UAS and SmallSat Weekly News

Contents

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

20Mar21

Former SpaceX engineers propose two-stage eVTOL for regional flight and US military Garrett Reim18 March 2021

Two former SpaceX engineers are proposing a two-stage electric vertical take-off and landing aircraft for regional cargo and passenger flight, as well as for US military missions.

Talyn Air's eVTOL system is made of a lift vehicle and a cruise vehicle that are connected for take-off and landing.

"The system takes off together vertically; transitions to forward flight; the two vehicles separate; the VTOL portion returns to the take-off pad; and the aircraft flies long distance," says Talyn Air chief executive Jamie Gull. "It's an electric aircraft at that point: very efficient, very aerodynamic, lower mass, so it can go much further. It will then do a mid-air docking with another VTOL vehicle at the destination, transition to vertical flight and do a landing. You get to optimize each vehicle around that phase of flight."

The company argues that the system would be more cost effective than the eVTOL designs currently proposed, many of which are tiltrotor configurations.
https://www.flightglobal.com/helicopters/former-spacex-engineers-propose-two-stage-evtol-for-regional-military-use/142967.article

Return of the tri-plane: British-built powered by electricity and biofuel quieter than Hoover JOE PINKSTONE FOR MAILONLINE 18 March

A hybrid aircraft that is quieter than a Hoover and harks back to the tri-planes of the First World War is aiming to be at the forefront of eco-friendly air travel. Faradair, based at Duxford, aims to have its bio-electric aircraft (Beha) ready for commercial flights by 2026 with a full fleet available by the end of the decade.

The futuristic 18-seater airplane sports a triple-box wing setup — famously associated with German WWI flying ace the Red Baron — and incorporates a combination of electric motors and biofuel.

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

The Beha is expected to register around 70 decibels when taking off and landing, around the same noise level as a household vacuum cleaner, whereas traditional jet engines can reach 140dB.

Biofuel engines will take over while cruising and power a turbogenerator. The engines will also help recharge the electric motors, with the assistance of solar panels. It will be ready for commercial flights in 2026 with 300 operational by the end of the decade. https://www.dailymail.co.uk/sciencetech/article-9375469/British-firm-develops-ultra-quiet-bioelectric-hybrid-aircraft.html?ito=1490

Textron Lands $607M Contract to Update Army RQ-7B Tactical UAS Brenda Marie Rivers March 19, 2021 Contract Awards, News

A Textron (NYSE: TXT) business segment has secured a potential five-year, $607 million contract to engineer and convert the U.S. Army's Shadow RQ-7B unmanned aircraft system to an updated configuration.

Textron Systems said Thursday it will perform technical and logistics work in addition to installing Block III features into the company built tactical UAS to help the branch ensure Shadow fleet mission readiness.

Modernization work is taking place at a company facility in Hunt Valley, Maryland, and comes after the Army tested and evaluated the new configuration.

Shadow TUAS has a payload capacity of 95 pounds and can operate 8 to 9 hours at a line-of-sight range of up to 77.6 miles. The Block III system includes new features designed to increase engine power, reduce its acoustic signature and support communications and high-definition video processing. https://www.govconwire.com/2021/03/textron-lands-607m-contract-to-update-army-rq-7b-tactical-uas/

EHang announces plans for tree-inspired Italian vertiport Ben Coxworth March 16, 2021

Although we may like to imagine "air taxis" picking us up wherever we want, the fact *is* they will likely be limited to specific landing locations. With that in mind, Chinese air mobility company EHang has announced plans for a "vertiport" in Italy.

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

EHang is developing an eVTOL vehicle capable of picking up either one or two passengers – then autonomously flying them to their destination. To the company's credit, it has reportedly already delivered 40 functioning air taxis to customers for testing, training and demonstration purposes.

The just-announced vertiport is being designed in partnership with Italian architecture firm Giancarlo Zema Design Group, as part of EHang's efforts to build its presence in the European Union market. Inspired by the African baobab tree, the structure will take the form a 98-ft tower constructed of steel and laminated wood.

Passengers will take an elevator to the takeoff and landing platform on the roof terrace. Immediately below that terrace will be a waiting room and a 2,153 sq ft panoramic restaurant. Additionally, plans call for an array of photovoltaic panels to generate over 300 kilowatts of power per day – some of this will go to three independent plug-and-play charging stations

The vertiport is being designed with the eco-tourism industry in mind – air taxis will pick passengers up at the tower, then take them on sightseeing tours of the surrounding countryside. The exact location of the Italian vertiport has yet to be announced, but the company states that additional structures are planned for other places in Europe and Southeast Asia. https://newatlas.com/architecture/ehang-italy-vertiport/

UAE: Drones plant 10,000 Ghaf trees within hours Saman Haziq/Sharjah *March 16, 2021*

The ghaf tree seed project is the brainchild of Rashid Al Ghurair, founder and CEO of Cafu.

Around 10,000 Ghaf trees will soon dot the green belt of Sharjah's Mleiha desert, thanks to the high-tech drones that did the job and planted the seeds in just a few hours. Taking the tech even further, the start-up behind the project is now getting ready to move beyond ghaf and let the drones plant other native seeds.

It would normally take months to plant thousands of trees in the desert by hand. But Dubai-based tech firm Cafu has found a way to speed up the entire process by using unique seedballs. These were then dispatched in the desert by a highly sophisticated multi-rotor drone.

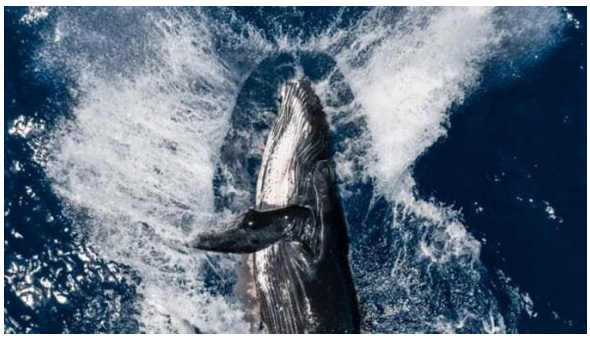
Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.net

Cafu had earlier announced that its mega plan to plant one million Ghaf trees via drones in two years. On Monday, it said it had already completed two rounds of planting over 10,000 seeds in the desert this year. Since they started the project, the team has continuously developed its technologies. Now, it is using a first-of-its-kind planting mechanism designed by Cafu engineers.

Speaking at a conference where the team demonstrated how the artificial intelligence-powered drones work, Cafu's sustainability and community manager Nabra Al Busaidi said: "In 2019, we did surface seeding, but with research and development over the past year, we learned a smarter germination process using seed balls that protect the seed from getting spoiled…We then used our drone to drop these seed balls in the soil at a certain pace so it penetrates to a depth of 1cm below the ground... https://www.khaleejtimes.com/news/uae-drones-plant-10000-ghaf-trees-within-hours

SkyPixel Announces Winners Of Its 2020 Aerial Storytelling Contest March 19, 2021

News | Photography & Videography



SkyPixel, one of the world's most popular aerial photography community, today announced the winners of its 2020 Aerial Storytelling Contest. Co-organized with DJI, this year's contest attracted more than 26,000 submissions from professional photographers, videographers, aerial enthusiasts and content creators from 136 countries.

The grand prize winner in the Photo Category Karim Iliya used his Mavic 2 Pro to capture a young humpback whale using his powerful tail fin to launch himself out of the water near Tahiti. "Humpback whales breach for a variety of reasons including communication, fighting, barnacle and parasite removal, waking up, playing and more," said Iliya. "For humpback whale calves like this one, playing is an important way to build muscles and prepare for the long journey to Antarctica."

In addition to the Grand Prize Winners, there were also First, Second and Third Prizes categories such as vlog, travel, sports, nature, architecture and portrait. From the beautiful landscape of Iceland to exploring the Dead Sea by kayak to riding gravel bikes in France, the winning submissions captured thrilling images from around the world. To view the submissions, please visit: https://www.skypixel.com/contests/2020.
https://uasweekly.com/2021/03/19/skypixel-announces-winners-of-its-2020-aerial-storytelling-

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

contest/?utm_source=rss&utm_medium=rss&utm_campaign=skypixel-announces-winners-of-its-2020-aerial-storytelling-contest&utm_term=2021-03-19

Iris Automation, APS jump-start FAA-approved pipe inspections Josh Spires Mar. 18, 2021

Iris Automation is working with Aerial Production Services to help jump-start FAA-approved pipeline inspections. The two are helping a client switch from satellite and plane images for inspections to high-quality drone images. As a result, the client has improved its inspection frequency by 350% and dramatically reduced associated costs.

To make these pipeline inspection flights possible, a waiver from the FAA was required as it involved flying beyond the pilot's line of sight. Iris Automation was able to help get the waiver and managed to cut down the wait time by six months.

APS is a drone service provider for the telecommunications, natural gas and oil, and construction industries, focusing on providing inspection services. The company has over 17,000 flights under its name and has flown in 49 states. All the flights have remained within the pilot's line of sight, with this one being the first BVLOS flight.

The waiver application was built using Iris Automation's Regulatory Resource Center. It creates a risk assessment, mitigation, and CONOP package for BVLOS flights. It also has an online portal to build, test, and audit complex operational approvals.

Iris Automation is best known for its Casia detect and avoid (DAA) solution. The system detects other aircraft flying nearby and classifies them using computer vision algorithms. The system then uses this data to figure out what the drone's next move should be. If the system decides it is a threat, the pilot is notified and gains control of the drone to maneuver the drone out of danger. https://dronedj.com/2021/03/18/iris-automation-aps-jump-start-faa-approved-pipe-inspections/#more-52819

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

21Mar21

Drone vaccine delivery? Agile aircraft reimagine cold-chain logistics in rural North Carolina R. Dallon Adams Innovation March 4, 2021

Volansi has been working with pharmaceutical giant Merck for nearly three years to deliver cold-chain vaccine supplies for disaster relief efforts.

In October 2020, Volsani officially announced the launch of a program in North Carolina designed to deliver cold-chain medical supplies to rural parts of the state. Volansi is working with Merck to ship medical supplies directly from the vaccine manufacturer to hospitals.

Rather than delivering the cargo mid-air via parachute or releasing an onboard hook, once Volsani's drone lands at the delivery location it releases the payload box connected to the craft's underbelly to protect the cargo. Land. Release. Repeat. Hence the name "soft-touch delivery."

The VOLY C10 series drone has a 10-pound payload capacity and a 50-mile range. This lift capacity means the payload can pack ample insulation; a necessary spec design when delivering temperature-sensitive medical supplies. https://www.techrepublic.com/article/drone-vaccine-delivery-agile-aircraft-reimagine-cold-chain-logistics-in-rural-north-carolina/

22Mar21

UAE to trial 'electric-shock drones' to spark rainfall INTERNATIONAL JOE PESKETT MARCH 22, 2021

The UAE has invested more than $1 million in tasking a team of UK scientists and engineers to develop a drone solution to induce rainfall in the Gulf. The drones will deliver an electric charge into clouds causing water droplets to cling together and develop into rain drops.

The UAE already invests heavily in cloud seeding and this is the latest initiative designed to increase rainfall over the increasingly dry desert. Inducing rainfall is important in the UAE, where there is only 100mm of rainfall a year and where most of the food is imported. Scientists from the University of Reading are involved in the project.
https://www.commercialdroneprofessional.com/uae-to-trial-electric-shock-drones-to-spark-rainfall/

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

Dronehub security drones spring into action when alarm is tripped HEADLINE NEWS JOE PESKETT MARCH 22, 2021

Dronehub and RCS Engineering have integrated their technologies to create a monitoring and security system based on breach detectors that trigger an autonomous control raid of the drone. The solution will improve the level of security and reduce the cost of protecting the facilities.

The integration of both companies will consist of combining the drone solutions provided by Dronehub with the building infrastructure management software with which RCS Engineering is integrated.

Sensors placed for example in a fence will alert customers to any irregularities related to the violation of the security of the area. The signal will be received by the drone, which will autonomously direct itself to the indicated place and send the image and information about the security breach to the application. This will allow manual workers to take appropriate security measures.
https://www.commercialdroneprofessional.com/dronehub-security-drones-spring-into-action-when-alarm-is-tripped/

Antwerp Port to launch UTM system – appoints Unifly as industrial partner March 18, 2021 Philip Butterworth-Hayes UAS traffic management news

The Port of Antwerp has become one of the first seaports to initiate unmanned air traffic management in a busy and complex port environment and is the first non-aviation authority to become a fully-fledged geozone manager. The port will be responsible for managing ground risk related to above-the-ground activity, with respect to operational and working drones, overall safety and seamless integration of processes required; all of which are intended to ramp up productivity and efficiency of port operations.

Under new European legislation, ports now have the authority to coordinate and manage drones in their airspace, especially ground risks posed. According to the press statement:

“Port of Antwerp has identified specific requirements for its role as a geozone manager, such as the ability to simultaneously handle a multiple workflow, multi-layered authorisation process and robust real-time surveillance and detection capabilities. Given the vast area of responsibility within this busy seaport, it is the first time that a geozone management system of

this scale and complexity will be created.
https://www.unmannedairspace.info/uncategorized/antwerp-port-becomes-first-seaport-with-utm-system-with-unifly-as-industrial-partner/

FAA Pushes Back Date 2021-03-19 UAV Expert News

The final rules requiring remote identification of drones and allowing some flights over people, over moving vehicles and at night under certain conditions will go into effect on April 21, 2021.

Remote identification requires identification of drones in flight as well as the location of their control stations or takeoff point. It provides crucial information to our national security and law enforcement partners and other officials charged with ensuring public safety. Airspace awareness reduces the risk of drone interference with other aircraft, people and property on the ground.

The ability to fly over people and over moving vehicles varies depending on the level of risk a drone operation presents to people on the ground. This rule allows operations at night under certain conditions. Prior to flying under the new provisions, a remote pilot must pass the updated initial knowledge test or complete the appropriate updated online training course, which will be available on April 6, 2021.

Part 107 currently prohibits drone operations over people, over moving vehicles and at night unless the operator obtains a waiver from the FAA. The new FAA regulations provide increased flexibility to conduct certain small drone operations without obtaining a waiver.
https://www.uavexpertnews.com/2021/03/faa-pushes-back-date/?utm_source=Master&utm_campaign=9daad6d631-EMAIL_CAMPAIGN_2017_12_20_COPY_01&utm_medium=email&utm_term=0_35ad7bc94d-9daad6d631-89168288

U.S. Army Pushes Ahead with Battlefield Resupply Drones Mar 16, 2021 David Hambling Contributor Aerospace & Defense

Lt. Gen. Michael "Erik" Kurilla, commander of XVIII Airborne Corps, has endorsed moving ahead with wider-scale testing of drones for battlefield resupply after successful demonstrations. During the recent Army Expeditionary Warrior Experiment 2021, a company-sized unit carried out a defensive action in which the defenders ran low on ammunition and two commercial drones flew a rapid resupply mission.

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

Two types of drone were used, one carrying an 80-pound load, the other 150 pounds. Ammunition packs were made up in advance so that rather than detailing what they needed, the unit could just order "Package Two" to get a suitable mix of calibers.

A typical 80-pound load could include 400 rounds of belted ammunition for the M240 medium machinegun, plus 500 rounds for the M249 light machinegun, and another 500 to 600 rounds for M4A1 assault rifles. The larger payload could include over 2,000 rounds of 7.62mm. The drones can also carry other supplies such as five-gallon containers of water.

This type of rapid resupply could be even more valuable for an attacking situation, where troops are not able to stockpile ammunition.
https://www.forbes.com/sites/davidhambling/2021/03/16/us-army-pushes-ahead-with-battlefield-resupply-drones/?sh=4dca1ef96b94

US Navy looks at manned-unmanned teaming role for E-2D Advanced Hawkeye

Garrett Reim 19 March 2021

The US Navy is planning to award Northrop Grumman a sole-source contract to modify the E-2D Advanced Hawkeye's mission computer and display software so that the early warning aircraft could control unmanned air vehicles.

E-2D Advanced Hawkeye lands aboard aircraft carrier USS *Gerald R Ford*

"There is going to be a control center on the carrier for our unmanned air vehicles," said Vice Admiral James Kilby, deputy chief of naval operations for warfighting requirements and capabilities, in testimony before the US House Armed Services Committee on 18 March

The unmanned MQ-25A tanker is intended to extend the reach of the Lockheed Martin F-35C, which has an unrefueled range of about 1,200nm – not long enough to keep US aircraft carriers outside of the striking distance of China's land-based ballistic and cruise missiles.

The USN plans to examine using the MQ-25A also for intelligence, surveillance and reconnaissance, electronic attack and strike missions after it figures out how to handle the UAV's operations from a carrier deck.

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

Manned-unmanned teaming for the MQ-25A would be enabled by the USN's Project Overmatch, an effort to develop a fleet communications network that would use artificial intelligence to coordinate spread-out operations for aircraft, surface ships and submarines, as well as US Marine Corps vehicles and equipment. https://www.flightglobal.com/military-uavs/us-navy-looks-at-manned-unmanned-teaming-role-for-e-2d-advanced-hawkeye/142978.article

Scout Drone Inspection secures $3.2 million in funding round Josh Spires Mar. 22, 2021

Norwegian-based drone inspection company Scout Drone Inspection has secured 27.5 krone ($3.2) million in funding to develop its drones and related technologies further. The funding round was lead by Equinor Ventures and DNV, with support from existing shareholders.

The company produces inspection drones and the accompanying software solutions to allow companies to autonomously inspect assets, save time and remove team members from dangerous environments.

The company's current drone, Scout 137, is an inspection drone with a crash-proof cage around the propellers and a LiDAR scanner on top for obstacle avoidance for indoor inspections. The drone can also be tethered for longer flight times and improved safety.

It is equipped with a 4k camera that also streams in real-time to accompany cloud-based software. To help it see in low-light conditions, the drone is equipped with a 10,000-lumen light array that ensures everything in front and a few degrees to the side is lit up. The camera also links images and videos taken with geo-tags. https://dronedj.com/2021/03/22/scout-drone-inspection-secures-3-2-million-in-funding-round/

Take a drone flight into the mouth of the Fagradals Mountain volcano David MacQuarrie Mar. 22, 2021

The eruption of the Fagradals Mountain volcano in Iceland may have forced the closure of the main road to the country's international airport. The long dormant volcano on the Reykjanes Peninsula in southwestern Iceland erupted violently on Friday — for the first time in nearly 6000 years. The glow from the lava still lights up the outskirts of Reykjavik, about 32 kilometers away.

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

But drone pilots got closer than that. A lot closer. Bjorn Steinbekk posted a video of a drone flying right up to the volcano's mouth. And it **just** threads the needle between two globs of hot lava that could easily have destroyed the aircraft. Be sure to watch to the end and marvel that the drone is still flying. https://dronedj.com/2021/03/22/take-a-drone-flight-into-the-mouth-of-the-fagradals-mountain-volcano/#more-53134

Aeromapper Talon Amphibious being used for whale research March 21, 2021

Featured Articles

There are countless growing threats to whales and dolphins in the oceans, that range from pollution, ship strikes, entanglement in fishing gear, and climate change. Ocean Alliance developed their Drones for Whale Research program utilizing drones in the most creative ways. Apart from using multirotor drones that fly a few meters above the whales getting right into their blow of misty exhales to collect biological information (SnotBot), they are also using fixed wing amphibious drones to capture a broad range of data on the whales and their habitat.

Dr. Iain Kerr, CEO Ocean Alliance, said, "Ocean Alliance is a Conservation Science organization, in that we collect data to advise wildlife managers and policy makers on strategies to help conserve endangered marine species. Our Aeromapper Talon Amphibious, has met all the key touchstones that we look for in a new tool, affordable, field friendly, user friendly, scalable, and easily modified or updated.

While our work to date has been primarily flying on Stellwagen banks to find and count humpback whales, we have been approached by two aquaculture groups (principally mussels & oysters) and a field marsh conservation group to demonstrate the aircraft for their use cases.

https://uasweekly.com/2021/03/21/aeromapper-talon-amphibious-being-used-for-whale-research/?utm_source=rss&utm_medium=rss&utm_campaign=aeromapper-talon-amphibious-being-used-for-whale-research&utm_term=2021-03-22

23Mar21

TOSHIBA MAKES $15 MILLION INVESTMENT IN ANTI-DRONE TECH March 23, 2021 Sally French News

Toshiba Infrastructure Systems & Solutions today announced that it has invested $15 million in Utah-based, anti-drone tech company Fortem Technologies.

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

Fortem makes airspace security and defense products designed for detecting drones as well as an AI-enabled autonomous drone designed to capture and remove 'rogue drones'. The idea is that anti-drone tech would be able to spot unwanted drones at places including high-traffic corridors, large venues, critical infrastructure and borders.

Among the tech in making Fortem's anti-drone system is a combination of distributed radar, AI at-the-edge, sensor integration and autonomous drone capture. The company says its system is easy to install and effective in urban environments and works during both day and night..

Fortem is also a key player in the Federal Aviation Administration's Unmanned Aircraft Systems Integration Pilot Program. It's a partner in the North Carolina test site project related to the coronavirus pandemic response that tracked incoming medical helicopter traffic and provided that information as real-time alerts to Airmap.

Along with that $15 million Toshiba investment comes a strategic business alliance, and the two companies are set to integrate their tech and sales systems worldwide.
https://www.thedronegirl.com/2021/03/23/toshiba-makes-15-million-investment-in-anti-drone-tech/

New search and rescue drone locates survivors through mobile phones HEADLINE NEWS JOE PESKETT MARCH 23, 2021

Revector has launched the Revector Detector Drone (RDD) – an unmanned aerial vehicle with a mobile phone base station attached that can fly over hard-to-reach areas in the aftermath of natural disasters or accidents and locate survivors through their mobile phones.

RDD mimics a base station so mobile phones of victims connect to it, helping search and rescue teams quickly and effectively identify the location of injured or lost people (who have their phones with them) and send rescuers to support them.

The drones can be as light as five kilograms, yet still monitor an area of 10 kilometres at high speed for up to 90 minutes and accurately identify a person (and their phone) that is lost or injured to within a 20-metre area.

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

The technology can be deployed by mountain rescue teams, police forces and even the military to support finding and rescuing people more quickly by identifying their exact location in advance of sending a rescue team. https://www.commercialdroneprofessional.com/new-search-and-rescue-drone-locates-survivors-through-mobile-phones/

Enforcing Drone Laws: UK Announces Operation Foreverwing Miriam McNabb March 22, 2021

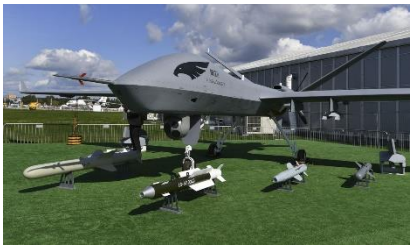
In the U.K., Operation Foreverwing brings together the home office, police and Civil Aviation Authority to act on drone crime.

A CAA press release says that the new campaign is "aimed at clamping down on drone-related crimes, after 336 drone-related incidents were recorded during the last five months in the UK."

The collaboration could present a model for the rest of the world: bringing enforcement to the local level and clarifying the role of law enforcement in policing drone use. While drone regulations are the responsibility of aviation authorities, drones present a new problem in enforcing those regulations. With a low risk of consequences and the easy availability of powerful drones, aviation authorities have found it difficult to get some owners to comply.

Operation Foreverwing will help make the point in the U.K. "The Police has dedicated drone teams located across the country, tasked with enforcing the law by handing out fines and confiscating drones if people fail to stick to the rules," says the press release. "With the CAA setting the rules for drone flying, the campaign will raise awareness of the rules while reminding those tempted to break them of the consequences."
https://dronelife.com/2021/03/22/enforcing-drone-laws-uk-announces-operation-foreverwing/

Combat Drones Made in China Are Coming to a Conflict Near You Bruce Einhorn March 18, 2021



A dozen years into its fight with the Islamic insurgent group Boko Haram, Nigeria is getting some new weapons: a pair of Wing Loong II drones from China. The deal is one of a growing number of sales by state-owned Aviation Industry Corp. of China which has exported scores of the aircraft. The United Arab Emirates has used AVIC drones in Libya's civil war, Egypt has attacked rebels in Sinai with them, and Saudi-led troops have deployed them in Yemen. The

company's drones "are now battle-tested," says Heather Penney, a fellow at the Mitchell Institute for Aerospace Studies, a think tank in Arlington, Va.

Nigeria is getting AVIC's second generation of Wing Loongs—the name means "pterodactyl"—which can fly as fast as 230 mph and as high as 30,000 feet, carrying a payload of a dozen missiles. Since 2015, when AVIC introduced the newer model, it's produced 50 for export and an unknown number for China's People's Liberation Army. And it's working on even more advanced aircraft, such as a stealth combat drone with a flying-wing design similar to that of the U.S. B-2 bomber. The drone program, combined with deliveries of fighter jets, trainers, transporters, and assault helicopters, has propelled AVIC into the upper ranks of the global arms trade. In 2019 it sold military equipment valued at $22.5 billion, according to the Stockholm International Peace Research Institute, placing it sixth in the world, behind five U.S. companies. https://www.bloomberg.com/news/articles/2021-03-17/china-s-combat-drones-push-could-spark-a-global-arms-race

JPL gives Ingenuity helicopter a flight date and honors former engineer with spot on Mars Derek Wise Mar. 23, 2021

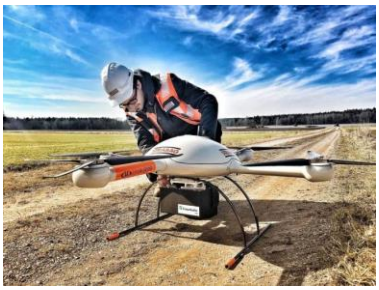
This first flight is currently targeting April 8th.

Ingenuity, a NASA tech demonstration aircraft that tagged along on Perseverance's belly for the ride to Mars, will attempt the first powered flight on another planet less than 120 years after the first flight of the Wright brothers. The small helicopter has an expected mission life span of about 31 Earth days so all the flights will take place during the "Month of Ingenuity".

The location will be named the "Van Zyl Overlook" in honor of JPL Engineer Jakob Van Zyl, who passed away last year. Jakob retired in 2019, following a 33-year career. He was an instrumental part of the development of the Mars Helicopter and part of the missions for the spacecrafts Juno, Cassini, and Insight. The naming of this overlook on Mars will help preserve his memory and inspire future generations. https://spaceexplored.com/2021/03/23/van-zyl-overlook/#more-53304

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

High ROI for Surveyors & Engineers using Drones on Transportation Projects Press 23 March 2021



'You can have something done well, you can have it done fast, or you can it done cheaper than the next guy — but you can only pick two.' With the skillful use of drones however – DOTs, contractors, consultants, and surveyors especially – all three advantages can be had.

Roadway Mapping: Survey costs can be cut by as much as 85% by using **drone enabled photogrammetry** instead of terrestrial scanning. Photogrammetry isn't always a complete substitute for terrestrial scanning, but drone enabled LiDAR often can be..

Measuring Quantities: West Virginia's Department of Transportation found that survey crews could calculate stockpile quantities with **90% less labor when using drones**. Such a task used to require more than 40 surveyors over 2 weeks (3,200 labor hours). The same work can now be done by 7 people in just 1 week (240 labor hours).

Bridge Inspections: UAS enabled bridge inspections require **80% less labor**, than inspections performed by snooper trucks. A bridge inspection that might normally require 6 people and 48 labor hours using a snooper truck can be done in 4 hours by 2 people (8 labor hours). .
https://www.suasnews.com/2021/03/high-roi-for-surveyors-engineers-using-drones-on-transportation-projects/?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=117523510&_hsenc=p2ANqtz--E3VpDI67wpWtXCRZSQIyDO6qFQDPOxSq-lOL9n7pcFFZPbV68qb3Wa4RdcAdT97kahXtwC7iP1JUdLUaQpBuOUbF70A&utm_content=117523510&utm_source=hs_email

Drone Delivery Company Flytrex Secures $9.3M Extra Funding Business News, Transport March 23, 2021

Flytrex, a supplier of on-demand drone delivery for food and retail, announced the closing of an $8 million financing led by existing investors Benhamou Global Ventures (BGV) and btov. The financing complements a recently awarded grant from the Israel Innovation Authority for a total of $9.3 million.

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

The funds will be used to expand Flytrex's footprint across the U.S. and to continue to scale-up the company's production and R&D capabilities. The financing follows the company's previous round in 2019, bringing total funding to $20.3 million.

The investment comes in the wake of several significant milestones for the on-demand drone delivery company. In September 2020, a benchmark pilot project between Flytrex and Walmart was announced to deliver select grocery and household essential items from Walmart stores in Fayetteville, North Carolina using Flytrex's autonomous drone delivery service. Previously, Flytrex – in response to the COVID-19 pandemic – launched a system delivering necessities to residents of Grand Forks, North Dakota, helping address the growing health crisis by keeping citizens in the safety of their own homes and reducing crowding and unnecessary contact at local stores. https://www.uasvision.com/2021/03/23/drone-delivery-company-flytrex-secures-9-3m-extra-funding/?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=117523510&_hsenc=p2ANqtz-84wODoj8PV0lcZY_S0lYMI4VDu3j_vQh7DvXB_XQrz-iDOtM9i0dTrpHDMYPV_Gl6-tbIoAW_L4NpJgQVL_2VfeSaYcg&utm_content=117523510&utm_source=hs_email

THE BEST DRONE PHOTOS OF 2020 March 24, 2021 Sally French The Drone Girl Art, Photos,

The best drone photos of 2020 are official, thanks to the newly-announced winners of the SkyPixel 2020 Aerial Storytelling Contest.

SkyPixel, a photo and video aerial community affiliated with drone maker DJI, announced the winners of its annual photo contest. Perhaps it was an abundance of people sitting at home ready to upload their art, or the fact that drone photography is the perfect socially distant activity, but this year's SkyPixel 2020 Aerial Storytelling Contest. attracted more than 26,000 submissions from across 136 countries.

With a huge talent photo of photos to choose from, it's fair to say these are the best drone photos of 2020 (and videos). SkyPixel named winners of First, Second and Third Prizes categories such as vlog, travel, sports, nature, architecture and portrait, encompassing photos and videos. We'll let you watch the videos on SkyPixel's site. And with that, here's the official list of SkyPixel 2020 Aerial Storytelling Contest winners:
https://www.thedronegirl.com/2021/03/24/the-best-drone-photos-of-2020/

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

25Mar21

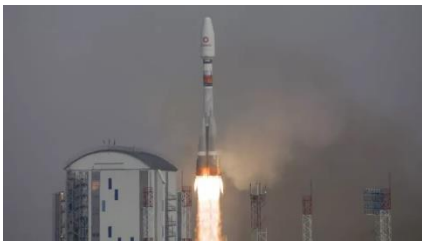
A2Z Drone Delivery Rapid Delivery System Means Drones Don't Have to Land at Your House Miriam McNabb March 24, 2021

CA-based A2Z Drone Delivery, LLC, has developed a patented tethered freefall drone delivery mechanism, the Rapid Delivery System used by DroneUp® for the project with Walmart and Coke. The RDS1 system lowers the delivery to the ground by tether – which means that homeowners don't have to worry about a noisy landing or the potential for a landing drone to hit obstacles on its way down.

"By delivering payloads without having to descend from cruising altitude, the A2Z Drone Delivery RDS1 mitigates the safety and privacy concerns often associated with drone delivery by keeping spinning UAV propellers away from people and abating intrusive rotor noise of low-flying drones."

John Vernon, the CTO of DroneUp, said "The RDS1 allows our pilots to reduce time-on-station to about 30 seconds per delivery. Combined with the ability to make deliveries from cruising altitude, this rapid delivery and the integrated safety features in the tether system itself, help us assuage some of the public concerns over UAV delivery."
https://dronelife.com/2021/03/24/a2z-drone-delivery-rapid-delivery-system-means-drones-dont-have-to-land-at-your-house/

Soyuz rocket launches 36 OneWeb satellites for modified satellite internet constellation Elizabeth Howell 24Mar21



The Soyuz-2.1b carrier rocket with the Fregat upper stage and 36 spacecraft lifted off from the Vostochny Cosmodrome.

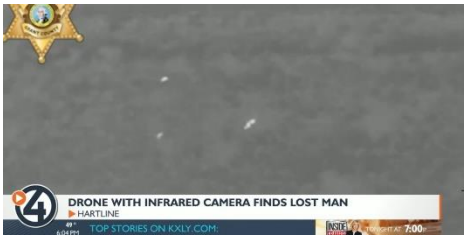
OneWeb now has 146 satellites in its constellation after the fifth launch on March 24, 2021, when a Soyuz rocket delivered another 36 satellites to orbit. A Soyuz rocket successfully sent 36 OneWeb satellites into orbit as the London-based company continues its recovery from a tough 2020.

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

OneWeb "is focused on scaling the satellite constellation to launch commercial services starting at the end of 2021 to the UK, Alaska, Canada, northern Europe, Greenland, Iceland and the Arctic seas," Arianespace wrote in a mission description.

OneWeb had originally planned to put 48,000 satellites into orbit, but after a tough 2020, it filed a request with the Federal Communications Commission in January proposing 6,372 satellites. https://www.space.com/soyuz-rocket-launches-oneweb-5-mission-36-satellites

Thermal-equipped drone finds missing man in rescue Scott Simmie Mar. 25, 2021



Picture this: An elderly man with dementia wanders off. The gentleman left his family home in Grant County, east of Seattle, at about 1:30 a.m. A 911 call was placed, and the Hartline and Almira Volunteer Fire Departments responded.

The area they were searching was challenging. Not only was it dark, but tall brush meant that even flashlights were of limited use. The departments quickly launched a drone. And, as you likely know, a thermal sensor will highlight objects depending on their heat signature. Colder spots – like the ground – show up dark, and warmer objects are brighter. It's this sharp contrast that searchers are looking for. And in this case, the contrast could not have been more stark.

The First Responders released the video to a local news channel. You can see it unfold, as the drone operator relays the position of the missing person to those searching by foot. You can even see a couple of search dogs join in toward the end.

The man who'd wandered was 70 years old, and temperatures were just below freezing. By the time the drone located him, the man was lying down in the brush, making him virtually invisible to anyone searching on the ground. In fact, searchers with flashlights had walked past the man's location earlier without detecting him. See the video: https://dronedj.com/2021/03/25/thermal-equipped-drone-finds-missing-man-in-rescue/#more-53541

LMT and airBaltic partner to develop BVLOS drone flights Josh Spires Mar. 25, 2021

Latvian mobile network LMT has partnered with airBaltic to further develop BVLOS drone operations in Latvia and test its network to make sure it's suitable for long-distance BVLOS drone flights. The announcement comes a few months after drones began deliveries in the country.

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

The new partnership will foresee a joined development of various drone solutions overseen by general aviation and LMT's learning program for drone pilots. Both companies will also collaborate on testing the mobile network coverage in the air space.

An estimated 70% of all commercial drone operations will be beyond the pilot's visual line of sight (BVLOS). They can get goods to locations much farther away and with complex flight routes, making the two companies' work even more important.

Ingmārs Pūķis, vice president of LMT, said: *We're eagerly working to turn drone flights BVLOS and autonomous drone operations into a common reality. An uninterrupted connection with the drone throughout its flight is crucial for conducting a safe uncrewed flight BVLOS. Such connectivity can be provided by a reliable mobile network combined with a drone management program and a control center solution that enables drone pilot operations during the flight BVLOS.*

To ensure the future of BVLOS flights is done safely, airBoltic will also call on external experts to ensure the company can provide the flights and allow pilots the opportunity to take on a new role as crewed flights continue to decline with the pandemic.
https://dronedj.com/2021/03/25/lmt-and-airboltic-partner-to-develop-bvlos-drone-flights/#more-53462

Samsung begins to deliver Galaxy products by drone in Ireland Josh Spires Mar. 25, 2021

Samsung Electronics Ireland has signed a deal with drone delivery company Manna Aero to deliver its Galaxy phones by drone. The new drone delivery service allows customers to have an end-to-end contactless shopping experience on the official Samsung Ireland store.

For now, those in Oranmore will be able to take advantage of this new service, with both companies eager to expand the service nationwide in the future.

Eamonn Grant, head of online for Samsung Ireland, shared: *"To be able to deliver our products to our customers within three minutes of leaving the dispatch center is a brilliant example of innovation in motion."*

Manna Aero's delivery drones will deliver the Samsung products in just three minutes when flying at speeds over 50 miles per hour if the delivery location is within a 1.2-mile radius. The drones also fly at an altitude of just 262 meters.

Alan Hicks, CTO of Manna, added: *"This partnership with Samsung marks the first of its kind in the world. We recognize that the potential for the application of drone delivery is enormous.*
https://dronedj.com/2021/03/25/samsung-begins-to-deliver-galaxy-products-by-drone-in-ireland/#more-53453

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