



UAS and SmallSat Weekly News

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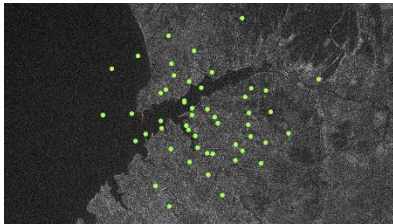


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10Dec22

The Tiny and Nightmarishly Efficient Future of Drone Warfare Mark Bowden

NOVEMBER 22, 2022 The Atlantic



On Saturday, October 29, a Russian fleet on the Black Sea near Sevastopol was [attacked](#) by 16 drones—nine in the air and seven in the water. Purportedly launched by Ukraine, no one knows how much damage was done, but [video shot](#) by the attacking drones showed that the vessels were unable to avoid being hit. In response to that and other successful attacks, Russia has retaliated with scores of missiles and Iranian-built Shahed-136 drones aimed at electrical and water systems throughout Ukraine.

Small, cheap, relatively slow-moving, carrying far less of a wallop than a cruise missile or a 500-pound bomb, the Shaheds have bedeviled Ukraine's otherwise excellent air defenses. Preprogrammed with a target and released in groups of five, the triangular, propeller-driven drones are relatively easy to destroy—if you can find them. They fly low and slow enough to be mistaken on radar for migrating birds. If launched in bunches, as the Russians have been doing, enough are able to evade even the best defenses to do substantial damage. In October, Ukraine estimated that it was **shooting down 70 percent** or more of the Shaheds, but the ones they missed were enough to debilitate the nation's electrical grid.

<https://www.theatlantic.com/technology/archive/2022/11/russia-ukraine-war-drones-future-of-warfare/672241/>

Swoop Aero to create 'world's largest' drone delivery network in Queensland

Bruce Crumley - Dec. 9th 2022



Melbourne-based international [drone delivery](#) company [Swoop Aero](#) is ending 2022 on a high note in its [domestic market](#), receiving an Australian government grant to extend its operation in Southern Queensland into what the firm says will be the world's largest aerial logistics network of its kind.

The development comes as part of a wider national government effort to improve various kinds of transport in Queensland, which features both traffic-clogged cities and smaller towns separated by what are often vast spaces. Officials are providing a total **\$1.8 million** to help



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finance [Swoop Aero](#) extend its existing [drone logistics and delivery](#) activity into a network covering 175,000 square kilometers, and capable of spreading to a full 400,000 square kilometers.

It will build off momentum already attained in work begun in October [flying lab samples](#) for analysis between the Moreton Bay islands off Queensland's coast and clinics in its largest city, Brisbane. That project will transport an estimated 80,000 [annual test materials](#) between facilities operated by Mater Pathology, which is also a partner in the expansion of Swoop Aero's drone delivery network in the state. <https://dronedj.com/2022/12/09/swoop-aero-to-create-worlds-largest-drone-delivery-network-in-queensland/>

Wing offers a peek of its drone delivery remote command centers Bruce Crumley - Dec. 9th 2022



Alphabet-owned [drone delivery](#) company [Wing](#) is lifting the veil on how it gets orders from retail and food company partners to clients faster than ground transport options with a peek into how its cutting-edge remote control centers function.

The main takeaway from that may not come as a shocker to savvy *DroneDJ* readers but will probably update the general public's mental images of aerial operation. Contrary to past UAV activities, [Wing delivery drones](#) aren't being piloted by a corresponding number of people standing around with their thumbs on controller sticks, but are instead monitored in centralized centers as they [autonomously carry out their missions](#).

Those [Wing](#) control centers in **Palo Alto and Dallas-Fort Worth** are opened each day by one of their Pilots in Command, who put [delivery drones](#) through a series of checks so they're ready when partnering companies begin work and start sending orders through. Once that happens and items are loaded into payload containers, humans step back and keep an eye on the UAVs as they go about their business all by their lonesome. <https://dronedj.com/2022/12/09/wing-offers-a-peek-of-its-drone-delivery-remote-command-centers/>



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Turkey's Fighter-Like Drone Emerges for Taxi Tests THOMAS NEWDICK NOV 21, 2022 THE WAR ZONE



Turkey's Baykar company has begun ground tests of its Bayraktar Kizilelma drone, described as the **country's first unmanned fighter aircraft**.

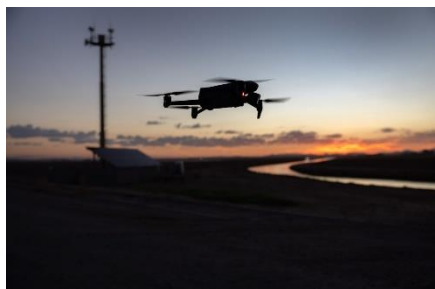
Accompanying imagery of the tests, at the Akinci Flight Training and Test Center in the northwestern province of Tekirdag, which included taxi runs ahead of its first flight, provide us with our best look so far at this unique

uncrewed air vehicle. This would appear to be aimed at a range of combat roles and which is also supposedly being developed for operations from aircraft carriers.

The Kizilelma — meaning Red Apple in Turkish — has been developed by Baykar, which is responsible for the [Bayraktar TB2](#) that has seen notable combat success in the hands of [Azerbaijan](#) and [Ukraine](#), as well as the larger Bayraktar [Akinci](#). The Kizilelma is a very different proposition, however, claimed to be supersonic (at least in later versions), having a degree of reduced-observable characteristics, and tailored for the kinds of air combat missions typically undertaken by manned fighter jets. <https://www.thedrive.com/the-war-zone/turkeys-fighter-like-drone-emerges-for-taxi-tests>

11Dec22

Senators alarmed over potential Chinese drone spy threat BRYAN BENDER and ANDREW DESIDERIO 11/23/2022



Hundreds of Chinese-manufactured drones have been detected in restricted airspace over Washington, D.C., in recent months, a trend that national security agencies fear could become a new means for foreign espionage.

The recreational drones made by Chinese company DJI, which are designed with “geofencing” restrictions to keep them out of sensitive locations, are being manipulated by users with simple workarounds to fly over no-go zones around the nation’s capital.



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Federal officials and drone industry experts have delivered classified briefings to the Senate Homeland Security, Commerce and Intelligence committees on the development.

This story is based on interviews with seven government officials, lawmakers, congressional staffers, and contractors. The officials say they do not believe the swarms are directed by the Chinese government. Yet the violations by users mark a new turn in the proliferation of relatively cheap but increasingly sophisticated drones that can be used for recreation and commerce. They also come as Congress debates extending current federal authorities and adopting new ones to track the aerial vehicles as potential security threats.

<https://www.politico.com/news/2022/11/23/drones-chinese-spy-threat-senate-00070591>

12Dec22

AUVSI Launches Drone Prepared: Is Your State Ready for Drones? Miriam

McNabb December 09, 2022 by DRONELIFE Staff Writer Ian M. Crosby



The Association for Uncrewed Vehicle Systems International ([AUVSI](#)) has announced the launch of its "[Drone Prepared](#)" multi-state initiative, which will help lawmakers prepare for the future increase in drones to reap economic, environmental and workforce benefits.

Already performing essential services across the country, commercial drone operations cover infrastructure inspections, package delivery, wireless internet and cell connectivity, agricultural surveying and countless other applications. Additionally, drones are being leveraged by first responders to save lives assisting search and rescue, firefighting, and police departments nationwide.

With many industries utilizing drones, significant industry growth is anticipated in the coming years. The FAA reports that there are 869,000 registered drones as of October 2022, with more than 300,000 of them flown commercially. The number of operational drones is expected to reach 2.49 million by 2025.

AUVSI will back proposals for the 2023 legislative sessions which promote drone use for public benefit, recognize the FAA's authority over airspace navigation and safety, leverage existing laws addressing concerns such as privacy and trespass; and promote technology neutrality.

<https://dronelife.com/2022/12/09/auvsi-launches-drone-prepared-is-your-state-ready-for-drones/>



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The DJI Mini 3 Portable Camera Drone Revealed Today! Pocket-Sized, Under 249 Grams

Grams Miriam McNabb December 09, 2022 by DRONELIFE Staff Writer Ian M. Crosby

The pocket-sized DJI Mini 3 can be taken anywhere, and at under 249 grams it is exempt from most drone regulations in several parts of the world. Its 1/1.3-inch camera sensor records in 4K/30fps HDR and takes 12MP photos with True Vertical Shooting to create content optimized for social media platforms.



DJI Mini 3's Intelligent Flight Battery grants it a max flight time of up to 38 minutes, which can be extended by up to **51 minutes** with the Intelligent Flight Battery Plus. DJI O2 digital video transmission provides a 720p/30fps live feed from up to 10 km away, with anti-interference technology guaranteeing a stable image connection throughout the flight. Mini 3 has a wind resistance at up to 10.7 m/s, allowing it to hover. DJI Mini 3 also features QuickShots, a suite of pre-programmed flight and filming paths for both landscape and vertical shooting. <https://dronelife.com/2022/12/09/the-dji-mini-3-portable-camera-drone-revealed-today-pocket-sized-under-249-grams/>

uAvionix announces new line-up of multi-frequency C2 solutions for UAS BVLOS operations

December 8, 2022 Jenny Beechener UAS traffic management news, Urban air mobility



uAvionix has announced an updated product line offering for Uncrewed Aircraft System (UAS) Beyond Visual Line of Sight (BVLOS) Command and Control (C2). According to the uAvionix press release:

The SkyLine C2 management platform ecosystem is headlined by muLTElink, an industry first combination of LTE technology with broadcast radio frequency radios which permit dynamic selection of the best radio link at any given moment between LTE, unlicensed industrial, scientific, and medical frequencies, or aviation protected C band in a single low-SWaP avionic device.

Designed for integrated operation with the uAvionix SkyLine C2 management platform, the combination of muLTElink and SkyLine enable a self-healing C2 network capable of both [Path Diversity and Link Diversity](#) eliminating lost-link possibilities over broad terrain and altitude



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ranges. <https://www.unmannedairspace.info/latest-news-and-information/uavionix-announces-new-line-up-of-multi-frequency-c2-solutions-for-uas-bvlos-operations/>

Recent Drone Cybersecurity Developments Could Lead to Fewer Attacks in 2023

Angela Myers | December 8, 2022



Cybercrime has increased dramatically over the past decade with no sign of slowing down in 2023. Drones are a key target for these attacks, but recent drone cybersecurity developments could help protect the information they store.

At the federal level, drones are used to collect critical defense information, such as the location of enemy groups and the terrain and weather across the globe. States and local governments use drones for environmental and disaster management, infrastructure updates, and other critical urban planning tasks.

Not only is this collected information valuable, but drones also often don't have the same security measures as computers or manned aircraft which collect similar information. This is due to the unprecedented complexity and interconnectivity of drone systems.

Luckily, companies like **SkyGrid** are exploring new ways to protect drones against cybersecurity attacks. The use of [artificial intelligence](#) has helped SkyGrid and other companies detect, prevent, and combat cyberattacks against drones.

<https://www.aviationtoday.com/2022/12/08/recent-drone-cybersecurity-developments-lead-fewer-attacks-2023/>

INVOLI offers drone and plane detect and avoid capacities with transponder line

Bruce Crumley - Dec. 12th 2022



[Swiss](#) drone aviation tech company INVOLI has released a new range of [detect and avoid transponders](#) that will enable safe operation of UAVs in areas where crewed and other larger craft may be in operation.

Lausanne-based INVOLI [announced](#) the introduction of its full range of G-1090 air traffic surveillance receivers that [detect signals](#) from all kinds of airplanes, gliders, drones, and other cooperative craft operating in uncontrolled airspaces and



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low-altitude U-spaces. The quick set up and durable transponders provide users awareness of aircraft presence within a 20-kilometer area.

The five types of ground-based units in INVOLI's G-1090 line are designed for easy plug-and-play installation by operators of drones or other craft to keep abreast of local air traffic during their missions or for permanent operation around utility, telecommunications, airport, and infrastructure requiring [detect and avoid](#) capabilities. The devices automatically pick up signals from various types of aerial vehicles and relay those to a central server which processes that data and makes it visible on the connected [INVOLI.live](#) platform. <https://dronedj.com/2022/12/12/involi-offers-full-drone-and-plane-detect-and-avoid-capacities-with-g-1090-transponder-line/>

Eve racks up eVTOL craft and AAM vertiport deals to close 2022 Bruce Crumley - Dec. 12th 2022



Next-generation aircraft developer [Eve](#) is finishing what has already been an eventful 2022 with a pair of deals to prepare for the introduction of future [electric vertical takeoff and landing planes](#) (eVTOL) and other [advanced air mobility](#) (AAM) services.

The first of the two [agreements signed this month](#) was with Brazilian AAM company FlyBIS Aviation, which included a purchase option of up to 40 [Eve eVTOL planes](#). In addition to the aircraft transaction, the agreement calls for the companies to work together developing next-generation air transportation in Brazil and South America.

Based in the city of Caxias do Sul, FlyBIS will initially begin regional AAM services across Brazil's southern states using Eve [eVTOL planes](#) and gradually expand those to other South American nations. The startup is backed by Brave Aviation, which operates air transportation services using traditional aircraft manufactured by Eve's mother company Embraer. <https://dronedj.com/2022/12/12/eve-racks-up-evtol-craft-and-aam-vertiport-deals-to-close-2022/>

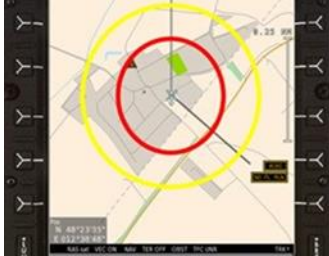
HENSOLDT, AeroNetwork DMI developing drone detector for helicopter crews

December 9, 2022 Philip Butterworth-Hayes UAS traffic management news

HENSOLDT and Aero Network DMI are collaborating to improve situational awareness of drones for helicopter crews.



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According to a company media statement: “The CLEARDRONE detector, a product of Aero Network DMI, is a handy mobile device that can be easily stowed. It detects drones up to four kilometers and displays them on its moving map. The connection of both systems is wireless, so that the detector can be stowed anywhere in the cabin.

“Remote-controlled drones always give themselves away by their emitted signals, and over long distances. The detector can analyze these signals and determine the drone type and manufacturer based on the individual signature,” explains Jens Rosenow, Managing Director of Aero Network DMI GmbH, to which the CLEARDRONE label belongs. Although the 2.4 Ghz and 5.8 Ghz frequency bands are used by countless transmitters, CLEARDRONE’s detector reliably recognizes a consumer drone by the frequency pattern it emits.

<https://www.unmannedairspace.info/latest-news-and-information/hensoldt-aeronetwork-dmi-are-developing-drone-detector-for-helicopter-crews/>

13Dec22

Australia’s First Hydrogen-Electric VTOL Drone: H3 Dynamics and Carbonix

Partner Miriam McNabb December 12, 2022



[H3 Dynamics](#) and Australia’s UAV producer [Carbonix](#) have partnered to develop the first Australian hydrogen-electric VTOL (vertical take-off and landing) drone. Australia’s Carbonix is a drone manufacturer expert in advanced composite manufacturing, aerostructure design and control systems for vertical and landing capabilities. H3 Dynamics

has been working on hydrogen drone technology for over 15 years and has just released a ground-breaking hydrogen-electric nacelle technology.

Compared to batteries, [hydrogen electric systems](#) will increase flight durations by several orders of magnitude, matching the scale of the Australian continent, its low population density, and its globally unique experience in beyond visual line of sight commercial drone operations.



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H3 Dynamics will be integrating its [off-the-shelf hydrogen systems](https://dronelife.com/2022/12/12/australias-first-hydrogen-electric-vtol-drone-h3-dynamics-and-carbonix-partner/) to [Carbonix's existing fleet](https://dronelife.com/2022/12/12/australias-first-hydrogen-electric-vtol-drone-h3-dynamics-and-carbonix-partner/) of small unmanned VTOL systems – enabling training and accelerating field experience. <https://dronelife.com/2022/12/12/australias-first-hydrogen-electric-vtol-drone-h3-dynamics-and-carbonix-partner/>

Aurora Receives DARPA Award to Continue CRANE X-Plane Development Kate O'Connor December 12, 2022



Aurora Flights Sciences has received an award from the Defense Advanced Research Projects Agency (DARPA) to take its experimental X-plane through the next phases of the agency's Control of Revolutionary Aircraft with Novel Effectors (CRANE) program. Aurora's uncrewed X-plane concept uses an active flow control (AFC) system designed to supply "pressurized air to AFC effectors embedded in all flying surfaces" for effects such as "flight control at tactical speeds and performance enhancement across the flight envelope." During phases 0 and 1 of the CRANE program, the company developed AFC-related tools and technologies, developed two X-plane concepts, completed preliminary design work on the chosen concept and conducted wind tunnel testing.

CRANE's phase 2 calls for a detailed engineering design of a full-scale demonstrator aircraft, which will have a 30-foot wingspan and gross weight of 7000 pounds.

https://www.avweb.com/aviation-news/military-aviation/aurora-receives-darpa-award-to-continue-crane-x-plane-development/?MailingID=1152&utm_source=ActiveCampaign&utm_medium=email&utm_content=Pratt+%26+Whitney%2C+Rolls-Royce+Launch+Research+Project+With+Virginia+Tech%2C+NASA+Finalizes+Contract+For+Future+SLS+Rockets&utm_campaign=Pratt+++Whitney%2C+Rolls-Royce+Launch+Research+Project+With+Virginia+Tech%2C+NASA+Finalizes+Contract+For+Future+SLS+Rockets+-+Tuesday%2C+December+13%2C+2022

Skydio unveils new drone-in-a-box product line: Dock, Dock Lite Ishveena Singh - Dec. 7th 2022

US drone maker Skydio has announced the launch of three new drone-in-a-box products: Skydio Dock, Skydio Dock Lite, and Remote Ops software.



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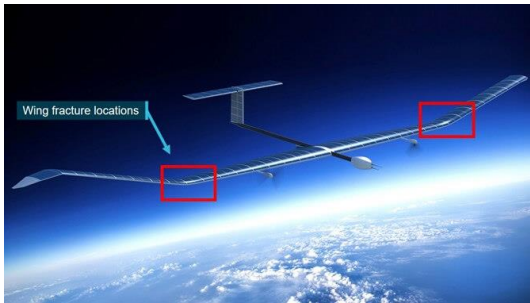
Typically, drone-in-a-box systems are docking and recharging stations that can help to automate drone flights if the local regulations permit so. They can prove incredibly useful in a variety of scenarios, including remote site inspection and monitoring as well as situational awareness.

Now, Skydio Dock and Dock Lite are no different, but they come with the added advantage of Skydio Autonomy, an AI-powered technology that has helped the company to produce some of the smartest drones out there. And, of course, these offerings come from American shores instead of global drone leader China, which could be a consideration for government operations.

But perhaps an even bigger draw for enterprises is going to be Skydio's regulatory team that makes it [easier to obtain approvals to conduct remote operations](#). It's filled with experts who have experience with the largest and most complex enterprise programs and have already obtained multiple remote operations waivers for US and global customers.

<https://dronedj.com/2022/12/07/skydio-dock-lite-drone-box/>

In-flight break-up of high-altitude pseudo-satellite UAS 28 September 2020 Press



The Zephyr unmanned aerial system (UAS), designed as an ultra-light high-altitude pseudo-satellite, had launched from Wyndham Airport on 28 September 2019 for a high-altitude flight.

While climbing through 5,200 feet and about one hour after launch, the UAS encountered unstable atmospheric conditions that resulted in an uncommanded roll to the right and a track change of about 180° before self-recovery. The flight crew in the ground control station, comprising a remote pilot, a remote pilot in command, a mission planner, and a flight test engineer, elected to continue the climb and directed the UAS towards the north in anticipation of smoother conditions.

However, atmospheric conditions became increasingly unstable and the UAS, as it passed through 8,700 feet, experienced a second uncommanded roll but again was able to self-correct, with the crew increasing power and directing the aircraft to calmer conditions. Wind conditions reduced groundspeed to around 1 knot, reducing its ability to move out of the unstable



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conditions in a timely manner, and the Zephyr descended about 1,000 feet over the next 7 minutes.

The UAS then experienced a third uncommanded roll to the right. Unable to self-recover, the UAS entered into an uncontrolled spiral descent, during which its maximum airspeed was exceeded, and the roll angle increased beyond its structural limitations, resulting in both wings fracturing at about mid-span. <https://www.suasnews.com/2020/09/in-flight-break-up-of-high-altitude-pseudo-satellite-uas/>

Unique AtlasPRO Drone for Complex Military Missions Sarah Simpson / 13 Dec 2022

The soldier, carrying the drone in his pack, traverses rugged terrain. He is ready for the mission: surveil the area, find the enemy, and direct the artillery. This is [AtlasPRO](#) – a uniquely sized UAV (unmanned aerial vehicle), designed particularly for military tasks, that fits in a backpack. Its compact design and relatively light weight significantly distinguishes AtlasPRO from other UAVs.



Ivan Tolchinsky, CEO of ATLAS says: *“Using such small systems, consisting of many individual drones that fly together in swarms, each driven by a soldier, is becoming mainstream. It may seem like a war of a bear against a swarm of bees. No matter how big and strong the bear is, a swarm of small bees will always defeat him.”*

https://www.unmannedsystemstechnology.com/2022/12/unique-atlaspro-drone-for-complex-military-missions/?utm_source=UST+eBrief&utm_campaign=4308912e41-ust-ebrief_2022-dec13&utm_medium=email&utm_term=0_6fc3c01e8d-4308912e41-119747501&mc_cid=4308912e41&mc_eid=0d642a9d48

Hidden Level’s Drone Tracking System Ready-Made for New FAA Rules December 12, 2022 News



Federal Aviation Administration regulations will begin to require all unmanned aircraft to transmit identification and location information. Hidden Level’s Airspace Monitoring Service (AMS) technology is uniquely positioned to track, monitor, and validate drones whether or not they comply with the new FAA rules.



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The regulations are in response to the explosive growth of unmanned aircraft systems, or drones, since 2013. The FAA reported over 865,000 registered drones in May 2022 and estimates that number will grow to **14 million by 2024**.

The regulations require all drones made or sold in the United States after December 2022 to support Remote Identification (RID), and all drone pilots must register and operate their drone in accordance with the final rule on remote ID, beginning **Sept. 16, 2023**.

Hidden Level's AMS technology uses a local network of passive RF sensors installed on buildings, rooftops, and cell towers, which detects the movements of drone aircraft in the area. That allows it to track drones even without a RID broadcast, resolving the first gap.

The Hidden Level AMS also checks and validates RID signals by correlating fine angle estimates from its sensors on the received RID broadcast messages with the drone position information included in the messages. https://uasweekly.com/2022/12/12/hidden-levels-drone-tracking-system-ready-made-for-new-faa-rules/?utm_source=rss&utm_medium=rss&utm_campaign=hidden-levels-drone-tracking-system-ready-made-for-new-faa-rules&utm_term=2022-12-13

Matternet's Swiss medical drone delivery network 'world's longest' Bruce Crumley - Dec. 13th 2022



Mountain View, California-based [Matternet said](#) the five-kilometer drone delivery path over Zurich will transport patient diagnostic samples between labs and the Triemli and Waid Hospitals, both of which are part of the municipal Stadspital Zürich system. Those automated UAV shuttles will be conducted as [beyond visual line of sight flights](#) (BVLOS), and seek to both increase the frequency of sample exchanges between clinics, and decrease the time required to make those journeys.

Matternet said the length of the routes involved, which will be flown in just seven minutes, make the new medical network the [world's longest drone delivery](#) operation over an urban zone. The use of its [drones to deliver those medical payloads](#) permits an increased cadence of transport, while avoiding all the jams and polluting emissions down on the roads.

<https://dronedj.com/2022/12/13/matternets-swiss-medical-drone-delivery-network-worlds-longest/>



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Swoop Aero's Malawi medical drone delivery network gets funding to scale nationally Bruce Crumley - Dec. 13th 2022



Melbourne-based [Swoop Aero](#) said it had been granted **\$1.5 million** from USAID Development Innovation Ventures (DIV) to broaden its existing infrastructure and networks using [drones to deliver healthcare and medical supplies](#) to clinics across Malawi. A second phase in that activity will be production of a detailed assessment of the

effects and efficiencies of integrating UAVs into national health systems. That will later be used as a blueprint for [effective replication in other nations](#).

Awarding of the coveted grant comes as Swoop Aero celebrates the **third year** of its [Malawi drone delivery operation](#), which it introduced with the country's health authorities in November 2019. Those finances will aid the company's [network expansion](#) from the current districts of Nsanje, Chikwawa, and Mangochi to what's expected to be **national coverage**.

The objective is to reach 140 health facilities across Malawi within the next 18 months and continue using [Swoop Aero's drone delivery services](#) to improve the accessibility, availability, and quality of routine and emergency health supplies to remote or underserved communities. <https://dronedj.com/2022/12/13/swoop-aeros-malawi-medical-drone-delivery-network-gets-funding-to-scale-nationally/#more-89459>

14Dec22

Airbus Leads Large-Scale Manned-Unmanned Teaming Flight Demo Jessica Reed | December 13, 2022



Two fighter jets, a helicopter, and five drones participated in a large-scale flight demonstration of manned-unmanned teaming. Experts from Airbus led the multi-domain demonstration in partnership with the Bundeswehr, the Finnish Defence Forces, MBDA Germany, Patria, the startup HAT.tec, and Robonic— provider of drone launch systems. The demo is part of a project

intended to pave the way for the Future Combat Air System—a European system of systems being developed by Airbus as well as Dassault Aviation and Indra Sistemas.



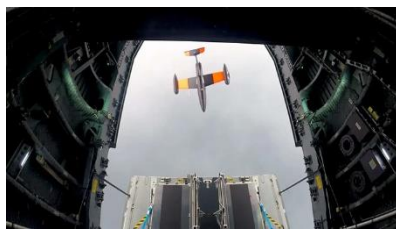
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The five unmanned aircraft systems, also referred to as remote carriers, were modified Airbus Do-DT25 drones. The team equipped two of the drones with MBDA's Electronic Support Measures sensors. They were used to detect the positions of ground to air missiles included in the scenario. The other three remote carriers used Electro Optical cameras to visually confirm the position of the air defenses.

Patria, a networking data link provider, ensured that all assets in the flight demo were connected. The crew onboard the helicopter, an Airbus H145M, teamed up with one of the drones with an Electro Optical camera, to assist in the mission.

<https://www.aviationtoday.com/2022/12/13/airbus-leads-large-scale-manned-unmanned-teaming-flight-demo/>

Remote Carrier demonstrator released and operated from flying A400M for the first time December 14, 2022 News



Germany's Bundeswehr, Airbus, the German Aerospace Center DLR, and German companies SFL and Geradts have jointly carried out the **world's first** successful launch and operation of a Remote Carrier flight test demonstrator from a flying A400M military transport. Multiplying the force and extending the range of unmanned systems will be one of the future roles of Airbus' military transport aircraft in the Future Combat Air System (FCAS).

The device for launching Remote Carriers from a flying A400M was developed in just six months. For the test flight, it was loaded onto the ramp of a Bundeswehr A400M, from which the Remote Carrier demonstrator, a modified Airbus Do-DT25 drone, was launched. After the release, the Do-DT25's engines were started, and it continued in powered flight mode. The crew on board the A400M then handed over control to an operator on the ground, who safely commanded and landed the drone.

Remote Carriers will be an important component of FCAS. Military transport aircraft such as the A400M will play an important role: as motherships, they will bring the Remote Carriers as close as possible to their areas of operation before releasing up to **50 small or up to 12 heavy** Remote Carriers. These will then join manned aircraft, operating with a high degree of automation although always under a pilot's control. https://uasweekly.com/2022/12/14/remote-carrier-demonstrator-released-and-operated-from-flying-a400m-for-the-first-time/?utm_source=rss&utm_medium=rss&utm_campaign=remote-carrier-demonstrator-released-and-operated-from-flying-a400m-for-the-first-time&utm_term=2022-12-14



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Slinging Operations on a Powerline Construction Site – With UAS December 14, 2022 News



FulcrumAir is pleased to announce that it is now offering slinging operations to assist in powerline construction and maintenance, utilizing its E7500 heavy lifting UAS. Work was recently done with K-Line Line Maintenance and Construction on a 138KV line being reconstructed for one of the leading power providers in **Canada**.

K-Line contracted with FulcrumAir to sling over difficult terrain, cross arms, insulators, tools, and other components weighing up to 120 pounds per trip. Overall, 19 trips were made, and 1800 lbs of material was slung in 6 hours of flight time over 16 hours in the field. The work was done over top of sensitive wetland areas, wildlife habitat and a farmer's field, minimizing the impact of trucks and other vehicles. This operation was conducted using the E7500, eliminating the need for a helicopter.

Brian Edall, VP of Business Development at K-Line Group of Companies said, " FulcrumAir's heavy lift drone allowed us to control the site and employee hazards in a very innovative way."

FulcrumAir is a leader in the development of heavy lift UAS and aerial robotic devices to conduct work in a powerline environment. The work for K-Line was done in Canada under regulatory approval from Transport Canada which was first obtained in 2017. FulcrumAir is currently working with the FAA on Type Certification in the US to enable Part 133 external load operations. These approvals are expected in mid-2023 and will enable similar work to be performed in the US. https://uasweekly.com/2022/12/14/slinging-operations-on-a-powerline-construction-site-with-uas/?utm_source=rss&utm_medium=rss&utm_campaign=slinging-operations-on-a-powerline-construction-site-with-uas&utm_term=2022-12-14

15Dec22

The Donut Shaped Drone for Challenging Spaces: Cleo Robotics Wins Army

Contract Miriam McNabb December 14, 2022 by DRONELIFE Staff Writer Ian M. Crosby

Dronut developer [Cleo Robotics](#) has been awarded a **\$2.5M** contract by the U.S. Army's Rapid Capabilities and Critical Technologies Office for the delivery of a number of prototype Tactical Dronut systems for Intelligence, Surveillance and Reconnaissance capability. The contract was



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awarded following the technology's selection during an Army Innovation Day competition evaluation of groundbreaking technologies.



Based on Cleo's Dronut, the TacDronut is a rugged portable sUAS that suits the needs of Soldiers requiring a drone capable of operating within enclosed spaces. Capable of enduring impact without taking damage and operating in both GPS enabled and GPS denied environments, the Dronut features a highly capable and adaptable onboard intelligence and sensor payload. Following the prototype's successful demonstration with the 82nd Airborne

Division, the Army will transition the TacDronut as an ISR capability for the dismounted Soldier.

<https://dronelife.com/2022/12/14/the-donut-shaped-drone-for-challenging-spaces-cleo-robotics-wins-army-contract-for-tacdronut/>

Turkey Flies Fighter Drone Russ Niles December 15, 2022



Turkey's Baykar company flew a new uncrewed fighter drone on Wednesday for the first time and says it could change air power. The Kizilelma drone is as big as an F-16 (more than 48 feet long) but is 6,000 pounds lighter. It's capable of carrying out air-to-ground and air-to-air missions. It's also capable of carrier operations. "Our 20-year dream in our national drone adventure has come true today," said Baykar's chief

technical official Selcuk Bayraktar.

The aircraft is a canard design, uses a Ukrainian-designed Ivchenko-Progress turbofan engine and will carry up to 3,400 pounds of weapons. It's also stealthy and designed for short-field operations. Turkey is now conducting sea trials of an amphibious assault ship capable of hosting the Kizilelma. https://www.avweb.com/aviation-news/turkey-flies-fighter-drone/?MailingID=1154&utm_source=ActiveCampaign&utm_medium=email&utm_content=Hypersonic+Missile+Test%2C+Aspen+Safety&utm_campaign=Hypersonic+Missile+Test%2C+Aspen+Safety-Thursday%2C+December+15%2C+2022

Space helicopters will help us explore Mars and other worlds. Here's how.

Rebecca Sohn Dec 13, 2022

In the wake of the success of Mars' Ingenuity helicopter, more space aircraft are coming.



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NASA's Ingenuity Mars Helicopter on the Martian surface as seen by the Perseverance rover.

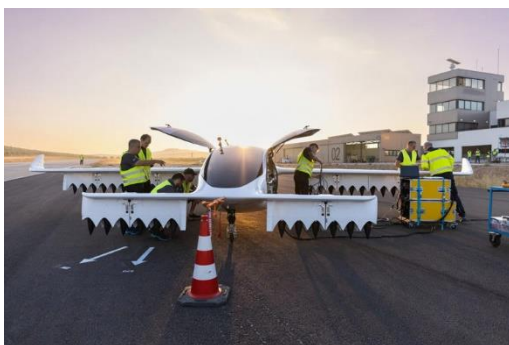
Although originally intended as a simple technology demonstration, the aircraft Ingenuity has far exceeded expectations.

"It did such a good job in fact that even though we originally were meant to fly only up to five times on Mars, we got a new mission," Håvard Grip, an engineer at NASA's Jet Propulsion Laboratory in California who is the aerodynamics and flight control lead and the chief pilot for the [Ingenuity helicopter](#), said during a news conference during the American Geophysical Union Fall Meeting being held this week in Chicago and virtually. Ingenuity would now help scout ahead for the [Perseverance rover](#), scoping out the landscape from the air.

In fact, Ingenuity has been so successful that scientists are already gearing up to use successor helicopters to explore [Mars](#) and beyond, including how future helicopters could further explore and even sample the Martian environment and how NASA's Dragonfly mission to Saturn's moon [Titan](#) will utilize a helicopter to help us study an entirely different world.

<https://www.space.com/space-helicopters-will-explore-mars-titan>

Maker of Flying Electric 'Cars' Prepares for Take Off Jay Ramey • Yesterday



Lilium still sees a future with flying electric cars—or eVTOL as this startup industry is generally referred to—and has just revealed it has raised an additional \$119m from new investors, strategic partners, and existing shareholders, with some big names behind the funding round including Honeywell, Lightrock, Tencent, and Aciturri.

"The proprietary technology at the core of the Lilium Jet is Ducted Electric Vectored Thrust (DEVT) which we have refined through successive generations of aircraft demonstrators," Lilium says. "Electric jet engines integrated into the wing flaps provide advantages in payload, aerodynamic efficiency and a lower noise profile, whilst also providing thrust vector control to maneuver the Lilium Jet through every phase of flight."



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Lilium's vision of an electric VTOL future is still firmly focused on using many small jets in front, with rear wings that can pivot downward to achieve vertical flight and then transition to horizontal flight once at a suitable altitude. This makes it different from several other eVTOL startups that have embraced the scaled-up drone aesthetic with many open propellers for vertical flight. <https://www.msn.com/en-us/travel/news/maker-of-flying-electric-cars-prepares-for-take-off/ar-AA15h0ut?ocid=msedgdhp&pc=U531&cvid=be22e056a83d44d4b4d30ae4afadba83>

Zipline Partners with Government of Rwanda for Autonomous Drone Delivery Services

Jessica Reed | December 15, 2022



The Government of Rwanda plans to complete close to 2 million deliveries via drone and to fly more than 200 million kilometers (over 124 million miles) in Rwanda by the year **2029**.

Zipline's drones are autonomous and are powered by rechargeable electric batteries. They utilize an onboard [acoustic-based detect-and-avoid system](#) to enable safe autonomous flights.

Zipline already operates at a national scale in **Ghana and Rwanda**, performing deliveries of medications, medical supplies, and other items to thousands of health facilities. Zipline has distribution centers in Muhanga and Kayonza. The company has also established a distribution center in Kannapolis, **North Carolina**, and conducts deliveries of special medications via drone for two healthcare organizations in the state.

In July 2022, Zipline shared news of a partnership with MultiCare Health System to launch commercial drone delivery operations in **Tacoma, Washington**. They expect to start operations in 2024. The company also has plans to deliver specialty pharmaceuticals to patients in or near **Salt Lake City** in partnership with Intermountain Healthcare.

https://www.aviationtoday.com/2022/12/15/zipline-partners-government-rwanda-autonomous-drone-delivery-services/?oly_enc_id=7021F0632090D7B

Skydio, Zipline, and Ames Research Center on Popular Science's 2022 "Best of What's New"

Scott Howe DECEMBER 13, 2022



Three drone-related companies and organizations have been named to the Popular Science "Best of What's New" list for 2022. It added [Skydio](#), [Zipline](#), and [NASA's Ames Research Center](#) to its "[100 greatest Innovations of 2022](#)" for "improving our lives."



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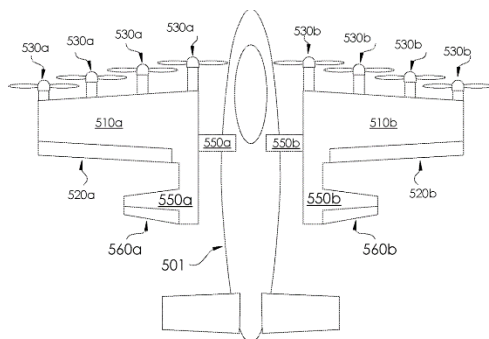
[Skydio 2+ Drone by Skydio](#): This drone was recognized for its advanced subject tracking and obstacle avoidance system. It features a fish-eye lens that provides 360-degree views, the ability to capture 4K video at 60 fps, and a chipset that “generates a 3D-world model with more than 1 million data points per second to identify and avoid anything that might get in its way.”

[Zipline’s Detect and Avoid Technology](#): Popular Science praised Zipline for its innovative onboard microphone-based detection and avoidance system. Its drones are equipped with eight microphones on the wing to listen for approaching vehicles and obstacles to change route and stay clear of potential accidents.

[Scalable Traffic Management for Emergency Response Operations by Ames Research Center](#): NASA’s Ames Research Center was named to the Best of What’s New list for its Scalable Traffic Management for Emergency Response Operations project. This past year, STEReO tested a small device that monitors the positions of drones operating above events such as forest fires and gives operators alerts enabling them to avoid other vehicles. https://www.commercialuavnews.com/skydio-zipline-and-ames-research-center-named-to-popular-science-s-2022-best-of-what-s-new-list?mkt_tok=NzU2LUZXSioWnJEAAAGItiRifolz2SDK19JppTNH1JdPO8TQm_cnIdPr5rf30I_UDbmOzl6gV4MrDqzZbA-5uQm64PmXYqAOY-nN6TPRkK7SMmwN9nD1ELocmWqBU-eh0w

16Dec22

AAC to develop a unique free-swinging tilt-wing UAV for NASA Loz Blain December 16, 2022



NASA has contracted Virginia's Advanced Aircraft Company to design and build a prototype of a new type of transition-capable eVTOL drone – a tilt-wing concept that uses aerodynamic forces instead of actuators to tilt the wings and propulsion systems.

AAC Founder and CEO Bill Fredericks has spent time working at NASA's Langley Research Center in Hampton, Virginia – and indeed, he worked on the early concept of these "aerodynamically actuated thrust vectoring devices" while he was there. Thus, while Fredericks is one of three named inventors on [a patent filed back in 2016](#), NASA owns the IP, and Fredericks will work on designing and building the prototype under license.



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Fredericks believes transitioning flight doesn't need to be complex. An aero-driven tilt-wing aircraft would have freely tilting wings with propellers attached, weight-biased to have the wings and propellers point vertically upward at zero airspeed.

They'd take off and hover like a regular drone, and then as they began to move forward through the air, control surfaces like flaps on a plane wing would adjust lift, using both ambient air and air moving through the propellers to pivot the wings fully forward into cruise mode for efficient flight. <https://newatlas.com/aircraft/aac-aerodynamic-tilt-wing/>