UAS and SmallSat Weekly News

Contents

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Parrot's ANAFI USA: A Secure Drone Manufactured in the U.S. Rodney Murray

Professional Services Consultant at Skyward January 13, 2021

For some time, the commercial drone industry has seen an increasing demand for enterprise-grade drones manufactured in the United States. Whether due to concerns around security, privacy, or quality control, U.S.-made drones can alleviate some worries for drone pilots flying critical or sensitive missions.

That's one reason Skyward partnered with Parrot to offer the ANAFI USA Drone and Training package. This package combines Parrot's U.S.-manufactured ANAFI USA drone with Skyward's automatic flight logging and expert training from experienced aviators.

Parrot partnered with NEOTech, an electronics manufacturing services provider for the aerospace and defense industry, to manufacture the ANAFI USA. The drone is assembled in the Boston, Mass. area, aligning with Department of Defense criteria for manufacturing security.

Not only is the ANAFI USA compact and capable, but it's also highly secure. Parrot created one of just five drones accepted by the Defense Innovation Unit's Blue sUAS program. This program developed secure, trusted, compact drones for the U.S. government. These drones had to meet a list of specific criteria, including dust and rain resistance, visible and infrared optics and a flight endurance of at least 30 minutes — all in a package that weighs less than 3 pounds.

The ANAFI USA offers the same security, durability and imaging capabilities as Parrot's Short-Range Reconnaissance drone designed for the U.S. Army. https://skyward.io/parrots-anafi-usa-a-secure-drone-manufactured-in-the-u-s/

Drones set to deliver packages 'everywhere' in country in near future PRESS 2021-01-13

Instant delivery of packages, groceries and restaurant meals are one step closer to a reality under new commercial drone regulations. For the first time ever, unmanned aircraft will be able to both fly over people and operate at night under new rules cemented by the U.S. Federal Aviation Administration.

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Behemoths like Amazon, Google's parent Alphabet Inc. and United Parcel Service have already begun pouring money into drone technology, gearing up for the millions of packages that are projected to be delivered in the next few years. For now, the FAA has granted permission for limited deliveries on packages weighing up to 5 pounds and being delivered in 30 minutes or less. The FAA said that drones maneuvering during the nighttime must be equipped with anti-collision lights and, in some cases, are allowed to move over vehicles.

Several drone companies are embracing this disruptive delivery channel enabling consumers to receive drone deliveries directly to their homes.
https://www.uavexpertnews.com/2021/01/drones-set-to-deliver-packages-everywhere-in-country-in-near-future/?utm_source=Master&utm_campaign=3922153ca4-EMAIL_CAMPAIGN_2017_12_20_COPY_01&utm_medium=email&utm_term=0_35ad7bc94d-3922153ca4-89168288

EHang begins aerial sightseeing trial at south China real estate project Paul Ridden January 04, 2021

China's air mobility company EHang has added another location to its autonomous air taxi roster with the launch of an aerial sightseeing trial in partnership with real estate company Greenland Hong Kong.

Initially, the service trial involving EHang's two-passenger autonomous aerial vehicle will take place at Greenland's tourism real estate project in the city of Zhaoqing, in the Guangdong Province of south China.

EHang will operate a flight base in the Forest Lake project which is located in an area that includes seven natural lakes and wetlands spread over 32 million sq ft, and is quite close to a new airport that's under construction – the Zhaoqing-Pearl River Delta-Hub Airport.

Local residents will be offered the chance to view the area from above. The video gives an idea of what to expect: https://newatlas.com/aircraft/ehang-greenland-aerial-sightseeing-trial-forest-lake/

Bantec Receives Purchase Orders for Drones in Atlantic City News January 14, 2021

Bantec, Inc., a product and services company, announces that its subsidiary Drone USA received purchase orders to supply Atlantic City's Fire and Emergency Management Departments with drones.

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Michael Bannon, Bantec's Chairman and CEO, stated: "Drones provide an effective tool that

helps first responders perform their jobs more efficiently. One drone, equipped with payload and night vision capabilities, will be used to drop automatic flotation devices to swimmers in distress. To quote Elon Musk "The fighter jet era has passed." There is great wisdom in this statement. Drones and robots in many ways will change the way we accomplish our daily tasks." https://uasweekly.com/2021/01/14/bantecs-drone-usa-receives-purchase-orders-to-supply-atlantic-citys-fire-and-emergency-management-department-with-drones/?utm_source=rss&utm_medium=rss&utm_campaign=bantecs-drone-usa-receives-purchase-orders-to-supply-atlantic-citys-fire-and-emergency-management-department-with-drones&utm_term=2021-01-14

Mississippi State University's New Flight Lab Will Focus on Lowering Drone Noise João Antunes JANUARY 14, 2021

A research lab at Mississippi State University, the Raspet Flight Research Laboratory, has been doing drone flyover noise measurements since 2016. Now, Raspet Flight has built the university's quietest flight lab, known as an acoustic anechoic chamber, that absorbs reflections of sound waves. Built as part of a collaborative research venture seeking to quiet unmanned aircraft systems, the lab is covered by dozens of eight-inch-deep polyurethane foam wedges in every inch of the 10-by-18-by-10 room's interior, including its floor.

By absorbing sound waves emanating from within, researchers can accurately measure the precise sounds on which they are focused. In this case, the Raspet team will measure noise produced by propellers with four or five blades rather than the standard two, rotating at fewer revolutions per minute to reduce noise. The objective is to see which propellers create the same, or acceptably equivalent, thrusts at a lower RPM.
https://www.commercialuavnews.com/surveying/mississippi-state-university-s-new-flight-lab-will-focus-on-lowering-drones-noise?utm_source=marketo&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter&mkt_tok=eyJpIjoiTmpJM056RTJNakUzTURNeCIsInQiOiJjWnIxS01DK3RISFNSa2E2VzJOaVRtTWNCUzcyT0xhd0M3WGpYdTA2dHZQbUVDMDNjemxRWXU4M0o3VURUbGJBNUZhZGJHR09WWHE3ZFI3T1RUeWZGQ21kYVE5Q1lWSU9pdmpnRmhja3kweTArSGhrdUw2eUFTcnNzUjZZd0toQSJ9

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Drone pilot pleads guilty to chopper collision; could face one year in prison Scott Simmie - Jan. 15, 2021.

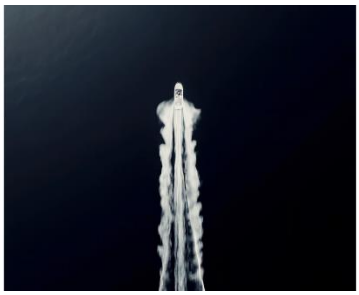
In what appears to be a first, a drone pilot has pleaded guilty to colliding his drone into a Los Angeles Police Department helicopter. It's believed to be the first criminal conviction in the United States for unsafe operation of an unmanned aircraft.

Back in September, there was a burglary at a pharmacy in Hollywood. Someone from the neighborhood had a drone up in the air, apparently trying to see what was going on. Well, the police also wanted to see what was going on and had called in a helicopter to assist. The chopper collided with a drone, sustained some damage, and had to make an emergency landing.

As police investigated the event, they found the bits and pieces that were left of a drone on the ground. Amidst that wreckage was a micro-SD card. And on that card? A variety of photos of the suspect. He had several selfies he'd taken with the drone.

In a news release, the United States Attorney's Office for the District of California said Hernandez entered a guilty plea on Thursday, January 14. He'll be sentenced April 12, "at which time he will face a statutory maximum sentence of one year in federal prison," according to the news release. https://dronedj.com/2021/01/15/drone-pilot-pleads-guilty-to-chopper-collision-could-face-one-year-in-prison/#more-46796

Terrific pro drone photography with a DJI Mavic Air 2 Scott Simmie Jan. 15, 2021



There are some really great aerial photographers out there. Today, we're going to take a look at the work of one of them.

His name is Brandon Dela Cruz, and he's from Orange County, California.

Brandon flies with a DJI Mavic Air 2. With its one-half inch 48MP sensor, the Air 2 is an awesome drone with a ton of features packed into its relatively small body. When you combine that with a good eye and a great edit, you can wind up with some amazing imagery. Say, like this:

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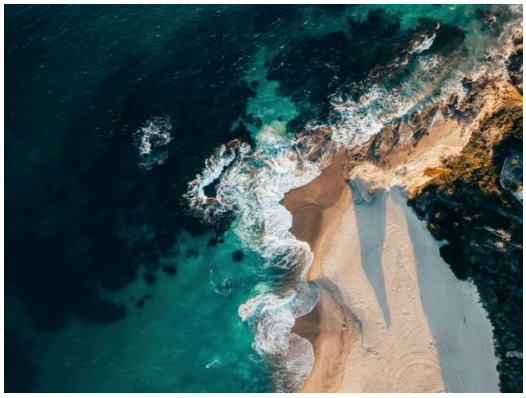
Brandon has been flying for three years now, and says, “I like being able to have my viewers feel like they are the ones piloting the drone.”



We asked Brandon if he had any advice for those shooting aerial video (he does that, as well). He said: “Smooth, slow pans always help give a nice timeless cinematic look. The right settings help too.” And yes, manual settings are your best friend (along with a good neutral density filter). Brandon is also clearly skilled at photo editing, which can really elevate an image from good to spectacular. https://dronedj.com/2021/01/15/pro-drone-photography-using-dji-mavic-air-2/#more-46784

Sydney is using a water-testing drone to keep workers safe Josh Spires Jan. 15, 2021.

Sydney Water workers have turned to a specially equipped drone to suck water from a location and get tested back on land. The drone is being put to the test at nine locations to check the water quality after the recent downpours.

The water sampling project will see 44 workers sent around Sydney to nine popular fishing and swimming locations to take 200 water samples over the summer. Most sampling is done by boat, but this requires the sample area to be large enough for a boat and safe enough for a human to drop a bucket in and take some water back with them. Water Minister Melinda Pavey said: *These drones can get into really hard places that we can’t get our boats into, sample that water, and make sure the runoff is doing what it’s supposed to do, during these high-intensity events.*

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The drone pictured in the story looks to be from the Australian company Sphere Drones that released its Water Sampler V2 back in 2019. It can take samples of up to two liters at a time from any commercial drone. https://dronedj.com/2021/01/15/sydney-is-using-a-water-testing-drone-to-keep-workers-safe/#more-46752

FAA approves first fully automated commercial drone flights (with a catch)

ALISON FOREMAN January 16, 2021.

On Friday, Massachusetts-based industrial drone developer American Robotics announced it had received approval from the Federal Aviation Administration to operate its fully-automated "Scout" drones without any humans on-site.

It's the first waiver of its kind, as the FAA has previously approved the use of autonomous commercial drones exclusively under the condition that human observers be present along the flight path. “Decades worth of promise and projection are finally coming to fruition,” CEO and co-founder of American Robotics Reese Mozer said in a press release.

"With this set of approvals, American Robotics can begin safely operating our automated Scout platform for the benefit of the energy, infrastructure, agriculture, and security market verticals, helping unlock the projected $100 billion commercial drone market."

Although company operations will be limited to low altitudes in rural areas across American Robotics' properties in Massachusetts, Kansas, and Nevada, the regulatory development promises big things for the future of uncrewed aerial vehicles.

Per American Robotics, the Scout system (tested over four years with FAA oversight) is equipped with "acoustic Detect-and-Avoid technology," designed so Scout drones will always maintain a safe distance from other aircraft. Safety checks are still required to be performed by a human through a remote web portal before every flight — and a "layered, redundant system of safety" is in place to address other concerns. https://mashable.com/article/faa-approves-autonomous-commercial-drone/

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European air taxi start-up Volocopter targets international UAM markets

HEADLINE NEWS JOE PESKETT JANUARY 17, 2021

The Federal Aviation Administration accepted the firm's application for concurrent Type Certificate validation in December, setting the basis for Volocopter's US entrance.

Volocopter is the only electric vertical take-off and landing company in the world with Design Organization Approval, the license to develop and build certified aircraft, from the European Union Aviation Safety Agency.

The company is currently in the process of receiving EASA Type Certification for their VoloCity aircraft. Volocopter is seeking FAA approval to enter the US market concurrently with its EASA type certificate to accelerate its worldwide expansion.

Through relationships with cities including Singapore, Paris and Dubai, Volocopter has demonstrated its electric flight product for inner-city mobility. Volocopter said it is focused on promoting seamless, 100% electric mobility within congested cities.

Florian Reuter, CEO of Volocopter, said, "From the beginning, we have considered the U.S. an important market for our services. Certification is the key to this market, and we are excited to begin the process of seeking approval from the FAA to introduce this innovative era of mobility not only in Europe and Asia but also in the US."

The VoloCity, Volocopter's electric air taxi, is designed to meet safety standards and features the lowest noise development in the industry, the company said. Volocopter developed it specifically to meet growing demand for better intra-city mobility in large cities like Los Angeles, New York City, San Francisco and Washington DC among others.
https://www.commercialdroneprofessional.com/european-air-taxi-start-up-volocopter-targets-international-uam-markets/

This tiny drone can avoid obstacles but also navigate towards smells, just like a moth Nitin Sreedhar 17.01.2021

Developed by researchers at the University of Washington, the 'Smellicopter' drone uses principles of biomimicry quite beautifully.

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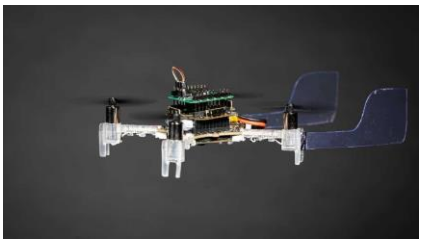

'Smellicopter' has two plastic fins, seen here in blue, on the back to create drag to help it be oriented so that it is constantly facing upwind.

A team led by University of Washington researchers has developed the 'Smellicopter'—a tiny autonomous drone that uses an actual live antenna from a moth to navigate toward smells. It can also detect and avoid obstacles as it flies.

"By using an actual moth antenna, we're able to get the best of both worlds: the sensitivity of a biological organism on a robotic platform where we can control its motion," said Melanie Anderson, a UW doctoral student in mechanical engineering and lead author of the study, which described the results of this research in the *IOP Bioinspiration & Biomimetics* journal recently.

The researchers added small wires into either end of the antenna to connect it to an electrical circuit and measure the average signal from all of the cells in the antenna. "The team then compared it to a typical human-made sensor by placing both at one end of a wind tunnel and wafting smells that both sensors would respond to: a floral scent and ethanol. The antenna reacted more quickly. They also added two plastic fins on the back of the drone to create drag to help it be constantly oriented upwind.

They created a "cast and surge" protocol that helps the drone mimic how moths search for smells. It begins its search by moving to the left for a specific distance. If nothing passes a smell threshold, it then moves to the right for the same distance. Once it detects an odor, it changes its flying pattern to surge toward it." It also avoids any physical obstacles with the help of four infrared sensors. There's no GPS. Instead, the drone relies on a camera to survey its surroundings—just like the eyes of an insect. https://lifestyle.livemint.com/smart-living/innovation/this-tiny-drone-can-avoid-obstacles-but-also-navigate-towards-smells-just-like-a-moth-111610876063918.html

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Dogs and drones to the rescue Jan 14, 2021 SECURITY & DEFENCE

During an emergency response exercise jointly organized by NATO and Serbia, a search and rescue dog from the Greek military worked alongside a Spanish military drone team to locate survivors in an abandoned factory.

NATO's Euro-Atlantic Disaster Response Coordination Centre conducts annual large-scale field exercises with realistic scenarios to improve interaction between NATO and partner countries.

Exercise Srbija 2018 was jointly organized by the EADRCC and the Ministry of the Interior of Serbia, and it involved 2,000 personnel from 40 NATO Allies and partner countries and several international organizations such as the European Union and the Red Cross. See the video: https://eutoday.net/news/security-defence/2021/dogs-and-drones-to-the-rescue

U.S. DOT Announces $5.8 Million in 33 UAS Research Grants to Universities

January 15, 2021 News

The Federal Aviation Administration today announced $5.8 million in research, education and training grants to universities that comprise the Air Transportation Center of Excellence for Unmanned Aircraft Systems (UAS), also known as the Alliance for System Safety of UAS through Research Excellence (ASSURE).

More than 1.7 million recreational and commercial drones are in the active UAS fleet. That number is expected to grow to as high as 2.31 million by 2024.

The FAA has established 13 Centers of Excellence in critical topic areas: unmanned aircraft systems; alternative jet fuels and environment; general aviation safety; commercial space transportation; airliner cabin environment and intermodal transportation research; aircraft noise and aviation emissions mitigation; advanced materials; general aviation research; airworthiness assurance; operations research; airport pavement and technology; computational modeling of aircraft structures; and technical training and human performance: https://uasweekly.com/2021/01/15/u-s-dot-announces-5-8-million-in-33-uas-research-grants-to-universities/

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THERE'S ANOTHER DRONE THAT CARRIES SONY CAMERAS — THIS ONE IS MADE IN THE USA January 18, 2021 Sally French The Drone Girl News

The Skyfish M4 drone

U.S.-based drone manufacturer Skyfish today launched its advanced autonomous work drone platform, which is a series of enterprise-grade drones and drone products. The platform includes two drones (the Skyfish M4 and Skyfish M6), Skyfish Mission Control flight planning and navigation software, the Skyportal customer data center, a long-lasting battery system and a unique ruggedized remote controller called the Skyfish C1.

The drones are designed for industrial work, like photogrammetry and infrastructure inspections. But what really makes Skyfish's drones stand out is the company's relationship with Sony. While Skyfish drones support many payloads and sensors out-of-the-box, including LiDAR and thermal sensors from FLIR, most of the interest is centered around the fact that the drones can fully integrate with the Sony Alpha series of cameras.

That's made possible by Skymind, the name for Skyfish's onboard computer. Skymind talks to the Sony Alpha series of cameras in real-time, leveraging API calls and allowing the software to adjust the camera based on autonomous data capture algorithms.
https://www.thedronegirl.com/2021/01/18/skyfish/

More Automakers Move into Urban Air Mobility Market Graham Warwick January 14, 2021

Cadillac's single-seat eVTOL concept has four shrouded coaxial rotors.

Urban air mobility is a dynamic market. Aviation Week had barely published its analysis of the early leaders in the emerging industry when secretive startup Archer announced a partnership with automaker Fiat Chrysler Automobiles to boost its ambition to be among the first wave of air-taxi service providers, and GM unveils Cadillac's eVTOL concept.

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Archer plans to begin production of its electric vertical-takeoff-and-landing vehicle in 2023 and enter the air-taxi market in 2024. This puts the company on a similar timeline to market leaders Joby Aviation and Lilium. China's EHang intends to begin commercial service in 2021, and Germany's Volocopter will follow in 2023.

Palo Alto, California-based Archer says the agreement with Fiat Chrysler Automobiles will enable it to prepare for large-scale production of its eVTOL vehicle by providing access to the automaker's engineering and design expertise, composite materials capabilities and low-cost supply chain. https://aviationweek.com/aerospace/urban-unmanned-aviation/more-automakers-move-urban-air-mobility-market?utm_rid=CPEN1000003332045&utm_campaign=26803&utm_medium=email&elq2=e5d0ec98321844dbb1c97cf0c2a387a7

Cadillac Joins eVTOL Race Russ Niles January 17, 2021

Cadillac appears to be taking its current marketing slogan ("Rise Above") literally as it jumps into the eVTOL market with a quadrotor. The automaker's parent company General Motors unveiled a video for the Consumer Electronics Show featuring a prototype single-seat design with a novel two-level arrangement for the rotors. It will be badged with the company's marquee brand and "is a glimpse of what autonomy and Cadillac luxury might be in the not-too-distant future" according to the commentary on the video.

A two-seater is also in the works and is part of GM's effort to "reimagine personal transportation." The vehicle will fly at about 45 knots using a 90 kW motor to power the rotors. It will be an autonomous vehicle and the luxurious inside is optimized for the occupant to relax and enjoy the view. The video also shows the eVTOL being met at its destination by a driverless car. https://www.avweb.com/aviation-news/cadillac-joins-evtol-race/

FAA Fact Book records thousands of UAS approvals but less than two percent BVLOS January 15, 2021 Jenny Beechener UAS traffic management news

According to the US Federal Aviation Administraor's Fact Book 2020, the agency issued 4,893 Part 107 waivers for Unmanned Aircraft Systems operations during 2019. UAS operators request a Part 107 waiver to operate outside regulated limits, for example to fly at night, over people or beyond visual line of sight. Night operations accounted for the majority of approvals (4,489), while BVLOS waivers amounted to only 88 of the total – less than two percent of 4,893

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total waivers. During the year, the FAA registered over 1.7 million UAS of which 1.2 million were hobbyists and 0.5 million were non-hobbyists. The agency also issued 200,000 remote pilot certificates. https://www.unmannedairspace.info/latest-news-and-information/faa-fact-book-records-thousands-of-uas-approvals-but-less-than-two-percent-bvlos/

US lawmakers utilize drones to screen people from afar HEADLINE NEWS JOE PESKETT JANUARY 18, 2021

In the wake of surging COVID-19 cases following Thanksgiving and New Year gatherings, the Alabama State Senate recently adopted the Draganfly Smart Vital System and its related health safety protocols to help detect potential COVID-19 in government buildings.

Draganfly's American-made Smart Vital screening system and platform will provide data to the Alabama State Senate that will enable those potentially at risk to receive an immediate COVID-19 test and will also include the number of people screened, number of elevated vital signs detected and the time it took for each screening.

Alabama State University in Montgomery has already been using Draganfly's Vital Intelligence Smart Thermal + Vital screening and Social Distancing Awareness system across its campus, which measures real-time anonymous data, including contactless temperature, heart rate and respiratory rate readings. Since installation, the University has also seen significant increases in adherence to social distancing protocols.

Additionally, ASU uses Draganfly's technology, coupled with a pathogen and virus sanitizer made by Varigard, to disinfect surfaces in its athletic stadiums and arenas. https://www.commercialdroneprofessional.com/us-lawmakers-utilise-drones-in-pandemic-fight/

Check out this drone video of surfers riding 50-foot waves Scott Simmie Jan. 18th 2021

Take a break from winter: Check out this awesome footage of surfers in Hawaii, as they take a ride on some of the biggest waves of the season.

There was a time, not so very long ago, when any footage of surfers was captured one of two ways: From a camera on the shore, or from a waterproof

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action camera carried by the surfer. The latter would always produce reliably great close shots, but lacked the perspective of the wave. And the former? Well, it always kind of distanced the viewer from the action.

ABC News pulled together a short video shot by drones. It really gives you a sense of the scale of these monster waves, and the skill of the surfers willing to tackle them. It *also* gives you a feeling for just how popular drones have become. There are multiple drones filming the surfers, and you can see them flying in several shots: https://dronedj.com/2021/01/18/check-out-this-drone-video-of-surfers-riding-50-foot-waves/#more-46962

DroneUp Appoints Former Apple Executive as Chief Strategy Officer

Virginia Beach, Virginia, January 19, 2021 – DroneUp announced today that Carl Smit had been named Chief Strategy Officer. Smit will advise the CEO Tom Walker and the senior leadership team to set DroneUp's strategic direction, focusing on growing the company's retail drone delivery portfolio and capabilities. Reporting to Walker, Smit will also oversee corporate development initiatives, including mergers, acquisitions, partnerships, and joint ventures.

Smit began his career as a U.S. Navy SEAL He transitioned into retail, where he spent nearly a decade at Apple. He launched Apple Retail in China and managed its global retail iPhone business. At Under Armour, he developed its worldwide retail and wholesale strategy. Smit transitioned to Verizon as Vice President of Retail Experience. He has recently been an independent consultant helping private equity firms assess consumer electronics and retail investments. *Amy Wiegand DroneUp 757-657-4886 amy.wiegand@droneup.com*

COVID Humanitarian Drone Delivery Use Case Testing

SYRACUSE, NY-- January 19, 2021, The COVID-19 Humanitarian UAS Response Partnership (CHURP) announced the conclusion of its latest operational phase: multi-day flight operations and evaluations of two separate use cases to prepare for potential wider-scale deployment. The Partnership was formed over nine months ago by Emergent 121 Consulting and Akin Gump, LLP. The operation included collaboration among UAS, health, and public safety leaders. The project began on January 14 and closed with a local media demonstration on January 16 at The State University of New York's Upstate University Hospital and the Central New York Biotech Accelerator.

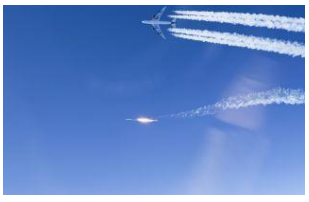
DroneUp, the drone solutions provider for the CHURP team, conducted training, testing and evaluating UAS use cases. DroneUp is the first drone organization to operate with a Federal Aviation Administrations Section 107.39 Operation Over People Waiver, allowing flight over non-participating persons and moving vehicles to support the drone delivery of COVID-19 test kits anywhere in the United States. *Media Contact: Amy Wiegand 757-657-4886* *amy.wiegand@droneup.com*

Zenith Aerotech mounts radar, networking radio, and EO/IR camera on tethered drone PRESS RELEASE January 19, 2021

AFTON, VA: — Zenith AeroTech announced today that it has integrated an advanced flight radar, gimbaled EO/IR camera and mobile ad hoc networking radio on the company's Quad 8 tethered mid-range, unmanned aircraft system (sUAS). It demonstrates how the long-endurance, tethered sUAS can support force protection and early warning missions. Able to fly at 400 feet AGL for hours—and even days—at a time, the tethered Quad 8 draws power from an easily transportable ground power unit.

Kutlay Kaya, CEO of Zenith AeroTech, said "We were able to have our Quad 8 carry Echodyne's Advanced EchoFlight radar, Trillium Engineering's HD45 gimbaled EO/IR camera and the Persistent Systems MPU5 mobile ad hoc networking radio. We plan to show how we can simultaneously collect high-resolution imagery, both electro-optical and thermal, as well as air- and ground-based radar anomalies and then securely deliver these collections through the MPU5, providing a robust overwatch capability. The MPU5 also acts as a radio/data relay to support disaster recovery operations and provide secure communications." *Marci Malinowski, Marketing Director marci@zqcus.com*

Virgin Orbit launches 10 satellites to orbit in landmark test flight Mike Wall



Virgin Orbit's LauncherOne rocket reached orbit today (Jan. 17) on its second powered test flight, a mission called Launch Demo 2. And that's not all: The rocket also successfully deployed 10 tiny cubesats, which flew via NASA's Educational Launch of Nanosatellites program.

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The 70-foot-long, two-stage LauncherOne, which is capable of delivering up to 1,100 lbs to orbit, took off from California's Mojave Air and Space Port today at about 1:50 p.m. EST. The rocket left the ground beneath the wing of its Boeing 747 carrier plane, known as Cosmic Girl.

This air-launch strategy — which Virgin Orbit's sister company Virgin Galactic also employs with its suborbital space plane, SpaceShipTwo — increases flexibility and responsiveness compared to traditional vertically launched rockets. https://www.space.com/virgin-orbit-launches-10-satellites-to-orbit

NOAA Awards Black Swift Technologies Contract to Develop GPS-Denied Navigation January 18, 2021 News

Accurate aircraft position information is essential for safe UAS operations within the Unmanned Aircraft Systems Traffic Management system. BST aims to provide a robust, secondary navigation option through their diverse-source global positioning system that will provide accurate position updates to UAS in GPS denied areas through augmented sensor suites and advanced machine learning capabilities. This will be performed through the weighted fusion of advanced machine vision algorithms with the localization of the vehicle using triangulated signals of opportunity—essentially everything emitted within a set of frequencies from a non-moving source.

DS-GPS utilizes a standard GPS receiver augmented with additional sensing capabilities to estimate inertial velocity and absolute position. Other sensors, including cameras and a software-defined-radio, can then be used to replace the GPS as the primary navigational sensor providing position and velocity estimates from diverse sources.

One of the key technologies of this work is to use machine vision to allow continued safe flight of UAS in the event of loss of GPS. Work associated with coastline inspection and mapping would greatly benefit from BVLOS operations since this would significantly reduce the amount of time an operator has to spend in the field. https://uasweekly.com/2021/01/18/noaa-awards-black-swift-technologies-contract-to-develop-gps-denied-navigation/?utm_source=rss&utm_medium=rss&utm_campaign=noaa-awards-black-swift-technologies-contract-to-develop-gps-denied-navigation&utm_term=2021-01-19

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20Jan21

Behind the Scenes: Shell Extracts Big Benefits from Unmanned Systems in 2020

January 19, 2021

Over the last few years, Shell has started using, and relying on, unmanned aerial systems and unmanned surface vehicles for inspections, monitoring and surveying. In the summer of 2020, staff inspected a 90 meter-high incinerator stack at Shell's Scotford complex in Alberta, Canada, by flying a drone inside it. The drone inspection cost an hour of flying time, a few thousand dollars, and all the inspectors stayed firmly planted on the ground.

After Hurricane Harvey devastated the Houston area, Shell used unmanned solutions to safely perform a damage assessment on Shell Deer Park, one of the largest petroleum and chemical refineries in the United States.

Shell has used UASs for a variety of applications, including: Facilities surveillance and mapping, Tall structure inspection, Topographical survey and mapping, Confined space inspection, Asset integrity surveillance, Emission detection and Emergency response. Shell recently launched the remote-controlled vessel X-07 to inspect the Ormen Lange gas field off the coast of Norway.

"This is the new normal, not a temporary fix," says Michael Kaldenbach, Shell's Digital Realities Leader. "We can work more safely and efficiently."
https://innovateenergynow.com/resources/shell-extracts-big-benefits-from-unmanned-systems?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=107348398&_hsenc=p2ANqtz-91cuggk7hlhpOfF00N6QqklpiCincCItU3D4wiDwho7Z3il2xnUNvId6cG-Jly1DpH0hyNOWR9b8oW-IPMqfZa-oyrEA&utm_content=107348398&utm_source=hs_email

Autonomous Flight unveils six-seat eVTOL tricopter air shuttle Loz Blain January 13, 2021

UK company Autonomous Flight has gone for a tricopter layout, with two large coaxial rotors at the ends of the front canard wings, far enough away that they won't affect airflow over the wings, and a third coaxial rotor mounted behind the large main wing.

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Tricopters offer a weight advantage, but to maintain yaw control, they need to include a servo motor to tilt the rear prop. The front two rotors tilt forward once the aircraft's off the ground, bringing it to an efficient, winged horizontal flight mode that's good for cruise speeds around 125 mph. Flying on lithium batteries, the range will be in the region of 80 miles.

Autonomous Flight founder Martin Warner doesn't expect on-call air taxi operations to be viable for at least 15 years – hence the six-seat cabin. Early eVTOL operations, he feels, will work best as scheduled point-to-point shuttle services, and thus the more seats. Warner is making the large battery packs swappable to keep these birds in the air and making money.

And despite the business name, the initial aircraft will indeed be piloted – not because it won't be able to fly itself, more because Warner anticipates that regulatory bodies will take a lot longer to permit it. https://newatlas.com/aircraft/autonomous-flight-y6s-plus-evtol-air-shuttle/

Drone startup TraceAir raises $3.5M in series A funding Josh Spires Jan. 20th 2021

California-based drone startup TraceAir has raised $3.5 million in its series A funding round led by London-based XTX Ventures. The company's construction site development acceleration platform utilizes drones to survey and create 3D maps of projects.

After the latest round of funding, TraceAir is sitting on a total investment of $7 million, thanks to the following investors: Liquid 2 Ventures, GEM Capital, GPS Ventures, Andrew Filev, Metropolis VC, US construction industry leaders Independent Construction, and ENGEO.

A feature benefiting from the funding round is an advanced grading planner, which is estimated to reduce grading costs by around 10%.

To improve its platform's adoption rate, TraceAir has been working directly with seven of the top 25 home builders in the United States. These partnerships have allowed it to survey thousands of projects and perfect its techniques based on customer feedback.

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The platform also allows the building companies and homeowners to view the house's progress via the cloud, providing 3D models, high-resolution images, and access to a new communication channel right from the platform. https://dronedj.com/2021/01/20/drone-startup-traceair-raises-3-5m-in-series-a-funding/

21Jan2021

Cybersecurity for Drones: SkyGrid and SparkCognition Deploy First AI-Powered System Miriam McNabb January 20, 2021.

SparkCognition is a leading industrial artificial intelligence company; SkyGrid, a Boeing company, is an airspace management system. Together, the two have successfully deployed an AI-powered onboard system providing cybersecurity for drones.

As drones become an increasingly important tool in major industry and infrastructure, concerns over security have also become more important. Like any computer carrying sensitive data, drones must be protected from cyber attacks, but drones provide unique challenges.

The DeepArmor product is designed to meet those challenges, protecting drones from zero-day attacks – attacks that exploit a security vulnerability before developers have realized it exists – during flight. "Equipped with SparkCognition's DeepArmor® cybersecurity product, SkyGrid is the first airspace management system to enable drone protection powered by AI. This approach provides more advanced airspace security than traditional anti-malware reliant on signatures of known threats," says a press release.
https://dronelife.com/2021/01/20/cybersecurity-for-drones-skygrid-and-sparkcognition-deploy-first-ai-powered-system/

SpaceX surpasses 1,000-satellite mark in latest Starlink launch Jeff Foust January 20, 2021

A SpaceX Falcon 9 lifts off Jan. 20 carrying the latest set of 60 Starlink satellites.

WASHINGTON — SpaceX launched its latest set of Starlink satellites Jan. 20, bringing the total number of spacecraft launched so far for that broadband constellation to more than 1,000.

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The Falcon 9 lifted off at 8:02 a.m. Eastern from the Kennedy Space Center. The rocket's upper stage deployed the payload of 60 Starlink satellites 65 minutes after liftoff. The rocket's first stage, making its eighth flight, landed on a droneship in the Atlantic Ocean. SpaceX cautioned during the webcast of the launch that the potential for high ground-level winds made the landing an "envelope expansion" attempt. However, the stage landed without incident.

The launch was the first time SpaceX flew a booster eight times. The booster, first used to launch the Demo-1 commercial crew test flight in March 2019, was most recently flown on the SXM-7 launch Dec. 13. The 38-day turnaround time between launches is also a record for the shortest time between flights of the same booster.

With this launch, SpaceX has now delivered 1,015 Starlink satellites into orbit, dating back to the two "Tintin" prototypes launched in February 2018. Of those 1,015, 951 are still in orbit, according to statistics maintained by spaceflight observer Jonathan McDowell. https://spacenews.com/spacex-surpasses-1000-satellite-mark-in-latest-starlink-launch/

22Jan21

NASA's Mars exploration drones are to be tested in Iceland Josh Spires Jan. 21, 2021

Scientists from the University of Arizona are set to test their Mars drones in Iceland after receiving a $3 million grant from NASA as a part of a project that combines rovers and drones to explore the red planet. The team is one of four selected out of 48 to receive funding from NASA's Planetary Science and Technology Through Analog Research program.

Current drones sent to explore beyond Earth normally complete flybys of certain areas of a planet. The data collected is then sent to a rover on the ground, which then goes to the area and explores it, taking samples along the way.

Lead scientist on the project, Christopher Hamilton, shared: T*he whole concept is geared towards building new technology and procedures for two robots to work together on an extraterrestrial body to maximize the scientific output of such a mission.* When looking for the perfect location, they came across the lava fields in Iceland, so extreme that they make the perfect testing area for an interplanetary drone. https://dronedj.com/2021/01/21/nasas-mars-exploration-drones-are-to-be-tested-in-iceland/#more-47370

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Pfizer, WeRobotics partner to deliver COVID-19 vaccines by drone Josh Spires Jan. 21st 2021

Drone company WeRobotics has announced it has been selected to work with Pfizer to develop a new drone to deliver COVID-19 vaccines. The pharmaceutical company has chosen to develop the cargo drone from DJI's new Matrice 300 drone platform.

The M300 has been chosen for the job as it should allow for deliveries of 1.5 kg (3.3 lb.) up to 25 km (15.5 miles) away compared to the 10 km (6 miles) range of the currently used M600. The M600 will still be used for the closer drone deliveries to get as many vaccines sent out to those in need in a short amount of time.

The DJI Matrice 300 has been chosen also for its impressive weather resistance. The drone is equipped with two self-heating batteries that automatically activate, allowing flights down to -20°C (-4°F). It can also fly in temperatures of up to 50°C (122°F), making it the perfect drone for most of the world.

The drone can also fly in winds of up to 33.5 mph and ascend at speeds of 6 m/s to ensure speedy deliveries. The M300 was also put to the test in salt and steam chambers to ensure it can still fly with salt buildup and resist corrosion. https://dronedj.com/2021/01/21/pfizer-werobotics-partner-to-deliver-covid-19-vaccines-by-drone/#more-47342

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