UAS and SmallSat Weekly News

Contents

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25Aug18

The Future Of Taxi Drones At The FAI International Drone Conference And Expo

August 24, 2018 Events | News

Urban traffic congestion is a huge headache for all major cities, with public transport infrastructures often crowded and roads frustratingly busy for drivers. How long will it be before humans take to the skies for reliable, quick transport around the city? The major question hovering over the future of air taxis is that of safety, and working out how taxi drones could fit into the lower airspace.

There are several businesses developing individual urban air transport; among them is German company, Velocopter. At the International Drone Conference in Lausanne, Switzerland, on Saturday 1st September at 14:00, Max Hjalmarsson will present the Volocopter X2 – an 18-rotor taxi drone – and invite delegates to imagine the yellow cabs of the future.

Ahead of the conference, we asked Alex Zosel, Co-Founder and Chief Innovation Officer at Volocopter for an insight into the future of taxi drones.

"It's closer than you think. We expect the next demo cases to happen in 2019 and the first commercial routes will be open for use within five years. In Bruchsal, near Volocopter's headquarters, the Volocopter flies regularly as part of our flight test program, showing that technologically, air taxis are possible. Now we are working together with cities and partners to show how such an air taxi system can be integrated in existing infrastructure."

http://uasweekly.com/2018/08/24/the-future-of-taxi-drones-at-the-fai-international-drone-conference-and-expo/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_24&utm_term=2018-08-24

Rocketmine Secures Contracts With African Mining Giants August 23, 2018 News

Rocketmine, a subsidiary of the international Delta Drone Group, continues to affirm its position in UAV (drone) solutions for the mining sector.

A contract renewal with South African mining giant, Exxaro Resources provides survey and mapping solutions to the Grootegeluk site in the Limpopo Province. This

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forms part of their plan to evolve towards the "digitized mine of the future" concept aimed to get surveyors out of dangerous areas to increase safety and reduce data turnaround time.

The second contract sees Rocketmine taking to the skies in Namibia. Rio Tinto's first commercial uranium mine, Rössing Uranium, had supplied a total of 132,610 tonnes of uranium oxide to the world by the end of 2017. Two contracts in West Africa with Newcrest Mining Limited in Côte d'Ivoire and Newmont Akyem provide mine blast monitoring, fragmentation analysis and survey mapping. http://uasweekly.com/2018/08/23/rocketmine-secures-contracts-with-african-mining-giants/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_24&utm_term=2018-08-24

26Aug18

China in race for counter-drone tech and laser weapons as it tries to catch up with US

Kristin Huang kristin.huang@scmp.com 25 Aug 2018

China is moving to develop laser weapons and counter-drone systems as it tries to catch up with the United States on unmanned aerial vehicle technology to boost its intelligence and attack capabilities, according to military analysts.

That includes systems to protect its drones so that they are less vulnerable to lasers and spoofing techniques that send false information to UAVs.

The US has more than 60 counter-drone systems or products that use radar, radio frequency, electro-optical and acoustic detecting and tracking to intercept enemy drones and either stop them, hijack their communication link or destroy them with lasers or projectiles, according to a report by the Centre for the Study of the Drone at Bard College in New York in February.

China, meanwhile, has less than 20 such systems and mainly relies on conventional means like radar to detect drones – and it does not have any spoofing or nets to counter incoming UAVs, according to the report and mainland media. Jamming systems appear to be the most popular way to counter drones in China.

But analysts say China is starting to catch up, with a number of companies and institutions joining the race to research counter-drone technology,

including China National Nuclear Corporation, NovaSky and the Beijing Institute of Technology. Given that we are talking about an emerging technology, it is plausible that a small start-up might come up with a brilliant solution that completely dominates the market – the way that DJI, a Chinese start-up, has become a market leader in the consumer drone sector," he said. https://www.scmp.com/news/china/diplomacy-defence/article/2161331/china-race-counter-drone-tech-and-laser-weapons-it

27Aug18

IBM files patent for coffee delivery drone that can detect when someone needs caffeine

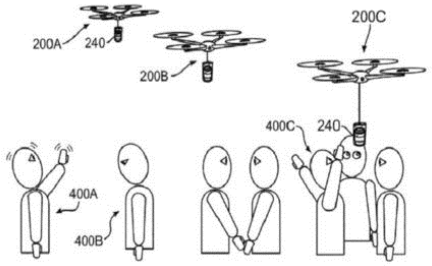
August 24, 2018 Feilidh Dwyer

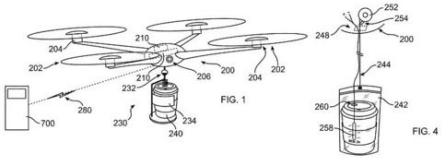
IBM recently secured a US patent to produce a drone capable of detecting when people might be in need of a caffeine hit and serve that need by delivering coffees to them.

The filing included text that the drone would be capable of delivering coffee to:

"an area including a plurality of people; scanning the people, using one or more sensors connected to the UAV, the one or more sensors connected to an electronic processing circuit which identifies an individual among the people that may have a predetermined cognitive state."

The drone, IBM suggests, could also be equipped with facial or voice recognition software as well as sensors that would have the ability to detect blood pressure, pupil dilation and facial expressions and judge whether people are drowsy. The combination of these sensors, IBM believes, would allow the drone to *know* when you might need a caffeinated beverage pick-me-up.





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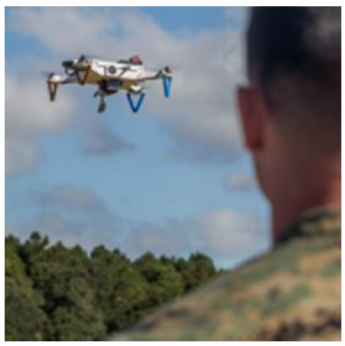
IBM plans included, "Consumers can preorder drinks but might also be able to flag down a drone and order their drink on the spot." The drone would dispense the coffee either by lowering a cup using a string (see their wonderful cartoon above) or by pouring liquid into a consumer's cup (watch out for burns) https://www.wetalkuav.com/ibm-files-patent-for-coffee-delivery-drone-that-can-detect-when-someone-needs-caffeine/

Report: Marines Tap Industry to Develop Expeditionary UAS Airframe Software

Mary-Louise Hoffmanon August 27, 2018 Industry News



The U.S. Marine Corps has selected 11 companies to explore airframe and software models for the military service's proposed unmanned aerial system with a vertical takeoff and landing feature, National Defense Magazine reported Friday.

USMC and Naval Air Systems Command officials started to visit factories after the service branch hosted an industry day for the Marine Air-Ground Task Force UAS Expeditionary project in June.

Col. James Frey, head of the UAS branch at USMC's aviation, weapons and requirements office, told the publication he envisions a "runway-independent" drone that would perform air support, intelligence, surveillance, reconnaissance, early warning and communications transmission functions.

He added the service looks to equip the MUX platform with Hellfire missiles, an advanced precision kill weapon system or laser-guided rockets and bombs. USMC plans to conduct an analysis of alternatives through fiscal 2019 and aims to issue a request for proposals by the end of the next fiscal year or in early 2020.

http://blog.executivebiz.com/2018/08/report-marines-tap-industry-to-develop-expeditionary-uas-airframe-software/

Northrop Grumman explores airburst munitions for C-UAS applications Andrew White, London - Jane's International Defence Review 23 August 2018

Northrop Grumman Armament Systems Division (NG-ASD) has outlined ongoing efforts to advance kinetic kill counter-unmanned aerial system (C-UAS) capabilities and develop a family of networked systems to address unmanned air, land, and maritime threats.

Jay Annis, portfolio director at NG-ASD told *Jane's* that the

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company continues to partner with the US Army and US Air Force to develop and field electronic attack and advanced medium-calibre weapons to address unmanned threats.

NG-ASD has integrated the 30 mm Bushmaster M230LF automatic cannon with Liteye's electronic C-UAS system – developed in partnership with Chess Dynamics and Pratt & Miller – onto a Stryker infantry fighting vehicle to demonstrate how electronic and kinetic attack approaches would work together to neutralize small UAS threats as well as provide increased firepower capability to protect the vehicle and crew from ground threats.
https://www.janes.com/article/82548/northrop-grumman-explores-airburst-munitions-for-c-uas-applications

Amazon Tribe Never Seen by Outsiders Is Spotted by Drone Richard Pérez-Peña Aug. 23, 2018

An aerial view of a thatched hut in Vale do Javari, Amazonas state, Brazil.

New video footage from a drone shows the first images of members of an isolated Amazon tribe that had no known contact with the outside world, the Brazilian government said this week.

The video, released on Wednesday, shows a clearing of felled trees in the Javary River valley, near Brazil's border with Peru, and figures walking through it, one of them carrying what appears to be a spear or pole. The images were captured by an expedition by the National Indian Foundation, a government agency commonly known as Funai. The agency also released still photos taken by a team on the ground, including images of canoes made of hollowed-out palm tree trunks and an ax with a stone blade tied to a wooden handle, along with an aerial photo of a thatched hut.

The region has eight indigenous peoples who have had some contact with the outside world, and at least 11 others without any known contact, Funai said in a statement. The agency said its team had traveled more than 110 miles in "boats, trucks, motorcycles" and about 75 miles "on foot through dense forest" to reach the location.
https://www.nytimes.com/2018/08/23/world/americas/brazil-amazon-tribe.html

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Japan invites Boeing, Airbus, Uber to help write flying car road map August 27, 2018

Philip Butterworth-Hayes UAS traffic management news

Bloomberg reports the Japanese government has set up a committee to look at how flying cars and air taxis can be integrated into the country's transport system. According to the report:

"Japan is making a push to develop flying cars, enlisting companies including Uber Technologies Inc. and Boeing Co. in a government-led group to bring airborne vehicles to the country in the next decade.

The group will initially comprise 21 businesses and organizations, including Airbus SE, NEC Corp., a Toyota Motor Corp.-backed startup called Cartivator, ANA Holdings Inc., Japan Airlines Co., and Yamato Holdings Co., according to a statement Friday from the trade ministry in Tokyo. Delegates will gather August 29 to help chart a road map this year."

"The Japanese government will provide appropriate support to help realize the concept of flying cars, such as creation of acceptable rules," the ministry said….Japan's Economy Minister Hiroshige Seko told reporters this month that flying cars could ease urban traffic snarls, help transportation in remote islands or mountainous areas at times of disasters, and can be used in the tourism industry." https://www.unmannedairspace.info/uncategorized/japan-invites-boeing-airbus-uber-help-write-flying-car-road-map/

Compact drone-based sense and avoid radar receives FCC certification August 26, 2018

Philip Butterworth-Hayes UAS traffic management news

Echodyne has announced it has received Federal Communications Commission certification for its EchoFlight radar, an airborne detect-and-avoid radar designed for a wide variety of UAS platforms.

According to Eben Frankenberg, CEO of Echodyne. "Our compact, solid-state, lightweight yet powerful radar offers the ability to scan large volumes of airspace and track other aircraft with sufficient range to maintain safety." Features of EchoFlight's high performance radar include:

- Precision beam-steering radar that minimizes collision risk by tracking aircraft locations at all times across a broad field-of-view, even in dense airspace or over cluttered environments
- Search-while-track radar that scans like a phased array but at commercial pricing

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- Compact design with low weight and low power for integration into a wide-variety of UAS platforms
- Long-range, all-weather detection and tracking for Beyond Visual Line Of Sight missions.

https://www.unmannedairspace.info/uncategorized/compact-drone-based-sense-avoid-radar-receives-fcc-certification/

SpotterRF launches first 3D lightweight drone detection radar August 27, 2018 Philip Butterworth-Hayes Counter-UAS systems and policies

UAS Vision reports that SpotterRF has launched the first 3D drone detection radar "that creates a full dome detection area from 0 to 90 degrees in the vertical and 360 degrees in the horizontal with a single radar that weighs 12 pounds."

"Current solutions are limited in their technical capabilities," according to the report. "Optical and thermal sensors don't have large enough fields of view to detect targets in the sky, and they are affected by daily weather conditions. Acoustic sensors are prone to noise pollution and are not able to provide precise tracking of targets. They can be limited in range, often only able to detect several hundred feet out. Radio transmission detection systems are typically limited to known frequencies and cannot detect sUAS that are not being actively controlled by an RF signal. Other radar systems range from large rotating radars with limited vertical coverage leaving large gaps above the radar to systems that require many different radar panels to be used simultaneously increasing the complexity and the cost.

"SpotterRF is now offering a full drone mitigation system. The 3D-500 Counter-UAS System consists of: the compact 3D-500, a long-range optical/thermal camera, a small networked hub containing power management and integration software, and an optional mitigation component – often a directional RF jammer on a pan/tilt turret to make threat response automated." https://www.unmannedairspace.info/counter-uas-systems-and-policies/spotterrf-launches-first-3d-lightweight-dome-detection-radar/

28Aug18

Boeing touches down with autonomous synchronized flight tests BUSINESS NEWS EMMA CALDER AUGUST 28, 2018

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Boeing has successfully completed the first suite of synchronized unmanned aerial vehicle flight tests using new on-board autonomous command and control technology developed in Australia.

Conducted at a regional Queensland airfield, the test flights saw five UAV test beds equipped with Boeing's new on-board system safely complete in-air programmed missions as a team without input from a human pilot. The milestone comes six months after establishing the company's largest international autonomous systems development program in Queensland.

Over the course of two months, Boeing engaged small-to-medium enterprises and issued $2.3m in contracts with 14 Queensland businesses.
http://www.commercialdroneprofessional.com/boeing-touches-down-with-autonomous-synchronised-flight-tests/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272995-Commercial+Drone+Professional+DNA+-+2018-08-28

California's fires face a new, high-tech foe: Drones LEXY SAVVIDES AUGUST 27, 2018

It's fire season in California, and thousands of firefighters are battling blazes across the state, like the mammoth Mendocino Complex Fire that's already torched nearly 423,000 acres and the Carr Fire, which has so far destroyed 1,600 structures and claimed seven lives.

To help win their war against wildfires, state and federal departments are turning to drone missions for reconnaissance and data gathering. The California Air National Guard is using a military grade MQ-9 Reaper at both the Mendocino Complex and Carr fires. The drone captures live video of the blaze from 20,000 feet and can stay in the air for hours, identifying where the fire is spreading.

No matter if they're small quadcopters or larger fixed-wing drones, UAVs are becoming an invaluable tool for firefighters to safely identify threats and reduce exposure to dangerous conditions. The Menlo Park Fire District was one of the first in the US to start a drone program. In the four years since, more than 180 fire departments across the country have bought drones for fire and rescue operations. Relatively few have pushed drone usage to the same level as Menlo Park, which has set up a dedicated drone command center and which trains firefighters from around the country to pilot the aerial devices.

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These eyes in the sky can navigate tight spaces and fly lower than helicopters can. With them, crews can see objects in the path of a fire, areas of intense heat and even people trapped in areas of thick smoke. https://www.cnet.com/news/californias-fires-face-a-new-high-tech-foe-drones/

Study: Drone Tech Proliferation Puts Regional, International Security at Risk Jerry Petersen August 27, 2018 News

Researchers from the Netherlands recently said that the proliferation of drone technology, brought about in part by the growth of the drone industry as well as the willingness of governments to sell the technology to allies and partners, would likely put regional and international security at risk.

Foeke Postma and Wim Zwijnenburg of the Dutch non-government organization PAX stated in a July 2018 study that the rise in the use of drones by armed forces around the world could increase the risk of international conflict, citing multiple instances where military drones violated the airspace of other countries, at times resulting in actual open hostilities. Since drones are piloted remotely, states would more likely be willing to use them while adversaries would be more willing to shoot them down, so "the threshold to use force is lowered on both sides of a conflict."
http://www.executivegov.com/2018/08/study-drone-tech-proliferation-puts-regional-international-security-at-risk/

Airbus Aerial provides back up during California's Carr Wildfire APPLICATION BUSINESS NEWS EMMA CALDER AUGUST 28, 2018

Powered by Airbus Aerial's data analytics and high-resolution satellite imagery from Airbus Intelligence, insurance companies are helping policyholders begin to recover from the tragic Carr wildfires in California.

Thanks to Aerial's cloud platform, insurance damage triage tool kit, and suite of analytics, blended with satellite imagery of targeted areas from Airbus Intelligence, insurance companies can usually process a claim and inform their customers before the customer even knows a loss has occurred.

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Aerial directly tasks Airbus high-resolution satellites to capture data exactly around the locations of greatest interest to our customers. Within hours, this data is processed in Aerial's cloud-based data platform. http://www.commercialdroneprofessional.com/airbus-aerial-provides-back-up-during-californias-carr-wildfire/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272995-Commercial+Drone+Professional+DNA+-+2018-08-28

Direct Relief, Merck and Partners Test Temperature Controlled Autonomous Drone Delivery System August 27, 2018 News

Direct Relief, Merck, AT&T, Softbox and Volans-i this week are piloting a test of emergency medical supply deliveries using drones to model an innovative approach to disaster response.

The organizations are testing drone flights and the coordinated processes needed to provide medical supplies by drone in a temperature-controlled environment with real-time monitoring. The long-distance deliveries must comply with U.S. and Puerto Rico laws and regulations for prescription drug delivery, including a documented chain of custody; Federal Aviation Administration approval for flight plans; and, for some products, must be consistently refrigerated to ensure the integrity and effectiveness of the medicines.

Researchers estimate that most deaths from Hurricane Maria in September 2017, were caused by loss of access to medicines and health care, not by wind or water. As people were displaced from their homes, health centers lost power for weeks, and travel was extremely difficult. This likely contributed to an increase in deaths from chronic diseases that can be managed under normal conditions.

This week tests were conducted with drones flying in challenging terrain in remote areas impacted during Maria, beyond the line of sight. The drone deliveries extend to remote mountain villages that were cut off from electricity and road access for months after Hurricane Maria, some of them for a time accessible only by helicopter.
http://uasweekly.com/2018/08/27/direct-relief-merck-and-partners-test-temperature-controlled-autonomous-drone-delivery-system/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_28&utm_term=2018-08-28

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29Aug18

Drones flown in to provide communication services to disaster ravaged areas

August 28, 2018 Feilidh Dwyer

Hurricane Lane hit the Hawaiian Islands last week bringing 46 inches of rain, flash floods and mud slides.

In the immediate aftermath of severe natural disasters, along with the loss of essential services such as power, water and sewage there is frequently the problem of people's phone and internet connections being cut.

Not being able to contact people outside of one's immediate vicinity makes it next to impossible to talk with family and friends or emergency services.

What Hurricane Lane looked like from space

AT&T's drones provided support following the devastating hurricane that hit Puerto Rico in 2017. Following that disaster, nearly half of all the country's cellphones towers went down.

These UAVs are tethered to the ground to the ground through a fiber optic cable. Remote radio heads are attached to the bottom of the drones which facilitate the provision of data, voice and text services to people. The drone acts as a broadcasting beacon for a station on the ground. When a COW hovers at a height of around 200 feet, it can provide communication services to an area as large as 40 square miles. The drones are capable of staying airborne for hours at a time, allowing stranded people to contact loved ones and perhaps update social media with shocking disaster selfies.https://www.wetalkuav.com/drones-provide-communication-services-to-disaster-zones/

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Silicon Valley Takes a (Careful) Step Toward Autonomous Flying Cade Metz Aug. 28, 2018

A new flying ambulance service will use small helicopters outfitted with tech that could eventually let them fly without pilots.

TRACY, Calif. — Last week, at a tiny airport in the dusty flatlands east of San Francisco, a red-and-white helicopter lifted gently into the air, hovering a few feet over the tarmac. It looked like any other helicopter, except for the small black cube attached to its nose.

Today, the helicopter is flown by seasoned pilots. But the new emergency service will be operated by SkyRyse, a Silicon Valley start-up that intends to augment small helicopters and other passenger aircraft with hardware and software that allow for autonomous flight, leaning on many of the same technologies that power driverless cars. These include the 360-degree cameras and radar sensors built into the nose of the aircraft.

"There are many things that must come to fruition before autonomous aircraft start flying people," said Mark Groden, a co-founder and the chief executive of SkyRyse. "But we are developing the technology that can take us there."
https://www.nytimes.com/2018/08/28/technology/autonomous-flying-emergency-silicon-valley.html?login=smartlock&auth=login-smartlock

FAA grants nearly 2,000 waivers for drones AUGUST 28, 2018 GENERAL AVIATION NEWS

On the eve of the two-year anniversary of the FAA establishing regulations for operating small unmanned aircraft systems, the Association for Unmanned Vehicle Systems International released an update to its analysis of waivers and found that nearly 2,000 have been granted.

Nearly 92% grant permission to operate UAS at night, which is not permitted under the FAA rule. The report also shows that first responders are embracing expanded UAS operations, with close to 200 having received waivers.

Effective Aug. 28, 2016, Part 107 to Title 14 of the Code of Federal Regulations created a uniform regulatory framework for UAS. Among

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the rule's requirements, UAS must fly below 400' within visual line of sight and during daylight hours.

Recognizing the need for the rule to be flexible to foster innovation, the FAA created a waiver process that allows for expanded types of operations, such as nighttime or beyond line of sight operations, with the approval of the agency.

As of Aug. 15, 2018, operators in all 50 states and Puerto Rico have used waivers for expanded operations. The operators who received the most waivers reside in California, followed by Florida, Texas, Colorado, and Illinois, according to the report.
https://generalaviationnews.com/2018/08/28/faa-grants-nearly-2000-waivers-for-drones/

30Aug18

Medical Drone Deliveries Tested at North Carolina Hospital Betsy Lillian August 29, 2018

WakeMed Health & Hospitals, a provider of health services in Wake County, N.C., has teamed up with drone delivery company Matternet and the N.C. Department of Transportation's Division of Aviation to launch simulated medical package deliveries via unmanned aircraft system.

The flights are part of the federal UAS Integration Pilot Program (UAS IPP), a three-year initiative to test the practical applications of drones by partnering local governments with private-sector companies.

The first round of the North Carolina partners' flights is taking place today through Friday at WakeMed Raleigh Campus, the health system's flagship hospital, located in southeast Raleigh. The test flights brought simulated medical packages from Raleigh Medical Park, located across from WakeMed Raleigh Campus, to a main tower at the hospital.

The partnership involves delivering blood samples and other medical items across WakeMed's network of healthcare facilities. Matternet has completed more than 1,800 successful flights for healthcare systems in Switzerland.

"This represents a major milestone for unmanned aviation in the U.S.," says Andreas Raptopoulos, founder and CEO of Matternet. "We're thrilled to be working with WakeMed and the NCDOT to launch the first medical drone delivery operations over densely populated areas

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in the U.S." To help ensure safe operations, AirMap is providing UAS traffic management services for the flights. The AirMap UTM platform helps drone pilots stay aware of aircraft, weather conditions, airspace restrictions and other possible conflicts.https://unmanned-aerial.com/medical-drone-deliveries-tested-at-north-carolina-hospital?utm_medium=email&utm_source=LNH+08-30-2018&utm_campaign=UAO+Latest+News+Headlines

Insitu ScanEagle UAS Helps Fight Oregon Wildfires Betsy Lillian August 24, 2018

Insitu has been helping first responders fight Oregon wildfires with the use of the company's ScanEagle unmanned aircraft system. Their Mobile Response Team has been operating the drone to supplement manned aviation firefighting teams. The UAS manager (a federal employee) provides the required communication between air and ground resources to facilitate safe and effective missions, while the data specialist (also a federal employee) works directly with the vendor flight crew and incident GIS specialist to ensure timely delivery of requested data.

The ScanEagle teams operate the UAS at night and over dense smoke and inversion conditions when manned aircraft typically are grounded due to hazardous conditions for pilots. The ScanEagle team to date has logged more than 200 hours of night flight time during nearly 30 flights over the Garner Complex and Taylor Creek fires in Oregon.

The payload includes infrared sensors and electro-optical cameras that gather and disseminate geospatial imagery and provide incident perimeter maps and full-motion video. The sensors and cameras spot heat signatures, fire movement and spot fires and also provide video of infrastructure, historical buildings and other structures that might be in danger. They also identify safe ingress and egress routes for firefighters.

By flying UAS at night, fire incident commanders have the advantage of fire intelligence and situational awareness for their early-morning planning meetings in determining where to dispatch their resources and personnel." https://unmanned-aerial.com/insitu-scaneagle-uas-helps-fight-oregon-wildfires?utm_medium=email&utm_source=LNH+08-30-2018&utm_campaign=UAO+Latest+News+Headlines

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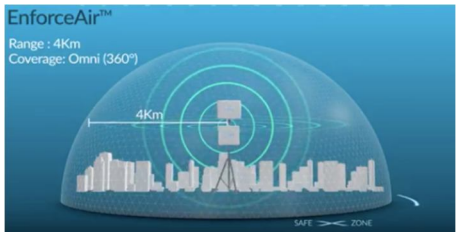
D-Fend's flagship counter-drone solution gains industry recognition BUSINESS NEWS

TECHNOLOGY EMMA CALDER AUGUST 29, 2018



Based on its recent analysis of the North America counter-drone solutions market, Frost & Sullivan recognized D-Fend Solutions with the 2018 North America Enabling Technology Leadership Award for developing EnforceAir, an end-to-end counter-drone solution.

D-Fend is unique in its reliance on autonomous software-defined radio technology to passively detect and differentiate friendly drones from rogue ones, even at unprecedented distances of up to two miles.

Once identified as a rogue drone, D-Fend takes over the communication link between the drone and its operator, flying it via a safe route to land it safely at a designated, pre-configured secure landing spot. The system does not rely on jamming, kinetic counter-measurements, nor does it require a clear line of sight to detect and mitigate hostile drones, making it uniquely suited for urban environments.

"D-Fend's EnforceAir solution has the unique capability to locate a drone passively, solely on the communication between the drone and its remote control. Once it generates the drone's global position system coordinates, an identification process is set in motion to separate a legitimate drone from non-sanctioned ones; the latter are then dealt with according to D-Fend's protocol," said Michael Blades, research director at Frost & Sullivan.

"EnforceAir forensically extracts the digital signature of the non-sanctioned drone to verify the drone and its home location GPS coordinates, which it can then share with law enforcement agencies, if necessary. This ability to differentiate and mitigate drones safely in an urban environment is EnforceAir's main differentiator among other counter-drones solutions."
http://www.commercialdroneprofessional.com/d-fends-flagship-counter-drone-solution-gains-industry-recognition/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-273125-Commercial+Drone+Professional+DNA+-+2018-08-29

General Atomics, PAE ISR, Bell Selected as NASA UAS Dev't & Demo Partners

Peter Grahamon August 30, 2018 C4ISR, News

NASA will collaborate with **General Atomics**' aeronautical systems business, **PAE ISR** and **Textron**'s **Bell** subsidiary on a two-year project to

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demonstrate commercial unmanned aircraft systems through various flight missions.

The space agency said Wednesday it selected the three UAS developers to conduct multiple flight demonstrations at an altitude of more than 500 feet by 2020 under cooperative agreements worth up to $11.07 million combined. The contracts will consist of $4.6 million cash and $6.47 million in-kind support.

According to NASA, its industry partners under the *Systems Integration and Operationalization* activity will also equip UAS platforms with command-and-control and detect-and-avoid technologies. The agency seeks to address development, integration and certification challenges that may hinder commercial drone operations in the National Airspace System. NASA's Armstrong Flight Research Center in California will oversee the project.
http://blog.executivebiz.com/2018/08/general-atomics-pae-bell-selected-as-nasa-uas-demo-partners/

FAA: Drone Integration Pilot Program Off to an Exciting Start Miriam McNabbon August 30, 2018

The FAA's UAS Integration Pilot Program has been busy accelerating drone technology in four states this month.

Successful flights in North Carolina, Virginia, Kansas and Oklahoma demonstrate how the FAA's program awardees are using drones in innovative ways to assist in their communities in their day-to-day duties. Just yesterday, WakeMed Health and Hospitals successfully flew a Matternet drone in Raleigh, N.C. to demonstrate how drones can be used to deliver medical supplies to rural areas. In other flights, the Virginia Tech Mid-Atlantic Aviation Partnership and the FAA teamed up to successfully complete the country's first long-distance drone delivery test; an ice-cream cone was delivered to a child. The Kansas Department of Transportation and the FAA flew a drone beyond visual sight, a giant step towards advancing drone technology to help precision agriculture and infrastructure inspections. In Oklahoma, the Choctaw Nation and the FAA demonstrated how drones can be used to bait feral hog traps.

The FAA UAS Integration Pilot Program is opening the door for new opportunities in commerce, photography, emergency management, agricultural support and infrastructure inspections.
https://dronelife.com/2018/08/30/faa-ipp-off-to-an-exciting-start/

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Surveying with Drones: The Key Differences Between Aerial LiDAR and Photogrammetry staffon August 30, 2018

The following is a guest post from Dustin Price, licensed land surveyor and operations manager at Landpoint: a surveying, aerial data and technical services provider.

There has been an influx of new and, in some cases, game-changing surveying technologies that have popped up over the past few years. Arguably the biggest of these technologies is unmanned aerial vehicles which has allowed surveyors to collect data in a fraction of the time it would take using traditional methods. The rise of UAV surveying has also created a choice for those that need aerial data: LiDAR or photogrammetry. Here are a few key ways in which these two technologies are different.

Aerial LiDAR imagery is produced through light-based sensors, which bounce waves across the surface of the terrain below. Due to the way this type of imaging is completed, it can *pass through* objects such as brush or bramble, creating an accurate image of terrain that may not be visible. LiDAR is extremely sensitive and accurate and is, therefore, able to take high-resolution surveys of large, overgrown areas. The sensor data is then used to create a 3D map of the terrain, which can be imported into software to create a simulation.

Photogrammetric imaging is based on *photographic imagery*. This type of imaging takes large numbers of snapshots to render a two dimensional or three-dimensional version of the terrain. There are limitations to this system: it is unable to penetrate below even thin brush, and consequently may have a skewed perception of the actual ground terrain. On the other hand, photogrammetry can preserve the *color* of the terrain, which can make it easier for people to interpret results.

It should be noted that photogrammetric imaging depends *a lot* on light and shadows to identify areas of terrain. It may fail in areas that are not lit properly.

LiDAR imagery can be about ten times the cost of photogrammetric imaging. This cost is going down steadily, however. As more companies adopt its use, it will become more affordable.
https://dronelife.com/2018/08/30/surveying-with-drones-the-key-differences-between-aerial-lidar-and-photogrammetry/

31Aug18

Boeing Wins $805M Navy Unmanned Aerial Refueler EMD Contract Jane Edwards August 31, 2018 Contract Awards

Leanne Caret

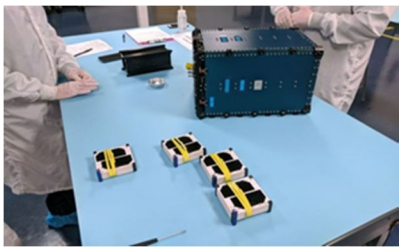
Boeing will build four *MQ-25 Stingray* carrier-based drones for the U.S. Navy under a potential six-year, $805.3M engineering and manufacturing development contract.

"As a company, we made an investment in both our team and in an unmanned aircraft system that meets the U.S. Navy's refueling requirements," Leanne Caret, president and CEO of Boeing's defense, space and security business, said in a statement released Thursday.

Work will primarily occur in St. Louis through August 2024 under the fixed-price-incentive-firm-target contract that also covers design, fabrication, testing, certification and verification support services. Boeing will integrate the unmanned vehicles with the carrier air wing to achieve initial operational capability by 2024.

Naval Air Systems Command received three offers for the contract and will obligate $79M in fiscal 2018 research, development, test and evaluation funds at the time of award. MQ-25 is meant to increase the range of the Navy's deployed fighter jets through its refueling capability. https://www.govconwire.com/2018/08/boeing-wins-805m-navy-mq-25-tanker-drone-devt-contract-leanne-caret-quoted/

Satellite Startup Swarm Is Back Online After Defying U.S. Officials Ashlee Vance August 30, 2018



Swarm's SpaceBee satellites

In January, Swarm Technologies Inc. placed four tiny satellites on a rocket owned by the Indian government, sent them to space and started transmitting data to earth. As far as anyone can remember, this was the first example of an American company placing a satellite into orbit without Uncle Sam's blessing, and the results were as expected. The Federal Communications Commission forced Swarm to disable the

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satellites and warned that the company's long-term plans to build a type of space internet were in peril.

Last Friday, Swarm received permission from the FCC to reactivate its satellites. Swarm now hopes it can get 100 satellites, called SpaceBees, into orbit by the end of next year and build the cheapest space-based data network of all time.

"We're sort of making a 1996 version of the internet," says Sara Spangelo, co-founder and chief executive officer of Swarm. "But it will be everywhere, and anyone on the planet can afford it."

Sara Spangelo

For years, people trying to access the internet from remote locations have been forced to pay high fees for slow and spotty service. Swarm has a different take on the space internet idea, which is part of the reason it became so controversial. The satellites are so small that the FCC feared they would be undetectable, which would make it very tricky to monitor the machines and make sure they don't bump into other equipment orbiting the earth.

Swarm can build them for a fraction of the cost of traditional satellites. They can also squeeze into the spare nooks and crannies on rockets. This is key at a time when a glut of satellite startups has made it difficult to find a ride into space. Swarm can, in effect, hitchhike on a rocket and put up dozens of satellites per launch.

There are, however, limitations. Swarm cannot pack as much communications gear on the satellites, which makes SpaceBees less sophisticated than rival equipment. "We think of it sort of like tweets," Spangelo says. "You can send thousands of 250-byte tweets per day."
https://www.bloomberg.com/news/articles/2018-08-30/satellite-startup-swarm-is-back-online-after-defying-u-s-officials

The Ghoul Tool Full Spectrum (GTFS) Hand-held Drone CUAS Has Arrived! August 29, 2018 Counter UAS

Melbourne, Florida-based Invisible Interdiction, has launched the second of the Ghoul Tool line of drone countermeasures for the military, law enforcement, and counter-terror forces. The GTFS works by breaking the command & control or navigation radio links between the drone pilot and the aircraft. The engineering

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team continues to focus on size, weight and power making the GTFS the most capable man-portable countermeasure available in the world today. Key differentiators that users will appreciate about the Ghoul Tool Full Spectrum include:

- Power: One MBITR Li-ion battery provides 2+ hours of continuous operation
- Very easy, one-hand operation, can still operate primary weapon with another hand
- Optional field programmable bands
- HERO, HERP, HERF certified
- Size: 20”L x 7.5”H x 5”W
- Weight: 5 pounds

The next opportunity to handle the Ghoul Tool Full Spectrum is at Modern Day Marine at Quantico Virginia September 25-27, 2018. http://uasweekly.com/2018/08/29/the-ghoul-tool-full-spectrum-gtfs-hand-held-drone-countermeasure-has-arrived/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_29&utm_term=2018-08-29

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