UAS and SmallSat Weekly News

Contents

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16Mar19

Drones at Prisons: The Results of This 9-Month Study Show Exactly Why we Need Counter Drone Tech Miriam McNabb March 15, 2019

Counter-drone technology firm Dedrone recently completed a nine month study on the subject of drones over correctional facilities. The results are frightening. If you really want to scare yourself, check out Dedrone's Drone Incident page. But nonetheless, the examples the whitepaper provides about the impact of drones over prisons are significant.

While regulators have already enacted laws designed to prevent flight over prisons, more laws don't do much to deter criminals. Counter drone solutions may be far more effective – both at stopping criminal drone flights and saving the industry from ever more draconian laws and penalties.

The study was also a test case for the Dedrone detection technology. (The study results show more than 40 attempted drone flights over one facility in a single month – evidence that current regulations are not keeping all law abiding drone operators out of the air, or that there are more bad actors than imagined.) Detection technology allows authorities to prepare for threats and mitigate the consequences – and also provides information that will allow prosecution of drone operators who break the law. That's something that regulation alone can't do. https://dronelife.com/2019/03/15/drones-at-prisons-the-results-of-this-9-month-study-show-exactly-why-we-need-counter-drone-technology/

IARPA Issues Small Satellite Tech Innovation RFI Matthew Nelson March 15, 2019 News, Technology

The Intelligence Advanced Research Projects Agency has issued a request for information to find space-based technology offerings for potential use in satellites that weigh less than 1,102 pounds.

IARPA said Thursday in a FedBizOpps notice it will accept capability statements on small satellites, data collection and processing tools and subsystems through May 31.

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The agency expects to attract responses from independent consultants, scientists, engineers and small businesses across the academic and technology sectors. Technology areas of interest mentioned in the RFI include temporal and spectral imaging, synthetic aperture radar, artificial intelligence, machine learning, on-board processing for communications and payload, command and data handling, autonomous operations and ground data systems.

Through the RFI, the agency aims to discover technologies that have not been previously demonstrated in space or small satellites, accelerate modernization or development of new small satellite systems and identify potential incubators and investments for this market. https://blog.executivebiz.com/2019/03/iarpa-issues-small-satellite-tech-innovation-rfi/

ESA BIC Start-up from The Netherlands Tests At BCN Drone Center March 13, 2019 News

Last week we had the privilege of hosting Eyeplane, a drone startup from The Netherlands which is a part of the ESA BIC network and their Norwegian engineering partners Maritime Robotics. Eyeplane proposes an innovative fixed-wing drone service to monitor large areas of land and warn customers in case of irregularities. They are planning to work in Namibia for wildlife preservation.

The Dutch startup booked one of the exclusive offers for ESA BIC startups sponsored by the Catalan government. During this time, they were able to successfully test their well-known commercial UAV, Penguin-B, capable of carrying Eyeplane's payload components in long - endurance operations and their payload and detection software.

The Barcelona Drone Center has a segregated airspace that guarantees all technical and safety conditions are met for flying and testing UAVs. https://uasweekly.com/2019/03/13/esa-bic-start-up-from-the-netherlands-tests-at-bcn-drone-center/

UK and US ink partnership for swarming drone hackathon to develop new 'life-saving' UAS tech EVENTS by ZOE MONK MARCH 15, 2019

In a partnership between the UK and US, the Defence Science and Technology Laboratory and the Air Force Research Laboratory in collaboration with the Wright Brothers Institute, will invite

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companies to find new ways to use UAS for global search and rescue in defense and the public sector.

Using a synthetic environment from AFRL, the UK and US hackathons will take place simultaneously from 29 to 31 March 2019 via a continuous video link. The UK event will take place at the 'Spark' Facility at Southampton Solent University, with the scenarios run in parallel with the WBI in Dayton, Ohio in the US.

The hackathon will explore innovative ways to plan missions using multiple systems to assist in the identification and prediction of how wildfires will spread and subsequently find preventative solutions, minimize damage and save lives.

Teams will use a range of collaboration platforms to explore different fire scenarios with an increasing level of complexity, working with experts from the Fire Service, Dstl and the wider Ministry of Defence. Dstl and AFRL are using this innovative approach to find the best Artificial Intelligence or Machine Learning algorithms that embody efficiency and resilience.

The winning team from the UK hackathon will be offered the opportunity to present their winning ideas and proposal for further exploitation at the British Embassy in Washington DC. To register for this event, visit **Eventbrite** and see all the latest updates **here**
https://www.commercialdroneprofessional.com/uk-and-us-ink-partnership-for-swarming-drone-hackathon-to-develop-new-life-saving-uas-tech/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-295236-Commercial+Drone+Professional+DNA+-+2019-03-15

Commercial drone use set to take off in Japan with deregulation Haye Kesteloo Mar. 15th 2019

The deregulation on commercial drone operations in Japan that started in September last year has spurred the expansion of drone use in the country.

The government of Japan has allowed commercial drones to fly beyond-visual-line-of-sight (BVLOS) as long as the drone flights occur over remote islands, mountainous areas and other areas where it is unlikely to find any people. The government is planning to allow BVLOS flights in urban areas as of 2022 as a way to compensate for the shortage of workers in the parcel delivery industry.

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Telecommunications giant KDDI Corp. plans to start using drones in BVLOS mission to inspect infrastructure and for search-and-rescue missions. E-Commerce giant, Rakuten Inc. intends to start using drones for delivery services in less densely populated areas in 2019.

An unmanned air traffic management system should be in place by 2020. The Japan Aerospace Exploration Agency is one of the organizations working on this. Research firm Impress Corp. forecasts the Japanese drone industry and commercial drone use to grow tenfold from ¥50.3 billion ($452 million) in fiscal 2017 to ¥507.3 billion ($4,559 million) in fiscal 2024.
https://dronedj.com/2019/03/15/commercial-drone-use-japan/#more-15643

Intel drone chief, Anil Nanduri, predicts flying cars in five years Haye Kesteloo - Mar. 15th 2019

Stephen Shankland from CNET spoke with Intel Drone Chief, Anil Nanduri. Here are some of the highlights of that interview.

Anil Nanduri, general manager of Intel's drone group, expects drones to be shuttling people to work over the heads of drivers stuck in traffic below. And that "flying cars will transform from exotic to accepted in the next few years."

Shankland: You get a half an hour of battery life out of little camera drones weighing 100 grams. What about when it's 100 kilograms of human payload?

Nanduri: You hit on the biggest challenge. If you look at the physics of a multirotor system, no matter what size and scale, you're going to have 30 to 45 minutes of battery life with existing battery technology. That's why people are looking at hybrid EVTOL [electric vertical takeoff and landing] systems.

Shankland: Even little quadcopters can get pretty noisy. If you're talking about something big enough to lift a human being or big Amazon packages, with multiple flights a day to your neighbors' houses, that really adds up.

Nanduri: It's all social acceptance and social perception that's going to drive it.. But is it really the loudness? You'll be surprised — sometimes it's the frequency of the sound.

Shankland: Does "social acceptance" translate to "better get used to it"?

Nanduri: No! There is technology that will help make them quieter. Social acceptance comes down to value. If people see value, then they're willing to deal with some of the irritating aspects that come as part of that.

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You can read the entire interview here. https://dronedj.com/2019/03/15/intel-drone-chief-flying-cars/#more-15630

Brazilian iFood app testing delivery by drone APPLICATION BUSINESS DRONES AT WORK HEADLINE NEWS INTERNATIONAL REGULATION ALEX DOUGLAS MARCH 12, 2019

The Brazilian delivery app says, as well as using electric bikes and scooters, the use of drones can expand its reach and reduce costs.

According to a report from Reuters, iFood's chief executive Carlos Moyses said the startup has delivered food via drone to people in a carnival parade in Sao Paulo.

The firm also confirmed it is looking at testing drones to deliver food in commercial and residential buildings. Some of the services still require authorization from air traffic and telecommunications regulators.

Since being founded seven years ago, iFood now has 120,000 people delivering orders in almost 500 Brazilian cities, mostly via motorcycle or conventional bicycle.
https://www.commercialdroneprofessional.com/brazilian-ifood-app-testing-delivery-by-drone/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-295315-Commercial+Drone+Professional+DNA+-+2019-03-16

EXCLUSIVE: Ford Dagenham inspires drone roll-out across multiple plants worldwide NEWS ANDREW SEYMOUR MARCH 15, 2019

In just a few short months, the Essex site has realized huge savings in time and money using commercial drones to inspect machinery and structures that would previously have required staff to work at height.

As well as eliminating safety risks, production gantries that would have taken a full day to be inspected by a maintenance worker now take just 12 minutes by drone.

"We have global teams that each plant feeds into, and I am working with the Global Maintenance Operating System team to introduce it into America at the moment. The

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European team has launched it in all plants around Europe, the Global Safety Team is now on board with it and they are now recommending that we use drones for working at height."

"Within Ford we have never done this within manufacturing — we have used drones for various applications outside of buildings but we have never done it under the roof with machines running," said Mr Manning. https://www.commercialdroneprofessional.com/exclusive-ford-dagenham-inspires-drone-roll-out-across-multiple-plants-worldwide/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-295315-Commercial+Drone+Professional+DNA+-+2019-03-16

17Mar19

UAlbany Opens New Indoor Drone Lab Betsy Lillian March 15, 2019

The University of Albany in Upstate New York recently unveiled a two-story, 1,700-square-foot drone lab.

The College of Emergency Preparedness, Homeland Security and Cybersecurity hosted an open house last month to launch the lab, located in the basement of Page Hall at the university's downtown campus. The space, enclosed with netting and rubber flooring, offers a controlled indoor environment for unmanned aerial vehicle flight training, along with land-based robotics research.

The college worked with the Office of Facilities Management to turn the gym into a lab. The lab also will integrate with the college's makerspace, allowing students to design their own UAVs, prototype them using 3D printers and fly them within the facility. In addition, CEHC views the drone lab as a "resource for first responders, industry partners and local high school students."

The college's National Center for Security & Preparedness already leads drone operations training for law enforcement, EMS and fire agencies at the State Preparedness Training Center in Oriskany, N.Y. Now, the drone lab will provide new capabilities for the center's training, research and development efforts. https://unmanned-aerial.com/ualbany-opens-new-indoor-drone-lab

18Mar19

Space Is Very Big. Some of Its New Explorers Will Be Tiny. Shannon Stirone March 18, 2019

The success of NASA's MarCO mission means that so-called cubesats likely will travel to distant reaches of our solar system.

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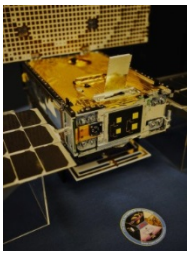

A replica of the MarCO cubesats at NASA's Jet Propulsion Laboratory

Last year, two satellites the size of cereal boxes sped toward Mars as though they were on an invisible track in space. Officially called MarCO A and MarCO B, engineers at NASA had nicknamed them Wall-E and EVE, after the cartoon robots from the Pixar movie. They were just as endearing and vulnerable as their namesakes. The cubesats, were sent to watch over NASA's larger InSight spacecraft as it attempted a perilous landing on the surface of Mars at the end of November.

Constellations of small satellites like the MarCOs now orbit Earth, used by scientists, private companies, high school students and even governments seeking low-budget eyes in the skies. But never before had a cubesat traveled 90 million miles into space. On Nov. 26, as the InSight lander touched down, its status was swiftly relayed back to Earth by the two trailing cubesats. The operation was a success, and the performance of the MarCO satellites may change the way missions operate, enabling cubesats to become deep space travelers in their own right.

NASA engineers weren't sure what to expect when the MarCO mission launched last May. "I think it's opened up so many doors and kind of shattered expectations," said Anne Marinan, a systems engineer at the Jet Propulsion Laboratory in Pasadena, Calif. "The fact that we actually got as far as we did with both satellites working was huge."
https://www.nytimes.com/2019/03/18/science/cubesats-marco-mars.html

WATCH: Drone used to identify 'hot spots' in Grantham factory fire APPLICATION

EMERGENCY SERVICES HEADLINE NEWS UK VIDEO ALEX DOUGLAS MARCH 18, 2019

The drone team within Lincolnshire Police has supported the force and other agencies in dealing with a large fire. Thermal imaging provided by the drone helped the teams across multiple agencies identify hotspots in the factory fire in Grantham.

Lincolnshire Police Drones took to Twitter to show the work being done and described how it observed smoke plumes to ensure 'safe and effective working.'

Watch the drone in action here: https://www.commercialdroneprofessional.com/watch-drone-used-to-identify-hot-spots-in-grantham-factory-fire/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-295506-Commercial+Drone+Professional+DNA+-+2019-03-18

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Baku Airport to host integrated ATM/UTM control center in 2020 March 12, 2019 Philip Butterworth-Hayes UAS traffic management news

World ATM Congress Baku International airport in Azerbaijan will host the world's first integrated ATM/UTM control center when work is complete in 2020, according to Derrick Xiong, Co-founder and Chief Marketing Officer of China's eHang, one of the project developers.

When complete, controllers will be able to monitor drone traffic around the airport with a 3D airspace model, and drones will be tracked, identified and communicated with via a 4G mobile network link.

EHang together with Azerbaijani ANSP AZANS and ABRAHAM TECHNOLOGIES LTD have been working together to host the ATM Artificial Intelligence center, to control flights of civil UAVs , automation of certification, permission and application for flight procedures. Similar projects are under development in Russia and Kazakhstan,

"This will be the first time ATM and UTM will be merged, with controllers able to operate both systems," said Mr Xiong. https://www.unmannedairspace.info/uncategorized/baku-airport-to-host-integrated-atm-utm-control-centre-in-2020/

Shenzhen hosts over 2,000 drone flights a day following introduction of city wide UTM system March 16, 2019 Philip Butterworth-Hayes Urban air mobility

"The project aims at low altitude in segregated airspaces below 120m AGL of the light civil UAS (250g to 7kg) in Shenzhen, which are presented in a grid manner. At present, the percentage of open airspace accounts about 65% of the total area of Shenzhen where there are over 1000 light civil UAS hobby flights without any control.

"UTMISS provides civil UAS with air traffic management functions on behalf of the local civil aviation authority and serves as the public portal and information hub for the integrated supervision body. The UTMISS adopts a distributed hybrid cloud infrastructure for safety and security purposes and data processing capability." https://www.unmannedairspace.info/urban-air-mobility/shenzhen-hosts-over-2000-drone-flights-a-day-following-introduction-of-city-wide-utm-system/

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Airbus Begins Shore-to-ship Port Drone Deliveries Mark Huber March 15, 2019

Airbus has launched shore-to-ship trials with its Skyways parcel delivery drone in Singapore, the first time drones have been flown in real port conditions to deliver time-critical maritime supplies to working vessels at anchorage. The first delivery was made 0.8 nm from the shoreline of Singapore's Marina South Pier to the Swire Pacific Offshore's anchor handling tug supply vessel M/V Pacific Centurion with a payload of 3.3 pounds of 3D-printed consumables. The roundtrip flight took less than 10 minutes.

Skyways trials are being undertaken with partner Wilhelmsen Ships Services, which resupplies commercial vessels in ports with a fleet of launch boats. During the trials, the Skyways drone will lift off from the pier with a payload capability of up to 8.8 pounds and navigate autonomously along predetermined "aerial corridors" to vessels as far as 1.6 nm from the coast. Airbus noted that using drones in place of launch boats can slash delivery times by a factor of six, lower delivery costs by 90 percent, mitigate accident risks associated with the use of launch boats and save energy. https://www.ainonline.com/aviation-news/business-aviation/2019-03-15/airbus-begins-shore-ship-port-drone-deliveries

For China drone-maker DJI, the real money in labor-starved Japan is in the industrial sector KAZUAKI NAGATA STAFF WRITER MAR 14, 2019

Amid severe labor shortages, the use of unmanned aerial vehicles to perform human tasks is sure to grow, and DJI, the world's biggest drone-maker, is ready to respond, the firm's Japan head said.

Drones for industrial uses ranging from agriculture to infrastructure maintenance and security are becoming more popular, said Allen Wu, DJI's head of Japan operations. But he said he is doubtful about the potential for drone-based product delivery.

"For quite some time, we've figured that our main market in Japan is industrial, so our team has been focusing on it more," Wu said in an interview Wednesday. Wu said sales of drones for general consumers in Japan hardly grew in 2018 compared with 2017, but sales of drones for industrial use jumped by 40 percent.

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Sales of multicopters for agricultural use, such as spraying pesticide from the air, saw an 80 percent surge, while demand for other tasks including surveying, security and infrastructure maintenance are also rising, according to Wu.
https://www.japantimes.co.jp/news/2019/03/14/business/corporate-business/china-drone-maker-dji-real-money-labor-starved-japan-industrial-sector-not-deliveries/#.XI_n5yJKh0w

IARPA Launches UG2+ Prize Challenge for UAV Image Collection, Analysis Darwin McDaniel March 18, 2019 News, Technology

The Intelligence Advanced Research Projects Activity has launched the second *UG2+ Prize Challenge*, which calls on researchers from industry and academia to provide new tools to enhance how unmanned aerial vehicles collect and store images.

The Office of the Director of National Intelligence said Friday this year's competition will focus on improving image analysis, restoration and algorithm performance in UAVs. "This second iteration aims to further engage the community to advance techniques needed to aid analysts in processing and understanding the large amounts of imagery they receive on a daily basis," said Lars Ericson, program manager at IARPA.

Registration for UG2+ runs through April 1 and is open to U.S.-based and international researchers. IARPA is expected to name the winners in May. The winners will present their tools at the *2019 Institute of Electrical and Electronic Engineers Computer Vision and Pattern Recognition Conference*. https://blog.executivebiz.com/2019/03/iarpa-launches-ug2-prize-challenge-for-uav-image-collection-analysis/

Air Force Seeks Autonomous Unmanned Combat Air Vehicle Concepts Matthew Nelson March 18, 2019 News, Technology

In a FedBizOpps notice posted Friday, the service said it will also conduct a "concept of operations" analysis for the *Skyborg* program, which aims to field a fighter-like aircraft platform equipped with a modular architecture designed to accommodate payload adjustments.

The project is intended to address an immediate operational requirement and will directly support initiatives stated in the Air Force's 2018 *Artificial Intelligence Strategy* and the White House's 2019 executive order on *Maintaining American Leadership in Artificial Intelligence*.

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USAF seeks input from companies that have the potential to address the program's design, development, prototyping, testing and production requirements. The military branch will accept responses through April 15. https://blog.executivebiz.com/2019/03/air-force-seeks-autonomous-unmanned-combat-air-vehicle-concepts/

BVLOS Drone Operations Approved For AEDs RUSS NILES March 18, 2019

The future of package delivery has arrived in Reno, Nevada with the FAA's approval of beyond-visual-line-of-sight drone operations by Flirtey. The company's drones will first be able to deliver automated external defibrillators to medical emergencies. The drones will be operated by pilots using onboard cameras to maneuver the aircraft. The medical deliveries are a prelude to the gradual integration of commercial package delivery in the city. "Public safety is our top priority, and the use of drones to provide life-saving AED technology to cardiac patients will save lives across our community," Reno Mayor Hillary Schieve said in a statement. Reno is one of 10 locations approved for experimental drone operations under an FAA program.

"Flirtey's industry-leading technology is now approved for drone delivery beyond visual line of sight, a major milestone that brings life-saving and commercial drone delivery another step closer to your doorstep," Flirtey founder and CEO Matthew Sweeny said in a news release. Among its partners in developing the technology are Dominoes and 7-Eleven. https://cdn.avweb.com/eletter/archives/101/4287-full.html?popular=true&cdn_load=true&nopagination=1#232429

RelmaTech's Drone ID And Tracking Technology To Play Key Role In NASA UTM TCL4 And FAA UPP Trials March 18, 2019 News

UK technology company RelmaTech is set to play a key role in making U.S. aviation history. It is an invited member of both the State of Nevada team selected last month by NASA to conduct the Unmanned Aircraft Systems Traffic Management Technical Capability Level 4 program and the State of Nevada team selected in January by the FAA to conduct the Unmanned Traffic Management Pilot Program.

The FAA-designated Nevada UAS Test Site, under the leadership of the Nevada Institute for Autonomous Systems, was the only site selected to execute NASA UTM TCL4 and one of three sites selected for the FAA UPP. Both selections were the result of intensely competitive

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processes with six other states. All of the UAS to be flown in the test scenarios will be fitted with RelmaTech's Secure Integrated Airspace Management (SIAM) technology.

The TCL4 program, which involves UAS flying in high-density urban areas, will be conducted over several months during 2019 in downtown Reno, Nevada. It will be the first time in U.S. aviation history that such flights will be performed in a metropolitan area beyond visual line of sight. https://uasweekly.com/2019/03/18/relmatechs-drone-id-and-tracking-technology-to-play-key-role-in-nasa-utm-tcl4-and-faa-upp-trials/

19Mar19

DARPA Putting Ethics First in New Military Drone Program

Darwin McDaniel March 18, 2019 News, Technology

A senior defense official clarified that the Defense Advanced Research Projects Agency is prioritizing ethics and human guidance in a program that seeks artificial intelligence-based drones designed to distinguish enemies from civilians and allied troops in urban battles, Defense One reported Friday.

"We try to use the autonomy where appropriate, where suspicion is low and when suspicion increases, revert to a more human-in-the-loop mode," said Lt. Col. Philip Root, program manager for DARPA's Urban Reconnaissance through Supervised Autonomy program.

The reconnaissance program aims to build unmanned aerial systems that collect information about people in complex warfighting environments and help troops identify who is a threat. Root noted that the drones will only provide information, and the judgment on the person's risk will still be handled by a human operator. He added that it will have legal, moral and ethical implications.

"We really want to try to ensure we allow non-hostiles, non-combatants, to move out of the way. Future urban conflict is going to take place in large cities where the population can't just go to the mountains," Root said. Drones will spot unidentified individuals in the field by delivering a warning message and observing how a person responds. The system will then submit the information along with video and location data to an official who will help decide what to do about the situation. DARPA aims to begin testing the drones in 2021.
https://www.executivegov.com/2019/03/darpa-putting-ethics-first-in-new-military-drone-program/

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DroneHive operators inspect San Francisco's tallest building APPLICATION BUSINESS NEWS UNITED STATES ALEX DOUGLAS MARCH 19, 2019

Drone operators from DroneHive have recently flown inspection flights around the 1,070 ft Salesforce Tower.

They flew the drones on a number of days to inspect the building for any damage; something that historically building owners have done with aerial platforms hoisted over the side with human inspectors. Operators says the new method alleviates the risk, reduces costs and increases speed and efficiency.

They described how for a building of this size, the old method would take 400- 500 hours of inspection time. Due to FAA regulation, the operators need to control the environment they are flying over and plan operations at off hours.

They also to consider the amount of metal and glass on the building, and its surroundings, and how this affects the communication between the controller and the drone in the air. If they lose communication they risk crashing the drone. To avoid this, they use multiple controllers and try to fly from rooftops. https://www.commercialdroneprofessional.com/dronehive-operators-inspect-san-franciscos-tallest-building/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-295631-Commercial+Drone+Professional+DNA+-+2019-03-19

FAA Issues the First Ever COA for Beyond Visual Line of Sight for a Public Safety Organization Miriam McNabb March 19, 2019

It's another first for the drone industry – as beyond visual line of sight flight is becoming more regular, the FAA has now issued a Certificate of Authorization that includes a provision for BVLOS flight for a public safety organization – the Chula Vista Police Department.

The COA in this case utilizes the software of Cape, a platform which "provides the ability to control a flying long range drone camera anywhere in the world in real-time. Cape Aerial Telepresence™ makes drone use and flight easy for professional experts across a number of industries," says the company. In short, it allows public

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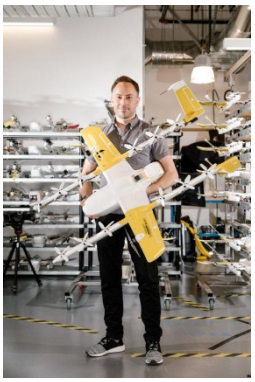
safety officers to utilize drones safely without being experts in drone technology: which could encourage broader use of drones by police and fire departments.

Since its launch, CVPD drones equipped with the Cape Aerial Telepresence platform have conducted more than 300 flights, accounting for more than 80 hours of flight time without incident or accident, and have contributed to more than 40 arrests. The new COA, which goes into effect March 15, 2019, will increase the total footprint of coverage for emergency response operations from a three to nearly 40-mile area. CVPD will now be able to operate drones up to three nautical miles from the PIC, or more than 10X the previous coverage area.
https://dronelife.com/2019/03/19/faa-issues-the-first-ever-coa-for-beyond-visual-line-of-sight-for-a-public-safety-organization/

Skies Aren't Clogged With Drones Yet, but Don't Rule Them Out Ellen Rosen March 19, 2019



James Burgess, the chief executive of Wing, the drone company owned by Google parent Alphabet, holding the company's "Hummingbird" delivery drone

Test programs around the world that use the technology for lifesaving pharmaceuticals as well as for food and even coffee are attempting to prove that delivery by drones is not only safe but efficient and environmentally sound.

Several companies, including California-based Zipline, which is distributing blood by drone in Rwanda, and Swoop Aero, an Australian company that is dispensing vaccines and other medication on Vanuatu, a nation of volcanic islands in the Pacific, are focused on medical needs.

Others are turning their sights on consumers. Operators like Wing, the drone-delivery company owned by Google parent Alphabet, is participating in various stages of testing on three different continents. Its first pilot program is in a suburb of Canberra, Australia, where it is working with local merchants to deliver small packages as well as food. This spring, the company will begin a new trial in Helsinki, for which it is soliciting views as to what should be delivered.

Mr. Burgess also said that, separate from drone tests, the company and others were working on an unmanned traffic management system. Akin to virtual air traffic controllers, the system will be designed to permit multiple aircraft — manned and unmanned — to fly safely in the airspace simultaneously. Wing is also one of several companies participating in a pilot program in

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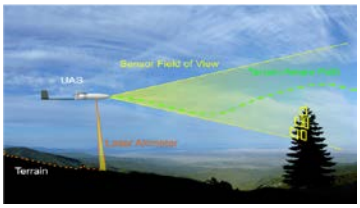
Virginia. As with its testing in Finland and Australia, Wing will focus on the delivery of consumer goods, including food. https://www.nytimes.com/2019/03/19/technology/drone-deliveries-faa-pilot-programs.html?login=smartlock&auth=login-smartlock

Black Swift Technologies Is Developing Active Navigation For UAS March 19, 2019 News



Black Swift Technologies (BST), an engineering firm based in Boulder, CO, announced today it has completed the first phase of a NASA-funded project to demonstrate the effectiveness of fusing a host of onboard sensors to develop a terrain-following fixed-wing UAS, demonstrated using the Black Swift S2™ UAS.

BST's integration of artificial intelligence and machine learning can help serve as a catalyst for accelerating UAS growth. Through autonomous, active navigation around obstacles and over rugged terrain by a fixed-wing UAS, BST is demonstrating how technology can help make UAS operation simpler and safer, for both operators and the public.

"Our state-of-the-art sensor suite and approach to sensor fusion enables a number of capabilities not yet seen for fixed-wing UAS," says Jack Elston, Ph.D, CEO Black Swift Technologies. BST's solution fuses machine vision with sensors, including Lidar and radar, in a subsystem enabling a fixed-wing UAS to operate safely in difficult terrain or beyond line of sight. https://uasweekly.com/2019/03/19/black-swift-technologies-developing-active-navigation-enabling-a-fixed-wing-uas-to-fly-autonomously-around-obstacles-and-over-rugged-terrain/

DroneClash: The drone fighting competition you never heard of Haye Kesteloo - Mar. 19th 2019

Last weekend, the 2nd annual DroneClash, the next level drone competition, took place in Katwijk, The Netherlands. DroneClash is the drone fighting competition in which drones need to attack and disable rogue drones by any means possible. This event is not only fun and games there is a more serious aspect to it as well as the Dutch police and Ministry of Defence are looking for innovative ways to take down rogue drones in real-life situations. They have already tried to do so with birds, but that did not work out so well. The DroneClash event offers a healthy cash prize of 30,000 EUR to the winner. Check it out below.

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DroneClash is sponsored by the Dutch Ministry of Defence, Dutch Police, the Delft University of Technology, the Micro Aerial Vehicle Laboratory, part of the Delft University of Technology's Faculty of Aerospace Engineering and the Town of Katwijk. There are a number of videos on YouTube including this almost 6-hour live stream of the event. The final battle was between Team Slunse and Team D!pol. Watch the video to see who took home first prize. https://dronedj.com/2019/03/19/droneclash/

Who Says All Koalas look Alike? Using Drones for Data Collection with AI, they Don't Harry McNabb March 20, 2019

In a paper first published in Nature.com, the authors discuss an applied technology case, using both drone data and AI to allow more frequent and accurate detection of individual animals or species of animals.

The use case is for koalas which, in addition to being cute and cuddly, are shy creatures. They reside in forests with varying density and are of interest to researchers. Before, teams of observers would go into areas to observe the number and density of koalas by just looking for them. The study finds that even experienced observers are only likely to find 70% of the koalas present in a given area; less experienced observers are only able to locate 23%.

Also, being relatively small, koalas are easy to miss; so accurate data collection is difficult. This issue has varying importance given the size and the area covered. Now, drones equipped with thermal imaging can find the koalas – and AI can identify the specific animal, to avoid counting it twice and provide greater insight into behavior and health. https://dronelife.com/2019/03/20/who-says-all-koalas-look-alike-not-using-drones-for-data-collection-and-ai-they-dont/

21Mar19

NASA drones will study downtown Corpus Christi area this summer Alexandria Rodriguez, Corpus Christi Caller Times March 19, 2019

NASA's Unmanned Aircraft Systems Traffic Management project selected the Lone Star UAS Center of Excellence & Innovation at Texas A&M University-Corpus Christi to test drone traffic management. Officials from NASA's Unmanned Aircraft Systems Traffic Management project selected Corpus Christi as one of two nationwide test sites.

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"This area has a diverse geographic landscape. We are looking at the downtown areas of Corpus Christi," said Dr. Marcus Johnson, NASA Deputy Project Manager. It provides the challenges of maneuvering around tall buildings — especially when wind is factored in.

NASA's ultimate goal is to boost technological and economic growth that comes from the rapid popularity of drone use. Public safety agencies will benefit from a better understanding of how drones can help with everyday tasks, without obstructing the public or other aircraft, Johnson said. "We entered into an agreement with Nueces County to help police and fire in search and rescue, and recovery with the drones after a disaster," said Michael Sanders, acting executive director of the Lone Star UAS Center.

The team-up with NASA, Sanders said, came after five years of hard work. Six student interns can also add the project to their résumé. Some students are building air frames, helping with integration of software and spreading the project's importance to the community, Sanders said. https://www.caller.com/story/news/local/2019/03/19/nasa-drones-study-downtown-corpus-christi-area-summer/3206721002/

First Urban Drone Delivery Near an Airport a Reality in Helsinki: Skyports and Partners Complete Trials Miriam McNabb March 21, 2019

For three days earlier this week, consumers living in Vantaa, Finland, had the opportunity to have their parcels delivered by drone in ground-breaking trials. These e-commerce deliveries were among the first to take place in an urban environment in the immediate vicinity of a major international airport.

About 100 drone deliveries of parcels weighing up to 1.5 kilos (3.3 pounds) were delivered to a Skyports landing port – known as a vertiport – conveniently located in the parking lot of two K-Market supermarkets. Participating customers were able to pick up their parcels as soon as they were delivered by drone.

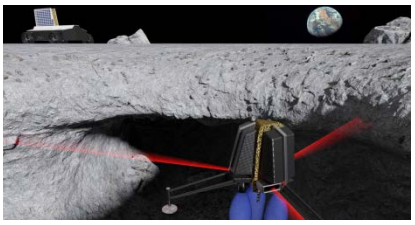
The parcels took off from a Skyports vertiport located at the Matkahuolto distribution terminal adjacent to Helsinki airport. They traveled five kilometres (3 miles) to the supermarket, where they landed autonomously on the destination Skyports vertiport.

Each of the drone flights was fully automated, with the flight control center located 14 kilometres (8.7 miles) away in the center of Helsinki, and was overseen by a fully qualified

commercial drone operator. https://dronelife.com/2019/03/21/first-urban-drone-delivery-near-an-airport-a-reality-in-helsinki-skyports-and-partners-complete-trials/

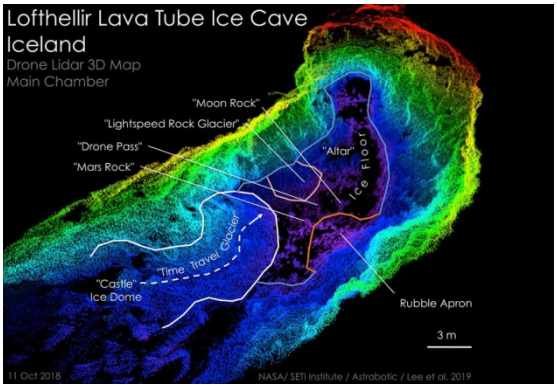
22Mar19

NASA and SETI developing space drones to search for alien life on Mars March 21, 2019 Feilidh Dwyer



The SETI Institute tasks itself with exploring, understanding and explaining the origin and nature of life in the universe. In a recent trial, a SETI team used LIDAR technology equipped to a NASA-backed, Astrorobotic drone and mapped the Lofthellir Lava Tube Ice Cave in Iceland.

The lava tube was chosen because of the uniquely challenging environment it offers as well as its similarity to caves that drones may one day explore on the Moon or Mars. The Astrobotic drone was able to map the 370-meter long lava tube in just minutes.



Caves below ground on the Moon and Mars are intriguing to planetary scientists because they are sheltered from radiation, temperature fluctuations and meteorite strikes on the surface.

To determine if there is any possibility of life on a particular planet, initial surveys try to detect the presence of water. Where there is water, there may also be bacteria or other primitive lifeforms.

Andrew Horchler, Director of Future Missions and Technology at Astrobotic was quoted in The Sun: “Small free-flying spacecraft might be the ideal robotic platform for the exploration of lava tubes on Earth, the Moon, and Mars for the simple reason that they would not need to come in direct contact with any of the rough and potentially unstable surfaces found inside caves and lava tubes.” https://www.wetalkuav.com/nasa-and-seti-developing-space-drones-to-search-for-alien-life-on-mars/?utm_source=WeTalkUAV&utm_campaign=b4ce1ca6f9-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_1d410cb84d-b4ce1ca6f9-83653711

Remote ID rulemaking delayed by three months Haye Kesteloo Mar. 21st 2019

Yesterday, Brendan Schulman, DJI's Vice President of Policy & Legal Affairs, pointed out in a tweet that per the USDOT rulemaking report, UAS Remote ID rulemaking had been delayed by another three months. This is indeed unfortunate as Remote ID for drones is the first regulatory hurdle to be overcome before we can expect the rules for flying drones over people or at night to be finalized. The new projected date for the 'End of Comment' period is now set at 10/29/2019, but keep in mind that this a projected date, not a fixed one.

In the lengthy February 2019 'Report on DOT Significant Rulemakings' from the USDOT it says:

"This action would implement system(s) for the remote identification of certain unmanned aircraft systems. The remote identification of unmanned aircraft systems in the national airspace system would further address security and law enforcement concerns regarding the further integration of these aircraft into the national airspace while also enabling greater operational capabilities by these same aircraft."

Milestone	Originally Scheduled Date	New Projected Date
Publication Date	05/01/2019	07/21/2019
End of Comment Period	07/01/2019	10/29/2019

As you can see, the Publication Date has been delayed by two months and the End of Comment Period has been pushed back by three months. Keep in mind that these are 'New Projected Dates', i.e. that might be pushed back even further. https://dronedj.com/2019/03/21/remote-id-rulemaking-delayed-three-months/#more-15704

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