



## UAS and SmallSat Weekly News

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29Sep19

**Modernity Fund (mFUND) For Project “FreeRail” Approved with 2.82 Million EUR** September 26, 2019 News



The “FreeRail” project, which has been running since September 2019, will be funded under the Modernitätsfond funding directive with a total of EUR 2.82 million from 1 September 2019, 67% of which will be funded by the [Federal Ministry of Transport and Digital Infrastructure](#).

The project consortium consists of experts from [DB Fahrwegdienste GmbH](#), [geo-konzept GmbH](#), [Technical University Ingolstadt](#) and the [city of Ingolstadt](#) under the project management of the network coordinator [Quantum-Systems GmbH](#). The starting point of the joint project “FreeRail” deals with a digital solution for a growing problem in the **maintenance of the infrastructure** of Deutsche Bahn (DB).

In the “FreeRail” project, the scientific and technical principles of a future, **fully automated**, drone-based system for digitized vegetation control and registration of damage following storms along Deutsche Bahn’s route network are to be developed by February 2022.

[https://uasweekly.com/2019/09/26/modernity-fund-mfund-for-project-freerail-approved-with-a-total-of-2-82-million-eur/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=uasweekly\\_daily\\_newsletter\\_09\\_27\\_2019&utm\\_term=2019-09-29](https://uasweekly.com/2019/09/26/modernity-fund-mfund-for-project-freerail-approved-with-a-total-of-2-82-million-eur/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_09_27_2019&utm_term=2019-09-29)

30Sep19

**Archaeologists Are Using Drones to Find Good Places to Dig: The Search for Potsherds** staff September 30, 2019



Drones are becoming ever more present tools for archaeologists looking to add to their survey and excavation toolkits. They’ve been used to get some great aerial views of archaeological sites and features and sometimes even to discover them! And researchers have now teamed up high-res drone pictures with some nifty machine learning to detect one of an archaeologist’s go to first finds – potsherds!



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Dr. Hector A. Orenge of the Catalan Institute of Classical Archaeology and Dr. Arnau Garcia-Molsosa of the McDonald Institute for Archaeological Research at the University of Cambridge aim “to alleviate labor-intensive archaeological field surveying by combining machine learning and high-resolution drone imagery.”

They have tested a new archaeological survey method – flying a pre-programmed drone over the area of interest and taking overlapping pictures. The images are then joined together to create what they call “a single very large high-resolution image.”

That high-res image is then analyzed by a machine learning algorithm that is meant to find all the specified archaeological material that is present in the image. The researchers tested out their method by setting the algorithm to identify potsherds through color and pixel texture, but say that it could “be trained to identify different types of material culture as well.” They’ve suggested stone tools and other lithics or metal could also be suitable materials of interest for this method. <https://dronelife.com/2019/09/30/archaeologists-are-using-drones-to-find-good-places-to-dig-the-search-for-potsherds/>

### Swappable Flying Batteries Keep Drones Aloft Almost Forever Evan Ackerman



Battery power is a limiting factor for robots everywhere, but it’s particularly problematic for [drones](#), which have to make an awkward tradeoff between the amount of battery they carry, the amount of other more useful stuff they carry, and how long they can spend in the air. Consumer drones seem to have settled around about a third of their overall mass in battery, resulting in flight times of 20 to 25 minutes at best, before you have to bring the drone back for a battery swap. And if whatever the drone was supposed to be doing depended on it staying in the air, then you’re pretty much out of luck.

[Researchers at UC Berkeley](#) have come up with a clever solution: You just give the batteries wings. Or, in this case, rotors.

The big quadrotor, which weighs 820 grams, is carrying its own 2.2 Ah lithium-polymer battery that by itself gives it a flight time of about 12 minutes. Each little quadrotor weighs 320 g, including its own 0.8 Ah battery plus a 1.5 Ah battery as cargo. The little ones can’t keep themselves aloft for all that long, but that’s okay, because as flying batteries their only job is to go from ground to the big quadrotor and back again.



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As each flying battery approaches the main quadrotor, the smaller quadrotor takes a position about 30 centimeters above a passive docking tray mounted on top of the bigger drone. It then slowly descends to about 3 cm above, waits for its alignment to be just right, and then drops, landing on the tray which helps align its legs with electrical contacts. As soon as a connection is made, the main quadrotor is able to power itself completely from the smaller drone's battery payload. Each flying battery can power the main quadrotor for about 5 minutes, and then it flies off and a new flying battery takes its place. If everything goes well, the main quadrotor only uses its primary battery during the undocking and docking phases, and in testing, this boosted its flight time from 12 minutes to nearly an hour. <https://spectrum.ieee.org/autamaton/robotics/drones/swappable-flying-batteries-keep-drones-aloft-almost-forever>

### **Amazon partners with Australian drone maker in croc-spotting drone program**

APPLICATION EMERGENCY SERVICES INTERNATIONAL NEWS ALEX DOUGLAS SEPTEMBER 30, 2019



Initiated by the government of the northeastern state of Queensland, the partnership with Amazon Web Services, will help with development of the new drone service. Ben Trollope, chief exec of Westpac Little Ripper drones, told the news agency: "It gives them a second set of eyes over the top of the human element to try and make it safer for crocodiles and the humans.

The drones use an algorithm created with the University of Technology in Sydney that developers say can identify 16 different types of marine life and has an accuracy rate of 93%.

The algorithm is adjusted to separate crocodiles from mangroves in northern Queensland's dense rainforest areas, a factor the ocean drones do not have to contend with.

The drones featured at the World of Drones Congress in Brisbane on Thursday, where images were beamed in from a demonstration at a Queensland crocodile park.

[https://www.commercialdroneprofessional.com/amazon-partners-with-australian-drone-maker-in-croc-spotting-drone-programme/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30](https://www.commercialdroneprofessional.com/amazon-partners-with-australian-drone-maker-in-croc-spotting-drone-programme/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30)



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### XAG joins Bayer on drone-based horticultural crop solution demo

UNCATEGORIZED ALEX DOUGLAS SEPTEMBER 30, 2019



XAG's claims its fruit tree solution is **the world's first** all-terrain autonomous drone spraying technology that resolves the challenge of applying pesticides and fertilizers on complex terrains, such as mountains, hills and terraces.

A typical citrus orchard in Hangzhou's Jiande Town was selected to conduct spraying on mandarin trees. The orchard covers a small area of 1.5 hectares but is located in rugged hills, where the mandarin trees are planted in uneven density and have grown to different heights. It used to take three days for three workers aged over 60s to manually spray the entire orchard for one time.

[https://www.commercialdroneprofessional.com/xag-joins-bayer-on-drone-based-horticultural-crop-solution-demo/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30](https://www.commercialdroneprofessional.com/xag-joins-bayer-on-drone-based-horticultural-crop-solution-demo/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30)

### Drone ends fugitive's 17 years on-the-run APPLICATION CRIME EMERGENCY SERVICES INTERNATIONAL NEWS ALEX DOUGLAS SEPTEMBER 30, 2019



Police in south-West china used a drone to find the cave he was using as a hideout. The 63-year old, named Song Jiang, had been jailed for trafficking women and children but escaped from a prison camp in 2002. He had been living in a tiny cave cut off from human interaction for years.

The report went on to detail how Yongshan police received clues about Song's whereabouts in early September that led them to the mountains behind his hometown in Yunnan province in south-west China.

Police officers then moved in on foot to detain the man and have subsequently sent him back to prison. [https://www.commercialdroneprofessional.com/drone-ends-fugitives-17-years-on-the-run/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30](https://www.commercialdroneprofessional.com/drone-ends-fugitives-17-years-on-the-run/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313252-Commercial+Drone+Professional+DNA+-+2019-09-30)



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### Europe finalizes its drone traffic management concept of operations plan

September 30, 2019 Philip Butterworth-Hayes Emerging regulations, UAS traffic management news



Project members of the CORUS (Concept of Operation for European UTM Systems) project announced on September 30 the finalized version of the first Concept of Operations for UTM in very low level airspace in Europe.

“This third version of the CONOPS is closer to the regulations. There is a new emphasis on geo-awareness, and the original concept has been redrafted to take in the requirements of two forms of remote ID. Another concern

is drone-to-drone interaction.”

Introducing the work, Eurocontrol’s Philippe Merlo said: “CORUS is not the end of the story; we need additional work on industrialization, standardization, safety cases and stronger regulations for drones. We have proposed the CORUS 2 project for the next round of support within SESAR, and we hope this will be selected.” <https://www.unmannedairspace.info/emerging-regulations/europe-finalises-its-drone-traffic-management-concept-of-operations-plan/>

10Oct19

### Volocopter eyes launch of its electric helicopter taxis in Singapore John

Geddie, Aradhana Aravindan



SINGAPORE (Reuters) - German startup Volocopter said Singapore is emerging as one of the most likely destinations for the commercial launch of its electric helicopters, where it hopes to offer short-hop flights for the price of a limousine ride.

Volocopter, which counts Daimler, Intel and Geely [GEELY.UL] among its backers, is targeting a planned commercial rollout in **two to three years** of its drone-like taxis that resemble a small helicopter powered by 18 rotors.

“For the commercial routes, we have two customers profiles: one is a business customer, so perhaps from the airport to the business centre, or for tourists flying from Marina Bay to Sentosa.” Marina Bay is Singapore’s business district, and Sentosa is its popular resort island.



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Zosel said the startup is looking for more financial partners in a funding round it plans to close in January 2020. The firm has raised **\$93 million** to date, the latest in a 50 million euro tranche led by Chinese car maker Geely earlier this year. <https://www.reuters.com/article/us-aviation-volocopter-singapore/volocopter-eyes-launch-of-its-electric-helicopter-taxis-in-singapore-idUSKBN1WFOZO>

### **UnseenLabs plans to launch half dozen ship-tracking cubesats in 2020** Caleb

Henry September 30, 2019



WASHINGTON — French startup UnseenLabs intends to launch six more ship-tracking cubesats next year to build on the success of its first satellite.

Clément Galic, cofounder and general manager of the Brittany, France-based company, said early operations and tests of the satellite it launched Aug. 19 on a Rocket Lab Electron shared with three other satellites have shown that it can detect radio-frequency **signals from ships** attempting to avoid detection.

UnseenLabs is developing a constellation of tens of satellites to monitor maritime traffic, using orbiting sensors to track ships that turn off their automatic identification system, or AIS, transponders. With one satellite in low Earth orbit, it takes UnseenLabs anywhere from half a day to two days to revisit a location, Galic said in an interview. Once the company reaches 20 satellites, its revisit rate will be less than an hour. “We need to put a constellation in orbit, so now the objective is to launch as many satellites as we can in the shortest period.”

Unseenlabs wants **20 to 50 satellites** in low Earth orbit, with the exact number depending on customer demand. <https://spacenews.com/unseenlabs-plans-to-launch-half-dozen-ship-tracking-cubesats-in-2020/>

### **DOWN-TO-EARTH PHOTOGRAPHY** September 30, 2019 Terry Jarrell

At or below 400 feet is the rule, but some of your best photo perspectives come well below, just off the ground, even. It's a compelling perspective when you know the tricks. Those



gorgeous panoramas of sweeping landscapes over the treetops, a slow glide toward a fiery sunset, or capturing the bustle of a cityscape below are now possible like never before. Social media and YouTube are full of these kinds of drone shots.



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There is plenty to commend with these images and the emotion such perspectives can evoke, **but** let's not forget that our drones are tools. And very versatile tools at that.

Perhaps one segment that is learning to take advantage of drones is filmmaking and TV. The cost to deploy and set up shots is significantly lower, not to mention the time savings. Drone photography is particularly attractive and useful to smaller-budget indie production teams.

If you understand some of the techniques that **filmmakers** use, you too can apply these to your own drone photography and ratchet up your cinematic cred a few notches.

[https://www.aopa.org/news-and-media/all-news/2019/september/30/down-to-earth-drone-photography?utm\\_source=dronepilot&utm\\_medium=email](https://www.aopa.org/news-and-media/all-news/2019/september/30/down-to-earth-drone-photography?utm_source=dronepilot&utm_medium=email)

### **UPS Announces FAA Certification to Operate Drone Airline: “History in the Making”** Miriam McNabb October 01, 2019



UPS and the [FAA announced](#) that UPS subsidiary [UPS Flight Forward Inc.](#) has received a full Part 135 Standard certification to operate a drone airline. There are four categories of Part 135 certifications, ranging from “Single Pilot” to “Standard.” A “Standard operator is a certificate holder that does not have pre-set limits on the available size or scope of their operations,” explains the UPS release. The

full “Part 135 Standard” certification is **a first in the U.S.**, although [Alphabet spinoff Wing Aviation LLC \(Wing\)](#) received a Part 135 Single pilot air carrier certificate for drone operations in April 2019.

The certification, which allows scalable drone delivery operations, is significant for a number of reasons. Immediately upon receipt of the certification, UPS Flight Forward flew a drone delivery beyond visual line of sight (BVLOS) at WakeMed hospital campus in Raleigh, N.C. The company says that the flight was not only the first BVLOS flight for drone delivery, but also the first revenue-generating delivery flown BVLOS. The mission was flown with a Matternet M2 quadcopter. [https://dronelife.com/wp-content/uploads/2019/10/mobile0c9a66\\_assets\\_img\\_media\\_Drone201.jpg](https://dronelife.com/wp-content/uploads/2019/10/mobile0c9a66_assets_img_media_Drone201.jpg)



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### UAV Successfully Inspects 6,000 km of Pipeline in Southern China 26 Sep 2019



*Microdrones md4-1000 used in pipeline inspection*

A recent [Microdrones Case Study](#) details the use of the Microdrones md4-1000 in the **daily inspection of 6,000 km of oil pipeline** through mountainous terrain in Southern China, successfully saving the Sinopec energy company time and money whilst reducing risk to workers. To date Microdrones systems have flown over 40,000 km of pipeline as part of a routine daily inspections program.

A large-scale drone-based pipeline inspection operation was launched in 2017 using the Microdrone md4-1000 following 2 years of field-testing.

<https://www.unmannedsystemstechnology.com/tag/microdrones/>

### Hydrogen-Powered Drone Flown in Dutch Airspace 29 Sep 2019



The [Royal Netherlands Aerospace Centre](#) (NLR) has announced that it has flown a drone in Dutch airspace powered by hydrogen. The flight, performed at the NLR's testing centre in Marknesse, represents the first time that this has been done outdoors in the Netherlands, and is part of an investigation into sustainable aviation.

NLR has gained additional insights into research and development of alternative fuels for sustainable aviation, and hopes that other interested parties will be able to replicate its results to further safe hydrogen-powered UAV flight in the Netherlands.

The drone used for this test flight was a hexacopter platform weighing eight kilograms with a two-litre, 300 bar pressurized tank filled with hydrogen gas. This tank is connected to a fuel cell that reacts the hydrogen with oxygen from the air in an electrochemical process that produces electricity and only water vapour as an emission. This power system, in addition to being locally carbon-neutral, provides the drone with a greater flight endurance than using only a battery. For safety reasons, the drone is also equipped with a backup battery that allows it to continue flying in the event of power loss from the fuel cell.

[https://www.unmannedsystemstechnology.com/2019/09/hydrogen-powered-drone-flown-in-dutch-airspace/?utm\\_source=Unmanned+Systems+Technology+Newsletter&utm\\_campaign=d9b09c3b07-eBrief\\_2019\\_01\\_Oct&utm\\_medium=email&utm\\_term=0\\_6fc3c01e8d-d9b09c3b07-119747501](https://www.unmannedsystemstechnology.com/2019/09/hydrogen-powered-drone-flown-in-dutch-airspace/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=d9b09c3b07-eBrief_2019_01_Oct&utm_medium=email&utm_term=0_6fc3c01e8d-d9b09c3b07-119747501)



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### AIRT Receives Motorola Solutions Foundation Grant for DRONERESPONDERS

Program October 1, 2019 News



◀ The Airborne International Response Team (AIRT), a Miami-based non-profit organization that provides public safety and disaster response support capabilities with drone technology, today announced that it has received a grant from the Motorola Solutions Foundation, the charitable arm of Motorola Solutions.

The grant will be used to help expand AIRT's DRONERESPONDERS program focused on supporting the awareness and education of unmanned aircraft systems use by public safety agencies and first responders throughout the world. "This funding will help DRONERESPONDERS make an even greater impact in supporting first responders using drones for good in their local communities and beyond."

AIRT will use the grant in two primary areas: to bolster DRONERESPONDERS research initiatives surrounding first responders use of UAS and to provide educational programming and outreach to public safety and disaster response professionals in underserved communities who want to deploy unmanned systems to help save lives and protect property.

[https://uasweekly.com/2019/10/01/airt-receives-motorola-solutions-foundation-grant-for-droneresponders-program/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=uasweekly\\_daily\\_newsletter\\_10\\_01\\_2019&utm\\_term=2019-10-01](https://uasweekly.com/2019/10/01/airt-receives-motorola-solutions-foundation-grant-for-droneresponders-program/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_01_2019&utm_term=2019-10-01)

### Collaborative project 'lays groundwork' for integrated UK airspace APPLICATION

BUSINESS CAA HEADLINE NEWS REGULATION UK ALEX DOUGLAS OCTOBER 1, 2019



A report from Catapult Connected Places has laid the groundwork for a UTM system to allow for commercial drone usage in the UK alongside traditional manned aircraft.

The report is a result of a year-long Department for Transport sponsored project, working alongside NATS, Altitude Angel, ANRA Technologies, Cranfield University, the Satellite Applications Catapult and Thales UK. It includes the architecture for an open access UTM system and scenarios for important areas such as managing permissions to fly drones in restricted airspace and multiple drone operations in uncontrolled airspace.



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It also outlines the huge global opportunity for countries that can successfully accommodate commercial drone operations which can fly BVLOS alongside other aircraft.

Preparation has already begun on the next phase of the project and the CPC, along with Altitude Angel ANRA Technologies, GE Aviation and AiRXOS, NATS, Snowflake Software, and Thales will run a series of technical workshops to mature the development of the Open-Access UTM framework and enable demonstrations of the future operational use of UTM.

[https://www.commercialdroneprofessional.com/collaborative-project-lays-groundwork-for-integrated-uk-airspace/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01](https://www.commercialdroneprofessional.com/collaborative-project-lays-groundwork-for-integrated-uk-airspace/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01)

**20Oct19**

### **Yuneec develops Certified Accessory Program for third-party manufacturers**

BUSINESS EUROPE MANUFACTURER NEWS TECHNOLOGY YUNEEC ALEX DOUGLAS OCTOBER 1, 2019



In announcing the program, Yuneec outlined how now drones are used successfully and commercial applications continue to increase. As part of the YCAP, manufacturers can now have their own accessories for the H520 tested and certified.

The certification of the products takes place after a comprehensive test protocol at Yuneec Software & Services in Switzerland. The successfully tested products can be recognized by the Yuneec Certified Accessory Logo.

The use of tested third-party accessories not only ensures that they do not affect the functionality of the H520 negatively, but also maintains all H520 warranty claims.

Commenting on the plan, Glen Stark, managing director at Yuneec Software and Services, said, "The Yuneec Certified Program is the next logical step in our efforts to further customize our already diverse and open H520 system with individual third-party accessories to meet industry-specific customer requirements." [https://www.commercialdroneprofessional.com/yuneec-develops-certified-accessory-program-for-third-party-manufacturers/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01](https://www.commercialdroneprofessional.com/yuneec-develops-certified-accessory-program-for-third-party-manufacturers/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01)



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### **SAFIR successfully demonstrates safety and economic viability of integrated drone traffic** BUSINESS EUROPE HEADLINE NEWS REGULATION ALEX DOUGLAS OCTOBER 1, 2019



The open day hosted by the Port of Antwerp displayed a multitude of industrial and commercial drone applications during live demonstrations.

A variety of consortium partners also demonstrated individual use cases. The SAFIR consortium (Safe and Flexible Integration of Initial U-space Services in a Real Environment) consists of **13 public and private organizations** (Amazon Prime Air, Aveillant, C-Astral, DronePort, Elia, Explicit, Helicus, Port of Antwerp, Proximus, SABCA, Skeyes, Tekever and Unifly).

The consortium detailed how the demonstrations proved that interoperable, harmonized and standardized U-space services can be deployed in a safe and reliable manner across Europe.

Alain Siebert, SESAR JU chief economist & master planning, commented: "I want to congratulate all the partners for their hard work and outstanding achievements. Today you made history! Antwerp is now well established as one of the key locations in Europe where we are advancing U-space in a real operating environment with huge digital opportunities for people and business." [https://www.commercialdroneprofessional.com/safir-successfully-demonstrates-safety-and-economic-viability-of-integrated-drone-traffic/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01](https://www.commercialdroneprofessional.com/safir-successfully-demonstrates-safety-and-economic-viability-of-integrated-drone-traffic/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313393-Commercial+Drone+Professional+DNA+-+2019-10-01)

### **N.C. Department of Transportation's Division of Aviation Using Drones for Cleaner, Safer Herbicide Spraying** October 1, 2019 News



The N.C. Department of Transportation's Division of Aviation and its Environmental Analysis Unit have teamed up to fight invasive plants with a new tool: drones.

The area around Bodie Island Lighthouse was overrun with Phragmites, a type of aggressive, non-native marsh grass that pushes out all native species. NCDOT was responsible for combating the invasive plant as part of its environmental mitigation for the construction of the new Basnight Bridge over Oregon Inlet.



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The project, which recently wrapped up for the 2019 season, found that drones provide a more targeted and efficient spray operation than traditional methods. Drones use less of the herbicidal spray, as they can be programmed to target a specific area and flown safely at low altitudes to reduce the amount of herbicide blown away by wind. They can also be outfitted with cameras that allow officials to monitor areas without having to step through potentially dangerous terrain or disturbing other plant and animal life.

Drones are also safer and more cost effective than manned aircraft for these types of operations because they eliminate the need for plane and helicopter pilots to fly low while applying the herbicide. Additionally, in the case of popular tourist sites like Bodie Island Lighthouse, the area **doesn't need to be closed to the public** while operations are taking place. [https://uasweekly.com/2019/10/01/n-c-department-of-transportations-division-of-aviation-using-drones-for-cleaner-safer-herbicide-spraying/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=uasweekly\\_daily\\_newsletter\\_10\\_02\\_2019&utm\\_term=2019-10-02](https://uasweekly.com/2019/10/01/n-c-department-of-transportations-division-of-aviation-using-drones-for-cleaner-safer-herbicide-spraying/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_02_2019&utm_term=2019-10-02)

**This kite could harness more of the world's wind energy** Ahiza Garcia, CNN Business  
October 1, 2019



*These energy kites can go where wind turbines can't*

### **San Francisco (CNN Business)**

California-based Makani -- which is owned by Google's parent company, Alphabet -- is using power from the strongest winds found out in the middle of the ocean, typically in spots where it's a challenge to install

traditional wind turbines. Makani hopes to create electricity to power communities across the world. Their energy kite launches from a floating platform in the North Sea off the coast of Norway.

When the company's co-founders, who were fond of kiteboarding, realized deep-sea winds were largely untapped, they sought to make that energy more accessible. So they built an autonomous kite, which looks like an airplane tethered to a base, to install on a floating platform in water. Tests are currently underway off the coast of Norway.



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"There are many areas around the world that really don't have a good resource for renewable power but do have offshore wind resources," Makani CEO Fort Felker told Rachel Crane, CNN's innovation correspondent. "Our lightweight kites create the possibility that we could tap that resource very economically and bring renewable power to hundreds of millions of people."

This technology is **more cost-efficient** than a traditional wind turbine, which is a lot more labor intensive and would require lots of machinery and installation.

<https://www.cnn.com/2019/10/01/tech/makani-wind-energy-kites-electricity-mission-ahead/index.html>

The lightweight kite, which is made of carbon fiber, has an 85-foot wingspan. The kite launches from a base station and is constrained by a 1,400-foot tether as it flies autonomously in circles with guidance from computers. Crosswinds spin the kite's eight rotors to move a generator that produces electricity that's sent back to the grid through the tether.

The kites are still in the prototype phase and aren't flown constantly right now as researchers continue to develop the technology. But Makani hopes the kites will one day fly 24/7 all year round. When the wind is down, the kite will return to the platform and automatically pick back up when it resumes. <https://www.cnn.com/2019/10/01/tech/makani-wind-energy-kites-electricity-mission-ahead/index.html>

**30Oct19**

**Skyward Offers New Airspace Intelligence Map for Drone Pilots** Betsy Lillian October 2, 2019



Skyward's map provides airspace data and access to the Federal Aviation Administration's Low Altitude Authorization and Notification Capability, for which Skyward is a [service provider](#). The map also provides ground intelligence, including 3D views of key structures, transmission lines and more than 1 million vertical obstacles.

"Showing airspace is important, but it's only part of the picture. The more intelligence that is available to understand how an area will affect the flight, the less risk a pilot has in the field," says Mariah Scott, president of Skyward. "Skyward Airspace Intelligence is the **only** solution that provides easy-to-understand data for things like transmission lines, runways, over a million vertical obstacles, and a 3D view of key structures. It's the next best thing to physically being in the field."



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The map also includes features such as airports, runways, heliports, national parks, stadiums, hospitals, schools and pedestrian walking paths. [https://unmanned-aerial.com/skyward-offers-new-airspace-intelligence-map-for-drone-pilots?utm\\_medium=email&utm\\_source=LNH+10-03-2019&utm\\_campaign=UAO+Latest+News+Headlines](https://unmanned-aerial.com/skyward-offers-new-airspace-intelligence-map-for-drone-pilots?utm_medium=email&utm_source=LNH+10-03-2019&utm_campaign=UAO+Latest+News+Headlines)

### **Canadian Drone Test Uses LTE Network To Deliver Defibrillators** October 2, 2019 News



LTE-enabled delivery of life-saving equipment and emergency medical supplies via beyond-visual-line-of-sight drones could see a **17-fold increase** in the distance covered compared to current non-mobility-enabled alternatives. That's just one finding from successful tests driven by health authorities in the Canadian province of Ontario, enabled by Ericsson LTE

connectivity.

The September 21-22 tests saw automated external defibrillators consistently being delivered to specific GPS locations across a 16 km radius of Renfrew County **more than seven minutes** before paramedic vehicles arrived at the scene. Such time saving could be vital in real emergency situations.

Renfrew County authorities say using the mobile network could see life-saving equipment and supplies being delivered more than **128 km** from the control point compared to the 7.25 km range of current non-mobile-network enabled drone delivery services. The 4G LTE-enabled tests included live video streaming, photo-sharing, and artificial intelligence (AI) capabilities, such as collision avoidance.

Renfrew County says the trial results will be used to plan services to reduce time to treatment for people suffering cardiac arrest, and, in the future, those who need urgent medication in private, residential, or rural locations. [https://uasweekly.com/2019/10/02/canadian-drone-test-uses-lte-network-to-deliver-defibrillators/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=uasweekly\\_daily\\_newsletter\\_10\\_03\\_2019&utm\\_term=2019-10-03](https://uasweekly.com/2019/10/02/canadian-drone-test-uses-lte-network-to-deliver-defibrillators/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_03_2019&utm_term=2019-10-03)



## UAS and SmallSat Weekly News

### Ireland’s U-Flyte is Building a UTM for a Future with Fewer Drone Operators Sam Hill



In cities that could have tens, hundreds or even more drones delivering medical supplies, packages and food in a confined, busy environment, Tim McCarthy, a lecturer at Maynooth, predicts that human operators will have little to do with the rise in urban drone usage.

McCarthy is the principal investigator on the [U-Flyte project](#), a **four-year** strategic research partnership, coordinated by Maynooth University and funded by Science Foundation Ireland, aimed at tackling the current global bottleneck impeding the wider development of drone operations and roll-out of commercial services. The project is also sponsored by multiple industry partners including [Airbus](#), [Irelandia Aviation](#) and [Intel](#).

Of course, these sorts of drone operations are currently limited by worldwide BVLOS restrictions, but the U-Flyte research team is looking to get out ahead of impending operational safety hazards and working to design a **totally autonomous** air space management system for urban environments. [https://www.commercialuavnews.com/infrastructure/ireland-u-flyte-utm-drone-operators?utm\\_source=marketo&utm\\_medium=email&utm\\_campaign=uaveditor&utm\\_content=newsletter&mkt\\_tok=eyJpIjoiTkRRME16Y3haamRtTXpFeCIsInQiOiJvWURDc1lrMDU5bjB0ZjlkSDdaMUhzVzIqbjV3QjdvYmZlQjhSRWJtdXFFSEhITGNwNktaQmRMaWVYNkZibjZpYkIjM0tIQ3VWaXpmNHRJcStNZVNVTzQyclpuQW9ZRUI6V2pDcm9SMGlycDk4QncrUFwvVHBGaTQ3VE03dzZldUwifQ%3D%3D](https://www.commercialuavnews.com/infrastructure/ireland-u-flyte-utm-drone-operators?utm_source=marketo&utm_medium=email&utm_campaign=uaveditor&utm_content=newsletter&mkt_tok=eyJpIjoiTkRRME16Y3haamRtTXpFeCIsInQiOiJvWURDc1lrMDU5bjB0ZjlkSDdaMUhzVzIqbjV3QjdvYmZlQjhSRWJtdXFFSEhITGNwNktaQmRMaWVYNkZibjZpYkIjM0tIQ3VWaXpmNHRJcStNZVNVTzQyclpuQW9ZRUI6V2pDcm9SMGlycDk4QncrUFwvVHBGaTQ3VE03dzZldUwifQ%3D%3D)

### **BVLOS power line inspections allow Terra Drone to launch UAV AI-based**

**solution** APPLICATION BUSINESS HEADLINE NEWS INTERNATIONAL ALEX DOUGLAS OCTOBER 3, 2019



The company says the solution was developed based on the market gaps identified after inspecting over **90,000 km** of power lines by BVLOS throughout the world.

Acquired data is automatically processed and analyzed by artificial intelligence algorithms which are trained to detect crossovers at the bottom of transmission lines, buildings and construction machinery. The system identifies rust on bolts, loosening, and missing tower parts and bird’s nests and generates a smart report, highlighting the areas that require action. The error (identified anomaly) detection system is accurate up to **92.5%**.



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The algorithm is developed through a process identifying anomalies in a training data set of approximately 1500 images, allowing for a custom solution to be created for the end client where all pertinent anomalies are identified and reported.

The development and training of the algorithm only need to be completed once for a particular type of asset and can be implemented easily at different locations on similar assets.

Terra Drone detailed how the solution has been built from ground up with the aim to simplify and streamline the maintenance work for transmission and distribution facilities.

[https://www.commercialdroneprofessional.com/bvlos-power-line-inspections-allow-terra-drone-to-launch-uav-ai-based-solution/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03](https://www.commercialdroneprofessional.com/bvlos-power-line-inspections-allow-terra-drone-to-launch-uav-ai-based-solution/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03)

**Drones help with difficult task of weighing whales** APPLICATION EDUCATION NEWS  
RESEARCH TECHNOLOGY ALEX DOUGLAS OCTOBER 3, 2019



Usually, scientists have to weight stranded or dead animals which can lead less accuracy. Now, a team of researchers led by the Aarhus Institute of Advanced Studies in Denmark and the Woods Hole Oceanographic Institution in Massachusetts published a study on how drones can be used. The method was published this week in the British Ecological Society journal *Methods in Ecology and Evolution*.

The scientists used drones to take aerial photographs of southern right whales off the coast of Argentina. The researchers had developed a model that lets them calculate body volume and mass from these images.

The drone-and-modelling approach works well for whales, but it could be adjusted and applied to other marine animals that are tricky to weigh and also gives researchers the ability to track animals over time to keep tabs on their long-term health.

Michael Moore, a Woods Hole biologist and co-author of the paper, told CNET: “Weight measurements of live whales at sea can inform how chronic stressors affect their survival and ability to produce offspring.” [https://www.commercialdroneprofessional.com/drones-help-with-difficult-task-of-weighing-whales/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03](https://www.commercialdroneprofessional.com/drones-help-with-difficult-task-of-weighing-whales/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03)



## UAS and SmallSat Weekly News

### **Aerobotics takes one step closer to full roll-out with Yield Estimation trials for**

**Citrus** AGRICULTURE NEW PRODUCTS NEWS UNITED STATES ALEX DOUGLAS OCTOBER 3, 2019



Aerobotics has confirmed that it is now rolling out the first trials of the product in the US.

In announcing the news, Aerobotics detailed how it can give farmers early & mid-stage yield estimation, meaning that even at the early stages of maturation, the product will help inform intervention decisions, resource requirements, marketing and packhouse strategies in preparation for harvest. It will provide reports throughout the season which estimate the number of fruit and size distribution at the time of your drone flight.

It can mean saved time in the field with AI technology and with canopy-level automated drone flights, high-resolution imagery can be used to **detect and measure more fruit** than previously possible.

It said that any Citrus farmers interested in signing up for a Yield Estimation trial can send an email to [support@aerobotics.com](mailto:support@aerobotics.com). [https://www.commercialdroneprofessional.com/aerobotics-takes-one-step-closer-to-full-roll-out-with-yield-estimation-trials-for-citrus/?utm\\_source=Email+Campaign&utm\\_medium=email&utm\\_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03](https://www.commercialdroneprofessional.com/aerobotics-takes-one-step-closer-to-full-roll-out-with-yield-estimation-trials-for-citrus/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313589-Commercial+Drone+Professional+DNA+-+2019-10-03)

### **SkyOp LLC Inks Deal to Bring Its Drone Training STEM Curriculum to Local School**

**Districts** Press 2 October 2019



**Canandaigua, N.Y.** – October 2, 2019 – [SkyOp LLC](#) announced that it has been awarded a cooperative purchasing contract to make its customizable [Drone Training Curriculum](#) available to local school districts through the [New York Boards of Cooperative Educational Services](#) (BOCES). Under the state-wide agreement, SkyOp will deliver its proprietary workforce-development STEM curriculum directly to local districts while the

BOCES will provide support and training for teachers and district staff to roll out the curriculum. The cooperative agreement enables school districts to receive funds from the state for purchases made through the program based on the state approved formula. Educational institutions and statewide educational support organizations looking to learn more about the



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ready-to-deploy SkyOp Drone Training Curriculum can visit: <https://www.skyop.com/training-solutions/stem-cte-ptech/>.

The SkyOp Drone Training Curriculum goes beyond the basics of drone racing or aerial imaging to teach a cohesive skill set that combines regulatory, operational and technical knowledge about drones with data collection and analysis workflows in order to prepare students for **careers as licensed drone pilots**. [https://www.suasnews.com/2019/10/skyop-llc-inks-deal-to-bring-its-drone-training-stem-curriculum-to-local-school-districts/?utm\\_source=marketo&utm\\_medium=email&utm\\_campaign=uaveditor&utm\\_content=newsletter&mkt\\_tok=eyJpIjoiWm10aE9HWmpZaIF5Tm1WaCIsInQiOiJlS3RzMVdRSVwvUkk0Y1IPEcrTG5BQzBLyIIBVmdiQUdWXC9rMETsXC9lMFNiS09YZGFMQmZJMWY3ZU1BZHNFMXM1TGsxcGZISXV0bkdUd3Z3VGJSWDBpUnhaalpGVXBCT3Y2MGQ2eVp0aDU1Rnl4bmlsUFhBV09YZzkwb1FQN3NjNSJ9](https://www.suasnews.com/2019/10/skyop-llc-inks-deal-to-bring-its-drone-training-stem-curriculum-to-local-school-districts/?utm_source=marketo&utm_medium=email&utm_campaign=uaveditor&utm_content=newsletter&mkt_tok=eyJpIjoiWm10aE9HWmpZaIF5Tm1WaCIsInQiOiJlS3RzMVdRSVwvUkk0Y1IPEcrTG5BQzBLyIIBVmdiQUdWXC9rMETsXC9lMFNiS09YZGFMQmZJMWY3ZU1BZHNFMXM1TGsxcGZISXV0bkdUd3Z3VGJSWDBpUnhaalpGVXBCT3Y2MGQ2eVp0aDU1Rnl4bmlsUFhBV09YZzkwb1FQN3NjNSJ9)

**4Oct19**

### Oculus founder Palmer Luckey's defense start-up is now making attack drones

OCT 3 2019 Annie Palmer@ANNIERPALMER



Anduril co-founder and CEO Brian Schimpf shows NBC's Jacob Ward the company's new "Interceptor" drone outside its test facility near Irvine, California.

Anduril, the defense start-up founded by Oculus co-founder Palmer Luckey, first made a splash with its [virtual border wall technology](#).

Now, the controversial company is branching out into attack drones, [with the launch](#) of the "Interceptor." The artificial intelligence-connected, unmanned aircraft is designed to detect targets and "kill rotary or fixed-wing threats autonomously in any environment, day or night." It's envisioned as a way to provide another layer of security for military forces, as well as protect "critical infrastructure."

The company said it has already begun deploying prototype Interceptor drones to clients. Anduril has also signed a contract to issue the drones, which are its first computer-operated weapon, in conflict areas overseas. Each Interceptor drone is about the size of a bowling ball and can destroy other drones without any damage to its own hardware.

Anduril has attracted scrutiny for its willingness to work with the U.S. government, while other tech giants such as [Google](#) have wavered on doing so. In recent months, Anduril has continued to grow, garnering a [\\$1 billion-plus valuation](#) in its latest funding round, which included participation from Andreessen Horowitz.



## UAS and SmallSat Weekly News

Luckey started Anduril after he was ousted from [Facebook](#) in 2017 amid controversy tied to his **political beliefs and contributions** to far-right groups and internet trolls.

<https://www.cnbc.com/2019/10/03/palmer-luckeys-defense-start-up-anduril-developing-attack-drones.html>

**FLIR Acquires Assets of Aria Insights, Formerly CyPhy Works** Betsy Lillian October 2, 2019



FLIR Systems Inc. has acquired the intellectual property and certain operating assets of tethered drone company Aria Insights Inc., formerly known as CyPhy Works Inc.

Terms of the deal have not been disclosed. The Aria assets will be integrated into FLIR's unmanned systems and integrated solutions division, augmenting the company's technology portfolio. FLIR also acquired Prox Dynamics in 2016 and [Aeryon Labs](#) and Endeavor Robotics earlier this year.

Founded in 2008 by iRobot co-founder Helen Greiner and [backed](#) by several top technology investors, Aria (then CyPhy Works) notably developed the [Persistent Aerial Reconnaissance and Communications](#) (PARC) **tethered** unmanned aircraft system. [The company ceased operations](#) in March of this year.

David Ray, president of FLIR's government and defense business, notes that tethered drones are "becoming an increasingly valuable tool for force protection, border security and critical infrastructure protection." [https://unmanned-aerial.com/flir-acquires-assets-of-aria-insights-formerly-cyphy-works?utm\\_medium=email&utm\\_source=LNH+10-03-2019&utm\\_campaign=UAO+Latest+News+Headlines](https://unmanned-aerial.com/flir-acquires-assets-of-aria-insights-formerly-cyphy-works?utm_medium=email&utm_source=LNH+10-03-2019&utm_campaign=UAO+Latest+News+Headlines)