UAS and SmallSat Weekly News

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OneWeb hits coverage goal with latest launch, sets sights on southern regions

Jason Rainbow July 1, 2021

TAMPA, Fla. — OneWeb is shifting focus to the southern hemisphere after completing coverage north of 50 degrees latitude, following the launch of its latest batch of broadband satellites July 1.

Arianespace launched 36 satellites at 8:48 a.m. Eastern in its eighth mission for the low-Earth-orbit startup, increasing the size of its constellation to 254 spacecraft.

OneWeb has confirmed signal acquisition with each satellite after separating from their Soyuz 2.1b rocket, which launched from the Vostochny Cosmodrome in Russia. It will take about a month for the satellites to raise themselves from a near-polar orbit at an altitude of 450 kilometers to 1,200 kilometers, where they will then beam connectivity back to Earth.

They will complete OneWeb's interim goal of expanding its footprint to the 50th parallel and above — covering Canada, U.K., Northern Europe, Alaska and Arctic regions, ahead of partial commercial services before the end of this year. https://spacenews.com/oneweb-hits-coverage-goal-with-latest-launch-sets-sights-on-southern-regions/

WALMART SET TO BEGIN DRONE DELIVERIES IN ITS HOMETOWN BENTONVILLE, ARKANSAS

June 25, 2021 Sally French News

Walmart has made a big investment in the drone industry, and it looks likely that the retail giant will be running drone deliveries of goods to homes in Walmart's own hometown of Bentonville, Arkansas sooner rather than later.

Walmart announced an investment of an undisclosed sum in drone service provider DroneUp. In the early days of the COVID-19 pandemic, Walmart partnered with DroneUp to launch trial deliveries of at-home COVID-19 self-collection kits in the North Las Vegas area. While that was a trial to prove that it was possible to offer customers delivery in minutes versus hours, this new investment is meant to prove something more. To be eligible to get the coronavirus testing kit

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shipped to your house (which came free of charge, no less), you simply had to live in a single-family home located within a 1-mile radius of the North Las Vegas Walmart, located at 1807 West Craig Road — which is where the drones were launched. That trial has since ended.

John Furner, CEO and President of Walmart U.S. said because Walmart stores are already located within 10 miles of 90% of the U.S. population, operating drone deliveries makes logistical sense. With 4,700 stores, drones could operate out of individual stores to conduct those last-mile deliveries. And the first of those stores will be in Bentonville, Arkansas.
https://www.thedronegirl.com/2021/07/02/walmart-droneup-deliver/

Parrot ANAFI Ai drone switches to 4G when the Wi-Fi gets rough Ben Coxworth June 30, 2021

The Parrot ANAFI Ai drone should be available later this year, at a yet-to-be-announced price.

For some applications, the wireless communications range of traditional drones just is not robust enough. That's where Parrot's just-announced ANAFI Ai quadcopter comes in, as it uses 4G cellular data when Wi-Fi doesn't suffice.

Every 100 milliseconds the copter's microprocessor assesses the quality and capacity of the wireless connection. If it's found to be lacking, the drone automatically switches over to its onboard 4G module. That module is supports 28 frequency bands, covering 98 percent of frequencies used throughout the world. As a result, it's possible to operate the quadcopter "at any distance" and when it's not in direct line of sight. Additionally, the 4G connection is encrypted to thwart any potential wrong doers.

The ANAFI Ai itself records video at a maximum resolution of 4K/60fps, streams it to the pilot at 1080p/30fps, and shoots 48-megapixel stills – all via a gimbal-stabilized HDR camera with a half-inch CMOS sensor. It's also optimized for photogrammetry.

The drone can fly autonomously by either following preprogrammed waypoints, tracking with its subject, or following the user's moving vehicle. It also utilizes a set of gimbal-mounted stereoscopic cameras to automatically detect and avoid obstacles.

One charge of its 3.35-mAh/72-volt lithium-polymer battery is good for 32 minutes. The aircraft weighs 1.98 lb, its arms can be folded back for transit, it has a maximum horizontal speed of 34 mph, and it's water-resistant. It will be available sometime in the second half of this year.
https://newatlas.com/drones/parrot-anafi-ai-drone-4g

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The Future of Drones: Outer Space, Urban Landscapes And Business Tasks

Brian Pitre, Co-Founder and CEO of SkyOp.com. Serial entrepreneur and member of the Forbes Technology Council

Drones are a transformative technology that, over the next decade, will change in ways you likely never imagined. Although you may not spend much time thinking about the future of drones, they will have a serious impact on all our lives.

Drones are now, literally, out of this world. NASA successfully landed the Perseverance rover on Mars earlier this year, and it carried an important payload: the Mars Helicopter, Ingenuity.

This was the first time that drone technology has been tested on another world. The Ingenuity flight was short but it's a Wright brothers moment. (it carried a piece of the wing fabric from the Wright brothers' plane.) Ingenuity flew in Mars' much thinner atmosphere successfully multiple times, and the NASA Jet Propulsion Laboratory extended its flights for another month of testing.

Artificial intelligence has also helped power the future of drones. AI could help drones accelerate across multiple industries. It can also analyze real-time data to adjust flight telemetry based on terrain and other obstacles.

On top of technology, regulations in the industry have helped address safety and security concerns. The Federal Aviation Administration recently enacted guidelines requiring a digital license plate that can remotely identify Unmanned Aircraft, an important step for the integration of small unmanned aircraft into the National Airspace System.

This identification technology is an integral part for the FAA to allow drones to fly beyond visual line of sight and to allow autonomous flight. Like automotive advancements, these autonomous capabilities include integration of both LiDAR and newer vision systems. Because of these advancements and regulations, passenger-carrying flying machines many times larger than most of today's small commercial drones could soon usher in an era of Urban Air Mobility to unclog our highway systems.

As cities across the world are looking for solutions to traffic congestion, Uber Air suggests it's closer than you think and wants to carve out a hefty piece of the UAM pie for itself.

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According to Reportlinker's "Global Forecast to 2030" report, the UAM market is projected to grow from $2.6 billion in 2020 to $9.1 billion by 2030.
https://www.forbes.com/sites/forbestechcouncil/2021/06/30/the-future-of-drones-outer-space-urban-landscapes-and-business-tasks/?sh=47d1dc48e5d5

Watch record-breaking 5,200 drones celebrate 100 years of China's Communist Party Ishveena Singh Jul. 2nd 2021

The Communist Party of China (CPC) is celebrating its 100th anniversary. And to commemorate the occasion, 5,200 drones lit up the night sky in Longgang, Shenzhen, last week. The massive drone light show, which should be going down in Guinness World Records, showcased some of the most pivotal chapters from the party's history.

The CPC has approximately 92 million members, which is about 6.6% of the entire Chinese population. It is credited with transforming China from a poor country to one of the largest economies in the world.

In April 2021, car company Genesis marked its entry into China by organizing a record-breaking drone light show with 3,281 drones. The drone light show conducted in the honor of CPC uses 5,200 drones, which easily breaks the world record set by Genesis.

This show focuses on the milestone moments of the CPC. Let's watch the biggest drone light show ever. https://dronedj.com/2021/07/02/world-record-5200-drones-light-show/#more-61796

Two states, four missing kayakers: Rescued by drones in 5 mins Ishveena Singh Jul. 2nd 2021

There is no question that search and rescue drones are incredibly effective at finding missing persons. But it's not often that you have similar events unfolding 600 miles apart on consecutive nights. But this is exactly what happened in Ohio and North Carolina this week. And both times, disaster was averted with the help of drones.

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On June 27, the drone team at Lake County, Ohio, was called in at about 11:30 p.m. to assist Madison Police in the search for missing persons. A father and son duo had left to kayak down the Grand River at approximately 4 p.m. and had not returned. Ground crews had been searching for several hours with no success and nightfall, coupled with rough terrain, had slowed down their search.

Two teams of drone operators were tasked with searching up and downriver using Mavic 2 Enterprise Advanced and Matrice drones with thermal sensors and spotlights.And within five minutes of launch time, the missing father and son were located in the middle of the river on the island!.

On June 28, at around 9 p.m., the Connestee Fire Rescue were dispatched to look for two kayakers that had missed their stop on the French Broad River, North Carolina.

Due to darkness quickly setting in, the search crews decided to use the DJI M300 drone with Z20T thermal camera to attempt to locate the missing persons.

Roughly 5 1/2 minutes after launch, the kayakers were located at the edge of a field beside the river. Ground units rushed to the location and transported the duo back to meet the rest of their party. https://dronedj.com/2021/07/02/missing-kayakers-drone-rescue/#more-61767

Airwayz returns to operate multiple drone fleets in an urban airspace July 2, 2021 News

After a successful initial phase, AI-based Multi-Flight System and Unmanned Traffic Management specialist Airwayz Drones Ltd, resumes its participation in a two-year pilot program, which will see multiple fleets of drones tested to validate the safe and efficient use of drones in urban environments. The second phase of the event will see an increased number of drones, operators, and the introduction of helicopters and other low-flying vehicles into the airspace.

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The NAAMA pilot program, organized by the Ayalon Highways Ltd., and Israel Innovation Authority in collaboration with the Ministry of Transport and the Prime Minister's Office, started in March 2021 and is now scaling up its operations with its next phase of testing. Phase two will see more than 50 drones from 8 different teams operate in one airspace in Hadera, Israel, doubling the number of fleets that participated in the first stage in March, as well as the inclusion of Emergency Services. A manned helicopter and other low-flying vehicles will also be integrated into the pilot program to examine drone responses to foreign technology outside its fleet, and scrutinize the commercial viability of drone fleets in real-life environments.
https://uasweekly.com/2021/07/02/airwayz-returns-as-driving-force-behind-expanded-pilot-to-operate-multiple-drone-fleets-in-an-urban-airspace/?utm_source=rss&utm_medium=rss&utm_campaign=airwayz-returns-as-driving-force-behind-expanded-pilot-to-operate-multiple-drone-fleets-in-an-urban-airspace&utm_term=2021-07-02

Zipline Funding: $250 Million to Bring Drone Delivery to New Places and New Industries Miriam McNabb July 01, 2021

A Zipline funding round of $250 million raises the medical drone delivery company's valuation to $2.75 billion – and will fuel expansion into new geographies and new industries.

Zipline already boasts the world's largest automated on-demand delivery service. Utilizing specially designed and manufactured aircraft, Zipline has established themselves in developing countries around the world, delivering critical medical supplies to areas without robust road infrastructure. Beginning in Rwanda, Zipline has established working drone delivery at scale – hiring and training local employees and expanding services to cover millions of people and millions of miles.

Now, the latest Zipline funding of $250 million – the largest funding round we have yet seen in the drone industry – will enable further expansion "into new industries and geographies, transforming systems like healthcare and commerce with instant logistics."

Zipline is already operating in the U.S., transporting PPE for covid response in North Carolina, through a partnership with Novant Health; forming agreements in Japan, through a partnership with Toyota Group; and expanding operation in Africa, in Rwanda, Ghana, and Nigeria. Now, the company may plan to expand beyond medical drone delivery into other applications.
https://dronelife.com/2021/07/01/zipline-funding-250-million-raise-to-bring-drone-delivery-to-new-places-and-new-industries/

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Easy Aerial Raptor is a Hybrid Tethered and Free Flying Drone-in-a-Box System

Miriam McNabb July 01, 2021

The new Easy Aerial Raptor is a drone built for the future of autonomous applications. The hybrid tethered or free fly, drone-in-a-box system gives companies the unprecedented flexibility to use the best mode for the mission.

US-based Easy Aerial provides autonomous drone-based inspection, monitoring and surveillance solutions for commercial, government, and military applications. Easy Aerial offers a suite of drones designed for different applications, but the Raptor drone "is the first of its kind to offer operators the option to fly tethered or untethered, and the ability to untether during flight."

Raptor is a drone-in-a-box solution – a drone that can re-charge itself without assistance, designed for autonomous missions. The tether enables "prolonged situational awareness or persistent surveillance, providing a continuous data and video feed to field personnel or the command center."

What is truly unique about this newest product is the ability to switch from tether to free flying – even in the middle of flight. "Following a command from an operator, a triggered alarm, or if the onboard sensors identify a pre-selected object, the tether is released, descends via parachute, and is spooled back into its ground station. The Raptor then continues on a free-flight autonomous or manually operated pursuit mission." "Upon completing its objective, or if the onboard batteries run low, the system will automatically return for a precision landing in the Easy Guard, even if the ground station has moved to a new location."

In a surveillance situation, the new capability means that the drone can notify personnel of an intruder – and then follow the intruder to provide more information to the command center. https://dronelife.com/2021/07/01/easy-aerial-raptor-is-a-hybrid-tethered-and-free-flying-drone-in-a-box-system/

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What Do Airlines Want From EVTOLs? Ben Goldstein June 24, 2021

Airlines are looking to dip their feet into the nascent advanced air mobility sector by placing orders for electric vertical-takeoff-and-landing vehicles under development by a host of startups.

But while industry-watchers agree that opportunities are plentiful for the new aircraft, some major questions remain about how they will fit into airline business models.

- Airlines seek environmental, social and governance boost, but orders are strictly conditional
- Infrastructure, noise and logistics all complicate the airport access use case

Major airlines have begun placing conditional orders for hundreds of the new electric vertical-takeoff-and-landing vehicles. United Airlines, together with its regional partner Mesa Airlines, preordered 200 of Archer Aviation's Maker electric air taxis in February. American Airlines followed suit in June with a conditional order for up to 250 VA-X4 aircraft under development by Vertical Aerospace, part of a deal that also includes preorders for lessor Avolon and options for Virgin Atlantic. And JetBlue Airways has taken on an early role as a backer of Joby Aviation through its JetBlue Technology Ventures fund.

But while the orders generate positive publicity and look good from an ESG—environmental, social and governance—standpoint, it remains far from clear how exactly airlines plan to incorporate the new technology into their existing fleet and network strategies.
https://aviationweek.com/aerospace/urban-unmanned-aviation/what-do-airlines-want-evtols?utm_rid=CPEN1000003332045&utm_campaign=29058&utm_medium=email&elq2=945f3e21976841d99a63da40c343e95d

US Defense department awards SAIC $90m contract to mitigate small UAS threats June 29, 2021 Jenny Beechener Counter-UAS systems and policies

Science Applications International Corp has won a new contract with the US Air Force Life Cycle and Management Center, Force Protection Division to help the US Department of Defense

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Combatant Commands mitigate small unmanned aircraft systems threats and protect US forces.

Under the contract, SAIC will provide integrated logistics support and sustainment services necessary to modernize defenses against the rapidly evolving threat of sUAS in the US, host nations, and global contingency locations. The single-award contract has a one-year base period of performance with three one-year options and is worth up to $90 million.

SAIC currently supports the U.S. Army's counter-sUAS programs and will continue its work through this new Air Force Contract. SAIC will be primarily responsible for repairing and maintaining counter-sUAS systems, equipment, and software, including help desk support, logistics, corrective and preventative maintenance, training, and supply chain management. The company will also provide innovative ways to modernize systems.
https://www.unmannedairspace.info/counter-uas-systems-and-policies/us-defence-department-awards-saic-usd90m-contract-to-mitigate-small-uas-threats-and-protect-us-forces/

Parrot unveils ANAFI Ai: The first 4G connected robotic UAV HEADLINE NEWS

MANUFACTURER PARROT GEORGINA FORD JULY 5, 2021

ANAFI Ai is the first drone to use 4G as the primary data link between the drone and the operator, a game-changer for the drone industry. Users will no longer experience transmission limitations thanks to ANAFI Ai's 4G connectivity, which enables precise control at any distance. For Beyond Visual Line of Sight flights, it stays connected even behind obstacles.

For the first time, ANAFI Ai embeds a Secure Element in the drone and its Skycontroller 4. The 4G link between the drone and the user's phone is encrypted. The Secure Element protects both the integrity of the software and the privacy of data transferred.

Parrot's extensive partner ecosystem delivers a wealth of specialized applications and services for various professional uses. Parrot is the first in the industry to make its piloting application open source. Parrot offers developers a Software Development Kit to execute custom code in the drone during the flight. It gives access to all flight sensors, including obstacle avoidance sensors, occupancy grid and internet access.

The obstacle-avoidance system detects obstacles in all directions, using stereo cameras to sense objects and automatically avoid them. It incorporates a 48 MP primary camera and boasts a stabilized 4K 60fps / HDR10 camera. https://www.commercialdroneprofessional.com/parrot-unveils-anafi-ai-the-first-4g-connected-robotic-uav/

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Eyes in the sky: how UAVs are increasingly used in police search and rescue and surveillance

Avionics 30 Jun 2021 Mario Pierob Issue 118 | July 2021

In recent years, unmanned aerial vehicle technology has increasingly allowed police teams that were once ground-based to become airborne. UAVs have witnessed a variety of applications by police forces, most recently in relation to the management of the Covid-19 pandemic. At the same time, regulations related to UAV operations are being streamlined, and the cost of UAV equipment is coming down.

According to Oisin McGrath, CEO of DroneSAR, this has coalesced in a significant increase in operational output at a relatively low cost. “Search and rescues and missing persons have remained quite high. UAVs provide a simple and cost-effective method to search smaller areas without having to request police helicopters. Having livestream capability to a central HQ allows command and control personnel to become involved in searches without being there in person.”

UAVs have a wide variety of law enforcement application, including mapping crime scenes, providing aerial images, and 3D mapping crash scenes. Master Deputy Matthew Devaney of the Loudoun County Sheriff’s Office, stated, “Mapping crash scenes in this manner can help streamline investigations, ultimately clearing roadways safely in a timely manner. They also have been used for observing traffic patterns at large scale events – i.e., traffic flows at Covid-19 testing sites, around schools, or during traffic-related crashes, and they help with real-time traffic management and flow. UAVs have further been used for event management at large-scale events, such as sporting events and can be used during disaster relief, such as tornados, flooding, and power outages.”

The Santa Rosa Police Department uses UAVs primarily to augment officers on the ground providing community services. “We use them anytime an ‘overwatch’ or ‘eye in the sky’ may assist the officers on the ground. These tasks include typical SAR activities, missing persons, crowd management, tactical responses and evidence collection,” said Micheal Heiser, SRPD Sergeant. “An example includes locating an elderly missing person in physical distress that officers on the ground had been unable to locate.
https://www.airmedandrescue.com/latest/long-read/eyes-sky-how-uavs-are-increasingly-used-police-search-and-rescue-and-surveillance

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Air taxi startup Volocopter gains key production certification Reuters Staff JULY 6, 20215

BERLIN (Reuters) - German flying taxi startup Volocopter said on Tuesday it was acquiring long-time partner DG Flugzeugbau, in a step that secures its compliance with the European Union air safety regulator's production standards.

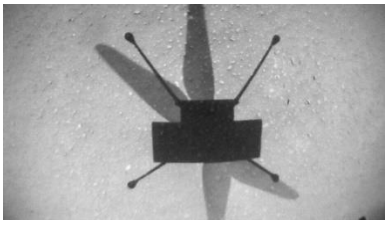
The acquisition means that Bruchsal-based Volocopter now has production organization approval in compliance with the European Union Aviation Safety Agency, in addition to existing EASA design approval.

"Volocopter is now the first and only electric vertical take-off and landing company holding both the required design and production organization approvals to advance its aircraft towards commercial launch," it said in a statement.

Volocopter hopes to bring its two-seater flying taxi, which looks like an oversized drone, into regular service in time for the 2024 Paris Olympics. It is also developing a similar cargo-lift drone. It recently raised $237 million to fund its push for certification. Well-funded rivals Lilium and Joby have meanwhile announced plans to float on the U.S. stock market by merging with listed shell companies. https://www.reuters.com/article/us-aviation-volocopter/air-taxi-startup-volocopter-gains-key-production-certification-idUSKCN2EC0UD

NASA Mars helicopter pulls off 'most nerve-wracking flight since Flight 1'

Ingenuity's ninth flight pushes the little chopper to its limits. Amanda Kooser July 5, 2021



Ingenuity saw its own shadow during its ninth flight.

NASA/JPL-Caltech When NASA sent the Ingenuity helicopter to Mars, it was gamble. Now it's pushing its limits, flying fast and reaching new heights. NASA announced on Monday Ingenuity successfully completed its ninth and "most challenging" flight yet.

NASA's goal was to go big with a daring "high-speed flight across unfriendly terrain" that would take the rotorcraft far from its robotic buddy, the Perseverance rover. Instead of merely hopping ahead of the rover, the helicopter took a shortcut over a sandy area, setting records

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for distance, air time and speed in the process. It hit a speed of 16 feet per second and flew for 166.4 seconds while snapping images of the landscape below.

The terrain below presented some new challenges for the helicopter's navigation system, which was designed to deal with flat ground. Ingenuity had to make sense of "high slopes and undulations" and its team was concerned that the machine might accidentally land in a treacherous area. NASA described it as "the most nerve-wracking flight since Flight 1."

55 weird objects seen on Mars, explained See all photos

+54 More NASA's announcement Monday seems to indicate the chopper handled itself well. While the flight was risky, it made sense for what was always considered a high-risk, high-reward technology experiment. https://www.cnet.com/news/nasa-mars-helicopter-pulls-off-most-nerve-wracking-flight-since-flight-1/

A roundup of July 4 fireworks – as captured by drones [videos] Scott Simmie Jul. 5th 2021

It's been quite a few years now, since the first person had the idea of flying their drone amid a fireworks display. It was a viral hit, and certainly provided a perspective you'd never get from the ground.

We took in some of the US celebrations last night via television, and there's no doubt some of the fireworks were unbelievably spectacular. And, clearly, some folks with drones decided to have a closer look.

We can't imagine what a display like this cost, but it would have been a *ton* of money. (And, right after typing that, we did a search and came up with a figure of $6 million for this shebang.) Wow. What a show. https://dronedj.com/2021/07/05/drones-capture-july-4-fireworks-displays-with-videos/#more-61890

India's Skylark Drones raises $3M for international expansion Ishveena Singh Jul. 5th 2021

Skylark Drones, the only Indian company to rank among the top four drone service providers in the world by Drone Industry Insights, has raised $3 million in a pre-Series A funding round to fuel growth in new geographies. This new funding follows the company's previous seed funding round, which took place in 2018.

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An enterprise drone solutions provider, Skylark is best known for its AI-powered technology products such as Spectra and Drone Mission Ops. It also offers Dronepass, a device to enable drone manufacturers to comply with local airspace regulations. The company is active in mining, solar, real estate, agriculture, and asset inspection sectors. Its clients include ReNew Power, Acciona Energy, Bosch, SoftBank Energy, Tata Steel, and Alstom.

The pre-Series A funding round was co-led by InfoEdge Ventures and IAN Fund. Meanwhile, investors AdvantEdge Founders, Fowler Westrup, Redstart Labs, IKP, and Vimson group also participated. https://dronedj.com/2021/07/05/skylark-drones-raises-3m/#more-61873

Drone rescues lost grandfather who otherwise 'didn't stand a chance' Bruce Crumley Jul. 5th 2021

Wales police rushing towards missing grandfather as drone hovers above

Drones called in after boats, choppers fail. A police drone in North Wales was deployed in an expanding search last month to locate 82-year-old Roy Giblin after his worried family reported him missing. Giblin vanished after heading out for an evening walk. When relatives received no word of his whereabouts, police were called in to mount a search. Initially boats were used to scour waters off the coastal area, with helicopters later joining the operation. Eventually, local authorities scanning closed circuit video footage determined the last visual glimpse of Giblin was captured near the local train station. When foot patrols failed to turn him up in the surrounding area of grassy fields, police decided that deploying its drones was the best, possibly last solution.

The move turned out to be the key to success as well. Over 18 hours after his disappearance, the drone caught sight of the hunkered down Giblin, who was quickly recovered and returned to his family. https://dronedj.com/2021/07/05/drone-rescues-lost-grandfather-who-otherwise-didnt-stand-a-chance/#more-61848

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UAV Solutions, Inc. Delivers AsUAS Ghost 60 Platforms to Special Operations Forces June 29, 2021 Military News

UAV Solutions, Inc. announced today the company delivered and trained Special Operations Forces Operators on its AsUAS Ghost 60 Multi-Rotor system. The system was selected by the Irregular Warfare Technical Support Directorate formerly the Counter Terrorism Technical Support Office for their Affordable small UAS program in January of 2020. Operators from six different Army & Air Force organizations have been trained thus far with additional training exercises planned through the end of 2021.

UAVS will deliver 44 systems totaling 88 air vehicles plus ground control stations, support equipment, and training. The total contract value is $2.3 M including the base development costs. The U.S.-manufactured Ghost 60 sUAS is a backpackable platform with 56 minutes of endurance when carrying the UAVS 400-gram EO/IR payload. During development, special attention was given to the ease of use for first-time operators by implementing a "Click and Fly" interface. The UAVS-designed gimbal payload with its 10x optical zoom HD day camera and Flir 640×480 IR allow the system to maintain the greatest amount of ISR capability in a cost-effective package. https://uasweekly.com/2021/06/29/uav-solutions-inc-delivers-asuas-ghost-60-platforms-to-special-operations-forces/

Investment Program Launched for BVLOS Drone Operations 29 Jun 2021 Mike Ball

Elsight has launched a globally available Halo Value Investment Program that is designed to allow drone companies to expand their operations beyond visual line of sight. The company will provide communication capabilities via its carrier agnostic, AI-powered drone connectivity platform Halo, and will help companies achieve certification, scale their commercial drone operations, and enhance their profitability.

As the market for commercial BVLOS capabilities and operations continues to grow, Elsight recognized the need to provide a program that allows companies to evolve from visual line of sight to BVLOS. In addition to the Halo platform, Elsight will also provide a SMART Start Program that will help companies strategically plan, manage implementation, align operations, obtain training, and monetize profitably.

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The Halo Value Investment Program is available to UAV and drone manufacturers, service providers, enabling technology developers, and strategic partners around the world. https://www.unmannedsystemstechnology.com/2021/06/investment-program-launched-for-bvlos-drone-operations/?utm_source=UST+eBrief&utm_campaign=a0d8791e8d-ust-ebrief_2021-july6_engaged&utm_medium=email&utm_term=0_6fc3c01e8d-a0d8791e8d-119747501&mc_cid=a0d8791e8d&mc_eid=0d642a9d48

Turbulence Detection Testing Performed on Stratospheric UAV 02 Jul 2021 Mike Ball

UAVOS, in conjunction with Stratodynamics, has successfully performed a series of stratospheric flights with its autonomous HiDRON unmanned glider. Supported by the NASA Flight Opportunities Program, the flights tested turbulence detection sensors developed by the University of Kentucky and NASA's Langley Research Center to advance new forward sensing turbulence detection technologies for aircraft at near-space and commercial flight altitudes.

The HiDRON UAV was launched from a balloon at an altitude of 82,000 ft. for the first two launches, and at 98,000 ft. for the final launch, gliding successfully at 92,000 ft. The HiDRON was released from the balloon in zero-gravity conditions and accelerated rapidly, approaching 300 mph ground speed in the first 15 seconds of flight. The HiDRON then glided in a controlled flight path back toward Spaceport America's runway for approximately 4.5 hours while recording flight and payload data.

The avionics system demonstrated stable performance in extreme temperatures from -85°F to +95°F, as well as autonomous control during the critical 'pull-out phase' following balloon release. The system ensures safe Beyond Visual Line of Sight flight profiles throughout the various phases of lift-off, ascent and landing.

During the mission, the aircraft's autopilot took measurements and recorded navigation data on a flight recorder with a frequency of up to 400 Hz. Onboard sensors allowed it to record wind velocity, direction, magnitude, and low-frequency sound waves. High-altitude aerodynamics data has proven valuable for processing payload data as well as for analyzing atmospheric phenomena in the stratosphere.

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The flight participants included UAVOS, Stratodynamics, researchers from the University of Kentucky and NASA's Langley Research Centre, and scientists from the Physical Sciences Lab at New Mexico State University's Physical Sciences Lab who assisted with balloon launch logistics. This multi-member collaboration assembled at Spaceport America to combine the high-altitude aerial platform with multi-hole wind probe and infrasonic microphone sensors. https://www.unmannedsystemstechnology.com/2021/07/turbulence-detection-testing-performed-on-stratospheric-uav/?utm_source=UST+eBrief&utm_campaign=a0d8791e8d-ust-ebrief_2021-july6_engaged&utm_medium=email&utm_term=0_6fc3c01e8d-a0d8791e8d-119747501&mc_cid=a0d8791e8d&mc_eid=0d642a9d48

German zoo finds missing red panda 'Jang' with thermal drone Ishveena Singh Jul. 6th 2021

The extensive search operation went on for 36 hours. But in the end, authorities at a German zoo were able to track and find Jang, an adorable, endangered red panda – with the help of a thermal drone.

When Jang went missing last Thursday, the Duisburg Zoo staff were not sure whether the furry red creature – aka the mascot of internet browser Mozilla Firefox – was even on the zoo premises.

When ground crews with binoculars and thermal imaging cameras couldn't locate Jang by Friday morning, it was decided to take the search aerial. And sure enough, a DJI Mavic 2 Enterprise drone with a thermal camera found the wayward animal lurking in a tree crown – and not too far from its enclosure!

Jang was rescued with the help of a ladder from the Duisburg Fire Department and taken to the vet for a checkup. He was declared well enough to return to his enclosure shortly afterward. Hurray, Jang! https://dronedj.com/2021/07/06/zoo-finds-missing-red-panda-with-drone/#more-62006

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AI drone swarm 'is used in combat for the first time by Israel to attack Hamas militants' DAVID AVERRE FOR MAILONLINE 6 July 2021

An **Israeli** Defence Force support unit deployed the swarm to locate and target Hamas militants who had allegedly fired rockets into Israel in May.

Drones are typically guided by a human operator, but drone swarms represent a step forward in military technology by flying as one integrated network controlled by artificial intelligence. The swarm requires only a single human operator to direct the entire swarm and before the drones guide themselves to locate the targets as a connected unit.

"As far as we know, this is the first use of this type of tool,' said an IDF spokesperson of the drone swarm.

'The operation of the swarm is by a single operator who controls all the drones.

'There is a commander next to him for making significant decisions and other soldiers for the logistical operation of the swarm.' https://www.dailymail.co.uk/news/article-9760339/Israel-uses-AI-guided-drone-swarm-target-Hamas-militants-Gaza.html?ito=1490

7Jul21

Drones Being Used for Ultrasonic Testing (UT) on Energy Assets July 05, 2021

Using drones for UT thickness measurement is a unique application for unmanned aerial vehicles. While drones are widespread for visual inspection, they are not used as frequently for contact-based inspections like UT.

Advanced technology is required to make the contact-based inspections happen. Manual control cannot accomplish the precise flying and maneuvering required, so software control is vital. The drones are also equipped with HD video capture. Videos and photos, along with all the other data collected from the inspection, are transferred so the engineers can review and report on findings. Tech like AI, machine learning, data visualization, cloud computing, AR/VR, 5G, and more can be used to make the most of the data that is collected.

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Drone UT inspections improve safety, can lower per-inspection cost, and reduce the time required to complete an inspection. In an example profiled in Materials Evaluation, a company completed UT measurements at more than 100 locations in under 90 minutes, including multiple readings per location and battery swaps. https://innovateenergynow.com/resources/drones-being-used-for-ut-on-energy-assets?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_medium=email&_hsmi=138679912&_hsenc=p2ANqtz-8zdxTEjTL-xiMjui52mDVPz-LdjK3OtWcA24Y32UEhY611msfNKnCxpNRgL94SIMhga3ngvz84CQIT617JnR_0mPDbGQ&utm_content=138679912&utm_source=hs_email

UAV Factory Releases Penguin B VTOL Long-Endurance Aircraft Platform

The new platform is based on the operationally proven Penguin B aircraft that has been purchased in more than 47 countries and holds an endurance record of 54.5 hours of nonstop flight. The Penguin B VTOL aircraft has completed an extensive flight validation program with over 500 successful takeoffs and landings in diverse environmental conditions. The aircraft is capable of routine takeoff and landing in 30 knot winds as well as conducting operations in extreme temperatures ranging from -4°F to 122 °F.

It is available with a range of high-performance EO/IR, gyro-stabilized payloads. The most advanced ISR payload is our 7-inch Epsilon 180 gimbal, which consists of a 40 microradian jitter, a MWIR with continuous optical zoom and cooling capabilities, and a long-range 4K daylight camera. Smaller EO/IR payloads, such as Epsilon 140 series, can be factory installed inside the aircraft.

The booms are made of a carbon-fiber composite, making them both light and rigid. Battery replacement is quick and simple and can be executed in under 2 minutes. Aircraft assembly takes 15 minutes and can be performed by a single technician.

The wingspan was increased to12.8 ft to enhance its flight endurance to over 8 hours and maximize a combined payload and fuel capacity of 25.8 lbs. The composite design of the wing has also been optimized to maintain structural rigidity while remaining lightweight. The aircraft is equipped with carbon-fiber landing gear struts to maximize flight endurance while producing minimal drag. https://www.uasvision.com/2021/07/02/uav-factory-releases-penguin-b-vtol-long-endurance-aircraft-platform/?utm_campaign=Energy%20Drone%20%26%20Robotics%20Coalition%20Content&utm_mediu

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What the U.S. Infrastructure Bill Means for the Drone Industry Miriam McNabb July 06, 2021

In a recent article published on ZDNet, author Greg Nichols answers: "Enter drones. To truly modernize and future proof America's infrastructure, it is a safe bet that drones should play a key role enabling quick inspections and spotting developing issues prior to debilitating an electric grid or roadway… The once nascent industry is on the precipice of breaking into the mainstream, and the Biden infrastructure plan could be the tipping point."

It's a point that the drone industry agrees with. New projects defined by the bill could be the push that enteprise companies need to really scale drone projects. Inspections, delivery of parts, project management, and remote work are all perfect for drone applications. "Our US infrastructure requires this lift to engage with innovative technologies. The amount of infrastructure combined with various geographical environments calls for smart management assurance. Drones modernize inspection initiatives, improve asset management processes, and create a lasting investment for American infrastructure sectors. The passing of this bill is good news for the drone industry," says Amy Wiegand of service provider DroneUp.
https://dronelife.com/2021/07/06/what-the-u-s-infrastructure-bill-means-for-the-drone-industry/

8Jul21

Skydio 3D Scan: The Era of Autonomous Drone Inspection is Here HEADLINE NEWS MANUFACTURER SKYDIO GEORGINA FORD JULY 8, 2021

3D Scan extends Skydio's autonomous flight engine with artificial intelligence skills that automate photographic data collection and mapping tasks ranging from infrastructure asset inspection to crime and accident scene reconstruction. In addition, Skydio announced that Bentley Systems, the infrastructure engineering software company, has joined DroneDeploy and RealityCapture in Skydio's technology partner ecosystem as a preferred photogrammetry solution for 3D Scan datasets.

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Traditional asset inspections performed by workers using bucket trucks, ropes, and ladders are dangerous, time-consuming, inaccurate, and often damaging for the environment. Drone inspections can generate valuable datasets without putting inspectors at risk. But the complexity, crash risk, and training costs of manual drones have greatly limited their ability to generate useful data. Manual drones require cumbersome mission planning, constant access to GPS, and intense focus from an elite pilot to avoid collisions–when inspection teams should be focused on capturing the best data instead.

3D Scan automates data capture for asset inspection and scene reconstruction, allowing any inspector, surveyor, or first responder to efficiently capture a complete photographic dataset that documents every angle of a scene, ensuring accurate coverage with sub-millimeter precision in a fraction of the time while significantly reducing risk. This revolutionary technology ushers in a new age of autonomous inspection. https://www.commercialdroneprofessional.com/skydio-3d-scan-the-era-of-autonomous-drone-inspection-is-here/

Crysalis™ Offers Ground Control Simplicity, Interoperability to Frontline Combatants ABE PECK JULY 7, 2021 AIR, MILITARY

A Puma 3 AE on station

In biology, a chrysalis marks a stage along a caterpillar's transformation into a full-grown butterfly or moth.

Now, AeroVironment is releasing Crysalis™, promoting it as nothing less than a UAS transformation. It's "ground control simplified," as AeroVironment product line manager, ground control systems Robert Sutton put it at the July 6 press conference. Such simplification is welcome. Today's battlefield can feature a complex array of multiple missions and systems, frontline, and command personnel—and those who AeroVironment president/CEO Wahid Nawabi described as adversaries that are very capable. Crysalis simplifies the interface and the interaction between the warfighter and all these different assets. It reduces the cognitive load on the operator who can use this adaptable, integrated, interoperable, simple, scalable modular solution…to win."

AeroVironment reached out to multiple end users, deploying its Raven™ and Puma™ hand-launched UAVs across a wide variety of cases. Different configuration options around software, hardware and antennas were tested to maximize battlefield collaboration. https://insideunmannedsystems.com/crysalis-offers-ground-control-simplicity-interoperability-to-frontline-combatants/

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Thales eyes 2023 certification for UAS 100 platform Craig Hoyle 7 July 2021

Developed in partnership with French general aviation manufacturer and composite materials specialist Innoaire Aviation and autopilot software provider Hionos, the three-engined aircraft will have a maximum take-off weight of 100kg (220lb), and a 10kg payload capacity.

Three-engined design has been flown using half-scale model

A hybrid propulsion system comprises a pair of electric motors and a mid-mounted conventional engine, each driving propellers.

With a 5.4m (17ft 6in) wingspan and 5h endurance during autonomous operations, the UAS 100 has short take-off performance, requiring "much less than a football pitch" to get airborne.

Range will be more than 54nm (100km), with expected commercial or government applications including powerline inspection, border surveillance, fire monitoring, event security and search and rescue tasks.

Military roles could also be explored for the system, with the development activity supported by the French defense ministry via its Defense Innovation Agency. https://www.flightglobal.com/civil-uavs/thales-eyes-2023-certification-for-uas-100-platform/144487.article

9Jul21

NIST Seeks First Responder UAS Tech via Prize Competition Angeline Leishman July 8, 2021 News, Technology

Dereck Orr Division Chief NIST

The National Institute of Standard and Technology has introduced a three-stage prize competition that seeks to explore unmanned aircraft system technologies for potential use by first responders when they conduct search and rescue operations. NIST said Wednesday it plans to award more than $700,000 throughout the First Responder UAS Triple Challenge, which is composed of three focus areas and slated to occur through June of next year.

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Participants will aim to demonstrate optical sensors for image detection and analysis, broadband data relay in degraded cellular areas and UAS cybersecurity technologies.

"These prize competitions are a way for us to find solvers from around the world to help us with this important research," said Dereck Orr, chief of NIST's public safety communications research division. “Our goal at PSCR is to accelerate the development and adoption of advanced wireless communications for the public safety community."

PSCR will host the overall challenge, while Kansas State University and Mississippi State University will jointly manage the program. Interested participants can submit their entries to the competition starting Aug. 2nd. https://www.executivegov.com/2021/07/nist-seeks-first-responder-uas-tech-via-prize-competition-dereck-orr-quoted/

mscasser@umd.edu; ursula.s.powidzki@gmail.com; rkaese@tedco.md; darryl.r.mitchell@nasa.gov; kris.a.romig@nasa.gov; gary.evans@axcel.us; mike.hitch@nasa.gov; denise.a.lawless@nasa.gov; christina.d.moats-xavier@nasa.gov; thomas.e.johnson@nasa.gov; tony@teamalaris.com; daniel.morris@nianet.org; myaz@hampton.gov; stanley@nianet.org; william.edmonson@nianet.org; heather.gramm1@maryland.gov; elizdietzmann@gmail.com; steven.bain@oncourse-llc.com; Marty@General-Ideas.com; james@djmontgomery.com; rkwhite@vbgov.com; mburgess@airsightglobal.com; eleavitt@airsightglobal.com; b.hanrahan@precisionhawk.com; danginobell@outlook.com; Tcheek503@yahoo.com; w.j.fredericks@advancedaircraftcompany.com; jeanhaskell415@gmail.com; jha@eservices.virginia.edu; ayoung5090@aol.com; jcc7s@eservices.virginia.edu; cxcarter@odu.edu; msandy@odu.edu; robert.a.baker.ctr@navy.mil; rick@crtnsolutions.com; eupchurch@sitechma.com; sjohnson@adaptiveaero.com; dubtravis@hotmail.com; p.gelhausen@avidaerospace.com; pcushing@williamsmullen.com; rkorroch@williamsmullen.com; steven.walk@nhgs.tec.va.us; tanner.loper@nhgs.tec.va.us; talberts@odu.edu; rdwyer@hrmffa.org; kenny.elliot@yorkcounty.gov; william.a.wrobel@nasa.gov; harry@virginiauas.com; asubramani@avineon.com; jcampbell@avineon.com; sean@hazonsolutions.com; scott@virginiauas.com; Bob@virginiauas.com; jcronin@odu.edu; peter.bale@srsgrp.com; cquigley@hrmffa.org; chris@hoistcam.com; ed@hazonsolutions.com; msatterlund@mwcllc.com; sadlerc@yorkcounty.gov; ariela@powerofavatar.com; dataariseconsulting@gmail.com; kim.lochrie@vaspace.org; dyoung@genedge.org; david@hazonsolutions.com; ralph@jeremycreekfarm.com; jeff.johnson@vtcrc.com; emcmillion@reinventhr.org; director@doav.virginia.gov; jspore@reinventhr.org; paulrobinson@atr-usa.com; vic.z.tumwa@nasa.gov; jacobw@us.ibm.com; dlandman@odu.edu; sherwood@nianet.org; peter.mchugh@nianet.org; cedric.sauvion@act.nato.int; arch@archandassoc.com;

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