UAS and SmallSat Weekly News

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University Of Washington Researchers Test Navigation For UAS Using Transponders August 17, 2018 News

 Drones use GPS to find their way without a pilot. But GPS signals can be [easily blocked by tall skyscrapers or trees](#) — leaving drones lost.

Now researchers at the University of Washington have developed a new method that gives aircraft a backup system in case GPS fails: An antenna on the ground that can tell a drone where it is. The team's drones carry transponders on board that send signals to operators and any surrounding aircraft about their whereabouts.

If GPS is knocked out, the transponder doesn't know its location, but it will still send signals. So the team used a large ground-based antenna array to pick up the signals and then triangulate the position of the aircraft. "The ground station is smarter than the aircraft at that point," said Lum. "We're just modifying the autopilot onboard the aircraft. Instead of using GPS information to navigate, it's listening to this message coming from the ground to figure out where it is."

While this is not the first technique researchers have developed to keep aircraft flying without using GPS, what's new is the transponder. "It's the size of a pack of cards," said [Helen Kuni](#), an undergraduate student at the UW and the director of flight operations for the lab. "It's really easy to stick it on an aircraft, and it won't add much weight."
[http://uasweekly.com/2018/08/17/university-of-washington-researchers-test-navigation-for-uas-using-transponders/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_17&utm_term=2018-08-18](#)

President Trump Signs Defense Bill with $9.6 Billion for UAS Spending August 17, 2018 Military | News

 President Trump has signed into law [H.R. 5515](#), the John S. McCain National Defense Authorization Act for Fiscal Year 2019, authorizing the U.S. Department of Defense to spend $9.6 billion for unmanned vehicle systems. The bill increases military spending for unmanned technologies by 28 percent over last year, according to an analysis by the Association for Unmanned Vehicle Systems International.

Significant funding increases authorized by the NDAA include:

- The Air Force RQ-4 Mods program and the MQ-9 Advanced Battle Management System received a $225 million total increase from the original funding requests.
- The Army MQ-1 UAV was increased by $60 million to support the MQ-1C Gray Eagle Service Life Extension Program.
- The Navy Undersea Warfare Applied Research program received an additional $20 million for academic partnerships involving undersea unmanned warfare.

Some programs related to unmanned systems received less than requested, such as:

- Fewer MQ-9s for the Air Force Oversea Contingency Operations.
- Reduced spending for research, development, test and evaluation for the Navy's MQ-25 and large unmanned undersea vehicle.
- Decreased funding for the Surface Navy Laser Weapon System (SNLWS), a weapon system to counter UAS-mounted sensors.

"The increase in funding for unmanned systems by the military shows how the technology has advanced to become an important tool for our warfighters," said Brian Wynne, president and CEO of AUVSI. "Unmanned systems are proving that they have the potential to save time, money and, most importantly, save the lives of our men and women in combat."
http://uasweekly.com/2018/08/17/president-trump-signs-defense-bill-with-9-6-billion-for-uas-spending/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_17&utm_term=2018-08-18

Law Enforcement Drone Use in Pennsylvania Raises Privacy Rights Concerns BY MARCO MARGARITOFF AUGUST 17, 2018

Dauphin County in Harrisburg, Pennsylvania, has been using a $15,000 six-rotor camera-drone since April, in 13 investigations spanning from search and rescues to armed standoffs and supporting local firefighters to more effectively do their job. According to ABC News 27, however, not everyone is as pleased or enthusiastic about local law enforcement garnering easy access to aerial views of the community and people's private property.

Dauphin County Commissioner Jeff Haste is adamant that the night-vision and thermal imaging-capable camera drone is like any other tool that law enforcement would exclusively use for the safety and protection of officers and citizens alike.

The issue isn't whether or not law enforcement is benevolent or nefarious, but rather, how standardizing this modern aerial tool can set potentially dangerous precedents for the future. For ACLU Pennsylvania spokesperson Andy Hoover, Commissioner Haste's statements are appreciated, but not enough. "That needs to be in writing," said Hoover in reference to Haste's claims. "The county needs to be transparent about how they're going to use this. The people of Dauphin County need some assurance that this technology will not be used for mass surveillance" http://www.thedrive.com/tech/22978/law-enforcement-drone-use-in-pennsylvania-raises-privacy-rights-concerns

App Turns This Drone Into a Dedicated Fish Finder Lowell Strauss August 17, 2018

Drones are useful on fishing and charter boats. And now, onboard control of the DJI Mavic Pro drone is a reality with the Raymarine Axiom GPS/fish finder UAV app. Using GPS navigation, the Mavic Pro will fly to precise locations and hover. Fly the UAV to waypoints or points of interest, or chart locations by selecting a point on the map and pressing the UAV Goto command. Or send the drone on advanced reconnaissance missions by creating waypoints or routes.

From its vantage point, the Axiom UAV acts as a virtual tuna tower. The camera system lets you scout for fish ahead of the boat. Adding an optional polarized lens, the Mavic Pro's 4K UHD "looks" into the water to see gamefish, baitfish, weedlines, sandbars, reefs, and other underwater features.

Operators can quickly set initial drone height and distance from their boats. Or, they can fine-tune the UAV's altitude, orbit radius, orbit speed, and camera angle. Users can watch the action in real-time, capturing video and still photos. https://gearjunkie.com/fishing-drone-mavic-pro-raymarine-axiom-app

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Federal officials reiterate drone threat in intel bulletin JOSH MARGOLIN Aug 17, 2018

In this photo released by China's Xinhua News Agency, security personnel surround Venezuela's President Nicolas

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Maduro during an incident as he was giving a speech in Caracas, Venezuela, Saturday, Aug. 4, 2018.

Citing the Aug. 4 attack during an appearance of Venezuela's president, the FBI, Department of Homeland Security and National Counterterrorism Center issued an intelligence bulletin with the starkest of warnings: "An attack could be conducted by one person or several people using a commercially available, off-the-shelf (drone) to target venues which attract large crowds, such as sporting facilities, concerts, and transportation terminals, or public figures."

Venezuelan President Nicolas Maduro delivers a speech during a ceremony in support of the National Guard in Caracas on August 4, 2018.

The feds noted that in 2017 there were 3,000 reports of drones flying over or near critical sites in the U.S. That number is expected to grow as technology improves while costs continue to come down. The bulletin says that ISIS has already started using drones in Iraq and Syria – both for surveillance and to commit attacks.

"Commercially available (drones) may be used by threat actors to deliver hazardous payloads, including explosives, chemicals, or biological or radiological agents, to conduct an attack, and recent (drone) employment tactics could expand options for potential attackers," according to the bulletin.

The threat from drones was driven home on international TV early this month when low-flying devices exploded over a military ceremony in Caracas, Venezuela, just as President Nicolas Maduro was speaking.

Homeland Security Secretary Kirstjen Nielsen speak to the media during the daily briefing in the Brady Press Briefing Room of the White House, June 18, 2018

"The danger from weaponized drones is real," Homeland Security Secretary Kirstjen Nielsen tweeted the day after the Maduro attack. "It is time for Congress to give (DHS) the authority to counter this rapidly evolving threat."https://abcnews.go.com/US/federal-officials-reiterate-drone-threat-intel-bulletin/story?id=57249358

New Zealand company develops drones to protect rhinos in South Africa August 17, 2018 Feilidh Dwyer

Since first becoming involved a year and a half ago, Aeronavics, Raglan, New Zealand, has worked on prototypes that can effectively operate at night to monitor for the presence of poachers. The company's director, Linda Bulk, was interviewed on New Zealand radio and spoke of how the company was looking to extent the flight range of their drones from the current range (2.5 – 3.1 miles) to an eventual 60 miles.


One of the drone prototypes being used by an anti-poaching unit in South Africa.

In preparation for creating this drone, Aeronavics' staff were given the opportunity to fly to South Africa to see the negative impact of poaching themselves. https://www.wetalkuav.com/new-zealand-company-builds-drones-to-protect-rhinos-in-south-africa/?utm_source=WeTalkUAV&utm_campaign=3fa5d849de-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_1d410cb84d-3fa5d849de-83642867

Watch this delightful aerial robot dance with its dangly legs BONNIE BURTON AUGUST 13, 2018
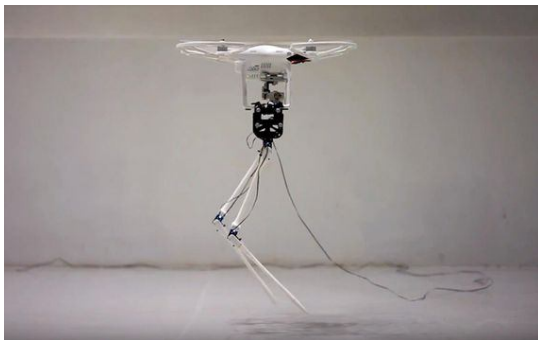
This robot uses a quadrotor to fly, giving it the appearance of walking and dancing.

Researchers from the University of Tokyo have developed a new aerial-biped robot that can fly using a quadrotor. The robot also has servo motors in its leg joints to enable movement.

Designed more for entertainment than anything utilitarian, the amusing-looking prototype robot looks like it's walking or dancing using its slim dangly legs. Bipedal robots often suffer from slow and heavy motions that cause them to fall. But this aerial biped robot uses a physics simulator that senses the velocity of the quadrotor and automatically makes the legs move, according to an IEEE Spectrum interview Monday with Azumi Maekawa, lead researcher of a paper on the robot presented at the Siggraph conference in Vancouver. https://www.cnet.com/news/watch-this-delightful-quadcopter-robot-dance-with-dangly-legs/

UAS and SmallSat Weekly News

Colombia Tests Drones to Destroy Coca Plants Used for Cocaine *Juan Forero and Kejal Vyas* Aug. 19, 2018

New President Iván Duque favors drones over planes to drop herbicide amid surge in cultivation of illegal crops

Workers harvest coca leaves in Puerto Bello, in the southern Colombia state of Putumayo.

BOGOTÁ, Colombia—With drug crops booming, Colombia's police are busily testing whether drones carrying defoliants can efficiently kill the leaf used to make cocaine and win the support of Trump administration officials concerned about this country's growing capacity to supply drugs to American consumers.

Antidrug officials here say that in recent weeks they have deployed 10 drones, each weighing 50 pounds when loaded with herbicide, in southwest Nariño province. The small, remotely guided aircraft destroyed hundreds of acres of coca in a first round of tests, said police and the company contracted by the government to supply the drones.

Colombia's new president, Iván Duque, said that he wants some kind of aerial fumigation of coca fields, which expanded 160% to 516,000 acres from 2012 to 2017, the White House reported in June. But he prefers drones over planes to drop the herbicide, which would mitigate damage to legal crops growing adjacent to coca fields.
https://www.wsj.com/articles/colombia-tests-drones-to-destroy-coca-plants-used-for-cocaine-1534683600

North Dakota test site trials drone parachute safety system for urban operations
August 20, 2018 Philip Butterworth-Hayes UAS traffic management news

The Northern Plains UAS Test Site and the North Dakota Department of Transportation have announced the successful completion of testing Unmanned Aircraft Systems in Fargo, including the demonstration of a parachute recovery system. Working in partnership with CNN, Botlink and ParaZero, the NDDOT and NPUASTS performed its first series of flight tests of Unmanned Aircraft Systems for potential flight over a group of people in controlled airspace.

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The technology includes a Flight Termination System shutting down the rotor power, thus preventing entanglement with the rotors, preventing risk of rotors hurting people and meeting regulations. It enables safe, regulated flight over people and BVLOS. Its reliability has been tested over tens of thousands of hours and enables safe flight in populated and urban areas. https://www.unmannedairspace.info/uncategorized/north-dakota-test-site-trials-drone-parachute-safety-system-urban-operations/

Drones enlisted to dazzle on Drake's 2018 tour BUSINESS NEWS EMMA CALDER AUGUST 20, 2018

Verity Studios AG, a specialist in indoor drone technology, has announced that swarms of Lucie micro drones are performing with Drake on his 2018 Aubrey & the Three Migos Tour.

Grammy award-winning Canadian artist Drake is one of the best-selling rappers of the 21st century. Performing to audiences of more than 50,000 people, his previous North American tour broke the record for the highest grossing hip-hop tour of all time. This tour is a first for the Lucie micro drones.

Elevate, a song on Drake's new album Scorpion, opens with the micro drones swarming onto the stage to surround Drake in a cloud of lights to the roar of the audience. In another guest appearance, the Lucie micro drones create a glittering wave in the song Look Alive before forming a red 3D cross that rotates around Drake.

Raffaello D'Andrea, founder of Verity and co-founder of Amazon Robotics, said: "People often describe technologies they've never seen before as 'magic'. This is also how people talk about our drones when they see them live for the first time.

Founded in 2014, Verity has offered AI/robotics shows across a variety of live events with more than 30,000 flights. The company's autonomous drones have performed in more than 20 countries and in a variety of venues. http://www.commercialdroneprofessional.com/drones-enlisted-to-dazzle-on-drakes-2018-tour/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272245-Commercial+Drone+Professional+DNA+-+2018-08-20

Ukrainian Company Unveils New Drone With Grenade Launcher August 20, 2018

Military | News

Ukrainian company Matrix UAV has developed a new unmanned aerial vehicle (UAV) equipped with a grenade launcher, said Yuriy Kasyanov on 17 August. He announced on his Facebook page that epy Matrix UAV company has developed an attack multi-purpose unmanned vehicle, called the "Demon".

The first prototype of the Demon UAV is fitted with the RPG-26 grenade launcher. It is also possible to install an RPG-7 grenade launcher, small arms and carry a bomb load weighing up to 5 kg.

The configuration with a grenade launcher is designed to pre-emptive surprise attacks on armored vehicles, firing points, air defense systems and enemy headquarters at distances up to 10 km. The control is manual (will be semi-automatic) by the operator on the video channel with the signal transmission via the air repeater based on the chimera "Chimera" UAV.

The Kyiv-based Matrix UAV research and production company is also developing a family of multipurpose unmanned aerial vehicles for reconnaissance and monitoring roads, borders, forests, waterways, traffic, and state borders. http://uasweekly.com/2018/08/20/ukrainian-company-unveils-new-drone-with-grenade-launcher/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_08_20&utm_term=2018-08-20

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FLYING POPSICLES, PIG PATROL, AND PART 107 August 20, 2018 Jim Moore

A popsicle delivery, a cloud-connected firefighting drone, and a feral pig patrol were launched in recent weeks as the FAA and industry partners study how to ease restrictions on drone operations.

The FAA has granted more waivers for night drone flights than any other type of advanced operation to date.

Various flights made in recent weeks marked the beginning of active operations under the federal Unmanned Aircraft

Systems Integration Pilot Program, a collection of 10 projects selected by the FAA to study advanced drone operations and begin to enable advanced operations more routinely.

In Virginia, a two-year-old got a popsicle treat delivered by drone, Bloomberg reported, echoing a 2016 taco delivery to a Virginia college student that was billed as the first food-by-drone delivery at the time.

Virtually all of the current IPP projects involve flying drones beyond visual line of sight, considered by many to be the most important restriction on UAS operations under Part 107 that stands in the way of utilizing drones for a range of missions, including food delivery, medicine, emergency response, crop health monitoring, insect control, and even feral pig control—the subject of an Oklahoma project that will use drones to spread dried corn as bait to trap feral prigs that destroy crops.

In North Dakota, another team is working to develop and refine procedures for using ground-based and airborne radar surveillance and related technologies to facilitate routine BVLOS operations. Defense contractor General Atomics is working with the Northern Plains UAS Test Site to conduct large UAS flights up to 30 miles from home, without a chase aircraft as a last line of defense against collision with a nonparticipating aircraft.

Other IPP projects include the San Diego Fire Department which is working with drone services firm Cape to create a comprehensive command and control system for unmanned aerial assets used by firefighters. https://www.aopa.org/news-and-media/all-news/2018/august/20/flying-popsicles?utm_source=drone&utm_medium=email&utm_campaign=180821drone

Boeing completes autonomous synchronized flight tests BUSINESS HEADLINE NEWS
EMMA CALDER on AUGUST 21, 2018

Boeing has completed its first suite of synchronized UAV flight tests using new onboard autonomous command and control technology developed by the company 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.

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"What we've created here in Australia has the potential to transform the use of unmanned vehicles for civil, commercial and defense applications – whether that be in the air, on the ground or out at sea," said Shane Arnott, director of Boeing Phantom Works International. "This capability will be a huge driver of efficiency and productivity. By safely teaming unmanned systems with human operated systems, we keep people away from dull, dirty and dangerous tasks so they can focus on activities that machines can't or shouldn't do."

This activity is delivered in partnership with the Queensland Government as part of Boeing's Advance Queensland Autonomous Systems Platform Technology Project. http://www.commercialdroneprofessional.com/boeing-completes-autonomous-synchronised-flight-tests/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272378-Commercial+Drone+Professional+DNA+-+2018-08-21

Intel's drones shape the future of the Great Wall of China APPLICATION BUSINESS NEWS EMMA CALDER JULY 17, 2018

Intel's drones are being deployed to protect and preserve the Jiankou section of the Great Wall of China in partnership with the China Foundation for Cultural Heritage Conservation.

Experts from Wuhan University LIESMARS have been added to the project, leveraging Intel technologies to preserve the wall more efficiently and safely than before.

An Intel Falcon 8+ drone is being used to carry out an aerial inspection and survey of the Jiankou section, capturing tens of thousands of high-resolution images of areas proven too difficult or dangerous for human access. These images are then processed into a 3D model, which provides preservationists with a digital replica of the current state of the wall.

Traditionally, surveys of the Great Wall are a manual process, using a tape measure or visual inspection by people over a month-long period. Intel technology allows the same inspections to be conducted in three days, producing more accurate data that helps conservationists develop an informed and effective repair schedule. http://www.commercialdroneprofessional.com/intels-drones-shape-the-future-of-the-great-wall-of-china/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272378-Commercial+Drone+Professional+DNA+-+2018-08-21

ScanEagle UAS Provides Data for Wildfire Suppression 21 Aug 2018 Mike Rees

Insitu has announced that it has been helping firefighters on wildfires in Oregon, providing information for fire suppression activities.

A UAS team working on a fire consists of a vendor flight crew as well as federal personnel who work together. 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 products.

The ScanEagle teams "fly the gaps," meaning they fly the UAS at night and over dense smoke and inversion conditions, when manned aircraft typically are grounded. The 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 video. The sensors and cameras spot heat signatures, fire movement and spot fires, and provide video feed of critical infrastructure, historical buildings and other structures that might be in danger, as well as identifying safe ingress and egress routes for firefighters.
http://www.unmannedsystemstechnology.com/2018/08/insitus-scaneagle-uas-provides-data-for-wildfire-suppression/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=4c472ea119-eBrief_2018_Aug_21&utm_medium=email&utm_term=0_6fc3c01e8d-4c472ea119-111778317

Intel Demonstrates Remote Drone Identification Solution 20 Aug 2018 Mike Rees

Intel has announced that it has performed the first public demonstration of Open Drone ID, an open standard that offers a solution for the remote identification and tracking of unmanned aerial systems.

The new standard is a result of Intel's work with the Federal Aviation Administration and other industry participants. Intel's assistance builds on the company's work with the Unmanned Aircraft System Traffic Management (UTM) trials conducted by NASA and the FAA to develop and test drone

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guidelines for collaborative communications and navigation among unmanned aerial systems in the sky.

Open Drone ID is a beacon-based solution that enables drones to be identified when within range of a receiver, like a smartphone. With this technology, each aircraft can broadcast its unique ID, location, direction, altitude, speed, make/model, base location and other related data.

The project is managed through a workgroup within ASTM, an international standards body. Intel is leading the ASTM F38 Remote ID Standard and Tracking Workgroup. It is important that Open Drone ID is a global standard, like Wi-Fi or Bluetooth, to provide broad scalability to many end users and use cases. http://www.unmannedsystemstechnology.com/2018/08/intel-announces-new-open-standard-for-remote-drone-identification/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=4c472ea119-eBrief_2018_Aug_21&utm_medium=email&utm_term=0_6fc3c01e8d-4c472ea119-119747501

Charles Werner to Oversee DroneUp's Public Safety Operations

Chesapeake, Va. (August 21, 2018) -- Charles L. Werner, a national leader in public safety, has joined DroneUp to serve as the company's Chief of Public Safety. In this position, Werner is responsible for ensuring unmanned aerial systems public safety is upheld in DroneUp initiatives, including pilot training and certifications, strategic partnerships and best practices. Werner served 37 years in the City of Charlottesville, Va., Fire Department, where he served as Fire Chief from 2005 to 2015. Most recently, he served as Senior Advisor and Deputy State Coordinator for the Virginia Department of Emergency Management. He has served in numerous board leadership capacities and has over 100 published articles in *Firehouse* magazine, *Urgent Communications* magazine, *sUAS News*, *Fire Rescue 1* and *Domestic Preparedness* magazine. Media Contact: Windy Campbell (804) 314-0205

22Aug18

Central Florida police, fire departments embrace drones despite privacy concerns David Harris Contact Reporter Orlando Sentinel

After Orange County deputies fatally shot a teenager near Apopka earlier this month, they faced a tense situation. Friends of Landon Wooten, 19, formed a crowd at the shooting scene. They yelled at the deputies, saying he had been unarmed and posed no threat. But the next

day, Aug. 3, Sheriff Jerry Demings released video from a drone that captured the entire incident from the sky. It showed Wooten raising a gun and pointing it toward deputies. Though it turned out to be a BB gun, the sheriff said it looked real, prompting deputies to open fire.

"This truly painted a picture of what those deputies had to deal with," said Orange County Sheriff's Capt. Carlos Torres. "While we are saddened that this happened, it's also very important for the community to see what we see."

The American Civil Liberties Union has raised concerns about the use of drones by police, citing the potential for privacy violations and mass surveillance. The ACLU sent a letter to the Miami-Dade Board of County Commissioners after it was revealed the county's police department wanted to fly an unmanned surveillance plane over high-crime neighborhoods. "We can't have widespread surveillance."— Melba Pearson, deputy director of ACLU Florida

The Miami-Dade Police Department told media outlets that it would use the aircraft to track the movements of suspects after crimes were committed. But the ACLU said that was a clear violation of privacy. People simply going in and out of neighborhoods should not be subject to government surveillance.

Miami-Dade ended up scrapping the idea. Central Florida agencies insist they are using the drones within the law and do not plan to use them for mass surveillance. http://www.orlandosentinel.com/news/breaking-news/os-drones-law-enforcement-central-florida-20180816-story.html#

Whitepaper: Using Fuel Cell Technology to Extend VTOL UAV Missions 20 Aug 2018 Mike Rees

Ballard Power Systems, a leading provider of innovative clean energy solutions and fuel cell technologies, has released a whitepaper outlining how recently-developed fuel cell-based technologies can prolong the duration of vertical take-off and landing unmanned aerial vehicle missions by up to a factor of three compared to batteries.

The paper gives details of:

- Proton-exchange membrane fuel cell (PEMFC) technology, including the various subsystems
- The benefits and drawbacks of air-cooled and liquid-cooled PEMFC systems
- Methods of storing hydrogen aboard a UAV

- Battery and fuel cell performance metrics for two multirotor UAV platforms

The paper shows how proton exchange membrane fuel cell power systems can be an attractive alternative to current battery-based power system solutions for a range of VTOL multi-rotor UAV systems in the 3-25kg range. To find out more, download the whitepaper from Ballard's website. http://www.unmannedsystemstechnology.com/2018/08/whitepaper-new-fuel-cell-technologies-for-extending-vtol-uav-missions/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=4c472ea119-eBrief_2018_Aug_21&utm_medium=email&utm_term=0_6fc3c01e8d-4c472ea119-119747501

DroneDeploy Introduces the World's First Machine Learning-Driven Drone Map Processing Engine Miriam McNabbon August 21, 2018

In October of 2017, we published a story about DroneDeploy's huge growth: "In just this year, the company has mapped more than 25 million acres, representing an area larger than the country of Iceland. They've processed 40 million images in 2017, create thousands of maps every day, and have processed 750k measurements on the platform so far this year."

What does all that mean? Lots and lots of experience, and lots and lots of data – enough data, says DroneDeploy's CTO Nick Pilkington, to usefully apply to machine learning. That's just what the company has done with Map Engine, DroneDeploy's cloud-based photogrammetry and image processing software. Previously in beta mode – it's already used by over 4,000 customers worldwide, processing over 30,000 maps a month – the product launched officially today.

"Map Engine tracks billions of points in aerial images to simultaneously reconstruct 3D scenes and the trajectory of the drone," said Pilkington. "We have brought together the latest advances in cloud computing, computer vision, and machine learning to build a best-in-class photogrammetry pipeline that delivers accurate results in record time— no matter your workflow." "Machine learning was built into the product from the beginning. Now it's coming to fruition." https://dronelife.com/2018/08/21/dronedeploy-introduces-the-worlds-first-machine-learning-driven-drone-map-processing-engine/

Clobotics secures $11m to keep wind turbines spinning safely with drones and AI BUSINESS NEWS EMMA CALDER AUGUST 22, 2018

The two-year-old company, with headquarters in Shanghai and Bellevue, WA, has raised $11m in a Series A round of funding and grown to nearly 80 employees. Over the past 24 months, Clobotics has raised a total of $21m.

Now with the latest investment, the company plans to hire more employees, looking specifically for those with expertise in AI and working in the greater Seattle area. The business deploys drones and other robotics to take precise photos for customers. For wind-power companies, a fleet of drones will survey wind turbine blades, snapping photos that look for weather damage that can weaken the blades.

The machines send the images back in real-time and Clobotics analyzes the pictures using machine learning to detect problems much faster than a human inspector could. http://www.commercialdroneprofessional.com/clobotics-secures-8-5m-to-keep-wind-turbines-spinning-safely-with-drones-and-ai/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-272539-Commercial+Drone+Professional+DNA+-+2018-08-22

23Aug18

Solar-powered quadcopter flies without batteries! August 22, 2018 Thomas Luna

Engineering students from the National University of Singapore developed a quadcopter that can fly solely on solar energy. The 5.73-pound prototype has flown over 32 feet with 148 silicon solar cells and a carbon fiber frame that takes up about 43 square feet. Solar-powered quadcopters have been spotted before, but the UAV that NUS students created is being called the "first fully solar-powered quadcopter" in Asia. The solar-powered quadcopter can be controlled by remote or fly autonomously, and it can take off and land vertically, which is a standout feature that sets it apart from other solar-powered UAVs with typical fixed-wing designs.

"Our aircraft is extremely lightweight for its size, and it can fly as long as there is sunlight, even for hours. Unlike conventional quadcopter drones,

our aircraft does not rely on on-board batteries and hence it is not limited by flight time," said Associate Professor Aaron Danner from the Department of Electrical and Computer Engineering at NUS Faculty of Engineering, who supervised the project. https://www.wetalkuav.com/solar-powered-quadcopter-flies-without-batteries/

Echodyne Announces FCC Certification of EchoFlight Radar August 22, 2018

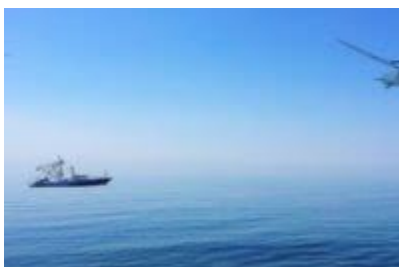### *Airborne detect and avoid sensor poised to accelerate BVLOS flight*

BELLEVUE, Wash.--(BUSINESS WIRE)-- Echodyne received authorization from the FCC and made EchoFlight available to interested UAS partners in the US, said Eben Frankenberg, CEO of Echodyne. "Our compact, solid-state, lightweight radar offers the ability to scan large volumes of airspace and track other aircraft with sufficient range to maintain safety." Features include:

- Beam-steering radar that tracks aircraft locations 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
- Low weight and low power for integration into a wide-variety of platforms
- Long-range, all-weather detection and tracking for Beyond-Visual-Line-Of-Sight missions.

https://www.businesswire.com/news/home/20180822005370/en/Echodyne-Announces-FCC-Certification-EchoFlight-Radar

Drone Project Aims to Combat Illegal Fishing in the Seychelles Malek Murisonon August 20, 2018

ATLAN Space's FishGuard program was recently awarded $150,000 by the National Geographic Society in its Competition to Combat Illegal Fishing. They are monitoring huge swathes of the ocean with fully autonomous drones guided by computer vision and AI.

Currently, authorities have to use light aircraft or coast guard vessels to keep tabs on boats' activities. Starting in October, the pilot program will use drones that have been pre-programmed with GPS data outlining hotspots for illegal fishing activities.

Once above the location, the drone's AI will register the type of ships that are present on the water, from cruising boats, to tankers to fishing vessels. The drone will then establish whether the boat is an authorized fishing vessel. If the system comes back negative, the drone will register the boat's location, identification number and relay the data back to the authorities via satellite. "With artificial intelligence, we are able to replace the pilot, the data analyst, transmission equipment, and with that we can reduce the cost," says Idrissi. A small drone with a combustion engine could offer an operational range of up to 800 kilometers.
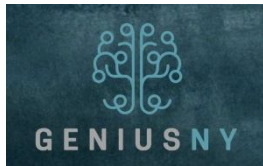https://dronelife.com/2018/08/20/drone-atlan-illegal-fishing-seychelles/

GENIUS NY Doubles Investments in Program's Third Round Drone Finalists to $500,000 staffon: August 20, 2018

Teams Will Now Compete for One of Five Investments; $1 million Top Prize and Four awards of $500,000 Each

GENIUS NY, a business accelerator program at CenterState CEO's Tech Garden, today announced a new investment structure for round three of the innovative GENIUS NY unmanned aerial systems business program. Five finalist teams will be selected from a pool of applicants to participate in the third round of this world-class acceleration experience in Central New York. A total of $3 million in direct investment funding will be awarded, with one grand prize of up to $1 million and four $500,000 awards.

Round three of the GENIUS NY program will begin in January 2019 and will run for 12 months. It is the largest business accelerator competition for the UAS industry in the world.

Beyond investments, GENIUS NY participants have access to some of the region's startup programming, including business planning, industry specific mentorship, and access to vetted service providers offering startup-friendly terms. As part of this effort, participants will be integrated into the larger regional effort to grow unmanned aerial systems in Central New York and the Mohawk Valley and will have access to world-leading infrastructure and testing assets when they come online. Participants also receive incubator space, stipends for operating capital, and will have opportunities to connect with investors for follow-on funding.
https://dronelife.com/2018/08/20/genius-ny-doubles-investments-in-programs-third-round-drone-finalists-to-500000/

Boeing Carries out Synchronized, Autonomous Drone Missions Betsy Lillian August 22, 2018

On a remote airfield in regional Queensland, Australia

Boeing has completed a set of synchronized unmanned aerial vehicle (UAV) flight tests using new on-board autonomous command-and-control technology developed by the company 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 Boeing established an international autonomous systems development program in Queensland.

Boeing says its partnership with small and midsize enterprises helped drive rapid design, development and testing of this autonomous technology. In just two months, Boeing vetted and issued AU$2.3 million in contracts with 14 Queensland businesses. https://unmanned-aerial.com/boeing-carries-out-synchronized-autonomous-drone-missions?utm_medium=email&utm_source=LNH+08-23-2018&utm_campaign=UAO+Latest+News+Headlines

24Aug18

Trump Nominee for DHS Undersecretary Advocates Anti-Drone Bill Calvin Biesecker August 23, 2018

Legislation in the Senate permitting the use of technology to defeat potential threats from drones is necessary to enable the testing and evaluation of these technologies in operationally relevant environments, a Department of Homeland Security (DHS) official said Wednesday.

Current law allows for detecting and tracking of UAS, "but we're not able to take any mitigation actions," William Bryan, the Trump administration's nominee to be DHS Undersecretary of Science and Technology, said at his Senate confirmation hearing. "That's a significant concern across the entire department. We cannot even do research, development, testing and evaluation (RDT&E) in an operational environment."

Testing on federal lands with wide open spaces occurs but "it doesn't replicate an operational environment at all," he said. What's needed is to be able to test these technologies in urban environments, because "when you get into a city environment where the buildings are taller,

technology is going to react very differently and that's the challenge we face by not having the ability to" test and evaluate anti-UAS systems in these environments.
https://www.aviationtoday.com/2018/08/23/trump-nominee-dhs-undersecretary-advocates-anti-drone-bill/

Drones Offer High-Tech Help to Japan's Aging Farmers Reuters Aug. 23, 2018

TOME, Japan — The next generation farmhand in Japan's aging rural heartland may be a drone.

For several months, developers and farmers in northeast Japan have been testing a new drone that can hover above paddy fields and perform backbreaking tasks in a fraction of the time it takes for elderly farmers. "This is unprecedented high technology," said Isamu Sakakibara, a 69-year-old rice farmer in the Tome area, a region that has supplied rice to Tokyo since the 17th century.

Developers of the new agricultural drone say it offers high-tech relief for rural communities facing a shortage of labor as young people leave for the cities. "As we face a shortage of next-generation farmers, it's our mission to come up with new ideas to raise productivity and farmers' income through the introduction of cutting-edge technologies such as drones," said Sakakibara, who is also the head of JA Miyagi Tome, the local agricultural cooperative.

The drone can apply pesticides and fertilizer to a rice field in about 15 minutes - a job that takes more than an hour by hand and requires farmers to lug around heavy tanks. The Nile-T18 was developed by drone start-up Nileworks Inc and recently tested in collaboration with JA Miyagi Tome and trading house Sumitomo Corp.
https://www.nytimes.com/reuters/2018/08/23/technology/23reuters-japan-farming-drones.html