UAS and SmallSat Weekly News

Contents

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UK Government invites companies to join £125m challenge to develop the 'future of flight'

BUSINESS FINANCIAL HEADLINE NEWS ALEX DOUGLAS OCTOBER 4, 2019

Individuals from businesses and research organizations with an interest in the field are invited to apply to attend a workshop to develop ideas to meet the challenges posed by future flight. The invitation is the first phase of a £125 million government investment in the Industrial Strategy Challenge Fund Future Flight Challenge. It will then be matched by a £175 million investment from industry. The project could help to power a new generation of flying taxis, drones delivering goods and services and small, all-electric aircraft.

The aim of the Future Flight Challenge is to demonstrate innovative ways to achieve greener flight, new services and ways to travel, increased mobility, better connectivity and reduced congestion.

Applicants must show how they would attempt to solve one or more of 6 problem statements:

- the full range of drone applications is stifled by the absence of the physical and data infrastructures needed to exploit the potential of the global market
- current air traffic management systems are not scalable
- there is a need to develop autonomy while maintaining high levels of safety
- there is a need to move towards more electric flight by moving technology between urban, sub-regional vehicles and larger aircraft
- there is a need to develop use cases and operational frameworks for the adoption of autonomous air vehicles
- there is no aviation innovation or development environment that will allow real-life demonstration and evaluation of the issues presented in the first 5 problem statements

The aim of the discovery workshop is to help participants form consortia that will apply for funding in future phases of the competition. https://www.commercialdroneprofessional.com/uk-government-invites-companies-to-join-125m-challenge-to-develop-the-future-of-flight/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313807-Commercial+Drone+Professional+DNA+-+2019-10-04

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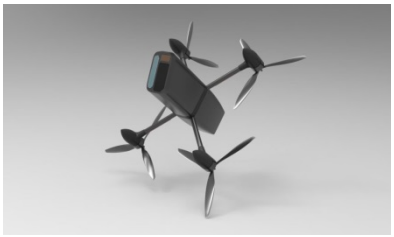
WhiteFox presents drone security vision to White House office BUSINESS COUNTER-DRONE HEADLINE NEWS UNITED STATES ALEX DOUGLAS OCTOBER 4, 2019

WhiteFox CEO Luke Fox has met with the White House Office of Information and Regulatory Affairs to discuss drone security and the importance of Remote ID.

Commenting on the hearing, he said, "We continue to be at the forefront of both technological innovation and regulatory legislation as it develops—truly an exciting time to be leading WhiteFox and the industry as a whole. We are grateful to Federal policymakers for their participation in such an important discussion. Drone safety and security may soon become the most pressing issue of our time, and WhiteFox is proud to be a part of shaping these conversations and policies." https://www.commercialdroneprofessional.com/whitefox-presents-drone-security-vision-to-white-house-office/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313807-Commercial+Drone+Professional+DNA+-+2019-10-04

Anduril Industries launches counter-drone system COUNTER-DRONE INTERNATIONAL NEW PRODUCTS NEWS ALEX DOUGLAS OCTOBER 4, 2019



Developers say its aim is to detect and interdict unmanned aircraft or autonomous drone systems. It uses Anduril technology to what it describes as the "increasingly critical counter-drone mission" to provide an additional dimension of force protection for military personnel, installations and critical infrastructure.

Whether integrated with Lattice AI or manually cued, a human operator can verify targets and launch Interceptor drones to kill rotary or fixed-wing threats autonomously in any environment, day or night.

Brian Schimpf, Anduril's CEO, commented: "Unmanned aerial systems have long been notoriously difficult to defend against: they are widely available, inexpensive, and dangerous in the wrong hands. Our counter-UAS solution applies automated target acquisition to give human operators the capability to quickly and effectively neutralize these growing aerial threats." https://www.commercialdroneprofessional.com/anduril-industries-launches-counter-drone-

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system/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313807-Commercial+Drone+Professional+DNA+-+2019-10-04

DRONEDEK eyes smart drone delivery growth as it secures second patent

APPLICATION DELIVERY NEWS UK ALEX DOUGLAS OCTOBER 4, 2019

The company describes its product as the "mailbox of the future smart delivery receptacle."

In a release detailing the news of the awarded patent, the company described that now drone delivery is on the horizon, the only thing more important than the drone is the receptacle. It says its platform-agnostic delivery receptacle received claims allowing for a heated and cooled cargo area; opening up delivery of heated foods and cooled beverages as well as pharmaceutical drugs.

DRONEDEK has also received patent protection for its bio-toxin and explosive sensing and reporting technology and has received numerous other claims including autonomous battery pack exchanging, heated doors and camera surveillance. One day it hopes to be the "gateway to every home and business in America."
https://www.commercialdroneprofessional.com/dronedek-eyes-smart-drone-delivery-growth-as-it-secures-second-patent/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313807-Commercial+Drone+Professional+DNA+-+2019-10-04

New Zealand government to spend NZ$3m on unmanned aircraft trial program

Aimee Chanthadavong October 4, 2019 Topic: Innovation

The government said it will work with aviation industry partners to demonstrate the use of unmanned aircraft for passenger transport, cargo delivery, agricultural services, and hazard management.

Of the NZ$3 million committed to the program, NZ$2.1 million will be used to build capability by employing more technical experts. The remaining NZ$900,000 will be provided to the Ministry of Transport to support regulatory policy development.

The first industry partner to participate in the program will be Zephyr Airworks, which has been testing and developing a self-flying, electric, vertical take-off and landing aircraft -- called 'Cora'

-- in New Zealand since 2017. The company will work with the Ministry of Business, Innovation, and Employment to focus on a passenger transport trial.

Zephyr Airworks' parent company, US-based Kitty Hawk, previously said bringing Cora to the commercial market in New Zealand matches the country's forward-looking vision and strong regulatory environment.

The launch of the program follows the release of the New Zealand government's paper, Taking Flight: an aviation system for the automated age [PDF], in July, which set out the vision to integrate small drones and advanced UA into New Zealand's air transport system. https://www.zdnet.com/article/new-zealand-government-to-spend-nz3m-on-new-unmanned-aircraft-trial-program/

Sentera FieldAgent Analytics Toolset Expands to Include Tassel Counts October 4, 2019 Mapping and Surveying News

Sentera announces that its Tassel Count analytics product will be available to all FieldAgent™ customers in March 2020. Instead of forecasting yield using a small number of spot samples, the Sentera tassel count analytics tool allows users to more precisely calculate yields using tassel population data gathered across the entire field. Understanding tassel population can also help to more accurately time the application of certain crop protection products. This addition to Sentera's toolbox will help growers and ag professionals leverage late-season data for crop marketing decisions to maximize profit and optimize storage costs.

The product delivers tassel count density throughout a field so users can more easily forecast and refine their crop yields prior to harvest and make other management decisions. Visualization is available in FieldAgent, and data layers can be exported via shapefile. Users can also convert their results into zone maps, which provide an average tassel count per acre per zone and total acreage per zone. API connected partners have the option to integrate these new data layers directly into other digital platform products.

Tassel count analysis will be available starting March 2020 through Sentera's FieldAgent Platform. The new analytics tool will be $1200 for 1-year unlimited use and users can run the analysis on all or part of a field. https://uasweekly.com/2019/10/04/sentera-fieldagent-analytics-toolset-expands-to-include-tassel-

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counts/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_04_2019&utm_term=2019-10-04

Barriers to the Implementation of Counter UAS Operations October 4, 2019

Knowledge Base

It is generally agreed that counter drone operations are comprised of two phases: Detection and Mitigation or neutralization. Technological and legal barriers exist for private, commercial and governmental organizations. Statutory exemptions exist for select federal organizations. This article will address non-military or domestic counter UAS operations.

There are a number of methods to detect airborne small unmanned aircraft.

1. Radar
2. Electro-optical/Infrared visualization
3. Radio frequency detection or sourcing
4. Acoustic or "listening" devices

Methods of mitigation or neutralization include:

1. Electronic jamming or spoofing of a drone's radio control frequencies or navigation signals
2. Concealment, visual obstruction or distraction
3. Net systems (aerial and ground based)
4. Birds of prey
5. Ballistic or kinetic systems
6. Directed energy weapons (lasers and microwave)

The laws restricting the utilization of promising active countermeasures were made at a time when the future proliferation of drones was unforeseen. State laws and ordinances across the country vary or conflict. A congressional solution would ensure all law enforcement agencies have the authority to utilize whatever measures or tools that are necessary to respond to real or perceived threats caused by offending drones while at the same time preserving the ability to utilize these measures or tools safely in the National Airspace System.

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Effective countermeasures require planning, technical training and good decision making. The magnitude of the threat should determine the technological sophistication of the countermeasures deployed. State and federal ruling bodies have taken preliminary steps to address this evolving technology and the potential threats presented by unmanned aerial systems. State and local law enforcement agencies will likely have the authority and tools necessary to address errant and rogue drones in the not so distant future. Any counter UAS implementation should be reviewed by the person or organization's legal counsel.
https://uasweekly.com/2019/10/04/knowledge-base-presented-by-34-north-drones-barriers-to-the-implementation-of-counter-uas-operations/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_04_2019&utm_term=2019-10-04

Monster tarpon caught with help of DJI Phantom 4 Pro V2.0 [video] Haye Kesteloo Oct. 4th 2019

Watch this guy catch a 100-pound tarpon right from the shore with the help of a drone. Fishing with help from a drone allows you to drop the bait exactly where you want it, as it gives you an aerial view of the water and the fish in it. The drone is "like sonar from the sky… a total game-changer." They had been fishing since 5 a.m. and were about to grab lunch when Jorgensen decided to send the drone out one more time. It worked. They hooked the monster tarpon, and after a good fight of about a half hour, he waded out into the surf to grab the fish.

It's very nerve-wracking, going in the water and grabbing it — who knows what's following behind. That's a big, shiny fish! To a shark, that's a big deal.

It was a major accomplishment. "From the shore… people dream of doing that," the drone fisherman said. After unhooking the fish, he set the tarpon free again.
https://dronedj.com/2019/10/04/monster-tarpon-caught-dji-phantom-4-pro-v2-0/

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Bono is really into drones now (but it's good) ADELE PETERS

On a Tuesday morning, U2 frontman and global philanthropist Bono stood in a remote field near Half Moon Bay, California, and launched a drone in the air, watching as it made a test delivery. Zipline, the eight-year-old Bay Area startup that makes the

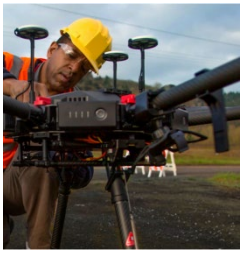
drones, uses the equipment to make emergency deliveries of life-saving drugs and blood to health clinics and hospitals in Rwanda and Ghana. For the musician, who just joined the company's board—his first, and only, company board membership—it's the next step in two decades of work outside of his music career. "My story with Zipline actually started 20 years ago," he says.

I was in Malawi, in Lilongwe, and I was watching people being diagnosed HIV positive and then being told that there was no treatment for that." The drugs that they needed existed, but they couldn't get them. "I can still visualize the look in the eyes of those people in that queue as they were told that there was no treatment for their disease or that they couldn't access these antiretroviral therapies," Bono says. And I remember feeling nauseous. Then I remember my own anger, and I pledged my life to this idea: where you live should not decide whether you live."

As an activist, a few years later, he cofounded One, an organization that advocates for the Sustainable Development Goals and pressures global governments to fight preventable disease and extreme poverty, successfully lobbying for new government policies and programs that have helped save tens of millions of lives. He also cofounded Product Red in 2006, which partners with brands to raise funds to fight AIDS, raising more than $600 million to date. In 2016, he cofounded The Rise Fund, a $2 billion impact investing fund that became one of Zipline's investors, helping fund the company's expansion as it works to solve the problem of getting medical supplies to remote and underfunded health centers.
https://www.fastcompany.com/90402575/bono-is-really-into-drones-now-but-its-good?utm_source=Airborne+International+Response+Team+%28AIRT%29+News+List&utm_campaign=39be9af2c2-EMAIL_CAMPAIGN_2019_10_06_12_56&utm_medium=email&utm_term=0_2ecada6f57-39be9af2c2-33089729

7Oct19

BVLOS flights tested with manned traffic at NUAIR's Griffiss site October 4, 2019 Jenny Beechener UAS traffic management news



The Northeast UAS Airspace Integration Research test site at Griffiss International Airport supported beyond line of visual sight flight involving drone provider Southern Company and Verizon with manned traffic. Verizon subsidiary Skyward supplied Airspace Map software to deliver situational awareness to drone pilots, coupled with Verizon connectivity

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over 4G LTE networks.

The drone was deployed to pull a line over a water obstacle, keeping the line elevated and successfully delivering it to a crew member on the other side of the field. Southern uses this process to pull pilot ropes for electrical transmission and distribution lines. Three flights were carried out at the airport.

- The first flight travelled approximately one mile round trip, with about one-quarter mile distance between the launch location and the ground control station. This flight tested a modified antenna and proved the aircraft was ready for longer flights.
- The second flight doubled this distance: two miles round trip, with three-quarters of a mile between launch and ground control.
- The final flight tested the aircraft's endurance in a 32 minute-flight, expending just over half the battery capacity and proving the aircraft was equipped for long-range BVLOS flights.

The tests demonstrated the drones could be safely deployed BVLOS using the equipment available. The procedures executed at NUAIR allowed for the uninterrupted flight of Griffiss's manned traffic flow, which included military (attack, lift, and rotary-wing), commercial, and civil aircraft. https://www.unmannedairspace.info/uncategorized/bvlos-flights-tested-with-manned-traffic-at-nuairs-griffiss-site/

FAA Authorizes UPS to Operate Drone Fleet for Package Delivery Mary-Louise Hoffman October 7, 2019 News

UPS became the first company to secure an air carrier certificate from the Federal Aviation Administration to transport packages by drone. The logistics provider's UPS Flight Forward subsidiary performed its first drone delivery service to transport medical supplies at a WakeMed campus in North Carolina.

"The Flight Forward organization is building a full-scale drone operation based on the rigorous reliability, safety and control requirements of the FAA," said UPS CEO David Abney.

FAA's Part 135 Standard also permits the company to fly a drone and cargo with more than 55 pounds of capacity at nighttime.

The agency works with private and public sector organizations in efforts to shape rules and regulations that will govern the integration of unmanned aircraft systems into national airspace. https://www.govconwire.com/2019/10/faa-authorizes-ups-to-operate-drone-fleet-for-package-delivery/

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Ottawa Airport tests QinetiQ's counter-drone system October 7, 2019 Jenny Beechener Counter-UAS systems and policies

Ottawa Macdonald-Cartier International Airport has partnered with NAV CANADA and QinetiQ Canada to trial the company's Obsidian Counter UAS system. The three organizations are working in cooperation to facilitate the installation and employment of the Obsidian micro-Doppler radar unit with the goal of determining the feasibility of the system to function compatibly in a civilian airport environment. Several objectives for the trial have been identified, including:

- Evaluating the accurate and timely detection/early warning of drones or remotely piloted aircraft systems
- Assessing the effective utilization of the system to initiate an appropriate response to drone/RPAS detection between the Airport Authority and NAV CANADA
- Assessing system compatibility in an international airport environment where other partner systems could cause interference
- Demonstrating the airport's commitment to promoting innovation and leadership in addressing the challenge of drone detection and mitigation.

The Airport Authority is continually seeking ways to improve situational awareness within its vast perimeter, regardless of weather or lighting conditions. QinetiQ's Obsidian Counter UAS System has been designed specifically for drone detection and features enhanced scope and coverage to recognize drone features while avoiding misclassification of non-drone activity such as bird or wildlife movement. https://www.unmannedairspace.info/counter-uas-systems-and-policies/ottawa-airport-tests-qinetiqs-counter-drone-system/

Israeli defense firm Elbit secures $153 million drone deal with Asian country LUKE TRESS 6 October 2019

The contract will comprise a networked, multi-layer drone system, with aerial vehicles of varying sizes and capabilities, and will be delivered to the unnamed southeast Asia country over a 22-month period.

An IDF soldier with a Skylark drone

The materiel will include over 1,000 of Elbit's THOR mini-drones, which look like consumer rotor drones and are meant to carry out surveillance and reconnaissance operations. The unmanned aircraft

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can fly at altitudes of 2,000 feet and at 40 mph.

It will also include dozens of Skylark drones, small aircraft launched and operated by a team of two that are widely used by the Israel Defense Forces. The Sky Rider, as it is known in Hebrew, is a tactical surveillance drone operated by the Artillery Corps that provides a live video feed to soldiers on the ground.

The order includes the Hermes 450, an advanced medium-sized long endurance unmanned aerial vehicle.

An Israeli-built Elbit Systems Hermes 450 unmanned aircraft is towed out of a hangar at the Hillsboro, North Dakota airport, where it was being used to collect agricultural data. The Hermes is used primarily for reconnaissance and surveillance missions, but there is an attack version which can be armed with air-to-surface munitions. https://www.timesofisrael.com/israeli-defense-firm-elbit-secures-153-million-drone-deal-with-asian-country/

Kitty Hawk's Newest VTOL Almost Silent Russ Niles October 5, 2019

Kitty Hawk's latest entry into the incipient urban mobility market is missing something important and it might be its biggest selling point. The new Heaviside (named for Oliver Heaviside, a controversial early 20th century physicist and electrical engineer) is virtually silent in flight with a noise level of about 38 decibels at 1,500 feet. Helicopters are typically at about 60 decibels at that altitude. Kitty Hawk, which is funded by Google's Larry Page, has so far only flown the Heaviside remotely but it seems capable.

The electric VTOL has eight tilting motors, three on each wing and one on each canard, and can take off and land vertically and hover. The motors are also part of the flight control system and help control all three axes by varying speed and angle. The wing is forward swept and mounted high on the fuselage. Speculation among tech gurus is that this design is possibly the basis for Kitty Hawk's urban mobility vehicle and the release of a video suggests the program is relatively mature. https://www.avweb.com/aviation-news/kitty-hawks-newest-vtol-almost-silent/?MailingID=185&utm_source=ActiveCampaign&utm_medium=email&utm_content=Pilot+Skills+Targeted%2C++Silent++eVTOL&utm_campaign=Pilot+Skills+Targeted%2C++Silent++eVTOL-Monday+October+7%2C+2019

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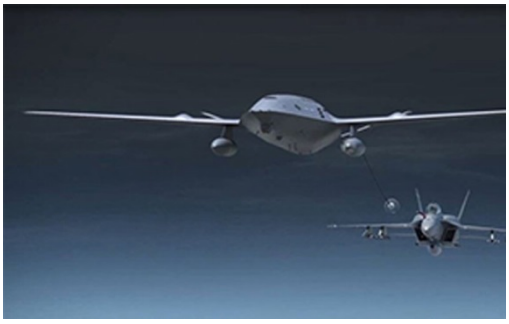
Boeing and US Navy complete first test flight of the MQ-25 unmanned aerial refueler APPLICATION PATRICK CREMONA OCTOBER 7, 2019



The MQ-25 test asset, known as T1, completed the autonomous flight under the direction of Boeing test pilots operating from a ground control station at MidAmerica St. Louis Airport in Mascoutah, Ill.

The aircraft completed an autonomous taxi and takeoff and then flew a pre-determined route, with the test validating the aircraft's basic flight functions and operations with the ground control station.

The Navy's Unmanned Carrier Aviation program manager Capt. Chad Reed, said: "The flight of this test asset two years before our first MQ-25 arrives represents the first big step in a series of early learning opportunities that are helping us rapidly progress towards delivery of a game-changing capability for the carrier air wing and strike group commanders.

The Boeing-owned test asset is a predecessor to the engineering development model aircraft and is being used for early learning and discovery to meet the goals of the US Navy's accelerated acquisition program. https://www.commercialdroneprofessional.com/boeing-and-us-navy-complete-first-test-flight-of-the-mq-25-unmanned-aerial-refueler/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-313984-Commercial+Drone+Professional+DNA+-+2019-10-07

The Report on Drone Mitigation at Airports is Out: and it's Disconcerting Miriam McNabb October 07, 2019

According to the report, a lack of government leadership, authority and funding – not a lack of available technology – is preventing airports from implementing airspace security systems.

The Blue Ribbon Task Force (BRTF) is a joint effort including the largest drone advocacy group, the Association of Unmanned Vehicles and Systems International (AUVSI) and Airports Council International. Co-chaired by former FAA Administrator Michael Huerta and Los Angeles World Airports CEO Deborah Flint, the BRTF is comprised of stakeholders from airports, air traffic control, the FBI and controlled spaces like football stadiums. Other than being sponsored by AUVSI, the BRTF doesn't seem to include

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representatives from the drone industry--as it refers to "clueless, careless and criminal" operators.

The report states clearly that airports should not be held solely responsible for protecting themselves from drone incursions. Nobody really knows who is responsible for drone mitigation systems – and no agency currently has either the funding or the authority to take it on. The BRTF calls for the FAA to act and take on the leadership role, saying that implementing counter drone technology is simply too complex and too expensive for airports to deal with.

The report says that Congress must act with urgency to fund the FAA "to engage in the lead role of monitoring UAS traffic in and around airports." The BRTF also says that the agencies must establish counter UAS standards – and somehow, funding has to appear for airports to invest in them. Somebody needs to enforce the laws, and if the FAA can't do it, local law enforcement will have to be trained. https://dronelife.com/2019/10/07/the-report-on-drone-mitigation-at-airports-is-out-and-its-disconcerting/

GA-ASI Partnering with NASA to Demo Commercial UAS Mission in Southern California October 7, 2019 Military News

General Atomics Aeronautical Systems, Inc. (GA-ASI) has signed a cooperative agreement with NASA to perform a demonstration flight as part of the agency's project to integrate Unmanned Aircraft Systems into the National Airspace System. The objective of the demonstration, scheduled for 2020, is to tackle challenges that prevent routine commercial UAS operations in the NAS today, including development, integration, and certification of UAS and the technologies required for safe operation with other manned and unmanned aircraft traffic. Technologies that will be demonstrated include Detect and Avoid and Command and Control datalink systems.

As part of the demonstration, GA-ASI's SkyGuardian Remotely Piloted Aircraft will exhibit its ability to provide commercial and public services using onboard sensors and additional 'virtual sensors' that it could carry in the future. Services include inspections of rail, energy pipeline, powerline and canal infrastructure, agriculture monitoring and topological surveys, as well as wildfire and flood monitoring and maritime surveillance.

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The City of San Diego is supporting the project under the UAS Integration Pilot Program. The highlight of the flight will be public infrastructure surveys. The City will connect GA-ASI with local customers interested in survey opportunities.

"NASA and GA-ASI have a shared goal of seeing UAS fly safely in the NAS," said Linden Blue, CEO, GA-ASI. "We have worked with NASA for more than five years on this goal, and we're excited to participate in their next set of demonstrations." https://uasweekly.com/2019/10/07/ga-asi-partnering-with-nasa-to-demo-commercial-uas-mission-in-southern-california/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_07_2019&utm_term=2019-10-07

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Dedrone Buys Battelle's Counter-UAS Tech, Forms Defense Business Brenda Marie Rivers October 8, 2019 News

The San Francisco-based anti-drone technology maker said Tuesday it purchased DroneDefender intellectual property and assets to support the creation of Dedrone Defense, which is headquartered in Washington, D.C. and aims to help the DoD and other government agencies secure critical assets from drone threats.

Both companies unveiled a partnership in August 2017 to explore approaches of integrating UAS and counter-drone systems to help protect military infrastructure. Dedrone completed a demonstration of DroneDefender during a U.S. Special Operations Command and SOFWERX-hosted event last year.

The system uses sensors to collect data from wifi, non-wifi and radio frequency-based sUAS before transmitting information to command-and-control systems. Its point-and-shoot mechanism has a potential range of 0.24 miles. https://www.govconwire.com/2019/10/dedrone-buys-battelles-counter-uas-tech-forms-defense-business/

Kepler books Soyuz for first two operational satellites Caleb Henry October 7, 2019

WASHINGTON — As it explores changes to its constellation orbit and spacecraft design, Kepler Communications on Oct. 7 said it nonetheless secured launch slots for its first two fully commercial satellites. Kepler will launch the two six-unit cubesats on a Russian Soyuz rocket operated by GK Launch Services in mid-2020. Kepler

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arranged the launch through Innovative Space Logistics, the Dutch launch broker that arranged for Keplers first two prototypes to launch in 2018 on a Chinese Long March 11 and Indian PSLV. The Toronto startup plans to deploy a 140-satellite constellation starting with 15 commercial spacecraft by the end of 2020.

Kepler's prototype satellites operate in low Earth orbits between 500 and 600 kilometers. The overlap in with SpaceX's Starlink broadband constellation has Kepler concerned about a spike in conjunction alerts as satellites fly past each other, as well as a risk of increased signal interference.

Kepler has resolved to place future satellites at 575 kilometers so that they stay above the 1,584 Starlink satellites SpaceX plans to operate at 550 kilometers. https://spacenews.com/kepler-books-soyuz-for-first-two-operational-satellites/

UAVOS Announced the Addition of R22-UV Unmanned Helicopter Robinson for Precision Farming October 7, 2019 News

Agro-drone R22-UV is equipped with a specially developed utility to deliver liquid chemicals. The drone is provided with a 100-liter tank for chemicals and can stay airborne for 2 hours.

Advantages include:

- It can be operated without airfields, under severe weather conditions and during night-time in conditions with high risk for pilots.
- UAVs are excellent for operations in conditions of high humidity – where the use of ground equipment is impossible or difficult.
- Workers do not come into contact with hazardous chemicals.
- UAVs also enable growers to spray their crops precisely and at will, which is critical for fighting herbicide-resistant weeds. The rotor of an agricultural drone produces a huge downward rotation force, which promotes the pesticide droplets to penetrate the crop from top to bottom, which is conducive to the pesticide droplets evenly scattered in all parts of the plant.
- Unmanned aircraft can be used for spot spraying weeds with herbicides or useful crops with pesticides. They can then be set on a predetermined GPS-defined route and fly over a field, dropping doses of pesticides, herbicides and fungicides as they go. https://uasweekly.com/2019/10/07/uavos-announced-the-addition-of-r22-uv-unmanned-helicopter-robinson-for-precision-

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farming/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_10_07_2019&utm_term=2019-10-07

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Boeing-backed start-up SparkCognition raises $100 million Rebecca Spalding

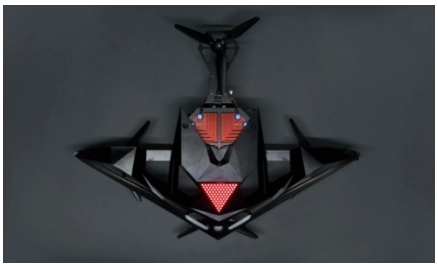
Led by Santa Monica, California-based venture capital firm March Capital Partners, the fundraising values SparkCognition at more than $725 million, according to Pitchbook. Singapore state investment company Temasek also invested in the company.

Former Australian prime minister Malcolm Turnbull, Cisco Systems Inc (CSCO.O) former CEO John Chambers, Dow Chemical Co former CEO Andrew Liveris, and the former president of Goldman Sachs Group Inc (GS.N) and current Barrick Gold Corp (ABX.TO) chairman John Thornton were among the investors in the latest round, the company said.

Austin, Texas-based SparkCognition announced last year it would partner with Boeing in a joint venture to create a routing system for self-driving planes using artificial intelligence. SparkCognition has raised $175 million in funding since 2013. https://www.reuters.com/article/us-sparkcognition-fundraising/boeing-backed-start-up-sparkcognition-raises-100-million-idUSKBN1WN1CE

Drone Racing League launches the first autonomous racing drone APPLICATION

DRONE RACING LEAGUE EVENTS ALEX DOUGLAS OCTOBER 9, 2019



Designed to be the first autonomous robot to defeat a human in a physical sport, the DRL RacerAI will help close the gap between artificial intelligence (AI) and human performance.

The news comes out ahead of DRL's inaugural Artificial Intelligence Robotic Racing Circuit, which kicks off its four-event, autonomous drone racing series in Orlando, Florida. Races will feature nine identical DRL RacerAI drones operated only by AI.

DRL CEO and founder, Nicholas Horbaczewski, commented: "The DRL RacerAI is a major milestone for The Drone Racing League. AI has defeated humans in nearly every digital game we know, but it hasn't come close to defeating a human in real-life sports yet."

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"Through the competitive events, we'll watch the DRL RacerAI get faster and smarter, catch up to human competitors and one day, outpace the best pilot in the world. This will mark an initial step towards a future when autonomous systems can operate in all complex flying environments, from package delivery to search and rescue missions." https://www.commercialdroneprofessional.com/drone-racing-league-launches-the-first-autonomous-racing-drone/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-314207-Commercial+Drone+Professional+DNA+-+2019-10-09

Hoverfly secures $10m US Government contract for tethered drones APPLICATION

BUSINESS FINANCIAL NEWS POLITICS UNITED STATES ALEX DOUGLAS OCTOBER 9, 2019

The contract has an initial ceiling value of $10m and a five-year period of performance, including four one-year options.

LiveSky provides aerial monitoring and communications relay services for national defense, intelligence, and homeland security customers.

Hoverfly will deliver both the LiveSky Dismounted and LiveSky SkyBox configurations, as well as installation, training, and support services. Deliveries to the U.S. government under the new federal contract will begin in November 2019.

Hoverfly's new contract is the largest U.S. government contract awarded for tethered drones to date. https://www.commercialdroneprofessional.com/hoverfly-secures-10m-us-government-contract-for-tethered-drones/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-314207-Commercial+Drone+Professional+DNA+-+2019-10-09

Dedrone Acquires the Anti Drone Shoulder Rifle, Batelle's Drone Defender Miriam McNabb October 09, 2019

SAN FRANCISCO and **COLUMBUS, OHIO**, October 8, 2019. Dedrone announced the purchase of DroneDefender from Battelle. With this acquisition, Dedrone has launched a new consultancy, Dedrone Defense, specializing in services for U.S. federal agencies, including the Department of Defense and providing a technology that detects and classifies airspace activity, protects assets from drone threats and defeats adversary drones.

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The counter-sUAS platform collects and aggregates drone activity data through sensors, and then automatically analyzed by software. It recognizes and classifies radio frequency, WiFi and non-WiFi sUAS, transmits data to command and control centers and can be programmed to automatically trigger alerts and countermeasures when a sUAS threat is confirmed. It uses radio control frequency disruption and is a lightweight, point-and-shoot system with a demonstrated range of 400 meters. https://dronelife.com/2019/10/09/dedrone-acquires-the-anti-drone-shoulder-rifle-batelles-drone-defender/

Sandia National Lab Team Builds Drones to Test Hypersonic Tech Betsy Lillian

October 9, 2019

Interns at Sandia National Laboratories built and programmed drones to study autonomy and artificial intelligence for hypersonic flight, similar to the quadcopters seen here.

Sandia National Laboratories is developing autonomy and artificial intelligence for flight systems soaring at more than 3,800 mph. The technologies to get there will initially be tested on drones that move at about 5 mph.

A team of college interns at Sandia National Laboratories contributed to the hypersonic goal this summer by completing the first two drones the labs will use to try out new algorithms for autonomous navigation, guidance and control, and target recognition.

Each vehicle is equipped with two onboard computers – a smaller one that controls the rotors and a more powerful one that processes visual information from the camera. Both computers, however, had strict size and weight constraints to keep the drones light enough to fly. This limitation challenged the team to come up with efficient programming strategies, says Sandia.

"The algorithm has to be able to run fast enough to give usable results," explains Sandia scientist Logan Wright, who served as an advisor to the team. "An obstacle detection algorithm isn't very useful if it detects an obstacle after you've already run into it." https://unmanned-aerial.com/sandia-national-lab-team-builds-drones-to-test-hypersonic-tech?utm_medium=email&utm_source=LNH+10-10-2019&utm_campaign=UAO+Latest+News+Headlines

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MIT Researcher Deploys Drones to Study Climate Change Effects Betsy Lillian October 9, 2019

Norhan Magdy Bayomi – a PhD student in MIT's Department of Architecture's Building Technology Program – deploys unmanned aircraft systems equipped with thermal cameras to "document the surface temperatures of urban buildings, including structures with a variety of designs and building materials and outdoor conditions in the urban canyons between buildings."

"When you look at technologies like drones, they are not really designed or commonly used to tackle problems like this," she says. "We're trying to incorporate this kind of technology to understand what kind of adaptation strategies are suitable for addressing climate change, especially for underserved populations."

She specifically studied a low-income neighborhood in her hometown of Cairo, Egypt, and recently started studying communities in the Bronx, N.Y. (as seen in the video below), focusing on "how building construction, population adaptation, and the effects of climate change differ based on region."

Bayomi is also a participant in MIT's School of Architecture and Planning's DesignX entrepreneurship program, where she and her team founded drone data company Airworks. More about the research can be found on MIT News. https://unmanned-aerial.com/mit-researcher-deploys-drones-to-study-climate-change-effects?utm_medium=email&utm_source=LNH+10-10-2019&utm_campaign=UAO+Latest+News+Headlines

Chula Vista PD Hits 1,000 Drone Missions Betsy Lillian October 9, 2019

The CVPD's Drone as a First Response (DFR) program is part of San Diego's participation in the federal UAS Integration Pilot Program in partnership with Cape, a cloud platform for drone telepresence and data management.

As part of the program, Cape-enabled drones are dispatched to high-priority calls, such as crimes in progress, fires, traffic incidents and reports of dangerous subjects. The DFR has proven to be an "immediate success by providing real-time data to officers and supervisors on emergency calls while continuing to mitigate risks to the community."

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"The desired outcome of the program is to provide better real-time intelligence to first responders to respond with the best tactics and resources," the department adds in a Facebook post. In May of this year, the CVPD was OK'd by the Federal Aviation Administration to fly beyond the visual line of sight of the operator. https://unmanned-aerial.com/chula-vista-pd-hits-1000-drone-missions?utm_medium=email&utm_source=LNH+10-10-2019&utm_campaign=UAO+Latest+News+Headlines

More than 100 successful test flights of robo air taxi over Oregon TOM BANSE OCT 8, 2019

Airbus, along with its rival Boeing and many others, is striving to make flying cars an option for your urban commute. The enthusiasm around the test flight hangar in Pendleton, Oregon, has to be leavened, though. Industry insiders said the technology is running years ahead of regulators and public acceptance.

"No crashes, no nothing. It's been great so far," the head of flight testing, Matt Deal told public radio. "Over 100 takeoffs and landings, all self-piloted. So there is no pilot either on the ground or in the vehicle. From the very beginning, we were all autonomous."

Airbus named the eight-rotor prototype "Vahana," an allusion to Hindu mythology and flying carpets. The goal is to offer a faster option for short hops across highly congested big cities -- or from suburbs to city centers -- at a cost that is competitive with ground taxi fare over the same distance. Deal said the prototype has a range of around 50 kilometers (31 miles) or about 20 minutes of flight time with fully charged batteries. He said the battery pack makes up almost 40 percent of the weight of the vehicle.

"Vahana was intended to be a technology demonstrator," Deal said in an interview. "So from the very beginning we just wanted to prove the viability of technology and we've done that. From vertical takeoff, through transition, to a cruise speed of over 100 miles per hour, we've demonstrated electrification in aviation is not only feasible, it's feasible now."
https://www.nwnewsnetwork.org/post/its-cool-and-its-real-more-100-successful-test-flights-robo-air-taxi-over-oregon

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Boeing partners with Porsche on electric flying car BUSINESS NEWS OCTOBER 10, 2019

(Reuters) - U.S. planemaker Boeing Co said on Thursday it was working with Volkswagen's sports car brand, Porsche, to develop a concept electric flying vehicle capable of transporting people in urban settings. Boeing is already competing with arch-rival Airbus SE and other companies to introduce small self-flying vehicles capable of vertical takeoff and landing.

Earlier this year, the planemaker conducted an inaugural test flight of an aerial car prototype that could accommodate two to four passengers and fly up to 50 miles.

The test flight was within months of Airbus showcasing a prototype of an autonomous passenger vehicle in partnership with Volkswagen's premium brand, Audi, that has the ability to both fly and drive.

The partnership comes at a crucial time for both Volkswagen and Boeing. The German carmaker is trying to build its brand image following a diesel emissions scandal, while Boeing has been struggling with its worst crisis since two fatal crashes of its 737 MAX planes led to a worldwide grounding of its best-selling jet. https://www.reuters.com/article/us-boeing-porsche-electric/boeing-partners-with-porsche-on-electric-flying-car-idUSKBN1WP2J2

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