GPS dependent landing capabilities guarantee the systems can operate in hostile environments. Each of the three systems feature either a 110/220v AC or 18-36v DC (MLD-STD-1275 compatible) power supply option for operating and charging the UAV.
https://dronelife.com/2021/11/01/easy-aerial-new-drone-in-a-box-solution-ultra-portable-easy-guard-vehicle/

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Space company Terran Orbital to go public via SPAC at $1.8 billion valuation OCT 29 20211 Michael Sheetz@THESHEETZTWEETZ

Small satellite builder and operator Terran Orbital is preparing to go public, making it the latest in a flurry of space companies to announce a SPAC merger this year.

Terran is merging with special purpose acquisition company Tailwind Two Acquisition Corp., a SPAC which trades under the ticker TWNT. The deal gives Terran a $1.8 billion equity valuation and is expected to close in the first quarter of 2022, resulting in Terran listing on the New York Stock Exchange under ticker LLAP. Shares of Tailwind Two rose 1% in trading from its previous close of $9.89.

"Terran Orbital is the largest independently-owned manufacturer of small satellites in the United States," Terran Orbital co-founder and CEO Marc Bell said in a statement. "With our high volume, innovative manufacturing of small satellites, we will be able to deliver emerging technologies to space faster, more affordably and with greater reliability than anyone."

Headquartered in Boca Raton, Florida, the company last month announced plans to develop a 660,000 square foot manufacturing facility near Cape Canaveral, Florida. Terran says the facility will cost $300 million to build and will be able to produce over 1,000 spacecraft per year once operational.

The deal is expected to add about $330 million in cash for Terran's growth, with funds coming through those raised by Tailwind Two as well as a $50 million PIPE round – or private investment in public equity – which included investors AE Industrial Partners, Beach Point Capital and Lockheed Martin.

Terran also plans to build its own system of earth imagery satellites, with 96 spacecraft in orbit. The company plans to launch the first two of its satellites next year and have the full constellation in orbit by 2026. https://www.cnbc.com/2021/10/29/terran-orbital-going-public-via-spac-at-1point8-billion-valuation.html

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Can communication-linked UAVs become AUVs' Base Stations? Bruce Crumley - Nov. 1st 2021

Researchers in Japan are testing whether the deployment of autonomous underwater vehicles for research can be significantly enhanced by pairing them with communication-linked Unmanned Air Vehicles (UAV) hovering overhead to relay data to human monitors on the ground.

Experts at the University of Tokyo Institute of Industrial Science have conducted tests using aerial drones to track submerged Autonomous Underwater Vehicles (AUV) as they operate and replacing the floating vessels that usually act as their base stations collecting or relaying information feeds. Those surface level craft tend to move slowly in monitoring the position and data collection of submarine drones, and are at times swept astray by waves or other sea disturbances. As a possible option to those, the researchers tried using hovering Unmanned Aerial Vehicles as aerial trackers, and found the craft to be efficient, fast, and stable communication options.

In their study published last month, the scientists detailed the use of drones to follow AUVs as they gather information for ocean and seafloor research. Due to the weakened transmission power and shorter travel distances of radio signals underwater, accompaniment of a second craft in relative proximity is necessary to maintain a AUV's absolute position and enable real-time collection and relaying of the data it sends.

The recent tests determined that UAVs hovering above the submarines provide similar communications capacities as surface-floating vessels, but with far greater speed, stability, and agility capacities. https://dronedj.com/2021/11/01/can-communication-linked-uavs-become-auvs-bffs/

Plug Power and HevenDrones Announce Joint Development Alliance November 1, 2021 News

HevenDrones, a leader in the development and commercialization of drone platforms with heavy-lift capabilities today announced a bi-lateral alliance with Plug Power (NASDAQ: PLUG), a leading provider of hydrogen engines and fueling solutions enabling e-mobility. HevenDrones designs its own proprietary operating

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

systems and is the exclusive company selected by the Israeli Ministry of Defense to develop a customized fleet of hydrogen fueled drones.

Plug Power and HevenDrones plan to cooperate on the commercialization of hydrogen fuel cell powered heavy-lift drones and related support equipment and infrastructure. Together, the companies plan to provide an integrated solution to power and refuel HevenDrones' next generation fleet with the key objective of providing extended flight times and range.

Bringing together HevenDrones capabilities in developing and manufacturing heavy lift drones with Plug Power's fuel cell stack technology and systems capabilities, the companies aim to develop hydrogen-powered drones of varying sizes capable of lifting heavy weights and flying for extended periods of time. HevenDrones' proprietary stabilizing technology provides the capability to lift and move heavy, unbalanced and kinetic loads with applications across a variety of industries and markets. https://uasweekly.com/2021/11/01/plug-power-and-hevendrones-announce-joint-development-alliance/?utm_source=rss&utm_medium=rss&utm_campaign=plug-power-and-hevendrones-announce-joint-development-alliance&utm_term=2021-11-01

2Nov21

Dedrone Empowers Ninth U.S. Federal Agency with Drone Detection & Mitigation October 31, 2021 Counter UAS

Dedrone announced today the company added their ninth U.S. federal customer, with three new federal agencies joining in September 2021. Dedrone's smart airspace security protects physical assets, people, and information from small unmanned aerial system (sUAS), attacks and intelligence gathering.

Dedrone is deployed by U.S. government agencies both within the continental U.S. and abroad, providing detection, tracking, identification, and mitigation of sUAS. Dedrone's C2 platform, DedroneTracker is built on an Open Systems Architecture, allowing integration with any third-party sensor, stovepipe CsUAS capability, mitigation solution, and common Department of Defense C2 systems.

Enabling a layered approach, Dedrone fuses sensor data including radio frequency, camera, acoustics, and radar, leveraging AI/ML capabilities and its proprietary sUAS database, DedroneDNA, to detect and track drones while eliminating false positives.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

In September 2020, Dedrone announced a strategic partnership with General Dynamics Mission Systems with the objective of equipping the U.S. Department of Defense with drone detection and mitigation solutions. In 2021, Dedrone and General Dynamics Mission Systems released the Counter-Unmanned Aerial System Expeditionary Kit, allowing users to rapidly set up CsUAS detection to assess drone threats within an Area of Responsibility in less than thirty minutes with no tools required. https://uasweekly.com/2021/10/31/dedrone-empowers-ninth-u-s-federal-agency-with-drone-detection-mitigation-technology/?utm_source=rss&utm_medium=rss&utm_campaign=dedrone-empowers-ninth-u-s-federal-agency-with-drone-detection-mitigation-technology&utm_term=2021-11-01

senseFly Named to Blue sUAS 2.0 List of Drone Suppliers by U.S. Defense Innovation Unit October 31, 2021 News

AgEagle Aerial Systems Inc today announced that its wholly owned subsidiary, senseFly, has been named to the Blue sUAS 2.0 list published by the U.S. Department of Defense's Defense Innovation Unit (DIU) earlier this month.

The project follows the successful partnership between the U.S. Army and DIU on the Short-Range Reconnaissance (SRR) program for small unmanned aircraft systems which started in 2019. DIU's project followed the SRR program in August 2020 and made minor modifications to five final candidate air vehicles and built commercially based ground control stations to create a standalone commercial configuration available to the Department of Defense as well as other U.S. government agencies.

The 2.0 project was subsequently created to increase the diversity, capability, and affordability of UAS on DIU's "Blue UAS Cleared List," bringing a greater variety of UAS with a wide range of modalities, capabilities, and price points. A secondary part of the project involves: 1) an effort to define a common standard across the DoD for UAS vendor onboarding; 2) the means to communicate that standard; and 3) a uniform process to assist authorized vendors in the procurement process. In March 2021, DIU sought proposals from UAS vendors and ieceived more than 100 responses. From this group, senseFly, along with ten other companies, were selected to participate in the Blue sUAS 2.0 program to prototype a new approval process, significantly increasing the variety of UAS capabilities available to all branches of the U.S. military. https://uasweekly.com/2021/10/31/sensefly-an-ageagle-company-named-to-blue-suas-2-0-

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

list-of-drone-suppliers-by-the-u-s-defense-innovation-unit/?utm_source=rss&utm_medium=rss&utm_campaign=sensefly-an-ageagle-company-named-to-blue-suas-2-0-list-of-drone-suppliers-by-the-u-s-defense-innovation-unit&utm_term=2021-11-01

Two General Atomics MQ-20 Avengers fly collaborative unmanned aircraft teaming experiments during Edwards Air Force Base's Orange Flag 21-3. Image: General Atomics

US Air Force Tests Skyborg Drone-Teaming Flight INDER SINGH BISHT NOVEMBER 2, 2021

Two General Atomics MQ-20 Avengers fly collaborative unmanned aircraft teaming experiments

The US Air Force tested two Skyborg autonomy core system-equipped drones flying in tandem last month.

The multi-hour test flight came after a Skyborg-equipped unmanned aerial vehicle conducted its maiden flight in April. The flight was the first stage of the USAF Research Laboratory's Low-Cost Attritable Aircraft Technology project to develop cheaper unmanned alternatives to manned aircraft.

In the second phase of the test flight, two General Atomics MQ-20 Avenger UAVs demonstrated in-flight communication between each other and "responded to navigational commands, stayed within specified geo-fences, and maintained flight envelopes," while monitored from the ground command and control station.

Future tests will explore manned aircraft teaming with multiple autonomy core system-equipped unmanned aircraft. https://www.thedefensepost.com/2021/11/02/skyborg-drone-teaming-flight/

Northrop Receives $109M Contract Modification to Continue South Korea UAS Support NICHOLS MARTIN NOVEMBER 1, 2021

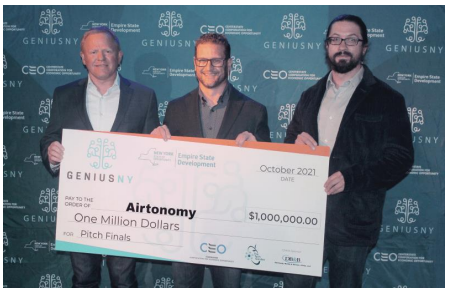
The U.S. Air Force has awarded Northrop Grumman (NYSE: NOC) a $108.8 million contract modification to continue logistics support of RQ-4 Global Hawk unmanned aircraft systems for South Korea.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

The company will receive $22.9 million in Foreign Military Sales funds at the time of award, the Department of Defense said Friday. Northrop received a $158.4 million initial contract for aircraft sustainment services to the Asian country's RQ-4 UAS fleet in November of last year.

In the same month, the company received a potential $4.8 billion contract to update, refurbish and sustain Air Force Global Hawk variants. https://www.govconwire.com/2021/11/northrop-to-continue-south-korea-uas-logistics-support/

ANOTHER NORTH DAKOTA DRONE COMPANY SCORES MAJOR VICTORY AS A NEWCOMER October 26, 2021 Sally French 0 News,



Grand Forks, North Dakota-based drone startup Airtonomy scored a major victory in the drone industry, especially given its position as a newcomer in the drone industry. The data-collection startup was recently crowned the $1 million grand prize winner of the GENIUS NY accelerator competition.

The year-long GENIUS NY program is a massive business competition focused on unmanned systems of all kinds, whether aerial drones, ground-based robots or other platforms that support the robotics industry. It doles out prize money to startups, which in exchange promise to operate their business in Central New York for at least one year and ideally accelerate their growth and expand their presence in the region.

Airtonomy, which launched back in 2018, is a software company that uses Artificial Intelligence to enable autonomous capture, analysis, and integration of critical infrastructure data. Its product is designed to enable anyone to collect data uniformly using autonomous vehicles or drones. Push a single button, and anyone — whether wind technician, security guard or power lineman — can collect data in a uniform manner than can then automatically be processed using machine learning and turned into actionable intelligence for the business.

While it will conduct work in New York, Airtonomy also operates at Grand Forks' Herald Building, which is a key piece of infrastructure for the growing technology sector and the new economy in the Grand Forks region.

The initial Genius NY competition brought in nearly 600 organizations and startups spread across more than 50 companies from fields representing not just drones (although that is a huge focus) but also drone-adjacent fields including internet of things (IoT) and big data. It then

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

whittled those 600 teams to just 13 semi-finalists before landing on five finalists and ultimately the big winner: Airtonomy. https://www.thedronegirl.com/2021/11/02/airtonomy-genius-ny/

3Nov21

Crop Spraying Drones: This Small U.S. Manufacturer is Taking on the Global Market Miriam McNabb November 02, 2021 By Jim Magill

.Arthur Erickson, CEO and co-founder of **Hylio,** an agricultural drone maker, predicted that there would be a boom in the agriculture technology space in the next several years, as farmers take advantage of advances in drone, robotic and software technology to improve crop yields and reduce their use of pesticides harmful to the environment. Founded in 2015, the Richmond, Texas-based company has quickly grown to become a successful U.S.-based manufacturer of agriculture-related drones and software.

According to a recent report by Fortune Business Insights, the global agriculture drone market was $1.02 billion in 2019 and is projected to reach around $3.70 billion by 2027. In 2019, large international drone manufacturers including Drone Deploy, DJI, GoPro, Precision Hawk and AeroVironment dominated the global market for agricultural drones. While about 80% of its business comes from the domestic U.S market, Hylio also does a substantial portion of its business in Latin America, particularly El Salvador, Costa Rica, Guatemala and Honduras.

Hylio's flagship product is the AgroDrone. The multi-rotor aerial vehicle features three models. The drones are guided by AgroSol, Hylio's fleet-control software, which allows a farmer to spray his field with a single drone or multiple drones flying in tandem. https://dronelife.com/2021/11/02/crop-spraying-drones-this-small-u-s-manufacturer-is-taking-on-the-global-market/

Boeing pitches ATS loyal wingman UAV to global air forces Pearl November 3, 2021 in Travel Ideas

Boeing is pitching its Airpower Teaming System (ATS) loyal wingman unmanned aircraft to global air forces ahead of the Dubai air show.

ea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

The unmanned air vehicle (UAV) was developed with the Royal Australian Air Force in mind, but Boeing believes there is a "significant market" internationally for the new aircraft type. The Boeing ATS is designed as an "attritable" loyal wingman UAV. It is being developed and funded in partnership with the RAAF, which has ordered six aircraft.

Attritables are a new class of unmanned aircraft that are designed to be so inexpensive that an air force could afford to lose many examples to combat attrition and then affordably replace them. The concept originated with the US Air Force, which defines attritable as UAVs priced between $2-$20 million.

Loyal wingmen are UAVs that use artificial intelligence and other software to fly autonomously in coordination with manned aircraft. For example, a loyal wingman UAV might fly forward of manned fighters, scanning the horizon for enemy aircraft and even firing air-to-air missiles in defense of its human teammates.

Boeing advertises the ATS as having "fighter-like flight performance", reaching speeds greater than 600kt and a range of more than 2,000nm. https://africapearl.com/2021/11/03/boeing-pitches-ats-loyal-wingman-uav-to-global-air-forces-news.html

Drone Manufacturers Ranking 2021 | Report

Get insights on the commercial drone market

- Rankings split into civil drone manufacturers and dual-use drone manufacturers (commercial + military)
- DJI continues to dominate civil drones; AeroVironment, Insitu, and Aeronautics take top spots for dual-use drones
- China leads with 11 companies in the top 40 ranking of commercial drone hardware manufacturers
- Vast number of companies in the Top 40 are niche suppliers and manufacture multirotor drones in the prosumer sector
- Full 55-page report, assessing of 500+ global drone manufacturing companies
- Top 40 ranking for civil drone companies, plus Top 10 rank for each global region and Top 20 for dual-use drone companies

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

- Company Profiles for: Top 10 civilian drone manufacturers and Top 10 dual-use drone manufacturers
- Database of 500+ manufacturers including product type, website, location, founding year, and contact information

You can also **download a sample** of the ranking report for free. https://droneii.com/product/drone-manufacturers-ranking

UK experts urge government: Act now to fully benefit from drones' economic potential Bruce Crumley - Nov. 3rd 2021 DRONES UK

The study was produced by UK think tank The Entrepreneurs Network which investigated ways of exploiting the economic potential of the nation's future drone activity. Among the main recommendations was for the government to appoint a "Minister of Drones" to focus exclusively on the development and expansion of the UAV-centered economy. The second marquee proposal was to rapidly invest in technology and networking assets to make all recreational and commercial drones "electronically conspicuous" to one another.

Unlike commercial craft, the far more numerous hobbyist drones aren't currently required to carry self-identifying communications units, creating considerable potential for collisions between the two types. The study calls on the UK government to shoulder the costs of recreational drone users to equip their craft with ID tech, describing the outlay as the $13.6 million price required to unleash the safe, efficient, and profitable drone economic potential worth $57.2 billion. https://dronedj.com/2021/11/03/uk-experts-urge-government-act-now-to-fully-benefit-from-drones-full-economic-potential/#more-70725

German drone maker Quantum Systems plans US subsidiary to meet government demand Ishveena Singh - Nov. 3rd 2021

German technology company Quantum-Systems is setting up shop in California to meet the growing demand for reconnaissance drones among US military, defense, and public security customers. The new US subsidiary will open its doors on January 1, 2022.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Quantum-Systems is best known for manufacturing long-range vertical take-off and landing drones. Florian Seibel, CEO and cofounder of Quantum-Systems, explains: Our focus in the first months will be to ramp up our US production capabilities to serve our customers directly from California.

Auterion GS, meanwhile, is happy that the establishment of a US-based subsidiary would allow it to focus more on the common control infrastructure, including products like Skynav or QGC Gov that enable government customers to deploy autonomous systems at scale.
https://dronedj.com/2021/11/03/quantum-systems-us-subsidiary/#more-70726

GA-ASI Awarded OBSS Contract from AFRL Military | News November 2, 2021

General Atomics Aeronautical Systems, Inc. (GA-ASI) received a $17.8 million award from the Air Force Research Laboratory (AFRL) to design and develop an unmanned Off-Board Sensing Station aircraft. AFRL is developing an open architecture concept Autonomous Collaborative Platform to achieve its goals of rapid time-to-market and low acquisition cost, while extending and enhancing the sensing volume of manned platforms.

The award covers the next 12 months as the base effort, and if the option is exercised, GA-ASI will spend the following 15 months manufacturing and flight demonstrating the aircraft with the award potentially growing to a total of $49 million. https://uasweekly.com/2021/11/02/ga-asi-awarded-obss-contract-from-afrl/?utm_source=rss&utm_medium=rss&utm_campaign=ga-asi-awarded-obss-contract-from-afrl&utm_term=2021-11-03

Skydio and Axon Launch New Integration of Autonomous Drones with Axon Evidence November 2, 2021 News

Skydio, the leading U.S. drone manufacturer and Axon, the leader in public safety technologies, today announced public safety agencies flying Skydio drones and using Axon's digital evidence management platform, Axon Evidence, will now have the ability to automatically upload photos and video captured on their drones to Axon Evidence.

Public safety agencies that currently fly Skydio drones and deploy Axon Evidence can apply to participate in the early access program.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

With this integration, the Skydio drone will automatically and securely connect to Wi-Fi when plugged into a power source, at which point the system will automatically upload any new photos or video recorded to Axon Evidence, tagging them with the pilot's name and additional data necessary for entry into evidence, ensuring chain of custody and removing the administrative overhead from officers and staff. https://uasweekly.com/2021/11/02/skydio-and-axon-launch-new-integration-of-autonomous-drones-with-axon-evidence/?utm_source=rss&utm_medium=rss&utm_campaign=skydio-and-axon-launch-new-integration-of-autonomous-drones-with-axon-evidence&utm_term=2021-11-03

FPV Wizard returns to race the coasters at a Minnesota amusement park David MacQuarrie - Nov. 3rd 2021

FPV drone wizard Jay Christensen is back with another adrenalin rush of a video. This time, he took his drone and goggles to a Minnesota amusement park to roll with the roller coasters.

Fans of Jay's work will always remember his famous Bryant Lake Bowl video that almost redefined what an FPV drone could do – and he did it in one take. This time, he's flown the Valleyfield amusement park in Shakopee, Minnesota. Just before it closed for the season, he zipped around the 125-acre site for a speedy view of some of its eight roller coasters.

In the two-and-a-half-minute video, Christensen flies over the coasters, nearly soaks his drone in the spray of the log flume and hesitates with the other thrill-seekers at the top of a sudden-drop ride. https://dronedj.com/2021/11/03/fpv-wizard-returns-to-race-the-coasters-at-a-minnesota-amusement-park/#more-70793

4Nov21

3D Drone Mapping: Inside Parrot's "Impossible" Mission Over Positano [VIDEO] Miriam McNabb November 03, 2021 By Jim Magill

The Italian town of Positano, which hugs the cliffs along Italy's scenic Amalfi Coast, is a delight for tourists and fashion lovers, and a nightmare for mapmakers.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

The city's topography, with streets that wind along the hills and canyons that run right up the shore of the sea, presents an impossible challenge for mapmakers using traditional methods. That's why French drone company Parrot chose Positano as the perfect place to test out the mapping capabilities of its ANAFI AI software. The French drone company recently teamed with Logiroad, a French software company with expertise in creating digital twins of cities, to create a 3D model of the picturesque but hard-to-map city.

The "impossible" mission to capture the photogrammetric images used to build the digital twin of Positano was completed in three days. Using the Parrot ANAFI Ai software, the team gathered 4,800 photos at 48 MP resolution. That translated to about 75 GB of data, enough to create the huge 3D model consisting of 800 million triangles.

Erwan Renaudin, director of mobile mapping and drone solutions for Logiroad, said it wouldn't have been possible to conduct an aerial survey over Positano with an airplane using traditional photogrammetric meters, which lack the resolution capability of the Parrot sensors. Those sensors can achieve a ground-sample distance measurement of 2 centimeters over 100 acres. "So, the UAV was a perfect solution."

Using Parrot's ANAFI AI and FreeFlight software, the team to was able to set up the intricate flight patterns and to capture images of every street and building in the city.
https://dronelife.com/2021/11/03/3d-drone-mapping-inside-parrots-impossible-mission-over-positano/

Israel set to launch massive reconnaissance balloon for early warning of Lebanon threats STACY LIBERATORE FOR DAILYMAIL.COM and ASSOCIATED PRESS 3 November 2021

The country's military defense ministry has not provided a specific date or location for deployment, but the news comes at a time when the Israeli Air Force seeks to improve the country's air defenses due to the advancement of Iranian drones and cruise missiles.

Dubbed 'Sky Dew,' the High Availability Aerostat System

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

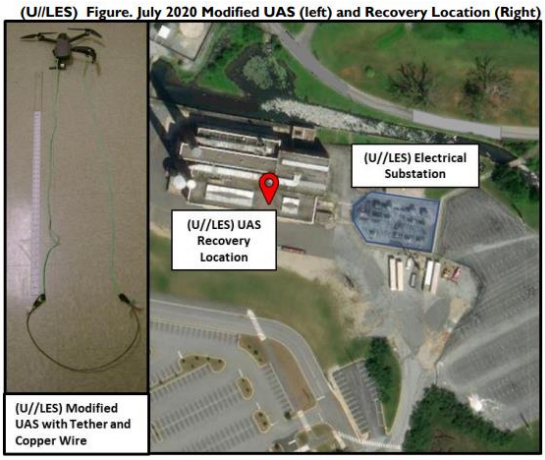
resembles a giant blimp or zeppelin and is equipped with a missile and aircraft detection system. Sky Dew can soar at high altitudes where it can spot incoming long-range missiles, cruise missiles and drones.

Sky Dew is fitted with elevated sensors, which are designed to detect ballistic, hypersonic and cruise missiles and other aerial targets at greater range.

'This technology also increases the engagement area by adding sensor coverage beyond line of sight of terrestrial radars and by looking out, or down, over other terrain features that could obscure cruise missiles or small unmanned aerial system from view,' according to the **Center for Strategic & International Studies**. Scroll down for video. https://www.dailymail.co.uk/sciencetech/article-10161297/Israel-tests-massive-inflatable-missile-detection-system.html?ito=1490

5Nov21

Drone at Pa. electric substation was first to 'specifically target energy infrastructure' November 4, 2021



PHILADELPHIA -- A drone that crashed near a Pennsylvania power substation last year was likely meant to damage or disrupt the electric equipment, according to a federal law enforcement bulletin obtained by ABC News and CNN.

The July 2020 incident is the first known case of a "modified unmanned aircraft system likely being used in the United States to specifically target energy infrastructure," states the October 28 memo from the FBI, Department of Homeland Security and the National Counterterrorism Center.

No damage was done to the electricity supply or equipment, according to the memo. It is still unclear who was responsible for operating the drone that crashed on a rooftop near the unidentified substation. Federal officials say they are distributing the intelligence bulletin now to state and local officials to raise awareness about the incident and the general threat of drones to critical infrastructure.

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Whoever modified the drone likely tried to create a "short circuit to cause damage to transformers or distribution lines, based on the design and recovery location," the intelligence memo says. The drone "appeared to be heavily worn, indicating it was flown previously and was modified for this single flight." https://abc7.com/drone-threat-pennsylvania-substation-electric-grid-supply/11197345/

5Nov21

AIRT, Embry-Riddle partner to advance first responder drone deployment Bruce Crumley - Nov. 4th 2021

Drones for good is getting a research and analysis lift from Embry-Riddle Aeronautical University, which is teaming up with the nonprofit Airborne International Response Team (AIRT) to find ways to improve UAV deployment in emergency and rescue situations.

Embry-Riddle, the largest accredited US university system with a focus on aeronautic disciplines, is joining forces with AIRT to examine how drones are being used by first responders in the national airspace system. As they do, the partners will also seek ways to enhance, promote, and expand those deployments and analyze how third-party pilots – whether service provider partners or private UAV enthusiasts – affect official safety operations by police, firefighters, and other public emergency responders.

Insight from the collaboration will help AIRT's work in promoting "drones for good" at the heart of its DroneResponders program, the rapidly growing network uniting first responders, emergency managers, search and rescue specialists, and qualified service participants using drones to manage crisis situations and help victims.

Officials on both sides of the new partnership say the experience and expertise being pooled in their effort promise to produce far-reaching and ultimately life-saving results. https://dronedj.com/2021/11/04/airt-embry-riddle-partner-to-advance-first-responder-drone-deployment/#more-70857

Robert Rea | Axcel Innovation | Suffolk, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net