UAS and SmallSat Weekly News

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MissionGO Expands Unmanned Cargo Operations with Retired FAA Executive

MissionGO APRIL 22, 2021

BALTIMORE, MD, April 23, 2021— MissionGO, an Unmanned Aircraft Solutions company for utility inspections, medical and commercial cargo, and training for operators announces hiring Frank Paskiewicz as Executive Vice President of Cargo Operations. He brings more than 40 years of experience in industry and government aviation in technical and executive positions. He comes with knowledge and experience in the Federal Aviation Administration (FAA) regulatory process, aircraft certification, delegation systems, surveillance programs and policies, and Unmanned Aircraft Systems certification and operations.

As EVP of Cargo Operations, Paskiewicz will lead MissionGO aircraft certification and manufacturing, FAA regulatory consulting services, UAS integration strategies, and air cargo operations. This includes expanding MissionGO's cargo operations and supporting UAS client FAA certification programs. He will lead the development of products and services for MissionGO's air cargo operations, including research studies, airspace analysis, and flight activities.
https://uasweekly.com/2021/04/22/missiongo-expands-unmanned-cargo-operations-with-the-addition-of-retired-faa-executive-frank-paskiewicz/?utm_source=rss&utm_medium=rss&utm_campaign=missiongo-expands-unmanned-cargo-operations-with-the-addition-of-retired-faa-executive-frank-paskiewicz&utm_term=2021-04-23

Betting on drones for smarter pesticide use on farms 2021-04-21 UAV Expert News

Cutting-edge technologies like artificial intelligence, robotics, and wireless communications are on the verge of revolutionizing well-established industries — and among the most remarkable examples is "smart agriculture," which has seen a tremendous increase in the use of drones for various tasks.

Drones have been the focus of extensive research for agricultural applications. For example, they can take aerial images of a field and, through subsequent image processing, identify problems in specific areas of the crop fields. Another notable use case has been quickly gaining traction is spraying pesticides. In Japan, the number of hectares sprayed by drones saw a stunning 45-fold increase from 2016 to 2018. Similarly, the number of registered UAVs for agricultural spraying increased to 1,552, up from just 227.

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While UAVs could be used to either replace or complement traditional pesticide spraying methods, it remains to be proven whether they are superior to conventional methods in many regards. https://www.uavexpertnews.com/2021/04/betting-on-drones-for-smarter-pesticide-use-on-farms/?utm_source=Master&utm_campaign=3171dca450-EMAIL_CAMPAIGN_2017_12_20_COPY_01&utm_medium=email&utm_term=0_35ad7bc94d-3171dca450-89168672

AeroVironment Receives $41 Million U.S. Army Contract for Logistics Support

April 22, 2021 News

AeroVironment, Inc. today announced it received a $13,010,560 contract order on March 24, 2021 from the U.S. Army for Switchblade® 300 tactical missile systems support. The contract has a potential value of $40,852,467. Logistics support services are scheduled to be delivered through March 2024.

AeroVironment's combat proven Switchblade 300 is back-packable and rapidly deployable from ground platforms, including a multipack launcher, providing warfighters with rapid-response force protection and precision strike capabilities up to 6 miles from its launch location. Its high precision, combined with specialized effects and patented "wave-off" feature, results in Switchblade's ability to minimize or even eliminate collateral damage.
https://uasweekly.com/2021/04/22/aerovironment-receives-u-s-army-contract-valued-at-up-to-41-million-for-switchblade-300-tactical-missile-systems-contractor-logistics-support/?utm_source=rss&utm_medium=rss&utm_campaign=aerovironment-receives-u-s-army-contract-valued-at-up-to-41-million-for-switchblade-300-tactical-missile-systems-contractor-logistics-support&utm_term=2021-04-23

Choctaw Nation of Oklahoma and Martin UAV Announce Collaboration to Test UAVs April 22, 2021 News

The Choctaw Nation of Oklahoma and Martin UAV, an aviation technology manufacturer, established an agreement to begin testing the V-BAT system at the CNO test site location in rural southeastern Oklahoma.

"The Choctaw Nation of Oklahoma is excited to collaborate with Martin UAV as we continue to foster an environment for innovation and collaboration," states James Grimsley, Executive Director of Advanced Technology Initiatives with the Choctaw Nation

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of Oklahoma. "Martin UAV is excited to partner with the CNO to help support the ongoing development and safe integration efforts of unmanned aircraft systems into the National Airspace System," said Jonathan Jacobs, Director of Flight Operations.

The Choctaw Nation of Oklahoma is the third-largest Indian Nation in the United States with nearly 200,000 tribal members and more than 10,000 employees. https://uasweekly.com/2021/04/22/choctaw-nation-of-oklahoma-and-martin-uav-announce-collaboration-to-test-current-and-future-martin-uav-platforms/?utm_source=rss&utm_medium=rss&utm_campaign=choctaw-nation-of-oklahoma-and-martin-uav-announce-collaboration-to-test-current-and-future-martin-uav-platforms&utm_term=2021-04-23

Inside US military's plans to use drones to detect drones Ishveena Singh Apr. 23rd 2021

The US military wants to deploy a network of surveillance drones to keep an eye on small, unmanned aerial vehicles in urban cities. And it is looking for an organization to further test and develop its signal processing algorithms.

The Defense Advanced Research Projects Agency started working on a novel counter-drone technology program in 2016.Called Aerial Dragnet, the program would enable widespread surveillance of small drones operating below 1,000 feet in densely-populated US cities.

Working on the premise that small drones could carry explosives and pose a serious threat to national security, the idea was to map and track all low-flying small drones. But since small drones aren't exactly easy to track among skyscrapers, DARPA decided to fight fire with fire by using drones to find drones.

DARPA's drones are equipped with optical, radar, and acoustic sensors. The data that these drones would collect would eventually interface with the US Army's Counter-Small Unmanned Aircraft System which would then destroy the threat. https://dronedj.com/2021/04/23/darpa-surveillance-drones-aerial-dragnet/#more-56204

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'Nothing short of amazing!' NASA's Ingenuity helicopter completes its third flight

RORY TINGLE FOR DAILYMAIL.COM and RYAN MORRISON FOR MAILONLINE 25 April 2021

After two initial flights during which the craft hovered above the Red Planet's surface, the helicopter on this third flight covered 64ft, rising 16ft before moving sideways 164ft - almost half the length of a football field.

The Perseverance rover, which carried the four-pound rotorcraft to Mars, filmed the 80-second third flight on Mastcam-Z. NASA said Sunday that video clips would be sent to Earth in the coming days. The lateral flight was a test for the helicopter's autonomous navigation system, which completes the route according to information received beforehand.

NASA's Mars Perseverance rover acquired this image using its left Mastcam-Z camera. Mastcam-Z is a pair of cameras located high on the rover's mast. This is one still frame from a sequence captured by the camera while taking video. 'If Ingenuity flies too fast, the flight algorithm can't track surface features,' NASA explained in a statement about the flight.
https://www.dailymail.co.uk/news/article-9509877/Nothing-short-amazing-NASAs-Ingenuity-helicopter-successfully-completes-flight.html?ito=push-notification&ci=141087&si=26726678&ai=9509877

Alphabet unit Wing seeks FAA OK to help expand U.S. drone operations

David Shepardson APRIL 23, 2021

WASHINGTON (Reuters) -Alphabet's Wing Aviation unit asked the U.S. Federal Aviation Administration to waive some drone rules, a move that would allow it expand operations beyond a small city in Virginia, the FAA said in a notice on Friday.

Since 2019, Wing has provided several thousand direct-to-home and on-demand delivery services to residents in Christiansburg, Virginia. "Wing is now seeking to expand and improve upon these operations to serve additional communities," Wing said in asking the FAA for exemptions from some drone rules. The agency said it would accept public comments on the petition before making a decision.

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Wing told the FAA it has recently "made substantial investments designed to increase both the safety and capacity" of U.S.-based drone operations. It has been accident-free for more than 17 months.

Wing wants FAA approval to consolidate remote pilot operations from local facilities "to regional operations facilities that are capable of safely controlling a larger number of aircraft simultaneously." https://www.reuters.com/article/usa-drones-alphabet/update-1-alphabet-unit-wing-seeks-faa-ok-to-help-expand-u-s-%3Cspan%20id='termmatch'%20name='termmatch2'%20class='term-highlight'%3Edrone-operations-idUSL1N2MG185

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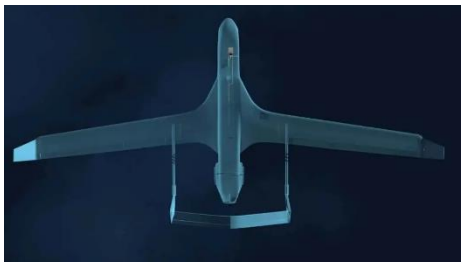
Situational Awareness for BVLOS Drone Flight 26 Apr 2021 Mike Ball



Sagetech Avionics has recently presented a webinar on the up-and-coming requirements for situational awareness that will enable beyond visual line of sight operations for unmanned aerial systems. The webinar was presented as part of a UAV Manufacturer Meet-Up in conjunction with Sagetech's autopilot partner, Micropilot. *Watch a full replay of the webinar here* Topics covered during the webinar include:

- The requirements for UAV BVLOS flight for above and below 400 ft AGL, with a focus on new and emerging requirements
- Situational awareness equipment options based on mission requirements
- A discussion of new and emerging detect and avoid technologies

Sagetech provides a range of componens and system-level detect and avoid solutions that will help UAS operators achieve BVLOS flight safely within regulations. To find out more, watch the full webinar here. https://www.unmannedsystemstechnology.com/2021/04/situational-awareness-for-bvlos-drone-flight/?utm_source=UST+eBrief&utm_campaign=65fe7f09fd-ust-ebrief_2021-apr-27_engaged&utm_medium=email&utm_term=0_6fc3c01e8d-65fe7f09fd-111778317

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Drones for the Environment: Battling Trash in San Francisco Estuaries Miriam McNabb April 26, 2021

Researchers in California are combining drone-captured imagery with the latest artificial intelligence technology to solve an age-old problem, finding plastics and other trash strewn along the banks of creeks and streams before it can be swept away and wind up adding to the growing pollution of a bay or an ocean.

With funding from the California Ocean Protection Council, the California Department of Public Health and the U.S. Environmental Protection Agency, the San Francisco Estuary Initiative (SFEI) is using a DJI Mavic 2 Pro drone to fly over designated areas along stream and creeks throughout the state to capture multiple images. Using machine-learning tools developed by software company Kinetica, these images can be analyzed in real time to identify pieces of trash much more quickly and efficiently than with more conventional methods.

SFEI Program Director Tony Hale, initiated the drone flight project to modernize the institute's existing trash-detection program, which previously had relied largely on people wearing waders walking along the stream bank. https://dronelife.com/2021/04/26/drones-for-the-environment-battling-trash-in-san-francisco-estuaries/

Avigation is Not a Typo; it's a Threat to Drone Ops, Say Two Industry Orgs Jason Reagan April 26, 2021

The Consumer Technology Association and the Association for Unmanned Vehicle Systems International today issued a statement of "concern" about avigation legislation in Louisiana, Mississippi, Texas and West Virginia that would stymie drone operations by dividing airspace, imposing leasing regulations and collecting fees.

"We need a continuation of national rules and approaches from the FAA – not a patchwork of conflicting and unsafe state laws that divide the airspace and increase costs for consumers and drone operators," said Michael Robbins, executive vice president of government and public affairs, AUVSI.

Wait, what is avigation? According to USLegal.com, an avigation easement is an "easement or right of overflight in the airspace above or in the vicinity of a particular property. It also includes

the right to create such noise or other effects as may result from the lawful operation of aircraft in such airspace and the right to remove any obstructions to such overflight." In short, avigation is a cross between aviation and navigation. CTA and AUVSI believe avigation (or "toll roads in the sky") will hamper drone innovation. https://dronelife.com/2021/04/26/avigation-is-not-a-typo-its-a-threat-to-drone-ops-say-two-industry-orgs/

Martin Warner's Autonomous Flight secures £5m to push urban eVTOL development HEADLINE NEWS JOE APRIL 27, 2021

Electrical vertical take-off and landing start-up, Autonomous Flight, has raised £5 million as part of a £25 million Series A round of funding.

Founded by serial tech entrepreneur Martin Warner, Autonomous Flight is building the Y6S Plus– a battery-powered flying aircraft to facilitate short-range transportation in urban areas. The luxury six-seater boasts a unique category defining flight system, operating a three-propeller design.

The Y6S Plus is being designed to reach cruise speeds of 200km/h (125 mph) and will have a range of 130km (100 mi) on a single charge. A concept prototype has been designed and Autonomous Flight is planning to launch in 2023.

"We are developing an almost noiseless, clean technology that will help solve the problem of urban congestion, exploiting virgin airspace between 300ft and 2,000ft above sea-level and revolutionizing travel in the world's busiest cities," said Warner.

"The electronic and autonomous VTOL market will be worth $1.5 trillion by 2040, according to Morgan Stanley, and we are one of only a handful of companies in the world to have developed a full size viable prototype that has led to category-defining innovation."
https://www.commercialdroneprofessional.com/martin-warners-autonomous-flight-secures-5m-to-push-urban-evtol-development/

'Nothing Short of Amazing': NASA Mars Helicopter Makes Longest Flight Yet

Kenneth Chang April 25, 2021

Ingenuity made a 328-foot round-trip journey, helping to demonstrate the capability of the vehicle's navigation system.

NASA's Mars helicopter went up again, going faster and traveling a total distance that was about the length of an American football field on its third trip through the wispy air of Mars.

Like the first two flights, the small experimental flying robot, named Ingenuity, perfectly executed its instructions from Earth. At 1:31 a.m. Eastern time — 12:33 p.m. local Mars time — it lifted 16 feet off the ground, then flew a round-trip distance of 328 feet before landing back where it started. That was about 25 times as far as the second flight flew three days ago. The helicopter reached a top speed of 4.5 miles per hour, and the flight lasted about one minute and 20 seconds.

The flight was a test of the helicopter's navigation system, which visually keeps track of its location by comparing ground features recorded by its onboard camera. The farther it traveled, the more images its camera had to take to remember the landscape below. If it flew too fast, the helicopter could lose track of where it was. "This is the first time we've seen the algorithm for the camera running over a long distance," MiMi Aung, the helicopter's project manager, said in a NASA news release. "You can't do this inside a test chamber." See the video.
https://www.nytimes.com/2021/04/25/science/mars-helicopter-nasa.html

UFO Sightings May Just Be Enemy Drones Gathering US Intel 2021-04-21

A team at *The War Zone* has been compiling information over the last two years to set out a theory that the UFOs seen above the U.S. are, in fact, enemies using drones and other low-end unmanned aerial vehicles to spy on the country's military advancements.

Believing that foreign adversaries have been easily entering military space to gather intel is not easy to accept. On top of that, as the Pentagon may have taken years to acknowledge, and then accept the fact that UFO sightings could actually be enemy drones spying on its country's military forces, it's relatively easy to accept that the U.S. government could be trying to cover

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its tracks by confirming UFOs are real, so that they don't take the blame.
https://www.uavexpertnews.com/2021/04/ufo-sightings-may-just-be-enemy-drones-gathering-us-intel/?utm_source=Master&utm_campaign=915e04b880-EMAIL_CAMPAIGN_2017_12_20_COPY_02&utm_medium=email&utm_term=0_35ad7bc94d-915e04b880-89168672

Doosan Hydrogen Drones Take Flight in the Netherlands Miriam McNabb April 24, 2021

Doosan hydrogen drones will take flight in the Netherlands, testing offshore solutions including drone delivery, marine monitoring, and search and rescue.

South Korean Doosan Mobility Innovation (DMI) has penned a deal with Dutch government agency NHN (Development Agency Noord-Holland Noord, NHN), a regional development organization and governing agency for maritime economic development support project METIP.

As part of the METIP project, METIP partner DroneQ Aerial Services will be the local drone services provider, operating the Doosan hydrogen drones. The Doosan solutions feature hydrogen fuel cell "powerpacks" which give their commercial platforms a flight endurance of more than 2 hours. Projects will include drone delivery, lifesaving applications like search and rescue, environmental monitoring, facility inspections and reconnaissance.

Doosan has already participated in delivery of emergency relief supplies between islands at a distance of 70 km, in a project with the U.S. Department of Health in 2019; and has worldwide customers using their aircraft for commercial delivery of PPE, search and rescue, and gas pipeline monitoring. The company hopes that participation in the METIP project in the Netherlands will lead to a greater market share in Europe.
https://dronelife.com/2021/04/24/doosan-hydrogen-drones-take-flight-in-the-netherlands/

AI-enhanced drone scrambled to protect endangered NZ dolphins Bruce Crumley Apr. 26th 2021

Determined humans and a remarkably smart drone have teamed up to prevent New Zealand's beloved Māui dolphin from looming extinction.

The partnership of government agencies, non-governmental organizations, and concerned

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businesses are using a craft tricked out with artificial intelligence to locate, track, and safeguard the endangered mammals with vastly improved efficiency.

The campaign is spearheaded by conservation NGO Māui63 – the latter being the number of dolphins alive at the project's 2019 launch. The drone-powered effort seeks to learn more about threats to the creatures. It then takes appropriate action to steer them clear of the worst perils to improve survival and procreation rates.

The drive is centered on vertical take-off and landing drones produced by China's Jouav, whose unmanned aircraft allows for heavier payloads and extended flying distances. Its 50x optical zoom camera distinguishes Māui dolphins from similar marine life with 90% accuracy.

Just as impressive, the system can also detect distinctive traits on individuals for identification in mapping the entire population and surveillance of its migrations. Signs of injury, meanwhile, are used to determine likely sources of wounding – especially by fishing craft, whose expanded use of gillnets was a leading cause of Māui dolphin depletion. That analysis allows action to be taken to avert further harmful encounters. https://dronedj.com/2021/04/26/ai-enhanced-drone-scrambled-to-protect-endangered-nz-dolphins/

Drone captures a super yacht nearly overwhelming a Dutch canal David MacQuarrie Apr. 25th 2021

This will likely remind you of the unfortunate blockage in the Suez canal last month. But while there was never any serious danger or threat to trade, a drone shows how a super yacht nearly overwhelms a Dutch canal.

It's just a few feet short of the length of a football field. The super yacht "Viva" travelled very slowly through the tiny canals that wend through Holland to the North Sea. Drone videographer Tom van Oossanen chased the ship for three days from its shipyard on Kaag Island through Gouda and Rotterdam

The 310-foot long super yacht looks immense travelling through the quaint Dutch villages. And it is. But for perspective, Queen Elizabeth's Royal Yacht Britannia was one hundred feet longer. And the Ever Given that blocked the Suez canal in March did so with a length of 1,312 feet of nautical steel. Still, the Viva is a whole lot of ship and it took two tugboats to delicately guide her. At some points, the canal was only two feet wider than the 44-foot wide ship. Even then,

two pontoons attached to the ship lifted her out of the water slightly to accommodate the shallow canals. https://dronedj.com/2021/04/25/super-yacht-nearly-overwhelms-a-dutch-canal/

AI-powered facial recognition drones track criminals in UAE Ishveena Singh Apr. 26th 2021

This may sound like something straight out of an episode of *Black Mirror*, but police surveillance via facial recognition drones has already become a reality in the Middle East.

Police in Sharjah, the third-most populous city in the United Arab Emirates, are using drones with facial recognition technology to track wanted criminals. The law enforcement agency is leveraging a video surveillance network powered by artificial intelligence for this task, according to a report published in *Gulf News* today.

Here's how the technology works: Once a felon's photograph is fed into the AI network, facial recognition drones take to the skies and scan crowded public spaces. When a drone suspects it has spotted a target, it captures his or her images – possibly flying lower and adjusting the gimbal for a better angle.

Machine learning models then scan the images for instant analysis. If any matches are found, the ground units of the police force move in to make the arrest.
https://dronedj.com/2021/04/26/facial-recognition-drones-sharjah-police/#more-56332

Soyuz rocket launches 36 OneWeb internet satellites to orbit Elizabeth Howell 2 days ago

An Arianespace Soyuz rocket launched 36 new OneWeb internet satellites into orbit tonight (April 25), further building the company's broadband constellation.

The rocket lifted off from Vostochny Cosmodrome in eastern Russia at 6:14 p.m. EDT. If all goes to plan, this next clutch of satellites will fly to a near-polar orbit, joining a growing constellation at an altitude of roughly 280 miles. All 36 satellites were successfully deployed by about four hours after launch, Arianespace representatives said.

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"OneWeb's mission is to bring internet everywhere to everyone, by creating a global connectivity platform through a next-generation satellite constellation in low Earth orbit," launch provider Arianespace said in a statement.

"Once deployed, the OneWeb constellation will enable user terminals that are capable of providing high-speed access globally — by air, sea and land," Arianespace added, noting that OneWeb hopes to scale service by year's end to underserved, northern areas in the United Kingdom, Alaska, Canada, northern Europe, Greenland, Iceland and the Arctic.

The flight is the sixth mission Arianespace has launched on behalf of OneWeb. With this latest batch deployed, OneWeb now has 182 satellites in orbit, with eventual plans to have 650 satellites in the constellation. Called Launch 6 by OneWeb, the mission is the third for the company's "Five to 50" program, which aims to provide internet access for customers north of 50 degrees latitude by June 2021. https://www.space.com/soyuz-rocket-oneweb-6-internet-satellites-launch

US APPROVES SALE OF MQ-9B REAPER DRONES TO AUSTRALIA Adam Thorn April 26, 2021

The US federal government has given the green light for Australia to purchase up to 12 General Atomics MQ-9B SkyGuardian drones.

In a statement, the State Department said it was vital to the national interest to “assist our ally in developing and maintain a strong and ready self-defense capability”.

The deal is likely to be worth more than $2 billion and is part of “Project AIR 7003”, a program to deliver an armed remotely piloted aircraft system to the ADF.

“This proposed sale will support the foreign policy and national security objectives of the United States. Australia is one of our most important allies in the western Pacific,” the United States Defense Security Cooperation Agency said in a statement. “The strategic location of this political and economic power contributes significantly to ensuring peace and economic stability in the region.” https://australianaviation.com.au/2021/04/us-approves-sale-of-mq-9b-reaper-drones-to-australia/

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Global UAV market expected to soar to new heights in 2020s Bruce Crumley Apr. 27th 2021

Valued at $19.5 billion in 2019, the global market for all types of airborne drones is expected to surpass $55.6 billion by 2027, according to a new forecast by Research Dive.

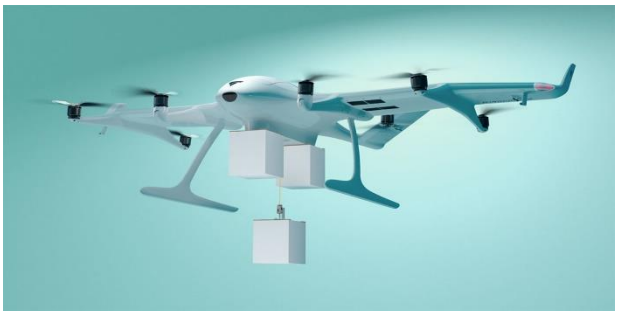
Military and defense applications are projected to continue to dominate about half of total spending during that period. However, business in consumer drones is set to outpace the security side in annual rates of growth for most of the coming decade.

The Research Dive study foresees military procurement of drones expanding at a breakneck 20.8% compound annual growth rate through 2027. Tucked in beside typical defense applications are the use of drones by federal agencies to monitor pesticides, fertilizers, water, and seed effects on vast agricultural areas. Trade in consumer drones is set to clock in highest of all growth levels, with 20.9% annually. That expansion, moreover, could prove even stronger as the pandemic eases.

Spiking trade in the sector would mean many, many more whirring bodies in the skies. Consequently, Research Drive warns resulting moves by local and national authorities to regulate and otherwise restrict drone operation could well undermine continued growth before it ever reaches full potential. https://dronedj.com/2021/04/27/global-uav-market-expected-to-soar-to-new-heights-in-2020s/

The world's first triple-drop delivery drone is here [Wingcopter 198 Video]

Ishveena Singh Apr. 27th 2021



Drone delivery company Wingcopter, which was recently named as a Technology Pioneer by the World Economic Forum, has spruced up its hat with a new feather. The German drone manufacturer has announced the world's first fully automatic triple-drop delivery drone: the Wingcopter 198.

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The drone is an all-electric, vertical-take-off-and-landing fixed-wing drone that has been designed from the ground up to carry up to three different payloads.

The Wingcopter 198 can carry a maximum of 6 kg on one battery charge of 75 km. With a lesser payload weight (1 kg), the drone can travel up to 95 km – no matter the weather conditions.

The Wingcopter 198 has a collision avoidance system built in, including ADS-B in, FLARM, and Remote ID. The company says it has also packed the 5G-enabled drone with multiple optical sensing cameras to detect obstacles. An AI system has also been integrated to assess real-time risks and initiate evasive flight maneuvers, if necessary.

A new control station software ensures that one operator can control a fleet of up to 10 drones simultaneously. And an advanced management technology keeps tabs on the performance data from different components to avoid unplanned downtimes, improve parts reliability, and lower maintenance costs. https://dronedj.com/2021/04/27/drone-delivery-wingcopter-198/#more-56515

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Aerial Ride-Sharing: Joby Aviation on Safety, Noise, and the Future of Your Commute staff April 27, 2021 Dawn M.K. Zoldi, Guest Contributor

This week at the Electric & Hybrid Aerospace Technology Virtual 'Live, 'Gregor Veble Mikić, Flight Physics Lead for Joby Aviation, discussed their eVTOL S4 aircraft and business model, worth noting as they are valued at more than $6B and climbing.

The company's vision is to launch a global-scale vertical integrated ground-based taxi service like Uber for cars but "aerial ride-sharing to unleash the 3rd dimension of transportation." Mikić says in major metropolitan areas, their ride will be five times faster than driving. Even better, the infrastructure will be a fraction of the cost of rail or highway development.

Key objectives for the vehicle's design included: safety, noise, payload, range and speed. "Safety is a hard constraint and all the others are relevant to economic viability." Noise was crucial because they want to bring this aircraft close to people. Range determines the size of the potential market. Speed increases passenger benefits and utilization of the vehicle.

Joby enhances safety through automation in the majority of its systems. They designed the aircraft for automatic reconfiguration under loss of function of any component. Automation also reduces pilot workload so they can focus on flight instead of system management, which also increases safety of flight. “Increasing automation puts us on the path to complete autonomy.”

Will Joby aerial ride-sharing be coming soon to a city near you? Hard to say, but clearly, Joby has the vision, the capital and the aircraft to make it so. https://dronelife.com/2021/04/27/aerial-ride-sharing-joby-aviation-on-safety-noise-and-the-future-of-your-commute/

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Doosan hydrogen drones will take flight in the Netherlands, testing offshore solutions including drone delivery, marine monitoring, and search and rescue.

South Korean Doosan Mobility Innovation (DMI) has penned a deal with Dutch government agency Development Agency Noord-Holland, a regional development organization and governing agency for maritime economic development.

DroneQ Aerial Services will be the local drone services provider, operating the Doosan hydrogen drones. They feature hydrogen fuel cell “powerpacks” which give their commercial platforms a flight endurance of more than 2 hours. Projects will include drone delivery, lifesaving applications like search and rescue, environmental monitoring, facility inspections and reconnaissance. https://dronelife.com/2021/04/24/doosan-hydrogen-drones-take-flight-in-the-netherlands/?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=123865301&_hsenc=p2ANqtz--rwF-2MYIKSYyxSFeL3zbFXHww7stwUaRk8uB5YWjDajq7HNO9TM5eqwMz3a7D7esgYT0F5GliiOAYiCLsP2yeIduq3g&utm_content=123865301&utm_source=hs_email

Parrot and Rapid Imaging bring AR situational awareness to professional drone users HEADLINE NEWS JOE APRIL 28, 2021

ANAFI platform drone users will now have access to Rapid Imaging’s SmartCam3D SDK, allowing them to interact with live drone video in the same ways they would a map display, such as dropping a pin to mark a location or geocoding a selection from the real-time video stream.

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"Parrot GPS coordinates and flight features combined with SmartCam3D provides first responders and military personnel with up-to-date geospatial AR overlays on live video, combining the benefits of both a 2D map display and a Full-Motion-Video display into a single operating picture." said Jerome Bouvard, Parrot Director of Strategic Partnerships.

SmartCam3D overlays geospatial data such as Street Vectors, Road Names, Points of Interest, Polygons, and other pertinent map entities onto real-time, full-motion-video provided by the ANAFI USA's powerful 4K HDR video, 32x zoom, and live video streaming capabilities.

These capabilities present opportunities ranging from airborne law enforcement, insurance, and industrial inspections, to natural disaster response, real estate, and search and rescue operations. https://www.commercialdroneprofessional.com/parrot-and-rapid-imaging-bring-ar-situational-awareness-to-professional-drone-users/

Drone operators challenge surveyors' turf in mapping dispute BRYAN ANDERSON Sun, April 25, 2021

RALEIGH, N.C. (AP) — When Michael Jones started shooting drone photos and videos for realtors, his clients wanted more: Images with property lines on them, to better understand where their fences should be. It seemed like a good use of emerging technology that met an obvious consumer demand, and Jones was careful to add a disclaimer: His maps weren't meant to replace the proper surveys that are often needed for such things as mortgages, title insurance and land use applications.

But after two years of steady business, Jones was slapped by the state of North Carolina in 2018 with an order that grounded his drone. The Board of Examiners for Engineers and Surveyors said he faced criminal prosecution for surveying without a license.

Eager to deploy a technology that's disrupting the staid practice of surveying nationwide, Jones sued last month, accusing the board of violating his First Amendment rights. "I would like to have the right back to fly," Jones said. "I don't feel like I'm offering surveying, and I'm telling people this is not accurate mapping, this is only for visual, and all of my clients understood that."

Jones is one of many drone pilots coming into conflict with regulations designed to protect surveying professionals, whose exclusive roles are being disrupted now that it's possible to

nearly precisely combine line drawings with images to better resolve property disputes. https://news.yahoo.com/drone-operators-challenge-surveyors-turf-135313321.html

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Martin UAV Selected to Prototype Navy UAS AP yesterday

PLANO, Texas - April 28, 2021 - The Navy selected Martin UAV 's V-BAT for a VTOL UAS prototyping and development effort to fulfill new technological requirements driven by the changing nature of threats in austere operating environments.

Martin UAV was one of thirteen respondents to the Navy's Mi2 Challenge and was later down selected with L3Harris Technologies to compete in a technology demonstration at the Yuma Proving Grounds Arizona. The merit-based competition that included technology questionnaires, performance summaries, and in-depth supporting artifacts in accordance with established criteria, sought maximum portability, self-sufficiency and modularity in UAS hardware and payload capabilities without the need for ancillary support equipment.

The V-BAT was selected to meet these requirements because of its minimal logistic support requirements and maximum versatility. The system offers vertical takeoff with a single-engine ducted fan, automatic transition to straight and level flight, easily commanded hovers and stares, interchangeable payloads, and an open architecture. https://apnews.com/press-release/newswire/technology-business-b643f24bc39fa1a4bbd7f81147ba95f0

SpaceX rocket launches another 60 Starlink satellites, nails its 7th landing at sea

Amy Thompson about 10 hours ago

CAPE CANAVERAL, Fla. — A SpaceX Falcon 9 rocket launched a new batch of 60 Starlink internet satellites into orbit on Wednesday evening (April 28) and nailed a landing at sea to top off a successful mission.

The veteran Falcon 9 rocket blasted off from Space Launch Complex 40 at Cape Canaveral Space Force Station in Florida at 11:44 p.m. EDT marking the company's 10th launch of the year.

"The Falcon 9 first stage has landed for its seventh time," SpaceX engineer Jessie Anderson said during the launch broadcast. "This marks our 81st recovery of an orbital class rocket."

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Approximately nine minutes later, the rocket's first stage returned to Earth, touching down on SpaceX's drone ship "Just Read the Instructions," for its seventh successful landing.

SpaceX is continuing the rapid launch pace set last year, as the Hawthorne, California-based rocket builder celebrated its 12th launch so far in 2021. Most of those launches have been SpaceX's own Starlink satellites, as the company surpasses its initial internet constellation of 1,440 broadband satellites. That constellation could eventually be tens of thousands of satellites strong as SpaceX has permission to launch as many as 30,000, with an option for even more. https://www.space.com/spacex-starlink-24-satellite-mission-launch-rocket-landing

DRONE HARDWARE SALES GOT A BOOST FROM COVID-19 April 29, 2021 Sally French The Drone Girl News

Drone hardware sales saw a huge surge in the past year according to the first-ever Drone Hardware Sector Report (2021 – 2026), released by longtime drone research firm DroneAnalyst.

The largest jump occurred in the field of agriculture spraying, where hardware sales rose 135% — and much of that growth was in Asia. A DroneDeploy survey of 600 of its users across 40 countries found that 88% of respondents said they expect to increase or maintain their spend on drone operations in 2021. They saw a 33% increase in drone takeoffs among U.S. agricultural clients from mid-March to mid-April 2020.

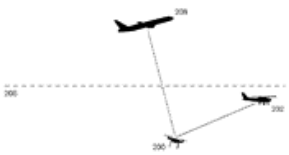
Other sectors also rapidly adopted drones — notably logistics — as people's new, socially-distanced lifestyles prompted landmark opportunities for drone delivery.

Sense and avoid hardware has also seen huge growth thanks to the success of companies like indoor industrial inspections company Flyability, and collision avoidance tech maker Iris Automation. In fact, 15% of all drone industry companies say that they saw growth due to coronavirus. https://www.thedronegirl.com/2021/04/29/covid-19-drone-hardware-sales-report-shows/

uAvionix Receives Patent for ADS-B Inert & Alert Capability for UAS April 27, 2021 News

uAvionix, a pioneer in communications, navigation, and surveillance avionics for unmanned systems, today announced it has been granted a new patent that aids safe and secure integration of Unmanned Aircraft Systems into National Airspace Systems. U.S. Patent

10,991,260, titled "Intelligent Non-Disruptive ADS-B Integration for Unmanned Aircraft Systems (UAS)" provides the ability for UAS to take advantage of the safety benefits of ADS-B while minimizing spectrum utilization.



uAvionix first revealed this concept in a 2018 white paper titled "ADS-B Inert and Alert – A Solution to the ADS-B Spectrum Concerns." The Inert and Alert Concept preserves spectrum by allowing the onboard UAS ADS-B solution to remain "inert" in a non-broadcasting "listen" mode until a safety-critical event such as a C2 lost-link or other aircraft proximity triggers it to begin broadcasting its ADS-B position as an "alert". Once the conditions are safe again, the system reverts to its "inert" state.
https://uasweekly.com/2021/04/27/uavionix-receives-patent-for-ads-b-inert-alert-capability-for-uas/?utm_source=rss&utm_medium=rss&utm_campaign=uavionix-receives-patent-for-ads-b-inert-alert-capability-for-uas&utm_term=2021-04-28

Parrot and Rapid Imaging bring AR situational awareness to professional drone users April 27, 2021 News

This partnership pairs Parrot ANAFI USA, ANAFI platform drones, and the FreeFly SDK with Rapid Imaging's SmartCam3D® SDK, the industry-leading geospatial Augmented Reality and situational awareness platform for Unmanned Aircraft Systems.

SmartCam3D® overlays geospatial data onto real-time, full-motion-video provided by the ANAFI USA's 4K HDR video, 32x zoom, and live video streaming capabilities. SmartCam3D® also allows end-users to interact with live drone video in the same ways they would a map display, such as dropping a pin to mark a location or geocoding a selection from the real-time video stream.

Available features include geospatial AR, allowing users to enjoy a "Google Maps-like" experience but with live drone video as the background layer, and select the types of maps displayed on their live video feed. Custom GIS data integration allows users to import their own geospatial data to display. Pin-Dropping allows users to mark locations within the live video with AR annotations and communicate those locations to a map display. Forward and reverse-geocoding allows pilots to designate a point in the video and immediately receive the geospatial data associated with that point (e.g., Lat/Long or Address) or designate a location (i.e., Lat/Long or Address) and mark the location with an AR annotation within the video display. Cross-Cuing allows end-users to simultaneously navigate a full-motion-video and map

display. https://uasweekly.com/2021/04/27/parrot-and-rapid-imaging-bring-ar-situational-awareness-to-professional-drone-users/?utm_source=rss&utm_medium=rss&utm_campaign=parrot-and-rapid-imaging-bring-ar-situational-awareness-to-professional-drone-users&utm_term=2021-04-28

Cloudless: UAV startup's drone swoops through the stratosphere Bruce Crumley Apr. 28th 2021

Appropriately named Polish startup Cloudless has successfully completed another experimental flight of its solar-powered Ultra Long Endurance Platform drone – this time at a dizzying altitude of 24,784 meters/81,312 feet above Earth.

The unmanned aerial vehicle aced a barrage of flight and performance tests during its 2.5 hours in the heavens. And once it completed those challenges, the craft touched down almost precisely on its designated landing spot.

The demand for UAVs like the Cloudless craft will only grow as cheap stratospheric drone options evolve. Aerospace giants including Airbus, Lockheed Martin, BAE Systems, and Northrop Grumman are all active in the estimated $23 billion High-Altitude Pseudo-Satellite (HAPS) market. Tech companies Facebook, Google, Amazon, and HAPS mobile have also gotten involved.

Their ULEP-1 is hoisted to designated altitudes by a giant balloon and set free. There, the glider draws energy via solar panels at an altitude where there are no weather conditions to obscure the sun. That means constant power to run the glider's computers and transmitters and drive its propeller for thrust when needed.

According to Cloudless, further development will permit the craft to remain aloft for months, and eventually a full year per flight. Equipped with artificial intelligence capabilities, robotic functions, and communication gear, the drones will be able to service HAPS while keeping operators abreast in real time. See the video… https://dronedj.com/2021/04/28/cloudless-uav-startups-drone-swoops-through-the-stratosphere-nearly-25000-meters-above-earth/#more-56566

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Order up: Drones are now delivering Girl Scout cookies in Virginia Ishveena Singh Apr. 28th 2021

This cookie-selling season has been hard on Girl Scout troops. The girls in uniform have been quick to adapt. They have taken to promoting unique sales links on social media apps, partnered with food delivery platforms, and set up "virtual cookie booths" online to tempt folks with Thin Mints, Samoas, and Tag-alongs.

The sales, however, are still down. This is why the Girl Scouts of Virginia Skyline reached out to Google-developed drone delivery company Wing.

Wing has been operating a commercial drone delivery service in Christiansburg, Virginia, since 2019. The residents love the service and have been using it to receive everything from FedEx packages and library books to hot meals and grocery products.

Wing has committed to delivering 3,000 boxes of Girl Scout cookies to the community of 20,000 residents via drones but will deliver more if necessary. The orders, meanwhile, have started to pour in.

As the girls help the Wing team prepare the orders, they are also learning about drone technology. And this, we think, is awesome, because we need more girls in the drone industry, and what better way to get them excited about the tech than to have them see it in action! And if you're in Christiansburg, Virginia, you can place your Girl Scout cookies drone delivery order here. https://dronedj.com/2021/04/28/girl-scout-cookies-drone-delivery/#more-56576

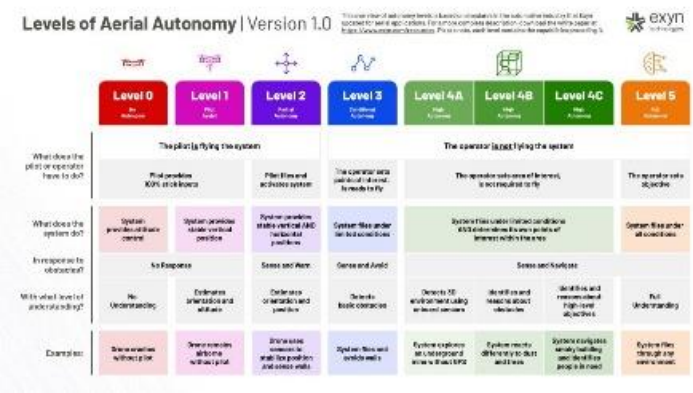
Exyn's LiDAR drones achieve Level 4 aerial autonomy, aka humans not needed

Ishveena Singh Apr. 28th 2021

The mad geniuses at Exyn Technologies have broken the barriers of what is possible with drones in dark, dusty, and dangerous places where GPS is not available. Exyn's LiDAR drones are now capable of mapping and surveying complex underground mines on their own – without a pilot in the loop.

The ExynAero drone has achieved the highest levels of 3D aerial autonomy to date: Level 4. Unlike the global standards of self-driving set by SAE International, the autonomy levels for drones have not been defined by a widely accepted industry body yet. This is why Exyn has

adapted SAE's standards for aerial applications and defined its own levels of drone autonomy – a practice that competitors like Emesent also follow. Accordingly, Exyn's current version of drone autonomy levels looks like this:



Exyn says they have reached Level 4A – a stage where the drone becomes completely self-reliant for open-ended exploration and does not require *any* human interaction during flight. In ideal conditions, Exyn's LiDAR drones can fly at up to 2 m/s and cover 16 million cubic meters in a single flight – a volumetric equivalent of almost nine football stadiums. To help you understand this feat better, the company has put out a video that shows its drone exploring a 3D volume of interest on its own in an underground mine. Take a look: https://dronedj.com/2021/04/28/exyn-level-4-aerial-autonomy/#more-56553

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