UAS and SmallSat Weekly News

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13Nov21

Drones and F-35 fighter jet deal in focus for the Dubai Air Show NOV 12 2021

Natasha Turak@NATASHATURAK

DUBAI, United Arab Emirates — Cutting-edge technologies and geopolitics are set to feature in military deals at this year's Dubai Air Show. And some weapons sales — or lack thereof — are major sticking points for both the U.S. and its Gulf allies, in particular the United Arab Emirates.

Fighter jet fleet upgrades and new counter-UAS technologies are likely to be major themes at the industry show, especially considering the rise in drone attacks around the region in recent years.

Previously, U.S. export regulations prevented Washington from selling lethal drones to any of its Arab allies. But all that changed after Israel and the UAE signed the Abraham Accords in August of 2020, normalizing relations and paving the way for cooperation and trade across nearly all sectors. And the export restrictions on armed drones were loosened by the Trump administration in July of 2020 to allow certain drones — including the lethal Reapers — to be sold to friendly Arab states.

Charles Forrester, senior defense industry analyst at IHS Jane's, highlighted a point that many American industry leaders have warned about: losing market share to China, which has been selling its own armed drones to Arab states, including the UAE.

Asked in what segment of aerospace China was most alluring to Gulf customers, Teal Group's Aboulafia said: "Oh, unquestionably drones. Absolutely. Drones, drones, drones. And you know, there's no such thing as a passive platform anymore. Everything sucks up data. So that's a real concern." https://www.cnbc.com/2021/11/12/drones-and-f-35-fighter-jet-deal-in-focus-for-the-dubai-air-show.html

Is Apple building a DRONE? New patent applications for UAVs powered by an iPhone STACY LIBERATORE FOR DAILYMAIL.COM 11 November 2021

Apple is rumored to be developing several technologies outside of smartphones and tablets, such as a VR headset and a car, but new patents awarded to the tech giant on Thursday suggest it may be working on a drone.

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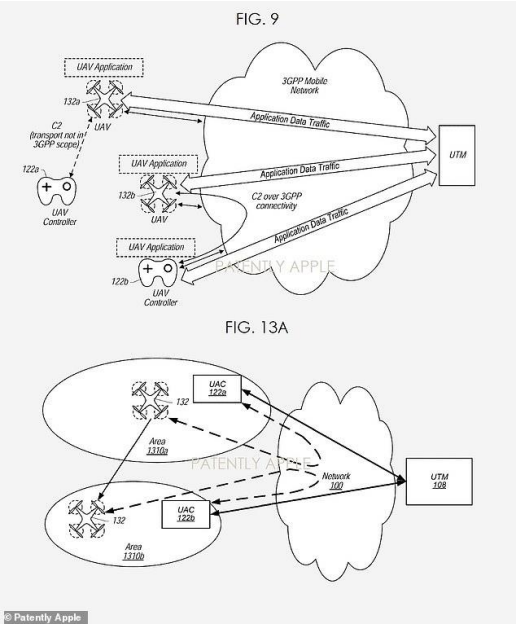
Two patents describe small unmanned aerial vehicles that pair with wireless controllers or drones operated via an **iPhone** or a Nintendo DS. The images in the patents depict a small drone with four rotors, a common designed for small UAVs.



The patents were first filed in May 2020 in Singapore, but made their way to the U.S. in February and April and were awarded to Apple on November 11, as first reported on by **Patently Apple**.

One patent, entitled '**Unmanned Aerial Vehicle and Controller Association**,' describes using wireless controllers to operate the Apple's UAV.

This document covers apparatuses, systems and methods for pairing/unpairing UAVs to/from UAV controllers.

The controllers, according to the application, would feature at least one antenna to perform cellular communication with the drone.

The UAVs would also be designed with a type of memory and processing element that would allow it to recall previous tasks sent by the controllers.
https://www.dailymail.co.uk/sciencetech/article-10192691/Is-Apple-building-DRONE-New-patents-filed-tech-giant-small-unmanned-aerial-vehicles.html

Zipline, Pfizer & BioNTech Automatedly Deliver COVID-19 Vaccines in Ghana

Temitope Obayendo 11/11/2021

Zipline, Pfizer Inc. and BioNTech, have announced the completion of the first long-range drone delivery of authorized mRNA COVID-19 vaccines, requiring ultra-cold-chain in Ghana.

In a press release on Thursday, Pfizer Inc. revealed the collaboration of the companies to develop and test a vaccine delivery solution that will allow for the distribution of tens of thousands of doses of the Pfizer-BioNTech COVID-19 Vaccine in Ghana, pioneering a new model for vaccine distribution.

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In addition to financial support for the pilot program, the document disclosed that Pfizer and BioNTech provided technical assistance for the management and storage of the Pfizer-BioNTech COVID-19 Vaccine at -90°C to -60°C. This partnership has paved the way for drone deliveries of mRNA vaccines.

The companies noted they share a goal to help ensure the safe and equitable distribution of COVID-19 vaccines. "Pfizer and BioNTech have committed two billion doses of their COVID-19 vaccine to low- and middle-income countries through 2022 and are actively working on collaborating with both public and private organizations to accelerate the vaccine rollout worldwide. https://pharmanewsonline.com/zipline-pfizer-biontech-automatedly-deliver-covid-19-vaccines-in-ghana/

Biden administration wrestles with selling armed drones to Indonesia PAUL MCLEARY and LEE HUDSON 11/11/2021

President Joe Biden meets with Indonesian President Joko Widodo during the COP26 U.N. Climate Summit, on Nov. 1, 2021, in Edinburgh, Scotland.

The State Department is mulling the sale of armed drones to Indonesia but concerns over human rights abuses and the country's past purchases of Russian equipment have set off a debate inside the Biden administration over approving the move.

The Indonesian government wants a new package of armed drones as it modernizes its fleet of aging fighter planes, though the country has cast a wide and tangled net as it claims to be considering new planes from Russia, South Korea, France, and the United States.

Jakarta's request to purchase armed MQ-1C Gray Eagle drones comes as Washington is also considering selling Qatar four MQ-9B Predator drones. The State Department and White House have been working for months on a new arms transfer policy that promises to place a renewed emphasis on human rights and protecting civilians, a review that could complicate some pending deals with countries that have a history of abuses.
https://www.politico.com/news/2021/11/11/biden-administration-armed-drones-indonesia-520888

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Archer on Track for First Maker eVTOL Flight in December Woodrow Bellamy III November 11, 2021

Archer Aviation is preparing for the first hover flight of its Maker electric vertical takeoff and landing (eVTOL) aircraft in December, according to comments made by the company's co-founders during their first quarterly earnings call as a publicly traded company held on Thursday.

Adam Goldstein and Brett Adcock, Archer's co-CEOs, Ttold analysts during the call they plan on selecting and starting construction on a manufacturing site next year, are in the process of developing a Maker 2 eVTOL demonstrator and will unveil their first production aircraft in 2023. The company finished the third quarter with a net loss of $177 million, and added several key new program hires across multiple engineering disciplines including aerodynamics, systems and safety engineering, battery systems and flight control systems among others.

"We are pleased to announce that we have relocated maker from our design and development facility to the hangar facility, from which we will conduct our Maker test flights. The aircraft is currently undergoing preparations for its hover flight, which we anticipate will take place by the end of this year," Goldstein said. "We intend to unveil the first-generation of our production aircraft in 2023. It will be a piloted aircraft that can carry up to four passengers. We recently completed our conceptual design review of this aircraft, and we're currently in the preliminary design stage." https://www.aviationtoday.com/2021/11/11/archer-track-first-maker-evtol-flight-december/

AFWERX Director Notes Potential of eVTOL for Air Force Personnel Recovery

Frank Wolfe November 11, 2021

An Air Force pararescue jump expert evaluates how to load a simulated injured survivor or "Rescue Randy" into Kitty Hawk's Heaviside vehicle.

Air Force Col. Nathan Diller, the director of the service's AFWERX innovation arm, this week noted the potential of electric vertical takeoff and landing (eVTOL) vehicles for Air Combat Command personnel recovery missions.

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Over the summer, California-based Kitty Hawk used its Heaviside eVTOL in a medical evacuation exercise that marked the first time that AFWERX had participated in such an exercise with an eVTOL.

Commercial eVTOLs face several hurdles, including regulatory approvals, building charging infrastructure, and airspace deconfliction with possibly thousands of other eVTOLs, in addition to traditional aircraft. The Air Force is working with the Federal Aviation Administration, NASA, and the Department of Energy and may help such eVTOLs achieve airworthiness approval more quickly.

The Air Force launched its Agility Prime program in May last year to accelerate technology development for electric air taxis. Thus far, four eVTOLs, including Heaviside, have achieved airworthiness certification. In addition to search and rescue/personnel recovery missions, the service has said that it could use eVTOL aircraft, including autonomous ones, for transportation and surveillance missions. The Air Force may begin fielding eVTOLs by fiscal 2023. https://www.aviationtoday.com/2021/11/11/afwerx-director-notes-potential-evtol-air-force-personnel-recovery/

Top Drone Manufacturers of 2021: Drone Industry Insights Miriam McNabb November 11, 2021

New research from Drone Industry Insights lists the world's top drone manufacturers of 2021.

The DRONEII Report assesses more than 500 global drone manufacturing companies. The leaders in the commercial space offer some surprises. #1 is the dominant global leader DJI: no surprise to anyone familiar with reports that place DJI's market share at anywhere from 65% to 85% or greater.

With ramped up competition all around the world, the #2 position may have been a closer race. Parrot, however, has been in the game for a long time: and with recent innovative releases including the ANAFI Ai, they've made it to the second spot.

The third place may be a surprise to those outside of the agricultural sector. Chinese company Xag focuses on precision ag and crop spraying drones.

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Where are these leading players located? China's manufacturing power is still on top, with 11 of the top 40 drone manufacturers on the list. The U.S., however, is rising in the dual-use sector, where military and commercial technology merge: and leads the North American market. In the Middle East, Israel dominates and in South America, Brazil takes first place. https://dronelife.com/2021/11/11/top-drone-manufacturers-of-2021-drone-industry-insights/

Volocopter Conducts South Korea's First Crewed Public Air Taxi Test Flight

November 12, 2021 News

German urban air mobility pioneer, Volocopter, has completed the first test flight with its 2X aircraft in Seoul, South Korea. It was the first ever crewed public test flight of a fully electric vertical take-off and landing air taxi in South Korea. The Republic's Minister for Land, Infrastructure, and Transport Noh Hyeong Ouk, together with senior officials from Delegation of the European Union to the Republic of Korea and German Embassy, witnessed the historical test flight, which marks a milestone in Volocopter's plan of introducing air taxis globally.

The 5-minute crewed test flight took place at Gimpo International Airport, covered approximately 3 kilometers, reached a maximum altitude of 50 meters and maximum speeds of 45 km/h. The test flight was part of the MOLIT's UAM demonstration event – 'Open the Urban Sky'. https://uasweekly.com/2021/11/12/volocopter-conducts-south-koreas-first-crewed-public-air-taxi-test-flight/?utm_source=rss&utm_medium=rss&utm_campaign=volocopter-conducts-south-koreas-first-crewed-public-air-taxi-test-flight&utm_term=2021-11-12

Sagetech Avionics Awarded Grant for Collision Avoidance System 09 Nov 2021 Mike Ball

Sagetech Avionics, along with partner Ciconia Ltd., has been awarded a $1 million grant by the Israel-U.S. Binational Industrial Research and Development Homeland Security program for the development of a mid-air conflict management and collision avoidance system. The technology is intended to provide a safe way for UAVs and manned aircraft to coexist in crowded airspace, for the benefit of first responders.

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Sagetech is an aerospace technology company providing state-of-the-art situational awareness solutions for drones and manned aircraft, and Ciconia is a developer of collision avoidance systems with intuitive prioritization and conflict management methods for all aerial platforms. The BIRD HLS program is a joint initiative, funded by the U.S. Department of Homeland Security and the Israel Ministry of Public Security and managed by the BIRD Foundation, that aims to support the development of advanced technologies for homeland security needs. https://www.unmannedsystemstechnology.com/2021/11/sagetech-avionics-awarded-grant-for-collision-avoidance-system/

14Nov21

U of M professors earn big grants, including a $2.7M award focused on drones

Trey Clark By John Klyce – Reporter November 11, 2021

University of Memphis electrical and computer engineering professor Eddie Jacobs will lead the "Multi-UAS Multi-Sensor Intelligence, Surveillance, and Reconnaissance" project which brings together researchers from U of M, University of Arizona, and the University of Central Florida.

The grant is valued at $2.7 million, and the hope is to develop UAS for wide-area intelligence, surveillance, and reconnaissance. The group will focus on experimental research with UAS and multiple sensors to advance technologies and improve simulation fidelity, which is the level of realism portrayed in a simulated educational or training experience.

This should help lead to a system that uses multiple UAS with a variety of sensors that detect and identify potential threats and items of interests. The system, sponsored by the U.S. Army Research Laboratory, is expected to be enhanced by on-board AI and machine learning that processes sensor data into actionable information. It will also have an advanced mobile ad hoc network system that collects and disseminates data, and an advanced optical communication system for high-bandwidth data. https://www.bizjournals.com/memphis/inno/stories/profiles/2021/11/11/research-roundup-uofm-grants-with-drone-award.html

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The Army is testing drones that can deliver life-saving blood to the battlefield DAVID ROZA NOV 12, 2021

What if vampires delivered blood instead of taking it away? That seems to be the key concept at work behind the Army's latest idea to deliver life-saving blood to medics in the field via autonomous drones.

In August, a team of Army researchers worked with tech companies Near Earth Autonomy and L3Harris Technologies to demonstrate an unmanned aircraft delivering whole blood to a landing zone in Fort Pickett, Virginia. The drone showed off its ability to fly over the LZ, scan the terrain for a suitable place to touch down and come to a smooth stop in the field. If the landing zone was too cluttered to land, the drone just dropped the delivery off from a low altitude hover, or released transport pods via parachute.

The new tech could be a big step forward for battlefield first aid, where medics and corpsmen fight against the clock to get their patients the care they need with the limited resources they have in the field. Delivering blood via drone presents key advantages because it would ramp up the resources those medics have available without putting human pilots at risk, should the troops in the field be isolated by hostile fire or poor weather conditions.

In the August exercise, the team used an FVR-90 drone, which can take off and land vertically like a helicopter, fly 12 to 18 hours and carry up to 22 pounds of payload in its nose. The L3Harris product also carries a suite of sensors to help it determine where to land near medics in need. https://taskandpurpose.com/news/army-medic-blood-drones/

15Nov21

SpaceX launches 53 Starlink satellites into orbit ALEX SAN ZNovember 13, 2021

CAPE CANAVERAL, Fla. (AP) — SpaceX expanded its constellation of low Earth orbit satellites on Saturday with the launch of 53 Starlink satellites from Florida.

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A Falcon 9 rocket lifted off from Cape Canaveral Space Force Station at 7:19 a.m. EST and deployed the satellites about 16 minutes after launch.

The rocket's reusable first stage, which has been used for multiple launches, including the first crewed test flight of SpaceX's Crew Dragon spacecraft, successfully returned and landed on the "Just Read the Instructions" droneship in the Atlantic Ocean. Starlink is a satellite-based global internet system that SpaceX has been building for years to bring internet access to underserved areas of the world.

Earlier this week, SpaceX launched four astronauts to the International Space Station, including the 600th person to reach space in 60 years. It took 21 hours for the flight from NASA's Kennedy Space Center to reach the glittering outpost.

The astronauts got emotional when they first spotted the space station from 20 miles out, calling it "a pretty glorious sight." https://apnews.com/article/spacex-space-launches-science-business-atlantic-ocean-b4bef3efb8ffbeefe70dbbcc5a764240

Leonardo AW609 Tiltrotor Takes Bow in Dubai Peter Shaw-Smith November 14, 2021

Making five stops on the way to Dubai from Italy due to limitations on the range of the test aircraft, the AW609 tiltrotor arrived in the Middle East last month for display at Expo 2020.

With further work pending to achieve Federal Aviation Administration certification, Leonardo has announced an order by launch customer Bristow for the tiltrotor and will likely continue testing its four prototypes well into next year.

The AW609 flew to Dubai for the opening ceremony of the innovative Expo 2020 helicopter terminal, built by Leonardo in partnership with Abu Dhabi-based oil and gas operator and charter provider Falcon Aviation Services.

AW609 test pilot Gianfranco Cito, one of only 10 pilots approved to fly the tiltrotor, said testing will be complete by August 2022. "The type of mission could be civilian use or potentially search and rescue or police-type work," he said.

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The AW609 can fly at over 270 knots and to a range of more than 750 nm, which increases to almost 1,100 nm with auxiliary tanks. It can accommodate nine passengers, flies at a maximum altitude of 25,000 feet, and can take off vertically in helicopter mode or from runways with rotors set in a more horizontal position. https://www.ainonline.com/aviation-news/general-aviation/2021-11-14/leonardo-aw609-tiltrotor-takes-bow-dubai

DRL LAUNCHES ITS FIRST DRONE RACING MOBILE GAME November 12, 2021 Sally French News

The Drone Racing League on Monday dropped what's called Drone Racing Arcade, a mobile game that simulates being a racing drone pilot. The mobile game was created by DRL in partnership with Skillz, which is a mobile games platform.

As part of the game, you'll initially compete against a clock, where you'll race virtual DRL drones through virtual courses. Like actual done race courses, you'll fly around obstacles and through gates. But unique to the mobile game version, you'll also be able to fly around collecting coins and boosts to rack up even more points and abilities.

To fly, you'll use simple touch-screen maneuvers that mirror racing with a physical drone. Like physical drone racing, you'll need to rise, push, and tilt the drones to make it fly on the right path, giving you a feel for real-life drone racing skills and commands such as throttle, pitch, and yaw.

Download it now, and from then you have a month to built up your app racing skills. That's because this December, DRL will allow players to participate in Skillz-hosted Drone Racing Arcade tournaments, which entails exclusive prizes for the winners.

"Our Drone Racing Arcade game is the ultimate first foray into flying drones on mobile and gives players a fun, free and easy way to experience the thrill of drone racing," said DRL Chief Marketing Officer Anne Marie Gianutsos. https://www.thedronegirl.com/2021/11/15/drl-drone-racing-mobile-game/

Zipline in Utah: Delivering Prescriptions and Medical Supplies to Patients in Salt Lake City Miriam McNabb November 13, 2021 DRONELIFE Staff Writer Ian M. Crosby

Global logistics leader Zipline announced today the formation of a first-of-its-kind partnership with Intermountain Healthcare. Zipline and Intermountain Healthcare will collaborate to deliver

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prescriptions and medical supplies to patients in the Salt Lake City metro area. Over a multi-year period, the project is expected to expand to complete hundreds of deliveries each day, able to deliver to approximately 90 percent of patient homes in the region.

By utilizing Zipline's automated, on-demand delivery service, Intermountain Healthcare will have the means to render services more accessible and convenient for its patients. The partnership will start by focusing on the delivery of specialty pharmaceuticals and homecare products to the homes of patients within a 50-mile radius of the Salt Lake-area distribution center. Intermountain Healthcare plans to gradually expand this service to include the delivery of a range of medications and products, such as prescriptions, specialty pharmaceuticals and over-the-counter items.

Zipline's automated, on-demand delivery service utilizes a fleet of small, fixed-wing autonomous aircraft, capable of traveling long distances in most weather conditions and safely, gently, and quietly parachuting packages to an area about the size of several parking spaces. These fully electric aircraft can help decrease vehicle traffic and carbon emissions from medical deliveries in Utah. https://dronelife.com/2021/11/13/zipline-in-utah-delivering-prescriptions-and-medical-supplies-to-patients-in-salt-lake-city/

Over $3M up for grabs in autonomous maritime security drone competition

Ishveena Singh - Nov. 15th 2021

Scheduled to be held in the capital city of the United Arab Emirates in June 2023, the Mohamed Bin Zayed International Robotics Challenge will require a swarm of autonomous drones to identify a target vessel from several similar vessels in open waters in a GNSS-denied environment.

Competitors will be able to use between five and 20 drones to survey a defined area, which will have fewer than 10 boats, to identify one or more rogue vessels. To help identify the bad actor(s), partial or unclear images of the vessel(s) will be provided to the competitors, possibly from various angles.

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In the second part of the challenge, competitors will be required to offload specific items from the target vessel onto an uncrewed surface vehicle in the shortest possible time using autonomous technologies, such as a robotic arm.

MBZIRC Maritime Grand Challenge aims to bring together international universities, research institutions, companies, and individual innovators to find practical solutions to maritime challenges such as illegal fishing, piracy, smuggling, and human trafficking.

The robotics competition is being organized by ASPIRE, the dedicated technology program management pillar of the Advanced Technology Research Council, which is the overarching advanced technology research body in Abu Dhabi. Call for registrations is now open.

The team winning the first prize will take home $2 million. The team placed second will receive $500,000, while the team bagging the third prize will win $250,000. A special cash award of $500,000 will also be awarded to all teams progressing to the demonstration phase. This amount is to be split among the teams. https://dronedj.com/2021/11/15/autonomous-maritime-security-drone-competition-abu-dhabi/

Near Earth, L3Harris fly long-distance autonomous UAV medical deliveries to soldiers Bruce Crumley - Nov. 15th 2021

The partners say the test flights confirm the viability of their offer permitting armed forces officials to quickly dispatch urgent material hundreds of miles for use by medics tending to wounded troops in the field. Their demonstration used Near Earth's automated navigation platform to fly an L3Harris FVR-90 Airframe UAV and make delivery of its medical supplies payload to remote locations under differing retrieval scenarios.

The project relied on the L3Harris hybrid vertical takeoff and landing UAV which can carry up to 22 lbs. of cargo in its nose compartment. The autonomous navigation platform controlled the flight from lift-off to the mission's final touchdown and oversaw two contrasting delivery situations.

In the first, onboard sensors were used to analyze and select unobstructed spots for safe landing and departure. In tests where terrain was determined by the tech to be inhospitable to

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landing, the UAV made delivery drops of the medical supplies in protected transport pods from low hovering altitudes, or from higher up using parachutes.

The trials were sponsored by the US Army's Medical Research and Development Command's Telemedicine and Advanced Technology Research Center as part of its ongoing exploration of ways to care for the injuries and save lives of wounded soldiers in battle situations. A frequent treatment is whole blood transfusions, which help avert hemorrhagic shock during tactical combat medical intervention. https://dronedj.com/2021/11/15/near-earth-l3harris-fly-long-distance-autonomous-uav-medical-deliveries-to-soldiers/#more-71626

16Nov21

Solar-powered Zephyr beams broadband from 76,100ft during 18-day stratosphere flight RYAN MORRISON FOR MAILONLINE 15 November 2021

Zephyr, a solar-powered unmanned aerial vehicle built by Airbus, was used to deliver next generation wireless internet as part of a test flight over **Arizona**.

Airbus was testing the 'High Altitude Platform Station' onboard the British-built UAV. The test was in partnership with Japanese mobile operator NTT DOCOMO and could one day lead to super-fast broadband in remote areas. It carried a radio transmitter that provided a datalink to simulate future systems that would send internet signals between the UAV and a computer.

The test could pave the way for a fleet of Zephyrs delivering 5G and 6G mobile internet to remote parts of the planet or providing a short-term signal boost during a major event in a populated area.

The Zephyr is powered by the sun during the day which also recharges its lithium-sulphur batteries to power it by night. Its huge 25m wingspan can be launched by four military personnel on their shoulders.

The two firms hope to build on the tests and use Zephyr to provide communication and internet services to mountain regions, remote islands, and maritime areas.
https://www.dailymail.co.uk/sciencetech/article-10203561/Airbus-solar-powered-aircraft-Zephyr-successfully-beams-broadband.html?ito=1490

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China Bought Italian Military-Drone Maker Without Authorities' Knowledge

James Marson *in Brussels and* Giovanni Legorano *in Rome* Nov. 15, 2021

Chinese President Xi Jinping at the Aviation University of the Air Force in Jilin, China

In 2018, a Chinese state-controlled company bought an Italian manufacturer of military drones. Soon after, it began transferring the company's know-how and technology—which had been used by the Italian military in Afghanistan—to China.

The Italian and European authorities had no knowledge of the move, revealing how Beijing is skirting weak investment-screening in Europe to acquire sensitive technology.

Italian authorities are investigating the 2018 takeover of Alpi Aviation Srl by a Hong Kong-registered company that they say is a front for the Chinese state and was in the process of transferring the company's technical and intellectual property to a new production site in China.

The takeover fits a pattern of Chinese state firms using ostensibly private shell companies as fronts to snap up firms with specific technologies that they then shift to new facilities in China. https://www.wsj.com/articles/china-bought-italian-military-drone-maker-without-authorities-knowledge-11636972513

Japanese Epsilon rocket launches nine small satellites November 15, 2021 Stephen Clark

The fifth Epsilon rocket blasts off from the Uchinoura Space Center on Nov. 9

A Japanese Epsilon rocket launched nine small satellites into orbit Nov. 8, deploying technology to prove out ways to eliminate space debris, a miniature lab for biological experiments, and a potpourri of pathfinder probes to test new sensor and spacecraft components.

The solid-fueled launcher blasted off with its nine satellite payloads from the Uchinoura Space Center, located in Japan's Kagoshima prefecture in the southwestern part of the country, at 7:55:16 p.m. EST

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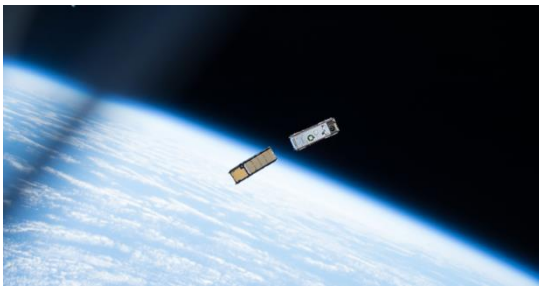
on Nov. 8.

Liftoff occurred at 9:55 a.m. Japan Standard Time on Nov. 9, kicking the fifth flight of an Epsilon rocket, which serves the small satellite launch market in Japan.

The 85-foot Epsilon rocket launched south from the Uchinoura Space Center over the Pacific Ocean, targeting an altitude of more than 354 miles to release its nine satellite payloads. The mission deployed the satellites right on target in a sun-synchronous orbit at an inclination of 97.6 degrees, according to U.S. military tracking data.
https://spaceflightnow.com/2021/11/15/japanese-epsilon-rocket-launches-nine-small-satellites/

NASA Selects 7 Winners of Entrepreneur's Challenge for Smallsat Tech Nichols Martin November 15, 2021



Seven startups each won $90,000 in awards to develop technologies that can support small satellite science missions for NASA.

The space agency said Saturday it held a two-round competition to select the winners from a pool of 44 participants in the Entrepreneur's Challenge.

The competition sought sensors, electronic systems, and autonomous detection technologies for smallsats; sensors made of materials with non-natural properties; and instruments that can detect signs of life in ocean environments.

A panel of judges selected 10 companies that each received $10,000 then presented their entries. Seven finalists from two of the three focus areas secured additional prizes worth $80,000. The seven winners of the Entrepreneur's Challenge are: Morpheus Space, Multiscale Systems, Nebula Compute, Niobium Microsystems, OAM Photonics, Resilient Computing, and Zephyr Computing. https://blog.executivebiz.com/2021/11/nasa-selects-7-winners-of-entrepreneurs-challenge-for-smallsat-tech/

Personal eVTOL Vehicles: AIR CEO Believes in the Flying Cars of the Future Miriam McNabb November 15, 2021 Jim Magill

In recent years, planners envisioning urban air mobility have focused largely on the creation of fleets of air taxis. Challenging this conventional wisdom is Rani Plaut, CEO and co-founder of Tel

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Aviv-based AIR, an Israeli start-up company that has developed an electric vertical take-off and landing vehicle, who believes that small personal flying machines will be the wave of the future.

AIR unveiled its initial aerial product offering, the AIR One, a two-seat eVTOL vehicle designed for recreation and short commutes, last month. The One is powered by a 60 Kw-hour lithium-ion battery, like those used in electric vehicles that run on the ground, which enables it to fly up to 110 miles on a single charge at speeds up to 155 miles per hour.

The company has flown unmanned test missions of its prototypes using its Fly by Intent software, and those test flights have reassured AIR officials that the vehicles are airworthy and ready to be certified for manned flight.

Plaut said the biggest hurdle still faced by AIR is getting the approval of the Federal Aviation

Administration. He said the company has been working closely with the FAA since 2019 to obtain its G1 certification, which it hopes to secure by the end of 2023. Pending that approval, AIR can start delivering its personal aerial vehicles to the market by 2024. https://dronelife.com/2021/11/15/personal-evtol-vehicles-air-ceo-believes-in-the-flying-cars-of-the-future/

Drones, thermal sensors provide precise UK grey seal census Bruce Crumley - Nov. 16th 2021

Drones equipped with thermal sensors are being deployed in one of the UK's largest-ever surveys of Atlantic grey seal pups as a less intrusive, faster, and cheaper alternative to manual counting.

Those census operations are underway over the Farne Islands, located off England's northern coast between Newcastle and the Scottish border. After hunting decreased population levels to only around 500 individuals early last century, current estimates place the number of grey seals in the UK at 120,000, representing about 40% of the global total. Their previous 2019 survey established the many advantages of using the craft over manual efforts. It also recorded a record number of 2,823 pups born since the 2014 census – an increase of 62%.

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Before the embrace of drones, human observers had to get themselves out to remote grey seal reserves after the first pups had appeared, then physically wade into their midst to apply an innocuous vegetable dye to indicate the period of their birth. The new process involves a first drone with a regular camera overflying reproduction areas to capture standard footage. Then, a second craft passes over using its thermal sensor to take more precise images in which different ages of seals can be discerned. https://dronedj.com/2021/11/16/drones-thermal-sensors-provide-precise-uk-grey-seal-census/

17Nov21

Leonardo Progressing Assembly of Production-Standard Tiltrotors Tony Osborne November 16, 2021

DUBAI—Leonardo Helicopters has rolled out the first production-standard AW609 commercial tiltrotor.

AC5 was finalized at the company's facility in Philadelphia during the fall and is currently undertaking ground tests in support of the certification of the aircraft, Bill Sunick, Leonardo's senior AW609 marketing manager, told ShowNews on Nov. 15.

AC5 is the first AW609 to be produced as such—the four prototypes which supported the development program have all been modified from when the aircraft was first developed as the Agusta-Bell BA609. The aircraft is expected to take flight in early 2022.

The milestone emerged as the company debuted the tiltrotor in the flying display of this year's Dubai Airshow. https://aviationweek.com/shownews/dubai-airshow/leonardo-progressing-assembly-production-standard-tiltrotors

Martin UAV Kicks Off Project with Naval Air Warfare Center Aircraft Division

November 16, 2021Military | News

Shield AI, the defense-technology company using software to enable collaborative teams of unmanned aircraft to operate in GPS- and RF-denied environments, announced today that Martin UAV kicked off its Multi-Mission Tactical UAS Increment 2 prototype with Naval Air Warfare Center Aircraft Division on Oct. 19. The company's goal is to deliver the full prototype version of its V-BAT Unmanned Aircraft

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System (UAS) to the U.S. government for operational testing and acceptance. The successful completion of this agreement will provide Martin UAV an opportunity to enter into an official Program of Record with the Government to continue improving the V-BAT 128 based on warfighter input and battlefield capability gaps.

Martin UAV (a Shield AI company) V-BAT aircraft is the only single-engine ducted fan VTOL that can launch and recover from a hover, fly up to 11 hours in horizontal flight, and make mid-flight transitions to "hover and stare" at any time throughout a mission. https://uasweekly.com/2021/11/16/martin-uav-kicks-off-mtuas-increment-2-effort-with-naval-air-warfare-center-aircraft-division/?utm_source=rss&utm_medium=rss&utm_campaign=martin-uav-kicks-off-mtuas-increment-2-effort-with-naval-air-warfare-center-aircraft-division&utm_term=2021-11-17

Skyports, LAZ Parking to build air taxi vertiports across LA Bruce Crumley - Nov. 17th 2021

Leading advanced air mobility infrastructure design and construction company Skyports says it has struck a partnership with US group LAZ Parking to develop vertiports in Los Angeles, a move they call necessary to facilitate the introduction of air taxi services.

At first glance, the pairing of a drone services startup and parking giant might seem counterintuitive. Yet LAZ Parking, whose origins date back to the 1981 founding, has continually tried to innovate the services it offers.

Skyports, which opened for business in 2018 as a drone services and vertiport infrastructure firm, has in recent months racked up an impressive series of deals across the globe in the run up to looming arrival of AAM services.

Together, the duo hopes to combine their contrasting but potentially cross-nurturing experiences to develop takeoff, landing, and recharging facilities for air taxi operators across the LA area – and if possible, beyond.

Their plan is to construct infrastructure for safe, efficient, quiet, and carbon-free passenger air taxis that can bridge clients to existing transport services like cars, airlines, airports, while also offering access to other emerging, sustainable, electric means of urban conveyance. https://dronedj.com/2021/11/17/skyports-laz-parking-to-build-air-taxi-vertiports-across-la/

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18Nov21

Xtend Raises $20M in Series A Funding USA *November 16, 2021*

Xtend, a Fort Walton, FL-based provider of a human/AI-operated drone system, raised $20M in series A funding.

The round was led by Chartered Group with participation from early investors including lool ventures, I3 Equity Partners, TPY Ventures, TAU Ventures, Surround Ventures, Homeward Ventures, NFX and Top Ventures.

The company intends to use the funds to accommodate demand, accelerate its market traction with existing and new customers and expedite the development of its new generation Drone Operating System for autonomy and multi-drone applications in the defense and commercial spaces.

Founded in late 2018 by Aviv and Matteo Shapira, who previously sold Replay Technologies to Intel, Rubi Liani, Founder of the Israeli Drone Racing League, and Defense and UAV Specialist Adir Tubi, Xtend provides a human-guided, AR & AI-powered drone system that enables operators to safely perform extreme missions with zero learning time. The company's patented Drone Operating System and platforms allow any operator to expertly control a drone in extreme indoor and outdoor scenarios (including intercepting a rogue drone at 150Km/h in an airport, enabling firefighters to find survivors inside a collapsed building and replacing bomb squads' dealings with Improvised Explosive Devices.) The company has a Washington DC sales office and R&D center in Israel. https://www.finsmes.com/2021/11/xtend-raises-20m-in-series-a-funding.html

TIME MAGAZINE'S BEST INVENTION JUST GOT BETTER November 12, 2021 Sally French News

Israel-based drone service provider Percepto is on a tear lately. The company in November was named one of Time Magazine's 100 Best Inventions of 2021. Percepto is both a hardware and software company. Its software automates a fleet of drones to fly pre-programmed routes, then takes the data and makes sense of it. The company this week announced the launch of a completely new drone called Air Mobile, as well as an advanced AI-powered analytics system for its 2022 Autonomous Inspection & Monitoring platform.

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The Percepto Air Mobile is a light-weight model for smaller sites or organizations taking their first steps with a drone-in-box program, or larger sites that need greater deployment flexibility. It is ideal for linear inspections, such as power lines and pipelines.

Percepto's existing drone, the Percepto Sparrow, is also getting a next-generation upgrade. Redubbed the Percepto Air Max, this drone is designed for large mining, oil & gas, and energy operations that need to inspect and map complex industrial environments where accuracy and durability are critical. Its systems are used by Fortune 500 customers on six continents, including ENEL, Florida Power and Light, and Verizon. Before scoring the time award, it won other victories including the Edison Gold Award and Frost & Sullivan Global Enabling Technology Leadership Award.
https://www.thedronegirl.com/2021/11/18/percepto/

Successful Airborne Launch & Recovery of Gremlins UAV 18 Nov 2021 Phoebe Grinter

Dynetics has achieved a new milestone in unmanned aviation by successfully launching and retrieving an X-61A Gremlins Unmanned Aerial Vehicle during the program's fourth flight test event. The Defense Advanced Research Projects Agency Tactical Technology Office manages the Gremlins program.

As part of the fourth test series, the Gremlins Demonstration System flew three Gremlin Air Vehicles, previously flown in 2020, to conduct four individual flight sorties for a combined 6.7 hours of flight, including the 1.4-hour airborne recovery mission.

"The Dynetics Gremlins team has accomplished an incredible engineering feat that we believe will ultimately have a significant impact on our country's military capabilities. We have demonstrated the feasibility for an aircraft to launch and perform airborne recovery of a reusable UAS," said Tim Keeter, Dynetics Gremlins program manager.

Dynetics built five X-61As and has flown nine sorties totaling 18 hours of total flight time. Another key aspect is the roll-on /roll-off Recovery System, which includes a stabilized towed docking device, an all-electric retrieval arm assembly, a mission control

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console which provides the ability for a single operator to control up to four X-61As and the ability to securely stow four recovered GAVs in flight. https://www.unmannedsystemstechnology.com/2021/11/successful-airborne-launch-recovery-of-gremlins-uav/

19Nov21

WATCH OUT, GOOGLE: THIS IS THE TOP DRONE DELIVERY COMPANY OF 2021 November 14, 2021 Sally French News

The top drone delivery company of 2021 is NOT Google-sister company Wing, despite the company having crossed an impressive 100,000 delivery milestone earlier this year. It's certainly not Amazon, which reportedly experienced layoffs just this past August. The top drone delivery company of 2021 is Zipline.

That's at least according to data from Hamburg, Germany-based drone market intelligence tracking company Drone Industry Insights, which analyzed 750 companies that are considered drone service providers. Here are the top three drone delivery companies of 2021:

1. Zipline
2. Wing (sister company of Google)
3. Matternet

While Wing this year crossed the significant 100,000-delivery milestone, Zipline recently crossed the 200,000-delivery milestone. This is the fourth year in a row that Zipline holds the top spot.

Zipline also announced major U.S. expansion plans through a new partnership with Intermountain Healthcare in Utah.

The company's work was initially in delivering blood to rural parts of developing countries in Africa. These days, the company's growth plans include retail delivery, as shown by a partnership with Walmart signed earlier this year. The company also has plans to expand services in Ghana, and launches in Nigeria, Japan and the United States over the next year. Zipline has already dipped its toes in the U.S. in the wake of coronavirus when Zipline expanded

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its U.S. operations to include deliveries of PPE and other COVID-19 medical supplies to hospitals. https://www.thedronegirl.com/2021/11/19/top-drone-delivery-company-of-2021/

DOCOMO's Blade-Free, Blimp Drone [VIDEO] Miriam McNabb November 18, 2021 Staff Writer Ian M. Crosby

NTT DOCOMO, INC, Japan's leading mobile operator with more than 83 million subscribers, has announced its development of a blade-free, blimp-type drone. Glowing in radiant colors, it comes equipped with a high-resolution video camera that captures high-quality video and full-color LED lights and uses helium to stay afloat and is propelled by ultrasonic vibrations. The drone is expected to be used at events for practical purposes such as aerial videography as well as a surrealistic standalone attraction. DOCOMO seeks to commercialize the drone within the current fiscal year ending this coming March.

Rather than rely on propellers or even wings like conventional drones, it relies instead on helium to remain airborne and is propelled forwards and backwards and up and down by the use of small modules that produce ultrasonic vibrations to move air. The module produces minimal noise with its minute vibrations and is safe to touch, so even in the event that the drone were to collide with a person or an object, serious injury or damage would be highly unlikely. As a result of the safety afforded by its design, the drone is perfect for airborne use at events, commercial facilities, and other areas where people gather.
https://dronelife.com/2021/11/18/docomos-blade-free-blimp-drone-video/

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