UAS and SmallSat Weekly News

Contents

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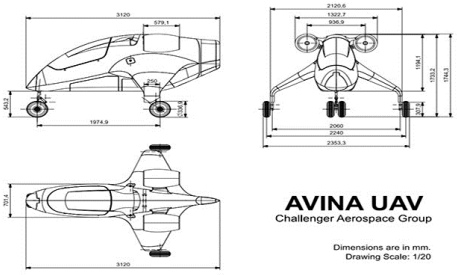
Challenger Aerospace Unveils Avina Soft-wing Unmanned Autonomous System Concept September 1, 2017

Challenger Airspace Group has unveiled the design of the new unique unmanned autonomous system (UAS) equipped with a soft wing and will be called the Avina.

The soft wings help to reduce the cost/payload ratio, is capable of very long-haul flights and offers incomparable security. The Avina UAS are capable of transporting a significant payload – up to 410 kg.

"The Avina is an Unmanned, Autonomous System capable of flying for six hours with a suite of different sensors," said Challenger Aerospace Group CEO LeRoy Aday.



The Avina soft wing unmanned aircraft is powered by two EDF fan units with power from a hybrid power generator, top speed of 130 km/h. The Avina will be one of the most versatile systems on the market, to embark a great variety of mission-specific modules: cameras, IR sensors, droppable cargo or even a human pilot for particularly sensitive missions.
http://uasweekly.com/2017/09/01/challenger-aerospace-unveils-avina-soft-wing-unmanned-autonomous-system-concept/?utm_medium=push_notification&utm_source=rss&utm_campaign=rss_pushcrew

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Qelzal Starts Flight Safety Testing of its BLOS Autonomous Vision Sensor System

Qelzal
Be Safe. Roam Free.™

September 1, 2017

Since receiving a Small Business Innovation Research award from the National Science Foundation for research in unmanned systems in January, Qelzal has developed a "Sense and Avoid" system and is set to test the system for a 2018 product launch.

The Qelzal system uses **vision sensors**, designed for a variety of applications, including commercial drones, autonomous vehicles and augmented reality. The company is aiming for commercial operations with a high speed, frameless approach that is more cost effective than traditional aircraft safety systems. The system is a passive alternative to radar and ultrasound approaches and requires less power, resulting in longer flight times**.** http://uasweekly.com/2017/09/01/qelzal-starts-flight-safety-testing-beyond-line-sight-blos-autonomous-vision-sensor-system/

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JD.com offers $15 million prize for drone delivery contest_Stephanie Pandolph

Sep. 1, 2017

JD.com is offering 100 million yuan **($15 million)** to the winner of a drone delivery competition, as it looks to enhance its current drone delivery service, the South China Morning Post reports.

JD.com still has to meet safety and airspace standards to gain regulatory approval for drone delivery in the country's larger cities. Currently, the company doesn't use its drones to deliver packages directly to customers' homes. Instead, it uses the drones to fly packages from its regional distribution centers to its network of local couriers throughout China's villages and smaller cities.

The online retailer already has a network of more than 250 warehouses and 7,000 pickup locations, and its CEO stated its drones cut delivery costs to less than $1 per shipment, as well as reduced delivery times from hours to 20 minutes. http://www.businessinsider.com/jdcom-offers-15-million-prize-for-drone-delivery-contest-2017-9

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Drones Play Increasing Role in Harvey Recovery Efforts

Unmanned aircraft are inspecting roadways, checking railroad tracks, assessing the condition of power lines

The FAA is issuing authorizations for emergency drone activities in the Houston area from inspecting roadways to checking railroad tracks to assessing the condition of water plants, oil refineries and power lines. PHOTO: OMER MESSINGER/GETTY IMAGES Andy Pasztor Updated Sept. 4, 2017

In the first six days after the storm hit, the Federal Aviation Administration issued more than 40 separate **authorizations for emergency drone activities** above flood-ravaged Houston and surrounding areas. That total climbed above 70 last Friday and **topped 100 by Sunday**, including some flights prohibited under routine circumstances, according to people familiar with the details. Industry officials said all of the operations—except for a handful flown by media outlets—were conducted in conjunction with, or on behalf of, local, state or federal agencies.

One person familiar with the details said certain applications were **processed within hours**, an unusually fast turnaround for federal safety regulators accustomed to days or weeks of analysis for such decisions. https://www.wsj.com/articles/drones-play-increasing-role-in-harvey-disaster-recovery-efforts-1504474194?tesla=y

China Opens First Civilian Drone Base In Shanghai

Drones in China are required to fly at a height below 150 metres and all test flights to be monitored for safety reasons to avoid obstructing air operations. World | Indo-Asian News Service | Updated: September 01, 2017

*China has approximately **500 drone manufacturers**, controlling almost 70% of market share. (File photo)*

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SHANGHAI: The Civil Aviation Administration of China on Friday announced the opening of the country's first test-flight base for civilian drones in Shanghai. The base, located in the district of Qingpu, will provide service to thousands of unmanned aerial vehicles (UAV) in a country where private drones have become very popular, reports said.

According to the Aircraft Owners and Pilots Association of China, there are over **120,000 registered drones** in the country. The use of UAV, initially used in videography, for recreational purposes, security and agriculture, has expanded dramatically. http://www.ndtv.com/world-news/china-opens-first-civilian-drone-base-in-shanghai-1744821

ABOVE DEVASTATED HOUSTON, ARMIES OF DRONES PROVE THEIR WORTH

Residential neighborhoods near Interstate 10 sit in floodwater in the wake of Hurricane Harvey on August 29, 2017 in Houston, TX. MARCUS YAM/LOS ANGELES TIMES/GETTY IMAGES

Early estimates suggest the hurricane has inflicted $120 billion in damage on the region, making it the most expensive natural disaster in the country's history. Responding to the disaster provides a major test—and opportunity—for the country's fast-growing network of professional UAV operators, almost exactly one year after the Federal Aviation Administration began to hand out licenses for commercial drone operation. (There are at least 2,000 licensed pilots in the Houston area alone, and some 20,300 nationwide.)

"This is the one of the first big disasters where **we can show how valuable drones can be**," says Brandon Stark, who directs the Center of Excellence on Unmanned Aircraft System Safety at the University of California, Merced. https://www.wired.com/story/houston-recovery-drones/

New Hybrid VTOL UAV Achieves 2hr 45min Flight Time 31 Aug 2017

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Vertical Technologies has announced its DeltaQuad series of autonomous VTOL UAVs. The new hybrid vertical takeoff fixed wing vehicle can stream telemetry and video over the cellular network using VPN, and features a 1 Kg payload capacity, 2 hour 45 minute flight time and 150 Km range.

The DeltaQuad uses several features that make the aircraft as easy to control as setting up a navigation system. It requires no pre-flight calibrations and the Pro model comes equipped with an onboard computer that almost completely replaces the operator. This makes the vehicle suitable for BVLOS (beyond visual line of sight) missions. The included DeltaQuad simulator allows users to get familiar with the controls and to test fly missions before they are executed.
http://www.unmannedsystemstechnology.com/2017/08/new-deltaquad-vtol-uav-features-2-hour-45-minute-flight-time/

Flytrex Launches Autonomous Drone Delivery System 30 Aug 2017

Flytrex has announced that, in partnership with online marketplace AHA, it has launched what it claims is **the world's first operational on-demand urban drone delivery service**.

"We're making delivery as instant as ordering," said Yariv Bash, CEO and Co-Founder of Flytrex. "We're excited to be working with AHA to make on-demand drone delivery a reality in Reykjavik, and soon around the world."

Following a meticulous regulatory process with the Icelandic Transport Authority (Icetra), Flytrex and AHA received approval to implement their autonomous drone system to deliver food and consumer products from shops and restaurants on one side of Reykjavík to a designated point across the city. The new drone logistics system will allow direct delivery between two parts of the city separated by a large bay, saving energy and human resources normally allocated to the circuitous ground route over a river bridge located in the north-eastern part of the city **saving up to 20-minute drive during peak hours**. After a trial period, Flytrex and AHA intend to deliver packages along multiple routes and directly to consumers' backyards.
http://www.unmannedsystemstechnology.com/2017/08/flytrex-launches-autonomous-drone-delivery-system/

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Cubesat voice-comms test paves way for Sky and Space Global's 200-satellite constellation

Caleb Henry — September 5, 2017

Sky and Space Global says its test of a voice call over three nano-satellites is a world-first. Credit: Sky and Space Global.

WASHINGTON — Sky and Space Global, an Australian satellite startup with offices in London, Israel and Poland, successfully sent voice, text and imagery over a trio of prototype cubesats meant to pave the way for a **constellation of 200** by the end of the decade. The test makes Sky and Space Global **the first "to successfully use narrowband connectivity provided by nano-satellites to deliver a voice call,"** the company said Sept. 5.

Sky and Space Global estimates its entire constellation, including launch, will cost $160 million to complete. The low-Earth orbit satellite system would circle the equator, providing the recently tested telecom services as well as machine-to-machine and Internet of Things connectivity. Sky and Space Global's demonstration cubesats, called the "3 Diamonds," launched June 23 on India's Polar Satellite Launch Vehicle, along with 28 other satellites. http://spacenews.com/cubesat-voice-comms-test-paves-way-for-sky-and-space-globals-200-satellite-constellation/

Drone technology on display ahead of Las Vegas conference

Drone companies do live demos at Henderson test site (Michael Quine/Las Vegas Review-Journal) Henderson Unmanned Vehicle Range in Henderson, Tuesday, Sept. 5, 2017. (Erik Verduzco/Las Vegas Review-Journal)

Nick ONelio, U.S. director of business development for Altus Intelligence, during a demonstration of their unmanned aircraft systems applications, at the Henderson Unmanned Vehicle Range in Henderson, Tuesday, Sept. 5, 2017. (Erik Verduzco/Las Vegas Review-Journal)

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A parachute recovery system demonstration by Gene Engelgau, not pictured, CEO of Fruity Chutes, at the Henderson Unmanned Vehicle Range in Henderson, Tuesday, Sept. 5, 2017. (Erik Verduzco/Las Vegas Review-Journal)

John Hammond, chief pilot and director of safety and training for SmartPlanes, during a demonstration of their unmanned aircraft systems, at the Henderson Unmanned Vehicle Range in Henderson, Tuesday, Sept. 5, 2017. Erik Verduzco/Las Vegas Review-Journal

Jeff Scholl, chief technology officer for Quadrocopter, during a demonstration of the DJI Matrice 200 drone at the Henderson Unmanned Vehicle Range in Henderson, Tuesday, Sept. 5, 2017. (Erik Verduzco/Las Vegas Review-Journal)

Nicole Raz Las Vegas Review-Journal, September 5, 2017

For its third annual conference, InterDrone hosted drone demonstrations Tuesday.

InterDrone, a conference dedicated to commercial drones, runs Wednesday through Friday at the Rio. But during the pre-conference day Tuesday, four companies displayed their technology at the 6-acre Henderson Unmanned Vehicle Range urban drone-testing site, located at 1125 Nevada State Drive.

"You can show a drone or a system, but when audiences can see a particular technology and capability in action, that's really where somebody takes that experience back. This is what they're going to remember about Nevada and that particular technology," said Chris Walcah, director of all testing sites in Nevada for unmanned aerial systems.

About **4,000 people and more than 150 exhibitors are expected** to attend InterDrone. The conference kicks off Wednesday with a recorded welcome video message from Gov. Brian Sandoval, followed by opening keynotes from Michael Huerta, administrator of the Federal Aviation Administration, and Brian Krzanich, CEO of Intel Corp.
https://www.reviewjournal.com/business/drone-technology-on-display-ahead-of-las-vegas-conference/

Civilian Drone Market Worth 73.5 Billion Through 2026 DEE ANN DIVIS

According to a new report the market for civil, commercial and consumer drones will expand from $2.8 billion in 2017 to an annual level of more than $11.8 billion by 2026—**a compound growth rate of 15.5 percent.**

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Customers are expected to spend a total of $73.5 billion across all three sectors during those 10 years with the value of the commercial drone market outpacing that of the consumer market by 2024, according to the World Civil Unmanned Aerial Systems Market Profile & Forecast by the Teal Group. The report includes data for the drones themselves and those sensors sold with the systems, but not after-market sensors.

"The last two full years were a particularly heady one for **drone venture capital investment**," reported Teal. "The largest 60 companies for venture capital investment brought in three times as much investment in 2015 as the previous year. Investment soared from $155.5 million in 2014 to $486.4 million in 2015. It declined only slightly in 2016 to $454.5 million."

As of the spring of 2017 that trend was still holding, Teal reported, with venture capitalists (VCs) investing $168 million in the industry during the first four months of the year. Overall, a total of $1.35 billion in venture capital has been invested from 2012 through the beginning of May 2017 in the 60 largest drone companies targeted by the VCs. http://insideunmannedsystems.com/civilian-drone-market-worth-73-5-billion-2026/

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Drone Service Firm Measure Assists Verizon with Harvey Post Recovery Effort

Frank Schroth September 01, 2017

Critical to recovery is re-establishing key supply lines and infrastructure. One of those is communication, and a key communication channel is wireless. Verizon reports that **for the first time** as part of their network operations in regard to Hurricane Harvey they began using drones to conduct **cell site (tower) inspections** to survey the damage caused by the storm to help expedite recovery. This was done in cooperation with Measure Inc. which owns and operates drones.

Yesterday and today they plan go to 10 cell sites/towers in Rockport, Fulton, Aransas Pass, and Port Aransas areas in Texas continuing to use drones in post-hurricane recovery efforts. https://dronelife.com/2017/09/01/drone-service-firm-measure-assists-verizon-with-harvey-post-recovery-effort/

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Law Enforcement Concerns Slow Commercial Drone Regulations

FAA convened an advisory group of experts to help resolve public safety issues raised by FBI


A drone carrying making a UPS delivery on Children's Island off the coast of Beverly, Mass., in September 2016. PHOTO: BRIAN SNYDER/REUTERS Andy Pasztor Sept. 6, 2017

LAS VEGAS—Efforts to develop flight-safety regulations for commercial drones are being disrupted by law-enforcement and national security concerns, industry and government officials said at a conference here Wednesday.

Federal Aviation Administration draft rules intended to permit small unmanned aircraft to routinely fly over crowds were **close to being published** late last year, according to industry officials, but they were effectively **vetoed by the Federal Bureau of Investigation**, along with other agencies, for failing to adequately address how to remotely identify such airborne vehicles.

In response, the FAA convened an advisory group of experts—slated to issue recommendations this month about possible technical solutions—and has continued discussions to try to resolve public safety issues raised by the FBI and other critics inside the government. "The security issues have stopped a lot of stuff" the FAA and industry were counting on to promote drone flights at night and beyond the sight of ground-based operators, Gretchen West, a lawyer for Hogan Lovells US LLP, told one panel. https://www.wsj.com/articles/law-enforcement-concerns-slow-commercial-drone-regulations-1504739955

Airobotics Raises $32.5 Million in Round C to Meet Growing Demand in Mining and Homeland Security Industries

Airobotics, is announcing today the completion of a $32.5 million funding round, led by BlueRun Ventures China, as well as Microsoft Ventures, OurCrowd.com and another strategic investor. Airobotics has also received funding from existing investors including, CRV, BRV, Noam Bardin (CEO of Waze), Richard Wooldridge (former COO/GTM of building 8 at Facebook and former COO of Google ATAP) and David Roux (Co-Founder and former Chairman of Silver Lake Partners).

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Airobotics is expanding its hold in industrial facilities such as mine sites, refineries, seaports, oil and gas facilities and more. It is **the first company in the world** to be granted authorization **to fly fully automated drones without a pilot,** as licensed by the Civil Aviation Authority of Israel (CAAI).
http://uasweekly.com/2017/09/07/airobotics-raises-32-5-million-round-c-meet-growing-demand-mining-homeland-security-industries/?utm_medium=push_notification&utm_source=rss&utm_campaign=rss_pushcrew

TAMU-CC drone team helps with Hurricane Harvey recovery efforts

Matt Woolbright, Corpus Christi Caller-Times Published Sept. 7, 2017


(Photo: Lone Star UAS Texas A&M Corpus Christi)

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As Texas begins to assess damage and recover from Hurricane Harvey, a team from **Texas A&M** Corpus Christi is using drones to **speed up the process and lower costs** for hard-hit areas. So far, the Corpus Christi-based team has operated in three roles related to Hurricane Harvey: evaluating conditions in the Corpus Christi ship channel, assessing damage in Aransas County and checking on dams and infrastructure in Fort Bend County, Hendrix said.

An advantage for the smaller aircraft over helicopters is an ability to fly lower and closer to obstacles to get better vantage points on conditions on the ground. For example, in Holiday Beach, some homes look undamaged from high above, but from a lower vantage point a washed-out lower level becomes visible. In Aransas County, the team is taking broad videos for the county so they can get a quick understanding of the degree of damage.
http://www.caller.com/story/weather/hurricanes/2017/09/06/texas/639541001/?cookies=&from=global

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Does drone technology hold promise for the UN?


On 28 June 2017, UNICEF Innovation team tests an unmanned aerial vehicle (UAV), also known as a drone, carrying a cargo payload box, which can potentially carry humanitarian supplies at Kasungu Aerodrome in central Malawi. Photo: UNICEF/UN070227/Chim Chisiza

6 September 2017 – Drone technology appears to be taking off at the United Nations, with unmanned aerial vehicles (UAVs) being used for various purposes, including **in humanitarian, development and peacekeeping operations.**

For UNICEF and other humanitarian and development agencies, he said, drone technology can make a big difference in three ways.

First, drones can leapfrog over broken infrastructure in places where developed transportation networks or roads do not exist, carrying low-weight supplies.

Second, UAVs can be used for remote sensing, such as gathering imagery and data, in the wake of natural disasters like mudslides, to locate where the damage is and where the affected peoples are.

Third, drones can extend WiFi connectivity, from the sky to the ground, providing refugee camps or schools with access to the Internet.
http://www.un.org/apps/news/story.asp?NewsID=57473#.WbFWp8iGO71

Intel Unveils New Insight Platform for Commercial UAS Data **Betsy Lillian** September 6, 2017

Today at InterDrone 2017 in Las Vegas, Intel CEO Brian Krzanich delivered the event's keynote, during which he demonstrated the tech giant's latest advancements for the commercial unmanned aircraft systems (UAS) industry.

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The newly announced Intel Insight Platform is **a cloud-based data processing, analytics and reporting service** that allows customers to store, share and manage data from commercial drone systems.

Developed in a strategic partnership with DELAIR, the platform will address a range of commercial applications and verticals – e.g., inspections and surveying in oil and gas, construction, mining, precision agriculture and more. It is capable of generating 2D and 3D models, taking measurements and making annotations for sharing across teams, as well as running advanced data analytics such as change detection and plant-counting.

Krzanich presented Intel's vision for accelerating the path from data to insights, as well as how drone innovation will enhance this process. Intel demonstrated new technologies to advance automation with obstacle avoidance and pilot assistance powered by Intel's RealSense technology, flight planning automation with Intel's Mission Control software, and automatic change detection with Intel's Insight Platform. These technologies will enhance the abilities of Intel drone solutions for commercial applications, the company says. https://unmanned-aerial.com/intel-unveils-new-insight-platform-commercial-uas-data

AUVSI Interactive Report: FAA grants more than 1,000 waivers under Part 107

A recent AUVSI report shows that most of the Part 107 waivers granted by the FAA have been for nighttime operations. Since the small UAS rule was established last summer, **more than 1,000 operators in 47 states have received waivers**, which also included flying multiple UAS at the same time (17 waivers), flying beyond line of sight (four waivers), and conducting flights over people (three waivers). The interactive, state-by-state analysis found that most of the waivers have been granted to small businesses.

8Sep17

Sentera's Omni Drone Offers Agriculture Industry Third Layer of Crop Health Insight

September 8, 2017 Mapping and Surveying | News

Sentera today announced the capability of its Omni quadcopter to capture **three crop health data measurements in a single flight**: thermal, normalized difference vegetation index, and high-resolution RGB. The ability to access three layers of data and capture thermal data allows

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professionals to further evaluate plant health and practices as reflected through plant and soil temperatures.

While no sensor can diagnose specific diseases in plants, the Sentera Omni drone gives ag professionals a head start detecting and diagnosing issues earlier and more efficiently**.** http://uasweekly.com/2017/09/08/senteras-omni-drone-offers-agriculture-industry-third-layer-crop-health-insight/?utm_medium=push_notification&utm_source=rss&utm_campaign=rss_pushcrew

GE Startup Avitas Deploys AI for Drone Inspections

Sep 7, 2017 ***Graham Warwick*** **|** ***Aerospace Daily & Defense Report***

A General Electric startup is taking artificial intelligence (AI) into the field to automate and optimize the inspection of industrial assets by drones and robots. Avitas Systems, launched by GE in June, has partnered with computing specialist Nvidia Corp. to develop AI for robotic inspection and data analytics.

Replacing time-based manual inspections of assets such as transmission towers and flare stacks with automated checks based on assessing the risk of defects developing is expected to save customers time and money as well as be safer, says Alex Tepper, co-founder of Avitas Systems.

A startup formed by GE Ventures, which creates, incubates and launches new businesses within GE, Avitas Systems is offering inspection services to the oil and gas, energy and transportation industries. The company uses drones, crawler robots and autonomous undersea vehicles to automate inspections. http://aviationweek.com/technology/ge-startup-avitas-deploys-ai-drone-inspections?NL=AW-05&Issue=AW-05_20170908_AW-05_592&sfvc4enews=42&cl=article_3&utm_rid=CPEN1000003332045&utm_campaign=11621&utm_medium=email&elq2=7cbb0979e2574279aadd9ba0babefaac

Red Cross Launches First U.S. Drone Program for Disasters REUTERS SEPT. 7, 2017

The American Red Cross will for the first time fly a drone to assess damage and funnel aid to areas of Houston flooded by Hurricane Harvey over the last two weeks, the agency and sponsors said on Thursday.

The agency will deploy one drone and **conduct a one-week test** in an area of Houston badly affected by the flooding from Harvey, which came ashore on Aug. 25 as the most powerful hurricane to hit Texas in more than 50 years. Harvey marks the second major hurricane since the Federal Aviation Administration loosened restrictions on drones last June, allowing greater use for filming, inspecting facilities and other commercial activities.

The use of commercial drones to hover over the destruction from Harvey has ushered in an unprecedented test of an unmanned aircraft's ability to assess billions of dollars in damage for the insurance industry and accelerate payouts for harried policyholders. https://www.nytimes.com/reuters/2017/09/07/technology/07reuters-storm-harvey-redcross-drones.html

DHS, Other Agencies Seek Law Changes To Intercept Drones Bill Carey September 7, 2017

Gryphon Sensors displayed R1400+ radar for drone detection at InterDrone conference in Las Vegas. (Photo: Bill Carey)

Federal agencies have asked Congress to change laws that prevent law enforcement departments from taking down small unmanned aircraft systems that present a threat, according to a senior official with the U.S. Department of Homeland Security. The push comes as the Department of Defense has issued guidance allowing military installations to destroy rogue drones.

Interagency working groups advising the White House National Security Council have recommended **changes to Title 18**, the federal criminal code, and specifically to federal wiretap and pen register laws, said Anh Duong, UAS program executive officer with the DHS Science and Technology directorate. http://www.ainonline.com/aviation-news/defense/2017-09-07/dhs-other-agencies-seek-law-changes-intercept-drones

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