UAS and SmallSat Weekly News

Contents

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5Jan19

PwC Conducts First Coal Stock Audit Using Drones staff January 04, 2019

In a global first for the network, PwC UK has undertaken a stock count audit using a drone, as part of a wider drive to transform the audit process.

The drone, operated by UK drone company QuestUAV, was used to capture over 300 images of the coal reserve. The value of the coal was calculated to within 99+% accuracy.

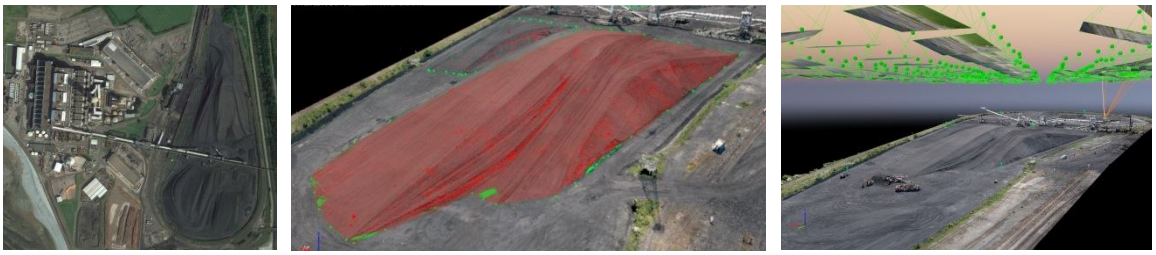

Figure 3: The images captured by the drone are processed using photogrammetry, where the images are 'stitched' together and compared to determine how many points they have in common with one another.

The traditional stock count involves climbing over the coal pile and using a two meter GPS tracking pole to measure the area and elevation from the ground at various points.

The main objective of the flight was to assess the benefits of using drones when compared to traditional surveying methods. Initial findings from the project concluded that:

- The traditional method can take around 4 hours. Using a drone, it can be done in half an hour – a reduction of 85%.
- The drone captured c.900 data points per cubic meter, obtaining impressive overall accuracy levels of 2cm. This is compared to c.1,200 readings taken across the whole site using the traditional method. The drone enhances accuracy by providing a true, continuous representation of the coal pile.
- Preparation for the drone flight poses less of a health and safety risk, particularly when parts of the coal pile are unstable.
- The flight does not interrupt normal operations on the coal pile.

Operational benefits of using the drone include:

- More efficient monitoring and management of the site
- Improved knowledge on the landscape around the site for vegetation management
- Valuable insights on the health and maintenance of wider power station assets

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https://dronelife.com/2019/01/04/drones-are-moving-mainstream-fast-pwc-conducts-first-coal-stock-audit-using-drones/

Japanese Firm Inks Drone Deal with African Mining Giant Jason Reagan January 03, 2019

Japanese UAV company Terra Drone's South African division is partnering with one of the continent's largest mining companies to get a better look at sites from above.

Sibanye-Stillwater is the largest producer of gold in South Africa as well as one of the 10 largest in the world.

During a recent demo, Terra Drone deployed an autonomous drone to map tunnels as small as 3×3 meters, yielding accurate 3D renderings without sending miners into a potentially unsafe environment. Deploying drones is expected to result in safer working conditions.

In a statement (translated from Japanese to English), Terra Drone COO Teppei Seki said: "We are delighted to implement such a demonstration with Sibanye-Stillwater … especially now [that] Terra Drone South Africa [is] dedicated to underground mining. We will focus on volume calculations by [providing] 3D survey-inspection data for ore paths and vertical shafts … This collaboration is going to be a giant step toward [improvements in] underground mining, which is expected to be expanded [across the African market]." https://dronelife.com/2019/01/03/japanese-firm-inks-drone-deal-with-african-mining-giant/

H1 drone takes aim at 'whole new market' MARK URBAN murban@record-eagle.com Jan 2, 2019

TRAVERSE CITY — Hybrid Robotics, Inc. aims to make a big splash in the world of undersea inspections.

The company — founded by four 20-year-olds — is working on its debut product, the H1, that will be able to land on the surface of the water and deliver a remote-operated vehicle to depths of more than 300 feet. The H1 will be sent out to beta customers this summer for two months of testing.

Emergency spill response promises to be one of the biggest areas of work for the H1. It also holds promise for such underwater inspections such as bridges, dams, piers and breakwaters.

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The ROV is attached to the drone with a tether of 1,000 feet. The tether will include communication elements, ensuring no water distortion of images.

The H1 is set to have propellers about two feet long, both on the top and bottom of the craft. There will be eight motors in total. Harbin expects the H1 to be a custom application for each client, which will lead to a wide fluctuation in both uses and costs. He said some clients will want to add items such as sonar to the system.

Hybrid Robotics, which received a $60,000 investment from Boomerang Catapult, LLC in November, will seek a second round of funding this summer before it goes into production. https://www.record-eagle.com/news/the_biz/h-drone-takes-aim-at-whole-new-market/article_e7fa3852-56d2-56e0-8cce-29c69d10078f.html

UAS BVLOS network successfully tested in eastern North Dakota Patrick C. Miller | January 02, 2019


The University of North Dakota (UND) says it and its research partners achieved an unmanned aircraft systems industry milestone last month with the first-ever drone test flights over a specially developed network.

The university partnered with Harris Corp. and the Northern Plains Unmanned Aircraft Systems Test Site for the successful flights on Dec. 21. The Network is a system of integrated ground infrastructure enabling UAS to fly in the national airspace beyond visual line of sight. The new North Dakota network monitors a 55-mile-long corridor between the cities of Grand Forks and Fargo, representing the drone industry's first-ever implementation of wide-area, multi-user UAS BVLOS airspace.

Last month's flights tested the Network's ability to provide drone pilots with airspace awareness to stay clear of manned aircraft and other objects. The network includes locally deployed sensors for both cooperative and non-cooperative radar surveillance, as well as integration of the Federal Aviation Administration's NextGen UAS surveillance data feed.

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The Network got another shot of momentum recently when North Dakota Gov. Doug Burgum showed his support for the project by recommending $30 million to develop statewide infrastructure supporting UAS BLVOS operations. http://uasmagazine.com/articles/1970/uas-bvlos-network-successfully-tested-in-eastern-north-dakota

7Jan19

Verus gets first multi-million-dollar order for next gen CUAS COUNTER-DRONE MILITARY NEWS ALEX DOUGLAS JANUARY 7, 2019

Verus Technology Group has received its first multi-million-dollar purchase order from U.S Special Operations Command for its next-gen SkyView-MP CUAS.

The Virginia-based firm has already delivered a small number of its SkyView-MP V2 systems to other customers and has now started shipments for this order.

SkyView CUAS, which has been independently tested in both urban and rural environments, aims to provide operators with long-range detection and tracking of small unmanned aircraft systems. The first production unit was delivered in 2017, and since then, more than 60 systems have been deployed globally by multiple U.S. Government entities.
https://www.commercialdroneprofessional.com/verus-gets-first-multi-million-dollar-order-for-next-gen-cuas/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-287749-Commercial+Drone+Professional+DNA+-+2019-01-07

ADS-B Unlikely Tracking Technology for Small Drones Frank Wolfe January 6, 2019

As airports and governments step up their efforts to track unmanned aircraft and deter their disruption of commercial air operations, the FAA is hinting that automatic dependent surveillance-broadcast (ADS-B) systems will not be sufficient to identify such drones.

A number of FAA "beyond-visual-line-of-sight" waiver approvals under 14 CFR 107.31 for small UAS state that "ADS-B (1090/978MHz) may not be transmitted from the sUAS when operating pursuing to this waiver."

"The industry and the FAA both realize this is a critical area that must be addressed before any rule making can take place," Colburn said. "My research has shown that there is confusion,

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disagreement, and divergent agendas separating industry and government (specifically federal law enforcement) on the resolution of recommendations for Remote ID or ID Tracking. More research and development is imperative before rule making can begin. A consensus is critical and must be reached."

The tracking approach may be less rife with regulatory pitfalls than counter-drone technologies. https://www.aviationtoday.com/2019/01/06/ads-b-unlikely-tracking-technology-small-drones/

After Massive Disruptions, U.K. Airports Bring Out the Big Guns to Stop Drones

Robert Wall Jan. 4, 2019

LONDON—British airports are boosting their counter-drone efforts after severe disruption during the holiday period, marking the first concrete sign that the three days of flight mayhem could be a catalyst for spending on systems to thwart the malicious use of unmanned aircraft.

London Gatwick, the U.K.'s second largest airport after Heathrow, said it had recently spent several million pounds to buy new equipment to handle disruptive drones. The system is on par with what the country's military uses, the airport said without identifying the supplier.

Counterdrone tools cover a range of technologies, including acoustic and radar sensors to spot the typically small aircraft. It can range to sophisticated devices to bring down drones, such as jammers that disrupt the communications link between the aircraft and operator.

The U.K. military deployed some of its counterdrone equipment to Gatwick to allow the airport to resume normal operations. Those systems were withdrawn this week. Gatwick said the equipment it has acquired provides "similar level of reassurance" to that used by the armed forces. https://www.wsj.com/articles/british-airports-boost-counterdrone-efforts-after-massive-travel-disruption-11546610073

Trailer for new horror film, The Drone, looks hilariously bad January 6, 2019 Feilidh Dwyer

A DJI Phantom gone rogue is the unlikely star of a new horror film coming to screens in 2019. The plot of the film is relatively simple, a drone becomes autonomous and tries to kill its owners. Sounds ridiculous, right? Well, according to a story we brought

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you last November, in which Elon Musk warned us about possible future autonomous killer drones – perhaps it's not quite as far-fetched as it seems.

The trailer opens with a montage of shots of modern technology that humans rely on-smartphones, aeroplanes, a space station and MRI machine. "What happens when technology..", the captions ask, " GETS A MIND OF ITS OWN?" Queue a blare of heavy orchestral horns and a shot of a DJI Phantom 'sitting' on a rocking chair, swaying back and forth.

From the intentional absurdity of the trailer, it seems this film will belong in the well-traversed genre of over-the-top splatter horror (which includes titles such as Scream, Night of the Living Dead & Bad Taste). However, it might be a bit of stupid fun and win a place in people's hearts like other cult classics such as The Room (a masterpiece of cringe).
https://www.wetalkuav.com/trailer-for-new-horror-film-the-drone-looks-hilariously-bad/?utm_source=WeTalkUAV&utm_campaign=35f4ebfb58-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_1d410cb84d-35f4ebfb58-83642867

Global 2019-2023 UTM market grows to $959.2 million – latest Unmanned Airspace forecast January 7, 2019 Philip Butterworth-Hayes UTM and C-UAS market analysis

according to the latest UAV Traffic Management (UTM) market survey by *Unmanned Airspace* (https://www.unmannedairspace.info/uav-traffic-management-services/).

"It represents a considerable increase in expenditure over earlier estimates," says the report's author Philip Butterworth-Hayes, "and reflects the progress that has been made in maturing UTM technologies and deployment plans over the last six months, especially in Europe.

"In the USA, the LAANC program has been completed with 14 suppliers working with the FAA to provide access to low-level airspace for drone operators. But LAANC is not a commercial UTM service, and it is highly likely that the USA will now be at least two years behind some Europe countries in adopting first generation UTM systems which involve tracking and identifying drones on a paid-for basis."

"In the meantime, there is likely to be a considerable gap between the first adopters – Dubai and Singapore – of urban air mobility (UAM) systems and the rest of the world. One of the underlying reasons for this is that UTM and UAM are part of a much wider and more complex

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process of digitizing all airspace operational environments."
https://www.unmannedairspace.info/utm-and-c-uas-market-analysis/global-2019-2023-utm-market-grows-usd959-2-million-latest-unmanned-airspace-forecast/

Partnership aims to help New Mexico tribe monitor its land *THE ASSOCIATED PRESS*

JANUARY 06, 2019 Albuquerque, NM

A Native American community in northern New Mexico will soon get help from solar-powered drones to monitor its vast land holdings.

Under a new partnership with Santa Fe-based Wildflower International, unmanned aerial systems made by Albuquerque-based Silent Falcon UAS Technologies will assist Pojoaque Pueblo in managing its roaming bison herd, mapping cultural sites and improving fire control and search-and-rescue efforts.

The project will provide an opportunity for Wildflower to train its newly-formed UAS flight team. It's a new business for Wildflower, a 27-year-old information technology firm that Kimberly deCastro built into a company with more than 83 employees.

Wildflower partnered in 2018 with Silent Falcon, which equips its solar-powered drones with infrared cameras and other sensors for real-time surveillance and imaging. It sells the system to public and private entities worldwide, but it's now moving into service-based contracts to operate its system for customers. Wildflower purchased two Silent Falcons, which will fly at Pojoaque.

In addition to its monitoring services, the company also will train pueblo members for UAS careers, something particularly appealing to Pojoaque Gov. Joseph Talachy. https://www.ledger-enquirer.com/news/business/article223996555.html

Chattanooga companies use 'flying robots' to make jobs safer, easier January 6th, 2019 Allison Shirk Collins Business Around the Region

Andy Carroll, Skytec CTO, and Bill Rogers, Skytec CEO, pose for a photo with one of their drones Monday, December 17, 2018 at a farm in McDonald, Tennessee. Skytec can provide a variety of

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imaging services including aerial lidar, photogrammetry, thermal imaging and site inspection.

Wingfield Scale and Measure and Skytec are providing clients with services that weren't even possible just a few years ago. Scales can tell a business the weight of something, like stockpiles in a landfill or the weight of a truck on the highway, but they give no indication of the volume, so Wingfield started a measuring department about five years ago to meet client requests.

Wingfield's measuring department has anywhere from 80-100 clients with a majority of their customers from the mining industry, according to Kenney. They also work at places like landfills and cement facilities, using $150,000 laser scanners they can place on tripods or mount on vehicles with a GPS unit and integrated camera that will take a photo and overlay it with laser points, Kenney said.

Wingfield uses LiDAR technology on the ground, which is remote sensing technology that uses the pulse from a laser to collect measurements and create 3-D maps and photos, but they partnered with Skytec to use it in the air.

For mining clients who needed more information about areas with heavy brush and overburden, Kenney and his crew couldn't provide that, or at least in a timely manner. In older, traditional ways of surveying, a surveyor might go out and have to hike the whole piece of land and do some extensive groundwork for hours, or even days, to yield less accurate results. Without Skytec's technology, Kenney said there would be several jobs they couldn't accept because they lack the time and resources.

With anything new, comes trial and error. Kenney said the more clients Wingfield and Skytec take on together the more they understand when it is beneficial to use this technology and when it isn't. Together, they have worked with about 25 mining and landfill clients, Kenney estimates.
https://www.timesfreepress.com/news/business/aroundregion/story/2019/jan/06/chattanoogcompanies-use-flying-robots-make-jo/485985/

Here Are The Winners Of Dronestagram's 5th Annual International Drone Photography Contest Malek Murison January 07, 2019

Aerial photography social media platform Dronestagram has today announced the winners of its fifth annual Drone Photography Contest. The images are once again a testament to the creativity that drones enable and the passion and skill of aerial photographers around the world.

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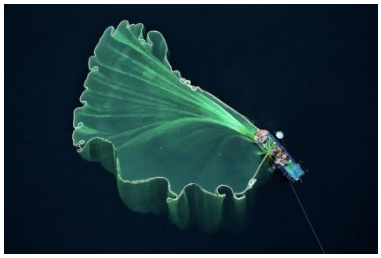
1st Place The winner of Dronestagram's International Drone Photography Contest was *HUNGRY HIPPOS by zekedrone. You can view the* author's profile here.


2nd Place The runner-up was this magnificent shot, *FISHING NET IN VIETNAM by Trung Pham.* See the author's profile here.

3rd place 3rd place went to *2 PEOPLE, 2 DOGS & 4 SHADOWS by qliebin. You can see* the author's profile here. https://dronelife.com/2019/01/07/here-are-the-winners-of-dronestagrams-5th-annual-international-drone-photography-contest/

IXI EW's DRONEKILLER Impresses NATO Countries at NNTEX-18C January 7, 2019

Counter UAS

DRONEKILLER, a handheld Software Defined Radio created by IXI EW that can be used anywhere in the counter UAS kill-chain, participated in a NATO non-lethal technology exercise of counter-UAS at the Marine Corps Base Quantico. Over ten countries and United States Marine officials including Commandant Neller attended NNTEX-18C. During this week-long event, the DRONEKILLER showcased its abilities to defeat multiple drones in various scenarios. It was successful in disabling drones out to one thousand meters away.

Because of the results of this event, the Ukraine has invited IXI EW to demonstrate the DRONEKILLER in front of its Ministry of Defense in support of its efforts against Russia. Headquartered in Yorba Linda, California, IXI EW is a Service-Disabled Veteran-Owned Small Business that excels in the design, manufacture and support of Counter UAS solutions for military and government. https://uasweekly.com/2019/01/07/ixi-ews-dronekiller-impresses-nato-countries-at-nntex-18c/

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8Jan19

DJI and Skycatch team up to host free precision data focused webinar APPLICATION

DJI EDUCATION EVENTS INDUSTRY LEADER MANUFACTURER ALEX DOUGLAS JANUARY 8, 2019

The webinar, which will look into RTK, PPK, GCPs and what they mean for the user, will take place on January 10 at 7pm (GMT).

DJI outlined how important precision RTK can be to those who need it, factors to consider before deploying as high-precision drone on site and insightful user stories and case studies are some of the topics which will be discussed. The experts will offer solutions and go on to discuss what is in store for the future.

DJI confirmed that it hopes the webinar will help guests learn how to leverage drones across their work sites. Last week, Commercial Drone Professional reported on a Kansas State University's free live webinar. https://www.commercialdroneprofessional.com/dji-and-skycatch-team-up-to-host-free-precision-data-focused-webinar/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-287892-Commercial+Drone+Professional+DNA+-+2019-01-08

AgEagle Develops Mobile App for Drone Crop Imaging and Analysis 07 Jan 2019

Mike Rees

AgEagle Aerial Systems, Inc., a provider of drone imagery-based data collection and analytics s for the agriculture market, has announced that it will extend the capabilities of its platform to mobile devices with the launch of its new FarmLens™ mobile app.

Originally designed as a PC-based system, the platform has processed 1.3 million acres of crops, analyzed data from over 50 countries and 53 different crop types, and created 11,000 crop reports. It will enable users to:

- Plan a full day of drone-image collection, pilot their drone(s) and review flight details
- Convert drone images into crop health indicators
- Input data for sustainability scores
- Upload chemical application receipts to enable tracking of products when digital application data layers are not available
- Upload field scouting images

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- Access real-time weather conditions and satellite imagery
- Export auto-created zone maps
- Share data with other members of their team in real-time across both mobile and standard messaging platforms https://www.unmannedsystemstechnology.com/2019/01/ageagle-develops-mobile-app-for-drone-crop-imaging-and-analysis/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=31c344871e-eBrief_2019_Jan_08&utm_medium=email&utm_term=0_6fc3c01e8d-31c344871e-119747501

Affordable Fixed-Wing Drone for Commercial Applications APPLIED AERONAUTICS

Capability Overview

Applied Aeronautics is a developer of composite fixed-wing drones for long-range commercial applications. The Albatross UAV is Applied Aeronautics' flagship platform, a modular aircraft with a high-performance, professional feature-set that has flown in over 50 countries and on every continent.

It is an autonomous electric drone with interchangeable payload trays. It can swap out avionics, sensors and other payloads as technologies advance or requirements change.

The system is designed to be launched quickly with autonomous operation from take-off to landing. Entirely battery-powered, it can travel over 100 miles with a top speed of 90 mph, and flight endurance up to five hours.

The fuselage has been designed for efficient cooling, creating a pressure differential that pulls air through the structure. The wings have a forward swept planform designed to ensure low stall speeds, max efficiency and a large cruise window. Two component bays allow separation of receivers, transmitters and GPS units. The inverted-V tail improves efficiency, decreases drag and is more stable in banked and coordinated turns.
https://www.unmannedsystemstechnology.com/company/applied-aeronautics/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=31c344871e-eBrief_2019_Jan_08&utm_medium=email&utm_term=0_6fc3c01e8d-31c344871e-119747501

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DRONES DELIVER POLLEN, BETTER FRUIT January 7, 2019 Zach Ryall

Dropcopter CEO Matt Koball loads pollen into one of the firm's hexacopters

The Syracuse startup has fielded a fleet of six custom-built hexacopters and worked their magic on apple, cherry and almond orchards in California and New York **with verified success**. Dropcopter's pitch includes significant increases in yields, based on three years of trial runs that produced 25- to 50-percent increases in orchards pollinated by drones, according to the **company website**.

Flowers that bloom and bear fruit need pollen to pass from the male to female parts of the bloom. Bees, in their quest for nectar to take back to the hive, become pollen-laden couriers. As they visit other flowers, the pollen rubs off and the fertilized flower is on its way. Traditionally,

a grower has to pay to truck bees in and keep them on site at an orchard for as long as two to three weeks. But bees have their own agenda, visiting only the blooms they are interested in, not necessarily those that might have the most market potential. Bees don't fly at night or when it's too cold, which just might be the best time to pollinate a boom.

Dropcopter's solution involves using a unique electrostatic device under the drone to charge pollen grains as they are dispersed. The positively charged pollen is drawn to the grounded, moist blooms, also assisted by the downwash from the drone's rotors.

Timing and altitude are critical. The results of precision pollination are not only greater yields, but superior fruit. Larger, better-colored apples come from king blooms, the first blooms to open. Pollinating them at exactly the right time, and then netting the trees to prevent further pollination of other, later-opening blooms by local bees, the king blooms receive most of the tree's energy. The result is the very best and more valuable apples. Typically, these are double the value at market. https://www.aopa.org/news-and-media/all-news/2019/january/07/drones-deliver-pollen-better-fruit?utm_source=drone&utm_medium=email&utm_campaign=190108drone

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UK-based 5kg payload project breaks 60 minute flight time target APPLICATION

INNOVATION MANUFACTURER NEWS TECHNOLOGY ALEX DOUGLAS JANUARY 8, 2019

The UAV, which is powered by an Intelligent Energy hydrogen fuel cell, achieved 70 minute continuous flight time.

Led by venture engineering company Productiv on behalf of BATCAM, the project is expected to be completed in early 2019 with BATCAM carrying out real-world end-user trials.

Jon Hurndall, CEO of BATCAM commented: "I congratulate all partners on this fantastic achievement. It is great to see product innovation and continued development with hydrogen fuel cells for UAVs. A 60-minute-plus flight time with a large payload creates many opportunities, not only with our existing broadcast clients but in other commercial markets and sectors. We are eager to explore these opportunities in 2019."
https://www.commercialdroneprofessional.com/uk-based-5kg-payload-project-breaks-60-minute-flight-time-target/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-287892-Commercial+Drone+Professional+DNA+-+2019-01-08

STATE FARM GRANTED FIRST NATIONAL FAA WAIVER TO CONDUCT UAS FLIGHTS OVER PEOPLE AND BVLOS AUVSI NEWS JAN 8, 2019

State Farm has become the first company in the U.S. to receive a national waiver from the FAA that allows it to conduct UAS operations over people and flights beyond the pilot's visual line of sight through November 2022. Previously, State Farm received waivers that were limited to a short time frame and to specific geographic areas impacted by hurricanes.

A member of Virginia's UAS Integration Pilot Program team, State Farm says that the waiver will also open up new innovation opportunities for the company by allowing longer-distance flights.

Virginia Tech's Mid-Atlantic Aviation Partnership played an integral role in helping State Farm obtain this waiver, as the company has worked with MAAP on UAS safety case research for nearly two years. State Farm and MAAP have conducted several tests that evaluated senseFly's fixed-wing eBee Classic UAS, which is designed for longer-distance damage assessment flights. The strength of the research and resulting safety case documentation

resulted in the FAA approving temporary waivers for State Farm to conduct damage-assessment UAS flights over people and beyond the operator's visual line of sight in states affected by Hurricanes Florence and Michael.

State Farm says that successful flights following the two hurricanes provided "valuable real-world experience and insights" that were incorporated into the national waiver request. https://www.auvsi.org/industry-news/state-farm-granted-first-national-faa-waiver-conduct-uas-flights-over-people-and-bvlos

Flytrex raises $7.5 million to expand drone delivery to North Carolina KYLE WIGGERS@KYLE_L_WIGGERS JANUARY 8, 2019

Delivery by drone is big business — potentially in the neighborhood of $29 billion by 2027, according to analysts at Research and Markets. It's no wonder heavy hitters like Google X labs graduate Wing and Amazon are making sizable investments in the technology, in part by piloting drones deliveries in Australia, the U.K., and soon Helsinki. And they're not the only ones.

Six-year-old Israeli startup Flytrex today announced that it has secured $7.5 million in Series B financing, led by Benhamou Global Ventures, with additional investment from Btov. This follows a $3 million Series A funding round in June 2017, bringing the company's total to $10.5 million.

The fresh capital comes after the debut of Flytrex's aerial mail delivery program in Ukraine, and its partnership with online marketplace Aha in August 2017 to roll out an on-demand service in Iceland's capital city of Reykjavik. More recently, in September 2018, Flytrex kicked off a golf course delivery program in North Dakota at King's Walk.

CEO and cofounder Yariv Bash said the capital will be used to scale up operations and improve the company's existing drone delivery services. It'll also provide seed funding for a North Carolina program, which will launch later this year. https://venturebeat.com/2019/01/08/flytrex-raises-7-5-million-to-expand-drone-delivery-to-north-carolina/

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9Jan19

Drone Sighting Closes Heathrow Airport KATE O'CONNOR 8 January 2019

Flights at London's Heathrow Airport (LHR) were temporarily suspended due to a drone sighting on Tuesday evening. The closure occurred just three weeks after Gatwick Airport, located 30 miles south of London, was shut down for 36 hours due to reports of drone activity over the airport. Flights at Heathrow, which is the country's busiest airport, resumed about an hour after the reported drone sighting.

"Shortly after 17:00 hrs [GMT] today (8 January) we received reports of a sighting of a drone at Heathrow airport," said London Metropolitan Police Commander Stuart Cundy in a statement. "As part of our established response plans to such an incident, officers were deployed across the airport and we continue to work closely with colleagues from Heathrow Airport Limited." Cundy also noted that police officers were among those who saw the drone, and a criminal investigation is underway. It was also reported that the military has been brought in to assist with the situation. https://www.avweb.com/eletter/archives/101/4228-full.html?ET=avweb:e4228:2565185a:&st=email#232096

Drone saves deer from drowning in frozen lake! January 7, 2019 Feilidh Dwyer

A drone came to the rescue of a mother and baby deer stranded on a frozen lake in upstate New York on Sunday.

The mother deer fell through thin ice on the lake located in South Sandy Pond, Sandy Creek. Thankfully, some quick-thinking locals took the initiative to help save her.

Once in the lake, the mother deer was unable to clamber up onto the surrounding ice and onlookers feared she would drown. Several local canoers jumped into their boats and rapidly worked to chip away the ice to create a channel to shore for the deer to swim along. The problem then was encouraging the deer to travel in the right direction.

Casey Hargrave, a 19-year-old local, made a decision to launch her drone, hit record and flew above the deer in an effort to scare it to swim in the right direction. The drone video shows the deer slowly swimming along the track cut by the canoers and eventually making it to shore. The entire ordeal lasted nearly three hours and we are grateful the deer didn't die. We assume the

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mother and baby were reunited afterwards. You can watch the full video:
https://www.wetalkuav.com/19-year-old-uses-drone-to-save-deer-from-frozen-lake/?utm_source=WeTalkUAV&utm_campaign=1af97990d5-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_1d410cb84d-1af97990d5-83642867

Bell Unveils eVTOL Design MARY GRADY

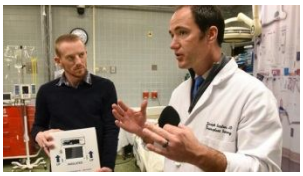
Bell Helicopter revealed a full-scale concept eVTOL on Monday, during press day at the Consumer Electronics Show in Las Vegas. The air taxi, named Bell Nexus, is powered by a hybrid-electric propulsion system and driven by Bell's powered-lift concept, incorporating six tilting ducted fans designed for safety and efficiency. Bell is working with Uber to create VTOLs that will operate on an aerial rideshare network in the first U.S. Uber Air cities of Dallas-Fort Worth/Frisco, Texas and Los Angeles. Uber's goal for these cities is make air taxis commercially available on Uber Air in 2023.

Bell is not working alone on the vehicle. Safran will provide the hybrid propulsion and drive systems, EPS will provide the energy storage systems, Thales will contribute the Flight Control Computer hardware and software, Moog will develop the flight control actuation system and Garmin will integrate the avionics and the vehicle management computer.
https://www.avweb.com/eletter/archives/101/4228-full.html?ET=avweb:e4228:2565185a:&st=email#232092

10Jan19

The next use for drone delivery? Organs, one Baltimore surgeon proposes.

Meredith CohnContact ReporterThe Baltimore Sun



Dr. Joseph Scalea, a transplant surgeon and University of Maryland professor, right, holds a prototype organ monitoring device as he discusses using drones to deliver organs with Stephen Restaino, a senior research engineer at the Maryland Development Center, left.

At a Southern Maryland airfield, Dr. Scalea watched a drone carrying a kidney in a cardboard cooler fly 3 miles. The test flight, repeated 14 times, was the culmination of three years' work by the University of Maryland Medical Center transplant surgeon, who sees the unmanned aircraft as the ultimate method for delivering life-saving organs from donors to recipients.

"I did a transplant where the organ flew 1,500 miles from Alabama on a commercial aircraft and it took 29 hours," Scalea said. "That's ridiculous. It could have been here in six. And yet that's

accepted as how we do things."

Organs don't last long outside the body, and delays and mistakes mean some lose quality or can't be transplanted. Scalea is frustrated that the system relies on couriers, commercial airline schedules and costly charter flights arranged by local nonprofit agencies. He cited a recent $80,000 charter to deliver a liver to Baltimore from Texas and an unrelated case in which a heart was accidentally left on a commercial plane flying from Seattle.

That led Scalea to try to jump to the head of a movement already underway to resolve the technical, regulatory and medical hurdles to using drones to shepherd medical supplies such as blood, medicines, and now body parts, anywhere around the country at any time.

More than 30,000 organs such as kidneys and livers are transplanted a year, and many more valves, bones and other tissues. Scalea expects drones to overcome the barriers and remake how organs are delivered in the next three to five years.

"It will be faster and cheaper and more predictable," said Scalea, also an assistant professor of surgery in Maryland's school of medicine. "Drones really work for this purpose."
https://www.baltimoresun.com/health/bs-hs-drones-for-organs-20181211-story.html

A spy satellite revolution? JACQUELINE KLIMAS 01/09/2019

National security agencies are steadily testing out more small satellites before committing to new constellations of lower-cost alternatives, according to Bill Gattle, the president of Space and Intelligence Systems at the Harris Corporation.

"We're seeing a lot more acceleration, certainly in the intelligence community, on their willingness to adopt it." said Gattle, a former program director of terrestrial communications and director of engineering for defense programs at the Pentagon. "It's moved from ... customers being intrigued to believing it's worthy of a demo."

At the beginning of 2018, Harris had three customers for its small sats. A year later, it has five government customers under contract for 17 small satellites. That doesn't mean there's been universal acceptance. There are hurdles the small satellite industry needs to overcome to see sustained growth in the military and intelligence market.

"How do you get the data quickly from the satellite to the war fighter who needs it?" Gattle

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said. “It doesn't help you to know a missile landed five minutes ago. You have to have the timeline be very quick and you need a communications backbone ... which will be pivotal to how fast this grows.” https://www.politico.com/story/2019/01/09/satellites-bill-gattle-national-security-1089126

Airobotics Gets Waiver from FAA for BVLOS Flights Over People Using ParaZero Safety Systems Harry McNabb January 09, 2019

Drone safety systems company, ParaZero Technologies Ltd, announced today that its customer, Airobotics, has secured a Certificate of Waiver from the Federation Aviation Authority that allows them to fly Beyond Visual Line of Sight for automated drone operations over people. This is the second FAA waiver for flight over people with a parachute system. Both the current waiver and the previous one for North Dakota operator, Botlink, utilize ParaZero’s Systems.

The prior test took place prior to a college football game between North Dakota State University and South Dakota State University. North Dakota drone services and software provider Botlink was granted a waiver to fly a DJI Phantom 4 equipped with ParaZero‘s system over the crowds at the tailgating event prior to the game in the Fargo Dome. The drone flew multiple times over the stadium’s parking lots, providing real-time data to law enforcement so they could better manage traffic and safety. The footage was also shown during the game, giving fans a new perspective on the pre-game party. NDDOT had an information booth set up in the venue’s “vendor alley” for ticket holders to see the drones and ask questions of the operators.

Airobotics holds approval from the Civil Aviation Authority of Israel and from the Civil Aviation Safety Authority in Australia to fly automated BVLOS in certain locations with ParaZero’s systems. https://dronelife.com/2019/01/09/airobotics-get-waiver-from-faa-for-blos-flights-over-people-using-parazero-safety-systems/

We’ve explored what kind of value can be created with the combination of thermal and multispectral imagery in one drone flight, and that thermal piece is being enabled by FLIR Systems technology.

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Their innovative sensing solutions have essentially created a sixth sense for users that continue to change expectations for a variety of commercial applications.

Randall Warnas is the Global sUAS Segment Leader at FLIR. His experiences with drone and thermal technologies have provided him with perspective around how entire industries will be further changed by thermal capabilities in 2019.

Thermal is a 40-year-old technology that to most people is science fiction. The biggest changes we're making are around ease of access to get this technology into more people's hands than ever before. Integrations with the Mavic 2 Enterprise Dual as well as those we've created in the past like the DJI Zenmuse XT2 are all about making things simpler and easier for users. We want to encourage more people to give it a go.

These products are much more affordable and capable than ever before. Prices have come down in a major way, especially with the Lepton which is in our FLIR ONE mobile accessory. We're also now starting to use our VGA Boson camera core, which is smaller than the predecessor Tau 2. So as we create new products based around the Boson, we're going to reduce power input, size and weight which all have a dramatic effect on flight capacity. That's going to enable these products to be more easily integrated into a variety of different aerial platforms. Versatility is really where we're seeing our biggest opportunities in 2019.

We're set to have multiple conversations with our partners from MicaSense and SlantRange on the multi-spectral side and with DJI, Yuneec and Intel on the airframe side. We're also going to be talking with high-end users from LAFD, NYPD and a few others that are using the technology at a high level. https://www.expouav.com/news/latest/2019-predictions-commercial-drone-industry-randall-warnas/?utm_source=marketo&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter&mkt_tok=eyJpIjoiWmpZME16ZzVOemhqTTJJdyIsInQiOiJoSWJwWFBtdG1ETGQwZDdEWlFldWh1TStxNjV6MkVvSnJYdjFzTHFteEV2Z2gya0h2RUdLNyswTFwvK3FrNHZIVk1vM3hmT2tiRk1uMHVubE1ERmI4Q05IRmNSODNLd2YrUGN4R003NlY1ZFlWNnFaQ1VyekoyQjRXenZcL2VYbFhsIn0%3D

How do we stop drones flying near airports once and for all? January 10, 2019 Feilidh Dwyer

If registration was the answer, the US wouldn't continue to have airport shut-downs, three years after the FAA introduced the drone registration scheme three years ago. Granted – no US airports have been shut down as the result

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of rogue drones. However, on 16 November 2018, a man crashed his drone into Barclay's Bank in Midtown New York. This was smack bang in the middle of restricted airspace near Trump Tower. The pilot was arrested, not because of his drone registration but because he tried to retrieve his damaged UAV.

Despite being forbidden from doing so, some 40 drone pilots could not help themselves from trying to snap a shot during the Albuquerque Balloon Fiesta last year.

What about remote identification? We already know of some idiots who fly their drones near wildfires, preventing helicopters or aircraft from coming in close to douse the blaze. There are numerous types of incidences where bringing a drone down quickly is a priority. Obviously, technology such as signal jammers, or drone killer devicescan halt UAVs in their tracks but these solutions are very expensive (drone killers are like $30,000) and only likely to be on hand and bigger airports.

Drone killer devices certainly look cool and are effective at bringing down drones, but they are prohibitively expensive for most applications.

Andrew Shelly is the chief executive of Aviation Safety Management Systems Ltd, a New Zealand company, advocates for something similar to DJI's AeroScope. AeroScope can broadcast a drone's location, altitude, speed, operator location and identifier. The problem with this system is that it that the ID data of the aircraft has been shown to be changeable, meaning that someone with ill intent could alter their unique ID to avoid detection from authorities.

Giving authorities more power to take down drones? The US recently changed the law to make it easier for police officers to shoot down drones. The main change was the officers would no longer need a warrant to shoot down a drone. If someone uses their drone in incredibly moronic ways, they deserve to have it shot down.

Although different group rights must always be balanced, I think most of us can agree that if someone is endangering public safety, they deserve to have their drone shot down and to face criminal prosecution. To not support this stance is to bring the drone community into further disrepute in future. That's the last thing we need. Whatever law changes happen from here, it,

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unfortunately, seems likely that we'll see more idiotic drone behavior in the year to come.
https://www.wetalkuav.com/how-to-stop-rogue-drones/2/

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