UAS and SmallSat Weekly News

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Northrop Grumman and NASA Form Partnership for UAS Airspace Integration

Jessica Reed | January 12, 2023

Northrop Grumman announced a new collaboration with NASA today. Their efforts will center around development and testing for the integration of large UAS (uncrewed aircraft systems) into the national airspace. The primary focus of the partnership is defining technologies and procedures to enable remotely piloted air cargo operations. Through these efforts, Northrop Grumman will be contributing to NASA's Air Traffic Management-eXploration (ATM-X) Pathfinding for Airspace with Autonomous Vehicles (PAAV) subproject.

Experts from Northrop Grumman and NASA will coordinate with the Federal Aviation Administration, plan flight demonstrations and simulations, and conduct flight readiness reviews.

Tom Jones, corporate vice president and president of Northrop Grumman Aeronautics Systems, explained, "Our work together will improve airspace access and transform how uncrewed systems are used to transport goods across U.S. airspace and help establish airspace integration critical to future manned unmanned teaming efforts."
https://www.aviationtoday.com/2023/01/12/northrop-grumman-nasa-form-partnership-uas-airspace-integration/

Washington state to fly drones in endangered mini-rabbit count

Bruce Crumley - Jan. 13th 2023

Wildlife officials in Washington state are set to deploy drones over a large expanse of preserved space as part of their annual effort to estimate the population of the nearly extinct Columbia Basin pygmy rabbits.

The Washington Department of Fish and Wildlife is preparing to begin daily drone flights over state and federal managed lands covering two counties as part of a trial-cum-annual-census of the tiny rabbits. The distinct species is the

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smallest among North America rabbits and typically never grows larger than 12-inches long or more than 16 ounces in weight. Due to incursions of animal, natural, and human threats over time, the estimated population has decreased to a mere 100 to 150 individuals.

Washington game authorities will use the drones to scan enclosed zones they've created to preserve sagebrush and terrain the rabbits live in and burrow into – the only species to create their own underground shelter. Due to the size, color, and understandably furtive instincts of the animals, humans have a very tough time catching sight of them, much less distinguishing one from another for count purposes. https://dronedj.com/2023/01/13/washington-state-to-fly-drones-in-endangered-mini-rabbit-count/

15Jan23

Mass-market military drones: 10 Breakthrough Technologies 2023 Kelsey D. Atherton January 9, 2023

For decades, high-end precision-strike American aircraft, such as the Predator and Reaper, dominated drone warfare. The war in Ukraine, however, has been defined by low-budget models made in China, Iran, or Turkey. Their widespread use has changed how drone combat is waged and who can wage it.

Some of these new drones are off-the-shelf quadcopters, like those from DJI, used for both reconnaissance and close-range attacks. Others, such as the $30,000 Iranian-made exploding Shahed drones, which Russia has used to attack civilians in Kyiv, are capable of longer-range missions. But the most notable is the $5 million Bayraktar TB2, made by Turkey's Baykar corporation.

The TB2 is a collection of good-enough parts put together in a slow-flying body. It travels at speeds up to 138 miles per hour and has a communication range of around 186 miles. Baykar says it can stay aloft for 27 hours. But when combined with cameras that can share video with ground stations, the TB2 becomes a powerful tool for both targeting the laser-guided bombs carried on its wings and helping direct artillery barrages from the ground.

Most important is simply its availability. US-made drones like the Reaper are more capable but costlier and subject to stiff export controls. The TB2 is there for any country that wants it. https://www.technologyreview.com/2023/01/09/1064892/mass-market-military-drones-tb2-10-breakthrough-technologies-2023/

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Walmart made over 6,000 drone deliveries in 2022 Jan. 6, 2023 Max Garland Senior Reporter

DroneUp flight engineers prepare a delivery drone to deliver a Walmart package.

The achievement follows the company's rapid expansion of the transportation method's availability. Walmart now has 36 U.S. stores with drone delivery hubs which are operated by DroneUp, Flytrex and Zipline. The stores are in seven states — Arizona, Arkansas, Florida, North Carolina, Texas, Utah and Virginia.

The retailer still has a long way to go to reach its goal of 1 million packages delivered by drone annually. Still, it is encouraged by the positive response from customers and looks forward to making more progress in 2023, Vik Gopalakrishnan, Walmart U.S. vice president of innovation and automation, said in a statement.

Walmart and its partners currently offer up to 20,000 items available for drone delivery, according to a company fact sheet. https://www.retaildive.com/news/walmart-6000-drone-deliveries-droneup-flytrex-zipline-2022/639837/#:~:text=While%20the%20retailer%20seeks%20to,encouraged%20by%20the%20initial%20response.&text=Walmart%20completed%20more%20than%206%2C000,to%20a%20company%20announcement%20Thursday.

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DISNEYLAND PARIS MARVEL DRONE SHOW COMING THIS JANUARY January 13, 2023 Sally French

Between Jan. 28, 2023 and May 8, 2023, the Walt Disney Studios Park in Paris will be the site of a brand-new Marvel drone show. It's all to celebrate the 30th anniversary of Disneyland Paris, which opened on April 12, 1992 (Disney has a history of extending celebrations a little – or a lot — longer than the standard birthday celebration time).

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Perhaps the most standout feature is how many drones perform in this show. 500 drones will form a series of lighting sequences themed to the powers of Super Heroes such as Captain America, Captain Marvel, Scarlet Witch and, for the first time at Disneyland Paris, Shang-Chi.

And it's not *just* a drone style. In classic Disney style, the show goes all out. It's not just drones, but rather a combination of music, lights, and pyrotechnic effects. There's also video projections onto the Tower of Terror, one of the most iconic attractions (and certainly the tallest edifice) in the theme park. And it's set to a soundtrack of main themes from Marvel movies, orchestrated specifically for the show and performed by a symphony orchestra of 70 musicians recorded at Abbey Road Studios in London. https://www.thedronegirl.com/2023/01/16/disneyland-paris-marvel-drone-show/

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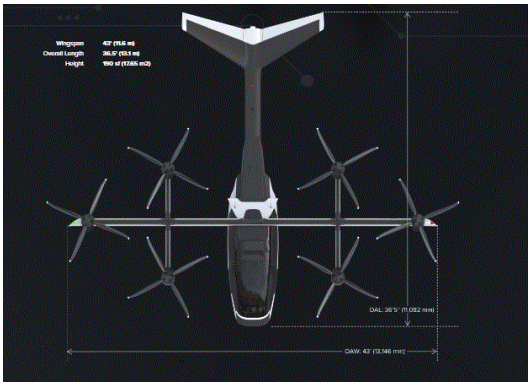
Airspace Experience Technologies to supply US mail company with Sigma-6 eVTOLs January 15, 2023 Philip Butterworth-Hayes Urban air mobility



Airspace Experience Technologies (ASX) has signed an agreement with Mail Management Services (MMS) out of Lincoln, Nebraska to supply eVTOLs to their fleet in 2025.

According to a company press release:

"MMS has partnered with Airspace Experience Technologies to deploy eVTOL aircraft to transport USPS payloads between cities, airports, and suburbs. With a pure electric model, ASX can move up to 1000 pounds over 150 miles, and 2000 pounds 75 miles. The hybrid ASX Sigma-6 will transport up to 1000 pounds 760 miles, and 2000 pounds 380 miles.

Beginning in 2023, Mail Management Services will begin their journey towards fleet electrification with infrastructure projects at their owned facilities. Those facilities are based in Nebraska, Texas, Wisconsin, Missouri, Michigan, and Colorado. They will introduce electric delivery vehicles in the latter part of 2023 and continue to add to the fleet with current plans through 2025. The company has grown by 300 percent over the last year and is projected to

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double its current size in 2023." https://www.unmannedairspace.info/urban-air-mobility/airspace-experience-technologies-to-supply-us-mail-company-with-sigma-6-evtols/

NASA and Northrop Grumman work to integrate large UAS in the National Airspace System January 16, 2023 Philip Butterworth-Hayes UAS traffic management news

Northrop Grumman Corporation is collaborating with NASA to develop and test solutions for integrating large, uncrewed aircraft systems into the National Airspace System. The effort will focus on air cargo operations and is part of NASA's Air Traffic Management-eXploration Pathfinding for Airspace with Autonomous Vehicles subproject. According to a company press release:

"Partnering with NASA, we will detail requirements and solutions to make it possible for autonomous aircraft, in this case being air cargo, to be integrated seamlessly and safely into the national airspace," said Tom Jones, corporate vice president and president, Northrop Grumman Aeronautics Systems.

To support this long-term goal, the partners will exchange data and information to define technologies and procedures for remotely piloted systems. This work will include coordination with the FAA, flight readiness reviews and development of a test plan for simulations and flight demonstrations. https://www.unmannedairspace.info/latest-news-and-information/nasa-to-work-with-northrop-grumman-on-integrating-large-uas-in-the-national-airspace-system/

High energy laser beams can provide drones with infinite propulsion – new Chinese research January 11, 2023 Philip Butterworth-Hayes UAS traffic management news

According to a report in the *South China Morning Post*, a team of researchers in northwest China says it has developed a way to use high-energy laser beams, not to destroy drones but to keep them in the air "forever".

"Many countries, including China, are developing powerful laser systems as anti-drone weapons. But Professor Li Xuelong and his colleagues from the Northwestern Polytechnical University (NPU) approached the drone-laser relationship from another angle," said the report. "They thought that if a drone was fitted with a photoelectric

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conversion module and converted light energy into electricity, a high-energy laser beam could not only track it, but also power it remotely. The team, from NPU's school of artificial intelligence, optics and electronics, said a recent experiment had successfully combined the autonomous charging process with intelligent signal transmission and processing technology – demonstrating the unlimited endurance potential for optics-driven drones."

"Highlights of the research are 24-hour intelligent vision tracking system and the autonomous long-range energy replenishment for ODD," the team reported on NPU's official WeChat account last week. https://www.unmannedairspace.info/latest-news-and-information/high-energy-laser-beams-can-provide-drones-with-infinite-propulsion-new-chinese-research/

FCC Proposes Allocation of Additional Spectrum for Unmanned Aircraft Systems

January 11, 2023 News

The U.S. Federal Communications Commission (FCC) has proposed the allocation of additional spectrum for UAS communications. This proposal aims to address the growing demand for spectrum for the operation of unmanned aircraft systems (UAS). The additional spectrum would be used for communications between UAS and ground control stations, as well as for command-and-control links between UAS.

In the proposal, the FCC suggests that a portion of the spectrum in the 3.1-3.55 GHz band be allocated for UAS communications. This band is currently used for satellite and fixed wireless operations, but the FCC believes that it can be shared with UAS operations while still protecting existing users. This move could open new opportunities for UAS applications, such as package delivery and inspections of infrastructure, by providing the necessary spectrum for reliable and secure communications.

The allocation of additional spectrum for UAS communications is part of the FCC's broader efforts to accommodate the growth of the UAS industry and facilitate the integration of UAS into the national airspace system. The proposed action is now open to public comments. https://uasweekly.com/2023/01/11/fcc-proposes-allocation-of-additional-spectrum-for-unmanned-aircraft-systems-communications/?utm_source=rss&utm_medium=rss&utm_campaign=fcc-proposes-allocation-of-additional-spectrum-for-unmanned-aircraft-systems-communications&utm_term=2023-01-16

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Volatus Partners with Airial Robotics to Expand Global Reach in the UAV Industry January 10, 2023 News

Volatus Aerospace Corp. is proud to announce a new exclusive partnership with Airial Robotics to manufacture, market, and distribute their next generation of Unmanned Aerial Vehicles (UAVs) under the Volatus Aerospace brand and its subsidiaries.

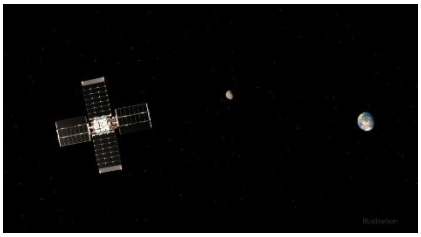
The partnership is a strategic move that will allow both companies to capitalize on the growing demand for UAVs. The industry is experiencing a significant inflection point and is poised for another period of explosive growth, and this partnership will allow both companies to capitalize on this growth.

Airial Robotics' Gyrotrak technology is a game-changer in the commercial drone industry, combining the low-energy principles of an autogyro with the hover, vertical take-off and landing features of a helicopter, resulting in a disruptive hybrid UAV solution with enhanced flight stability and improvements in flight time, range, altitude, and payload. These capabilities make it ideal for challenging commercial applications and large-scale deployment.

Volatus Aerospace will manufacture, market, and distribute Airial Robotics products under its various international subsidiaries. https://uasweekly.com/2023/01/10/volatus-partners-with-airial-robotics-to-expand-global-reach-in-the-uav-industry/?utm_source=rss&utm_medium=rss&utm_campaign=volatus-partners-with-airial-robotics-to-expand-global-reach-in-the-uav-industry&utm_term=2023-01-16

17Jan23

NASA studying thruster problem with lunar cubesat Jeff Foust — January 14, 2023



WASHINGTON — Engineers are troubleshooting thruster problems on a cubesat launched last month to search for water ice at the moon, the latest in a series of technical issues among small satellites recently launched to the moon and beyond.

In a Jan. 12 update, NASA's Jet Propulsion Laboratory said that three of four thrusters on the Lunar Flashlight cubesat were underperforming or producing less thrust than expected. One

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explanation, JPL said, was obstructions in lines feeding propellant to the thrusters, reducing the amount of propellant reaching the thrusters.

Spacecraft controllers are planning to operate the thrusters for longer periods, hoping that will help clear any obstructions. The spacecraft will need to start daily maneuvers in February to be able to enter orbit around the moon in about four months. The orbit will take the cubesat as close as 15 kilometers above the surface at the south pole where it will use lasers to look for water ice that may exist on the surface. https://spacenews.com/nasa-studying-thruster-problem-with-lunar-cubesat/

EU Inaugurates First Mainland Satellite Launch Port Jan. 13, 2023

European Commission President Ursula von der Leyen at the inauguration of Esrange's new satellite launch ramp

KIRUNA, Sweden (AP) — The European Union wants to bolster its capacity to launch small satellites into space with a new launchpad in Arctic Sweden.

European officials and Swedish King Carl XVI Gustaf inaugurated the EU's first mainland orbital launch complex on Friday during a visit to Sweden by members of the European Commission. The new facility should complement the EU's current launching capabilities in French Guiana.

European Commission President Ursula von der Leyen said, "Today, we know that the brave Ukrainian forces effectively use small satellites to track the movements of Russian troops."

The first satellite launch is expected next year. The total number of satellites could reach 100,000 by 2040, compared with the current 5,000 operational satellites, according to the Swedish Space Corp., or SSC.
https://hosted.ap.org/article/baa24715809e4213b7d2e81da29b9532/eu-inaugurates-first-mainland-satellite-launch-port

Autonomous Foldable, FPV & Heavy-Lift Drones for ISR & Delivery Mike Ball / 11 Jan 2023

Performance Drone Works (PDW), a leading developer of high-performance autonomous drones for mission-critical civilian and military applications, has partnered with Unmanned Systems Technology to demonstrate their expertise in this field.

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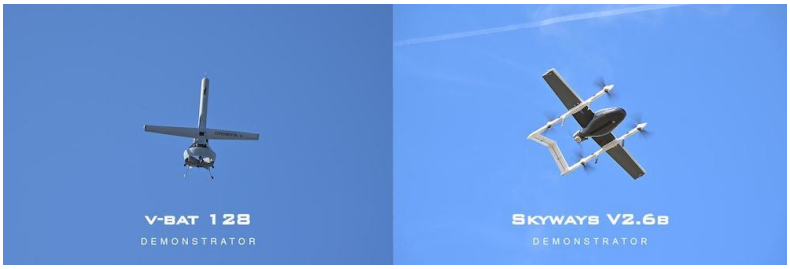
The 'Gold' profile highlights how the company's FPV (first person view), heavy-lift and foldable drone platforms provide enhanced efficiency and reduced risk for operators working in highly challenging environments.

The C100 is a man-packable heavy-lift quadcopter platform that holds the world record for the longest-endurance battery-powered sUAS. Capable of 80 minutes of flight with payload, the low-SWaP (size, weight, and power) autonomous UAV folds into a small rucksack and can be deployed and airborne in under 2 minutes.

The versatile heavy payload drone carries up to 30 lbs and can be equipped with a variety of hot-swappable payloads, including Trillium's military-grade EO/IR gimbals. The aircraft also features an independent fixed flight camera for first-person view, enhancing operator navigation. https://www.unmannedsystemstechnology.com/2023/01/autonomous-foldable-fpv-heavy-lift-drones-for-isr-delivery/?utm_source=UST+eBrief&utm_campaign=72d448d515-ust-ebrief_2023-jan-17&utm_medium=email&utm_term=0_6fc3c01e8d-72d448d515-119747501&mc_cid=72d448d515&mc_eid=0d642a9d48

US Navy Demonstrates Drones for Cargo Delivery to Moving Ships Phoebe Grinter / 11 Jan 2023



In a first-of-its-kind mission to move supplies to ships at sea without the use of manned aircraft, the Naval Air Warfare Center Aircraft Division demonstrated multiple unmanned systems during an event at Naval Air Station Patuxent River in St. Inigoes, Maryland.

Held in collaboration with the Small Tactical Unmanned Aircraft Systems program, the demonstration used unmanned vehicles to transport cargo weighing less than 50 lbs., which accounts for 90% of Navy logistics deliveries.

During the event, industry partners Skyways Air Transportation, Inc., and Martin UAV operated their unmanned systems through long-range flights from ship-to-ship, ship-to-shore, and shore-

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to-ship situations, carrying a variety of objects to mimic critical supplies. Both systems successfully delivered cargo over 200 nautical miles onto a moving ship underway.

NAWCAD acquired the original Blue Water UAS prototype in 2019 to demonstrate long-range unmanned naval ship-to-ship and ship-to-shore cargo transport. Navy test pilots and engineers have since worked with industry partners to develop a system that best meets maritime requirements. https://www.unmannedsystemstechnology.com/2023/01/us-navy-demonstrates-drones-for-cargo-delivery-to-moving-ships/?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=242011481&_hsenc=p2ANqtz-90wuMc05TG2Cm6zSGY4XNYf1B6JvVUo9xLimf1nyvTkSH4TwXlP3rqtbGTDXJZZNntOqbLUt0vseeyanydgDDbo-7uOA&utm_content=242011481&utm_source=hs_email

Bill calls for specialized advanced aviation office within the FAA Bruce Crumley - Jan. 16th 2023

Among the first pieces of legislation introduced to the new Congress is a bill calling for an Office of Advanced Aviation to be created within the Federal Aviation Administration (FAA), which would coordinate regulation of craft, pilot training, air traffic systems, and other considerations particular to next-generation vehicles that will be providing air taxi and other services.

The bill, HR 220, or the Advanced Aviation Act, seeks to "establish the Office of Advanced Aviation within the Administration of the Federal Aviation Administration and for other purposes," and thereby place responsibility with overseeing the full range of consideration in future services and craft within a specialized section of the FAA.

New Jersey Republican Jim Van Drew introduced the text last week, and wants to have it passed as an advanced aviation attachment to recurring FAA reauthorization legislation that Congress must approve by the end of September.

Van Drew acknowledged to the agency that the timing of the bill's introduction enjoyed "unfortunately really good timing when you see what happened with the recent air traffic control just complete breakdown." https://dronedj.com/2023/01/16/bill-calls-for-specialized-advanced-aviation-office-within-the-faa/

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Lufthansa IT unit to integrate Draganfly drone tech in sea rescues Bruce Crumley - Jan. 17th 2023

Canadian drone tech and services company Draganfly is entering a new business relationship with the information technology affiliate of Lufthansa Group, supplying the German unit with its Vital Intelligence capabilities for aerial use in various maritime operations – particularly search and rescues of people who have fallen overboard.

Draganfly said it signed a letter of intent with IT services provider Lufthansa Industry Solutions, which will integrate the company's drones and software into its operations for maritime clients. Those include inspections and monitoring of vessels and cargo, mapping areas of sea operation, but primarily in deployment of UAVs during search and rescue responses to people falling overboard.

Its UAVs will be mainly used for search and rescue and reconnaissance missions, relying on onboard optical and infrared imaging sensors to scan and map areas in which people have fallen overboard; locate survivors; and even begin measuring their core vitals as recovery teams are summoned. https://dronedj.com/2023/01/17/lufthansa-it-unit-to-integrate-draganfly-drone-tech-in-sea-rescues/

TOPODRONE Innovates Surveying Techniques for Floating Solar Farms in Israel

January 17, 2023 Mapping and Surveying | News

TOPODRONE, a Swiss-based designer and manufacturer of high-precision surveying equipment, has successfully synchronized airborne photogrammetry, LiDAR, and bathymetric surveying methods to study a floating solar farm. The project was conducted in partnership with Israeli drone service provider ERELIS, who was commissioned by ETZ HADEKEL Ltd. in Northern Israel to conduct a pilot project of reservoir surveying with a UAV.

The surface of the reservoir was covered by solar panels, making it difficult to conduct standard surveying methods from a boat. ERELIS performed a two-stage drone surveying process to deliver a 3D model of the reservoir. First, aerial photogrammetry and LiDAR surveys were conducted using a DJI M300 drone equipped with TOPODRONE's P61 camera and a LiDAR HI-

RES system to determine the location of possible obstacles. The LiDAR scanning provided accurate detection of cables in the water.

In the second stage, an underwater bathymetric survey was conducted using TOPODRONE's AQUAMAPPER, which was mounted on the same drone, avoiding detected obstacles such as cables, solar panels, and other objects. The flight mission was planned and executed using UgCS software by SPH Engineering.

The collected LiDAR and bathymetry data was processed using TOPODRONE's Post Processing software, resulting in a georeferenced orthophoto map, a 3D model of the relief and objects, a 3D model of the bottom of the reservoir, contour lines, and isobaths. These 3D models can be used for high-precision assessments of sediment volumes, general monitoring of reservoir banks, and visual monitoring. In addition, surveying with the AQUAMAPPER allowed for the estimation of sludge deposits in the reservoir. https://uasweekly.com/2023/01/17/topodrone-innovates-surveying-techniques-for-floating-solar-farms-with-synchronized-lidar-and-bathymetry-in-israel/?utm_source=rss&utm_medium=rss&utm_campaign=topodrone-innovates-surveying-techniques-for-floating-solar-farms-with-synchronized-lidar-and-bathymetry-in-israel&utm_term=2023-01-17

18Jan23

How Much Will the U.S. Department of Defense Spend on Drones in 2023? Miriam McNabb January 17, 2023

AUVSI reports that the Department of Defense plans to invest more than $2.6 billion in unmanned systems, with at least 29 programs "fully dedicated to the procurement of UAS."

The DoD will spend more on aerial drones than in any other category: but still expects to invest heavily in research and development for uncrewed ground and marine systems, as well as a significant investment in Counter-UAS.

The top 5 spending programs are: U.S. Navy, MQ 25, U.S. Navy, MQ 4 Triton, Aerial Targets, Unmanned Carrier Mission Control Station, and Target Drones. The Army has requested $326 million for Counter UAS procurement.

The U.S. Department of Defense spend on drones is significant to the commercial industry: research tends to indicate that the military market is still a major market driver when compared to the growth and scale of purely commercial applications. While MQ 25s or MQ 4 Tritons will

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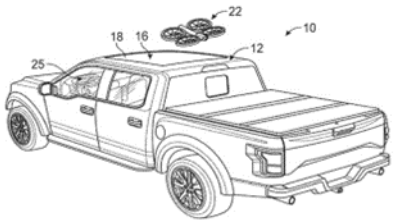
never be commercial products, military R&D spending on smaller uncrewed systems has frequently resulted in the development of dual-use systems found throughout the enterprise drone market. https://dronelife.com/2023/01/17/how-much-will-the-u-s-department-of-defense-spend-on-drones-in-2023-auvsis-report/

Why drone delivery hasn't taken flight in the US Jan. 17, 2023 Michael Brady, Senior Editor

Dive Brief:

- Forthcoming rules from the Federal Aviation Administration could help drone delivery take flight in the U.S., panelists said this month during a discussion at the CES conference in Las Vegas.
- Drone delivery has yet to become commonplace, partly due to federal regulations limiting remote pilots' ability to fly a drone unless they can see it throughout an entire flight or meet certain other requirements, the panelists said.
- Abigail Smith, deputy executive director at the FAA's Unmanned Aircraft Systems Integration Office, said the agency will propose new regulations this year to support greater drone use, including delivery, saying that "safety is our North Star." https://www.smartcitiesdive.com/news/why-drone-delivery-hasnt-taken-flight-us-faa/640432/

Ford files patent for innovative moonroof docking system for UAVs January 17, 2023 News



The patent details a system that utilizes a pod assembly located in the moonroof of the vehicle. The UAV would be stored in a recessed compartment within the assembly and can be deployed when needed. The moonroof docking system also includes a charging and cooling system to ensure the UAV is charged and ready for use. The system is designed to detect if the device is too hot and engage the cooling system based on predetermined thresholds, this way, the UAV is always ready to use.

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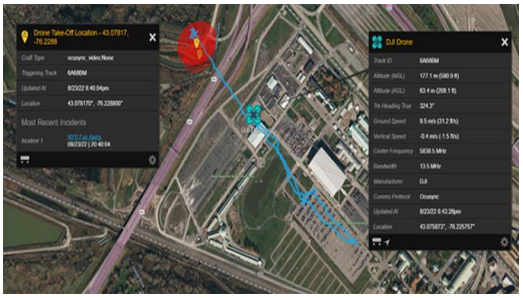
The patent filing also mentions that the system would include sensors and cameras that can be used to detect obstacles and ensure a safe deployment of the UAV. It also includes a control system that can be operated by the vehicle's infotainment system or a mobile device.
https://uasweekly.com/2023/01/17/ford-files-patent-for-innovative-moonroof-docking-system-for-unmanned-aerial-vehicles-uavs/?utm_source=rss&utm_medium=rss&utm_campaign=ford-files-patent-for-innovative-moonroof-docking-system-for-unmanned-aerial-vehicles-uavs&utm_term=2023-01-18

FAA Collaboration: Hidden Level and Saab Advance Unmanned Aircraft Systems Research January 18, 2023 News



Hidden Level, Inc. continues to be at the forefront of the Federal Aviation Administration's (FAA) Airport Unmanned Aircraft Systems (UAS) Detection and Mitigation Research Program. The company is participating both independently and as a partner with Saab, Inc. since 2018 when the FAA Reauthorization Act was signed into law. The act extends the FAA's funding and authorities through Fiscal Year 2023 and includes important legislative changes related to increasing the safety and pace of UAS integration.

In August of 2020, the FAA announced an effort to test and evaluate technologies and systems that could detect and mitigate potential safety risks posed by unmanned aircraft at and near airports. Five airports were selected for participation in the testing program, including Syracuse Hancock International Airport.

In the spring of 2022, Hidden Level deployed its Airspace Monitoring Service for evaluation as a standalone solution as well as a complementary technology to Saab's SAFE Airport Event Management system. The FAA's UAS detection and mitigation research is expected to continue through 2023, and the results will be used to assist with planning for certifying, permitting, and authorizing UAS detection and mitigation technologies at airports around the country.
https://uasweekly.com/2023/01/18/faa-collaboration-hidden-level-and-saab-advance-unmanned-aircraft-systems-research/?utm_source=rss&utm_medium=rss&utm_campaign=faa-collaboration-hidden-level-and-saab-advance-unmanned-aircraft-systems-research&utm_term=2023-01-18

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North Dakota considers $30 million boost to Vantis drone network Bruce Crumley - Jan. 18th 2023

North Dakota is leaving little to chance in its efforts to become the US leader in drone activity and infrastructure development, with legislators now considering a proposed boost for two of the state's UAV projects, including its Vantis beyond visual line of sight (BVLOS) network.

Lawmakers will be deciding whether to approve that $37 million in additional funding as part of Governor Doug Burgumsaid's proposed budget for 2023 to 2025. His plan calls for $30 million to be directed to North Dakota's Vantis BVLOS drone network – a groundbreaking system unique in the US in covering the entire state. The remainder will be used by the Grand Sky UAV business and aviation park in Grand Forks.

There's a good chance legislators will approve the financial lift as a means of building on the momentum the BVLOS project has attained. In the relatively short time since North Dakota unveiled its plans for Vantis in 2020, virtually all ground-based sensor and radar infrastructure for navigation systems has been completed, and testing drone operation has continued to advanced stages. https://dronedj.com/2023/01/18/north-dakota-considers-30-million-boost-to-vantis-drone-network/

19Jan23

Blue sUAS List Adds Long Range Drone: FlightWave Edge 130 VTOL Miriam McNabb January 18, 2023

FlightWave has been approved as a trusted drone provider for US Federal Government through the Defense Innovation Unit's Blue sUAS 2.0 Program.

Today, FlightWave announced they have completed the process to receive an Authority To Operate (ATO) designation under the DoD Defense Innovation Unit's Blue sUAS 2.0 Program. It has been approved has been approved for procurement by the U.S. Department of Defense and US Federal agencies.

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The Blue sUAS Edge 130 Blue is designed specifically for government and military ISR, mapping and mission planning applications. Featuring long range autonomy, the Edge 130 Blue can be used to provide near real-time situational awareness to ground forces. The VTOL's light weight – 2.65 lbs – gives the Edge a flight endurance of over 2 hours in forward flight mode. Edge "can be rapidly deployed by one pilot from assembly to hand-launch in 1 minute by a single user to capture imagery to generate 3D models, terrain and thermal maps." https://dronelife.com/2023/01/18/blue-suas-list-adds-long-range-drone-flightwave-edge-130-vtol/

Winning Awards: WINGXPAND, the Customizable, Expandable, Portable Drone Company Miriam McNabb January 18, 2023

Less than a year after their launch in April of 2022, the company was one of only 12 winners from a field of 600 competitors for participation in Techstars Los Angeles, the startup accelerator program working in partnership with the U.S. Space Force and NASA's Jet Propulsion Lab. They won a 2022 St. Louis Arch Grant. Women and Drones has named WINGXPAND a "Top Company for Women in Emerging Aviation Technology." At September's Natural Disaster Expo in Anaheim, they were named the company with the 'Most Innovative Technology of the Year' out of more than 300 participants.

It fits in a backpack – but the wings expand, turning the drone into what the company describes as a "customizable 7 ft autonomous airplane." "The U.S. made and patented aircraft combines the small size and simplicity of a quadcopter drone with the power and endurance of airplane wings, allowing it to fly 5x longer and carry 10x more weight than traditional drones, says the company. https://dronelife.com/2023/01/18/why-this-startup-is-winning-awards-all-over-wingxpand-the-customizable-expandable-portable-drone-company/

WHICH U.S. RETAILER HAS MADE THE MOST DRONE DELIVERIES? January 17, 2023 Sally French

For most Americans, drone deliveries from any retailer are a long way out. But there's one major U.S. retailer that's a lot closer than all the rest. That's Walmart.

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Heading into 2023, Walmart now operates in 36 drone delivery hubs across seven states. The company said it completed more than 6,000 successful, actual drone deliveries in 2022.

But unlike Amazon, Walmart doesn't manage the drone deliveries itself. Instead, it partners with other established drone delivery companies to execute the deliveries. Walmart's involvement is primarily offering up the goods to be delivered, the space to launch from and other less-tangible efforts like marketing and, well, funding. Walmart's U.S. deliveries are currently being done by three companies: DroneUp, Flytrex and Zipline.

DroneUp took a big leap in December 2022 when it officially kicked off its drone delivery operations with Walmart in six of the seven states that Walmart lays claim to drone delivery operations in. Those six states are Arizona, Arkansas, Florida, Texas Utah and Virginia.

The seventh state that Walmart operates in is North Carolina, where it works with Israeli startup Flytrex. Separately, Walmart has partnered with California-based Zipline to test drone deliveries with customers in Pea Ridge, Arkansas. https://www.thedronegirl.com/2023/01/19/u-s-retailer-most-drone-deliveries-walmart/

FCC Opens Comment Period on Spectrum Allocation for Uncrewed Aircraft BRETT DAVIS JANUARY 13, 2023

Unmanned aircraft would be allowed to use wireless communications in the 5030-5091 MHz spectrum band and operators would be able to access the aeronautical VHF band to communicate with air traffic control and other aircraft under new rules now receiving public comment.

The Federal Communications Commission proposed the new rules on Jan. 4, noting that UAS primarily use unlicensed and low-power wireless communications, but that won't be enough in the future.

"It is past time that we assess the availability of wireless communications resources for the increasingly important remote-piloted aircraft activity we rely on today," FCC Chair Jessica Rosenworcel said in an FCC release. "The FCC must ensure that our spectrum rules meet the current—and future—spectrum needs of evolving technologies such as unmanned aircraft

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systems, which can be critical to disaster recovery, first responder rescue efforts, and wildfire management."

Hacking and spoofing of communications signals to drones has become a large concern in recent years, and the rulemaking document notes that's partly due to the type of spectrum the systems are using. Neither of the current spectrum resources "provide the user with any right to protection from harmful interference, and as a result, the reliability of communications using these resources can be uncertain," the document says. https://insideunmannedsystems.com/fcc-opens-comment-period-on-spectrum-allocation-for-uncrewed-aircraft/?mkt_tok=NzU2LUZXSi0wNjEAAAGJamLu_OLS6D4D_aA9cun5oYubjU2yIgrcUzugVOZ59JTfQ3G1jz-sb_n-jjT8VSxZt7qhE_ATwO7GfcDzfPMVW75-eAu-woTQbUXp__QScmzlPOY

Biohybrid flapping robot has drone appeal 17 January 2023 James Tyrrell

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Flight study: Christoffer Johansson, a member of the research team exploring the concept of a biohybrid flapping robot, holds a foldable, robotic wing. Image credit: Anders Örtegren.

Drones fitted with foldable, bird-like wings could potentially travel much further on a single charge of their batteries compared with current designs. The next step is to come up with a design. But birds flap their wings in many ways, and what if developers wanted to go further and try to outperform nature? To answer these aerodynamic questions, **researchers based at Lund University in Sweden and Ecole Polytechnique Fédérale de Lausanne in Switzerland have assembled a biohybrid flapping robot**.

The team used particle image velocimetry – a technique that compares differences between laser-illuminated sheets of light to infer movement – as a way of recording the aerodynamic wake. This data then allowed the group to back-calculate the aerodynamic forces and power generated by the various wing motions. "The new robotic wing can be used to answer questions about bird flight that would be impossible simply by observing flying birds," Johansson points out. https://techhq.com/2023/01/biohybrid-flapping-robot-drone-upgrade/?mkt_tok=NzU2LUZXSi0wNjEAAAGJamC1zndqWHlij2YUYmw7JtjUsqrdBou4qwIoaWbR3h4D97IgzC2xU6XaqhRurSbHOgrC5iCuWdQHwZOXLFcSpydcGvEk2DW03evhyEiadQgnEQ

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Alleged cartel members fire at US drone along Mexico's border [Video] Bruce Crumley - Jan. 19th 2023

A video circulating on social media shows what appears to be either a US Customs and Border patrol unit or private security company looking on as one, perhaps two members of an alleged drug cartel fire rifles at a drone monitoring their position about 300 yards inside Mexico's territory. Just who those American observers were is as much a matter of debate as the identity of the shooters.

Those differences of opinion notwithstanding, the drone's operator remains remarkably calm, almost amused as he peers into a DJI RC Plus screen while watching the video feed of a group of hooded individuals communicate from different positions before pulling out rifles and preparing to fire. "He's got a rifle with him," the operator says. "He's going to shoot at me right now." See the video: https://dronedj.com/2023/01/19/alleged-cartel-members-fire-at-us-drone-along-mexicos-border-video/

NASA's Mars Helicopter Opens the Door for Flight on Other Worlds Corey S. Powell Jan. 19, 2023

From a nuclear-powered copter on Saturn's moon Titan to blimps on Venus, space engineers are planning innovative flying machines to explore faraway landscapes

Working with colleagues at JPL as well as NASA's Ames Research Center and the company AeroVironment Inc., Mr. Tzanetos has also drawn up a concept for a larger copter with six rotors instead of Ingenuity's two. The Mars Science Helicopter, as the craft is known, would be able to carry up to about 10 pounds of instruments.

Then there is Dragonfly, a nuclear-powered helicopter in development at Johns Hopkins University's Applied Physics Lab (APL) in Laurel, Maryland. In 2027, NASA plans to launch Dragonfly toward Titan, where the atmosphere is four times as dense and the gravity about one-seventh Earth's. Under those conditions, a modest nudge from Dragonfly's eight rotors should be enough to send the half-ton science lab soaring through the sky.

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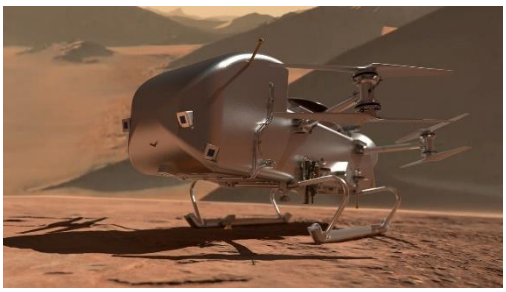

Dragonfly will be equipped with cameras, a chemical lab and a nuclear-powered generator. The helicopter has drills in its landing skids for collecting samples from the surface.

When it lifts off from the surface of Titan, Dragonfly will become the second flying machine to operate on another world. The first was a tiny helicopter named Ingenuity, which made its inaugural flight on Mars in 2021.

Titan's thick atmosphere and weak gravity should ease flight for Dragonfly. It will cruise at about 20 miles per hour, possibly rising as much as two-and-a-half miles above the frigid terrain.

Dragonfly will use its sensors to search for organic molecules on Titan, including types that might help explain how life arose on Earth. It will also do seismic studies of the subsurface ocean. Plans call for Dragonfly to drill for samples and analyze them in its chemical lab. After beaming its findings back to Earth, the helicopter will fly to a new landing spot and start a new round of exploration. https://www.wsj.com/articles/nasas-mars-helicopter-opens-the-door-for-flight-on-other-worlds-11674142489

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