UAS and SmallSat Weekly News

Contents

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

22Dec17

Commonwealth of Virginia Invests in Radar Technology for Drones, Testing Taking Place at Virginia Tech's Research Site

Funding from the Commonwealth of Virginia for a state-of-the art radar has laid the groundwork for a research award of $1.6 million from NASA to the Virginia Tech Mid-Atlantic Aviation Partnership. The partnership, known as MAAP, runs one of seven Federal Aviation Administration-designated UAS test sites.

The project, which is undergoing testing at the Kentland Agricultural Experiment Station, focuses on a key challenge for the industry: enabling unmanned aircraft to detect and avoid other aircraft. One of the most pressing topics in the UAS industry is the growing demand for flights beyond the operator's visual line of sight — virtually essential if drones are going to be used efficiently for certain applications, including infrastructure inspection, package delivery, and search-and-rescue.

According to Virginia Tech, the investment represents a synergy between government and university initiatives which has contributed to Virginia's trailblazer status in the area of drone research. Learn more here. https://vtnews.vt.edu/articles/2017/12/ictas-NASAradar.html

Alzheimer's and autism group gifts search drone to Montgomery County Sheriff

Melissa Brown, Montgomery Advertiser Dec. 21, 2017

The Montgomery County Sheriff has a new eye in the sky thanks to a holiday gift from the Alzheimer's and Autism Outreach Group.

AOG on Thursday donated a search and rescue drone, a standard kit modified with specialized thermal imaging technology, to the sheriff's office. Though the drone can be used in a number of emergency response situations, AOG's mission is to help those suffering from conditions that can cause individuals to leave home unable to find their way back.

AOG gifted its first Inspire Drone to the Dallas County Sheriff's office in July 2016 and hopes to eventually outfit more sheriff's offices around the state. For Executive Director Oscar Wayne Calloway, AOG's mission is personal. His family founded the group after his grandmother and mother

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
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both suffered from Alzheimer's.

Use of drones is growing with first responder agencies, which can use the technology to track traffic patterns or large crowds. Fire departments can use thermal imaging to identify hot spots in buildings or scope out potential hazardous materials before sending a firefighter in.

According to an April 2017 study conducted at Bard College, at least 347 state and local police, sheriff, fire, and emergency units in the country have acquired drones. At the time of the report, Alabama had 20 publicly reported public safety drones, falling only behind Texas and California in the country.

In 2016, the Autauga County Emergency Management Agency deployed its drone to search a swampy area along Autauga Creek after an elderly man went missing. “We were able to clear that area in a space of less than 5 minutes with the drone,” said Ernie Baggett, EMA director. “It would have taken several hours for people on the ground to conduct a grid search in a very difficult, and hazardous, environment.”
http://www.montgomeryadvertiser.com/story/news/2017/12/21/alzheimers-and-autism-group-gifts-search-drone-montgomery-county-sheriff/972875001/

CityAirbus Reports Progress MARY GRADY

The development of the CityAirbus VTOL demonstrator is moving forward, Airbus said in a news release this week. The first structural parts are complete and will soon be assembled. The ground-test facility in Germany is also complete, which will enable Airbus engineers to verify the electric propulsion system. The facility can test the system’s components, from flight controls to the dynamic loads of the propellers. After passing those tests, the propulsion system will be installed on the demonstrator by next summer, Airbus said.

The CityAirbus aircraft itself is also progressing. The first structural parts have been produced and will soon be assembled, the company said. The CityAirbus is a battery-powered, four-seat VTOL vehicle designed to provide fast, affordable and environmentally friendly transport in urban areas. The VTOL will be designed to fly on fixed routes with a cruising speed of about 65 knots. The test aircraft will be remotely piloted at first; later, a test pilot will be on board. When the aircraft begins operations in 2023, Airbus says, it will initially be operated by a pilot “to ease certification and public acceptance,” but the goal is to provide fully autonomous operations. The program is on track for a first flight next year.

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https://www.avweb.com/eletter/archives/101/3886-full.html?ET=avweb:e3886:2565185a:&st=email#230078

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Commercial UAV Products and Services Directory 2018

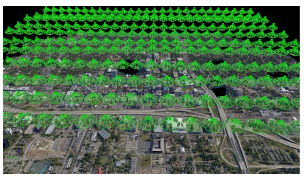
https://www.expouav.com/products-and-services-directory-2018-thank-you/

Best drone photos of 2017

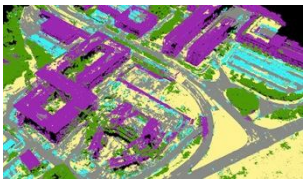
https://www.msn.com/en-us/news/world/best-drone-photos-of-2017/ss-BBEdXt1

Pix4D Extends Drone-based Imagery with Machine Learning Techniques

Eric Van Rees December 20, 2017



Pix4D has introduced a new image classification technique as part of its Pix4Dmapper photogrammetry software. The solution uses new machine vision techniques for photogrammetry for automatically classification of drone-based point clouds.



While Pix4D software is mostly known for photogrammetry from drone-captured imagery, one of its latest mapping innovations is a software feature that automatically classifies drone-based point clouds, based on machine learning techniques. By using this feature, entire 3D point clouds are classified into individual groupings, divided into categories such as buildings, roads or vegetation.

The solution has recently been integrated in Pix4Dmapper, the company's photogrammetry software product for drone-based mapping and automatically classifies 3D points based on both geometry and color. Ideally, a situation would exist where raw imagery would be converted automatically by the software into 3D models with attributed semantic information, but this new feature is a significant step in that direction and introduces machine learning tools in photogrammetric workflows https://www.expouav.com/news/latest/pix4d-extends-drone-based-imagery-machine-learning-techniques/.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Massive robot-powered drones may solve everything wrong with package delivery Mike Murphy December 22, 2017

San Francisco-based startup Elroy Air announced Dec. 22 that it has secured $4.6 million in seed funding to build large, autonomous drones, capable of carrying loads of 150 pounds up to 300 miles in one trip. The funding round was led by Levitate Capital, Homebrew, Shasta Ventures, and Lemnos.

The final drone will be able to fly about 100 mph, and will use a combination of Lidar, radar, cameras, and air-traffic management software to sense the world around it. It's a vertical take-off and landing (VTOL) aircraft aided by a set of wings, and has a hybrid engine. The cargo pod will have a payload capacity of about 150 pounds.

Somehow a package can make it 3,000 miles in a matter of hours, and then get stuck for days trying to get about 10 miles: Elroy's system could circumvent this, delivering dozens of packages between an airport and a distribution center as needed. It could also be useful for delivering goods to more remote areas, like islands, or places with seasonal roads.
https://qz.com/1163960/delivery-drone-startup-elroy-air-announces-4-6-million-in-seed-funding-to-take-to-the-skies/

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China's Ambitions for Drone Industry Flying High Wang Qionghui and Denise Jia Dec 22, 2017

China plans to promote the application of drones in such areas as agriculture and emergency response. *A drone sprays pesticide on crops.*

China wants its drone industry to take off to $27 billion in total output by 2025, as part of the "Made in China 2025" campaign to add more high-tech spice to country's domestic manufacturing sector.

In a guideline issued Friday, China's Ministry of Industry and Information Technology (MIIT) pledged support and regulations that bolster the country's drone industry. China is already the world's largest manufacturer of consumer drones. In 2016, 350 manufacturers produced 2.23

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

million units for civil use, with a total value of 15 billion yuan. More than 70% of the products were exported, official data show.

The industry ministry said it would promote the applications of drones in areas such as agriculture, logistics, geographic mapping and emergency response. Shenzhen-based DJI Technology Co. Ltd. is already the world's top seller of consumer drones, with a global market share of 70%.

China's drone industry is expected to grow annually by 40% by 2020 and 25% after that, the MIIT said in the guideline. https://www.caixinglobal.com/2017-12-23/chinas-ambitions-for-drone-industry-flying-high-101188673.html

Community college in Kansas to offer drone degree program *The Associated Press*

DECEMBER 24, 2017, EL DORADO, KAN.

Two higher education institutions in Kansas are partnering allow students to get a degree in drone-flying. Butler Community College announced on Tuesday its partnership with Kansas State University to offer an associate's degree in unmanned aircraft systems, the Wichita Eagle reported.

Some high school students can take the classes offered through Butler's Early College Aviation Academy. After earning an associate's degree from the college, students can enter the workforce or transfer into Kansas State Polytechnic's program.
http://www.miamiherald.com/news/business/article191489364.html

China successfully tests artificial rain enhancement using drones China Plus : 2017-12-24

China's first artificial rain enhancement operation using an unmanned flying drone has been successfully completed. An unmanned aerial vehicle used for artificial rain enhancement takes to the sky with an on-board cloud seeder.

The operation, performed by Shaanxi Zhongtian Rocket Technology Company, is the first rain enhancement operation using a drone to perform cloud seeding to trigger precipitation under complex weather conditions. This operation highlights the potential for drone technology to be used in future rain enhancement operations.

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It is reported that the drone has an effective flight time of 125 to 250 minutes with a maximum payload of 50 kilograms. Compared with the conventional rain enhancement methods of using ground-based cannons and manned aircraft to disperse cloud seeding chemicals, drones have the advantages of both long flight times and the capacity to work in complex weather conditions. http://chinaplus.cri.cn/news/china/9/20171224/69155.html

HiRO the Drone Will Change Emergency Medical Treatment

"I remember thinking, 'I can see my grandma's house. But an ambulance can't get out there!'"
JEANETTE BEEBE 12.24.17

Shortly after five o'clock on a Sunday evening in February 2013, a severe EF4 tornado ripped through Hattiesburg, Mississippi. Winds whirling up to 170 mph tore through town, warping what seemed solid and upending the community. A church's steeple was ripped off, along with roof after roof on main street. A vehicle parked near the baseball stadium was taken up by the twister and spit out near the pitching mound in the middle of the field, according to the storm report.

With the help of a team led by Dennis Lott, director of the unmanned aerial vehicle program at Hinds Community College in Mississippi, and Guy Paul Cooper Jr., D.O., then a fourth-year medical student at the William Carey University College of Osteopathic Medicine (where Subbarao is a senior associate dean), a new drone was born. They gave the modified DJI S1000+ drone a name worthy of a comic book cover: HiRO (Health Integrated Rescue Operations).

HiRO was "unveiled" in October. In the field, the drone acts as a 911 link to a remote, on-call doctor, who uses an augmented reality interface to give bystanders instructions to provide simple, Good Samaritan medical care until emergency personnel arrive.

The system includes a camera mounted to the medical kit and a pair of smart glasses.

"We ask the bystander to put the glasses on," Subbarao explained. "We can see what they see." The remote, on-call doctor uses a Microsoft HoloLens headset and a holographic health record display to communicate with the bystander on the ground.

The drone can also potentially help bystanders stabilize injured people in more common emergencies, such as a heart attack, a bad fall, or a severe allergic reaction.

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The tech targets a part of the healthcare system that's often overlooked: the precious minutes before a patient arrives at the hospital. If rolled out fully, a fleet of HiRO drones could fundamentally streamline triage on the ground, increase access to care, and reduce the formidable pressure hospital emergency rooms face when disaster strikes.
https://www.thedailybeast.com/this-drone-will-change-emergency-medical-treatment

Eyeing growing threat, Israel looks to resolve security forces' drone wars

Government tells National Security Council to sort out whether army or police responsible for dealing with rogue unmanned aircraft JUDAH ARI GROSS 24 December 2017

A remote controlled drone with a camera attached to it on February 18, 2015. (Moshe Shai)

The cabinet on Sunday called for the National Security Council to sort out the country's defenses against drones, after the state comptroller released a damning report last month showing the country was woefully unprepared to handle a growing roster of threats posed by the unmanned aerial vehicles.

In recent years, drones have gotten smaller, cheaper, and more powerful. This has been a boon for everyone from security forces to wedding photographers, who gained access to previously hard-to-come-by technology, but it has also helped criminals and terrorist groups, who can use them to gather intelligence, carry out bombings, and disrupt air traffic.

While the Israel Defense Forces is clearly expected to confront drones flown by terrorist groups, it is unclear which security service is responsible for UAVs flown by Israelis inside Israel. The army sees this as the police's domain, as it is a civilian matter, while the police see it as the army's, since it is legally responsible for securing the country's airspace.

In its announcement on Sunday, the cabinet said that all of this needed to be resolved by the National Security Council.

A 'Matrice' drone, with night-vision capabilities.

"The cabinet decided today to adopt a number of steps whose goal is to formalize the responsibility of defense against the threat posed by drones and to improve our defense against it," according to a

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robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

statement. https://www.timesofisrael.com/eyeing-growing-threat-israel-looks-to-resolve-security-forces-drone-wars/

How Drones Are Helping Washington's Moose Courtney Flatt Follow NWPR/EarthFix Dec. 26, 2017

Deep in the forests of northeastern Washington, snow blankets the ground. Through the trees, it's hard to see the moose wandering in the woods.

But from a bird's eye view? You can see a little brown splotch — with antlers.

Wildlife researchers are ditching the usual (costly, time consuming and invasive) ways they count moose. They're taking to the sky and taking a new drone for a spin.

"Every time we step into the woods, we're invading wild animals' habitat. But we should always be trying to minimize our disturbance, and I think that drones are a much less invasive method (to survey moose) than some of the things that we currently do," said James Goerz, lead researcher for the moose demography project in Washington and Ph.D. student at the University of Montana.

Before this technology, researchers had to trek through dense forests to count moose — or fly in helicopters.

Hiking in and trying to get a glimpse of a mother moose and her calf is challenging. It's also stressful to the animals. Wolves and other predators chase them on the ground. The researchers found drones — that sound like a swarm of bees — don't scare the moose.

If researchers know what's going on with moose populations now, they can better understand what's happening when these challenges start to hit Washington's moose harder.

Harris said it's important that hobbyists don't try to take drones to the sky above moose or other wildlife. People could end up harassing wildlife with a drone, which is illegal in Washington. https://www.opb.org/news/article/drones-help-washingtons-moose/

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robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

This Award-Winning Camera Drone Can Fly Itself AD BY DAILY BEAST SHOP

Drones have become the gadget of choice for people who fancy themselves early tech adopters to tinker and pay with, and it's not surprising. The Hover 4K Camera Passport Self-Flying Camera Drone has a sleek and durable carbon fiber form that makes it a great option to throw in your bag or snatch out of the air when you're done using it.

It also, as the name implies, can fly itself. Instead, it uses facial recognition and automatic features to capture 360º panoramic video of you in your environment, and can even snap photos based off your hand gestures. This hands-free experience is powered by the drone's AI and advanced mechanics. Usually the Hover 4K Camera Passport Self-Flying Camera Drone $499.99, but you can get it now for $349.99. https://www.thedailybeast.com/this-award-winning-camera-drone-can-fly-itself

This Autonomous Quadrotor Swarm Doesn't Need GPS Evan Ackerman 27 Dec 2017

Researchers are working hard towards independent autonomy for flying robots, and we've seen some impressive examples of drones that can follow paths and avoid obstacles using only onboard sensing and computing. The University of Pennsylvania has been doing some particularly amazing development in this area, and they've managed to teach a swarm of of a dozen 250g quadrotors to fly in close formation, even though each one is using just one small camera and a simple IMU. This is probably the largest swarm of quadrotors which don't rely on motion capture or GPS.

Each quadrotor's job is to use visual inertial odometry (VIO) to estimate how far and in what direction it's moved from its starting position, which gives a good approximation of its relative location. However, it's worth noting that as far as each drone is concerned, it's not really part of a swarm at all— it's just monitoring its own position and moving from coordinate to coordinate, and isn't aware (directly or indirectly) that there are other drones around it. Still, the system works very well, and as you can see from the video, the drones don't run into each other. https://spectrum.ieee.org/automaton/robotics/drones/this-autonomous-quadrotor-swarm-doesnt-need-gps

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robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

The 2018 drone journalism forecast AL TOMPKINS · DECEMBER 27, 2017

One year ago, I hoped to be able to say to you now that drone journalism took off in 2017. This year, Poynter — along with the National Press Photographers Association, The Drone Journalism Lab at the University of Nebraska and DJI — taught nearly 400 journalists how to legally and safely fly. But the never-ending flow of local and state restrictions and the slow response of the FAA to airspace waiver requests keep drones from being the daily tool they can be. There is reason to believe 2018 will give those of us who are licensed drone pilots more freedom to fly.

In July, the FAA announced that in 2018, it will be rolling out a new "instant waiver" program that should allow you to get an airspace waiver in minutes. The system is called the LAANC (Low Altitude Authorization and Notification Capability) program. (Follow the link to see which airports are actively using the program now.) The program is not active nationwide yet, but will roll out in 2018. Pilots can download the AirMap iOS or Android app and file for a waiver by entering the coordinates and times of where and when they want to fly and state how high and how long they intend to be in flight. And the FAA produced a map that makes it easier to see what kinds of restrictions you will encounter where you want to fly.

This year, drones also gave journalists the ability to document the floods and destruction from hurricanes and the devastation that California wildfires left behind.
https://www.poynter.org/news/2018-drone-journalism-forecast

Lift Your Portfolio To New Heights With Drone Tech Dec. 27, 2017|

Drones have become a part of our everyday language and skyline. As manufacturers, vendors and conglomerates continue investing in the technology, it is geared to revolutionize the global economy.

Investment opportunities in the growing drone industry can be identified by understanding the ecosystem that will sustain the industry.

Facebook's (FB) launch of "Aquila," the solar-powered drone technology used for providing Internet access to remote areas, will open up the global economy to billions of individuals. This however is just the tip of the iceberg, as Facebook is not directly dealing with its customers,

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

instead it is partnering with local ISPs to deliver its services. The most prominent drone service in the media would be Amazon's (AMZN) Prime. Alternatively, Alphabet (GOOG) (NASDAQ:GOOGL) is developing its own drone delivery system and the two companies have very different ideas as to how the system should be run.

This clearly indicates the dependency of the emerging drone industry on the growing, supporting ecosystem of its core drone technologies (hardware and software) and its complete value chain (from manufacturers and vendors, to resellers and value-added service providers).

The global drone market is showing a visible shift from catering to the defense market to the commercial/consumer side. As the market for civilian/commercial drone gains momentum, with a compound, annual growth rate CAGR of 19% in the next five years, the global commercial market is taking shape around seven core industries — energy, construction, real estate, utilities, agriculture, mining, and film production.

The AUVSI's estimate that by 2025, 160,000 drones will be sold every year, a clear indication that the drone industry as a whole (from design and rapid prototyping to manufacturing and cost-effective supply chain management) is maturing. This report provides a comprehensive analysis of the market from an investment perspective.
https://seekingalpha.com/article/4134123-lift-portfolio-new-heights-drone-tech

28Dec17

Record-breaking hybrid drone stays aloft for over four hours Nick Lavars

Drone manufacturer Quaternium is claiming a new milestone in this field, after flying its HYBRiX.20 fuel-electric quadcopter for four hours and forty minutes in what it describes as a world record flight for a self-powered multicopter.

Most multicopter drones you can buy off the shelf boast flight times of 25 to 30 minutes, though we have seen custom-built multicopters fly for far longer. Last year, for example, a commercial drone operator used a bespoke quadcopter to cross the English channel in a 72-minute jaunt, while others such as dronemaker Skyfront have previously claimed endurance records well in excess of four hours.

For what it's worth, Guinness World Records lists the longest drone flight as two hours, six minutes and seven seconds, so while drones may have flown for longer, no Guinness officials were on hand to document the event. As a way of proving the legitimacy of its achievement,

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
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Skyfront produced a time-lapse video to show its drone in action and that is the same approach Quaternium has taken with its latest record-setting attempt. The Hybrix.20 multicopter is a hybrid gasoline-electric drone, using the considerable range and endurance this configuration offers for applications like surveillance, mapping, crop-monitoring and inspections.
https://newatlas.com/quaternium-record-endurance-drone-flight/52758/

Fuel-cell drone is good to go for 10 hours Ben Coxworth November 15th, 2016

The Hywings drone in flight

HES Energy Systems raised a few eyebrows last May, when it announced development of a fuel cell-powered quadcopter that could potentially stay airborne for four hours at a time. While we're still waiting to see how that one turns out, the company has in the meantime unveiled a new fixed-wing drone that's impressive in its own right. It's called Hywings, and it can reportedly fly for up to *10 hours* without refueling.

Hywings' fuel cell is powered by either a hydrogen chemical cartridge or a cylinder of compressed hydrogen gas – the former offers the 10-hour flight endurance figure, while the latter is said to be good for six hours.

The carbon fiber-bodied drone weighs 7 kg (15 lb), and can be launched from the ground by hand. Once airborne it can maintain a cruising speed of 55 km/h (34 mph), allowing for a range of over 500 km (311 miles). It can also withstand winds of up to 30 km/h (19 mph), plus it can be remotely controlled via a telemetry system up to a distance of 180 miles (290 km).
https://newatlas.com/hywings-fuel-cell-drone/46446/

At an Air Show in China, Drones, Not Jets, Are the Stars LAM YIK FEI and RAYMOND ZHONG DEC. 28, 2017

Dozens of drones waiting to perform in a light show at Hannan General Aviation Airport in Wuhan, China.

WUHAN, China — At the World Fly-In Expo, an air show held in the central Chinese city of Wuhan last month, jets, hot air balloons, autogiros and ultralight planes were upstaged by Chinese-made drones.

Remote-controlled flying machines drew crowds at

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exhibition booths and performed in tight formation, high above the ground. Teams in brightly colored jackets raced industrial drones and competed in events like delivering parcels and spraying plumes of mock pesticide. Special drones even helped clear the skies of birds before performances by manned aircraft, using loud blasts of noise.

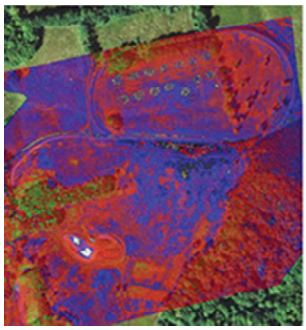
China is the world leader in drones thanks largely to a single company, D.J.I. Founded in 2006, D.J.I. has grown to account for more than 70 percent of the global market, according to Skylogic Research, a drone research firm.

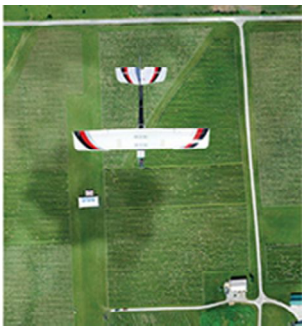
Drones are used to sonically repel birds during flight activities at Hannan General Aviation Airport in Wuhan. They inspect power lines, survey fires and disaster zones, spray crops, and monitor air pollution around factories. In some remote areas, they have delivered packages..
https://www.nytimes.com/2017/12/28/world/asia/china-drones.html?_r=0

Agricultural Drones Chris Anderson

Relatively cheap drones with advanced sensors and imaging capabilities are giving farmers new ways to increase yields and reduce crop damage.

Ryan Kunde is a winemaker whose family's picture-perfect vineyard nestles in the Sonoma Valley north of San Francisco. He's part of the vanguard of farmers who are using what was once military aviation technology to grow better grapes using pictures from the air, part of a broader trend of using sensors and robotics to bring big data to precision agriculture.





Left: A drone from PrecisionHawk is equipped with multiple sensors to image fields. Right: This image depicts vegetation in near-infrared light to show chlorophyll levels.

This low-altitude view gives a perspective that farmers have rarely had before. Compared with satellite imagery, it's much cheaper and offers higher resolution. Because it's taken under the clouds, it's unobstructed and available anytime.

The advent of drones this small, cheap, and easy to use is due largely to remarkable advances in technology: tiny MEMS sensors (accelerometers, gyros, magnetometers, and often pressure sensors), small GPS modules, incredibly powerful processors, and a range of digital radios.
https://www.technologyreview.com/s/526491/agricultural-drones/

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What LAANC Opening Up the Sky to Drones Means for You

Jonathan Barnes November 20, 2017

The first prototype of the Low Altitude Authorization and Notification Capability System has been up since October and the full LAANC system will launch in February 2018, encouraging drone industry players with the possibilities of the new system.

The new system will create opportunity by simplifying the process of legally operating a drone, allowing drones to be operated within five miles of an airport and in controlled airspace. Now, with the first rendition of LAANC running full throttle, drone users can expect the new rules to have several effects, including:

1. **More standardized regulations.**
2. **Easier access to airports.**
3. **Automatic approvals.**
4. **More drone sector jobs.**
5. **Pushback from the drone industry.** While some drone firms are happy with the way LAANC is being rolled out, others say the process is far from transparent or competitive.
6. **Safer Skies.**

"Through Skyward's LAANC functionality we're connecting the key information about each operation to the local ATC tower so that in emergency situations there's a mechanism for the ATC to communicate with the operator. In future iterations of the program, the ATC may have that same communication and control ability to respond to emergency situations for all pilots in the area, be they commercial or recreational pilots," Fanelli said. "We think this will increase accountability and safety of all remote pilots and ultimately makes the NAS safer, even as we get more UAS into that airspace." https://www.expouav.com/news/latest/laanc-opening-skies-drones-means/?utm_source=informz&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

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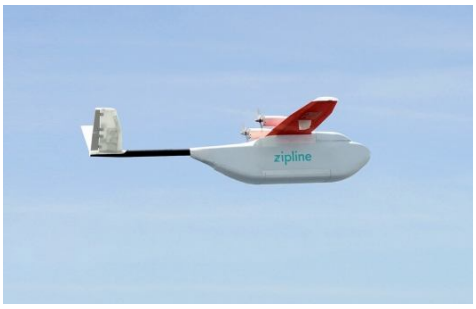
2017 Unmanned Aviation Highlights

Dec 21, 2017 Graham Warwick | *Aviation Week & Space Technology*

Endurance Record

Vanilla Aircraft's VA001, a 425-lb. long-endurance unmanned aircraft, landed back at NASA Wallops Flight Facility in Virginia on Oct. 23 after staying aloft for 121.4 hr. This is more than twice the record-setting 56 hr. achieved in December 2016 by the diesel-powered UAS.



Life-Saving Deliveries

U.S. startup Zipline International in October begun using unmanned aircraft in Rwanda to deliver blood for transfusions to hard-to-reach sites. Operations were launched from Kigali, with a fleet of 15-20 air vehicles that are expected to make up to 150 flights a day to 21 rural health clinics in the western half of the country.

Airbus Stealth UAS

Airbus Defense and Space flew a stealthy unmanned aircraft on July 18 at a test range in Overberg, South Africa. The Sagitta subscale demonstrator was developed with German universities and institutes under a national research project focusing on autonomous flight control and other advanced technologies.

UPS Delivers by Drone

In the first of several drone delivery demonstrations in 2017, UPS in February tested truck-based drone deliveries using a hybrid-electric package truck and a multicopter small unmanned aircraft, the Horsefly, developed by truck-maker Workhorse Group. The

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

package-delivery giant believes truck-based drones could increase driver efficiency and reduce distances driven in rural areas.

Airbus Shipborne UAS

In June, Airbus Helicopters began autonomous flight trials of a VSR700 optionally piloted vehicle—a modified version of Helicopteres Guimbal's two-seat Cabri G2—initially with a safety pilot on board. The flights pave the way for a prototype of the VSR700 shipborne tactical unmanned aircraft to fly in 2018.

China's MALE Contender

China's MQ-9 Reaper-class medium-altitude, long-endurance (MALE) surveillance/strike unmanned aircraft, the Chengdu Wing-Loong II, made a 31-min. first flight on Feb. 27. Chinese and Saudi media subsequently reported that Saudi Arabia, which already operates the smaller Wing-Loong I, has placed an order for 300 of the aircraft. http://aviationweek.com/future-aerospace/2017-unmanned-aviation-highlights?NL=AW-05&Issue=AW-05_20171229_AW-05_183&sfvc4enews=42&cl=article_5_1&utm_rid=CPEN1000003332045&utm_campaign=13109&utm_medium=email&elq2=3cfe6c6639794c3396058d3592e60e05#slide-0-field_images-1730971

SureFly Passenger Drone To Launch MARY GRADY

Workhorse Group, whose concept for a "manned drone" attracted lots of attention last summer at EAA AirVenture, announced this week the SureFly aircraft will fly for the first time on Jan. 8, at the CES consumer technology show in Las Vegas. SureFly says its two-seat vehicle will be safer, easier to fly and more affordable than a conventional helicopter. It's driven by eight contra-rotating propellers fixed to four propeller arms. It can carry a payload of 400 pounds up to 70 miles at about 75 MPH, the company said. Early models will be pilot-operated, but future models will be capable of autonomous flight. The company is working toward full certification of the vehicle by late 2019.

The design leverages the battery packs developed by Workhorse for its electric road vehicles, the company says. A gas combustion engine generates electricity, and a parallel battery pack

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provides a redundant backup power source, eliminating the need for long charging periods between flights, the company says. https://www.avweb.com/eletter/archives/101/3889-full.html?ET=avweb:e3889:2565185a:&st=email#230112

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