UAS and SmallSat Weekly News

22May17

US Court Of Appeals Strikes Down FAA's UAV Registry Requirement.

The Wall Street Journal (5/19, Subscription Publication) reported that the US Court of Appeals for the DC Circuit on Friday struck down the FAA's rule requiring all UAV owners to register with the agency before operating their UAVs in public airspace. The AP(5/19) reported that "the ruling was a victory for hobbyists and a setback for the FAA, which cited safety concerns as it tried to tighten regulation of the fast-growing army of drone operators." Since 2015, UAV sales have exploded and some "760,000 hobbyists have registered more than 1.6 million drones" with the Federal registry. Bloomberg News (5/19) reported that "the ruling doesn't apply to a growing number of commercial drone operators," who are expected to buy 2.5 million UAVs for commercial purposes this year. https://www.wsj.com/articles/faa-rules-on-recreational-drone-registry-struck-down-1495223257

FAA Tests Anti-UAV Defense System At US Airports.

CNN Money (5/19) carried a video online displaying an "electronic cannon" that "disables drones." According to the story, "the Anti UAV Defense System (AUDS) is designed to detect" UAVs up to six miles away, as well as "track and disrupt" them. In fact, the system tracks any flying object in its range, requiring a human assistant to decide whether to jam the target's radio frequencies or not. The FAA is testing the system out at US airports.

Two Indiana Police Departments Want To Use UAVs For Purposes Currently Illegal Under State Law.

The Indianapolis Star (5/19) reported that the Indianapolis Metropolitan Police Department (IMPD) wants to fly UAVs "for crowd surveillance at major gatherings Downtown," and that the Indiana State Police (ISP) also want UAVs "to monitor traffic at events such as the Indiana State Fair." While "more than 340 public safety agencies" across the US "either have drones or the authorization to fly them," including at least 10 police agencies in Indiana, the problem for IMPD and ISP is that both of their proposed applications "appear to be against the law in Indiana."

SUPER AGILE, BALL-FETCHING DRONE COULD MAKE YOUR HUMAN FRIENDS OBSOLETE

*By **Luke Dormehl** — Updated May 19, 2017 12:48 pm*

Video at https://youtu.be/0gR1ekapOAE

In a new piece of research, investigators from Switzerland's ETH Zurich trained a drone equipped with a net to be able to catch a ball when it is thrown. The drone in question is something called an "omnicopter," described by the researchers in a previous paper. It boasts eight motors oriented in different directions, giving it an enormous amount of range of movement — thereby allowing it to play fetch in a way that most drones would be unable to.

"We use an external camera system to detect both the position of the ball and the omnicopter," researcher Dario Brescianini told Digital Trends. "As soon as the ball is thrown into the air, we calculate its flight path and plan a trajectory to catch it. The key element behind making a successful catch is the computationally efficient generation of trajectories. This enables the generation of thousands of different trajectories in real time that achieve the same high level goal of catching the ball. The algorithm then selects the best trajectory and the vehicle executes 20ms of this trajectory, before the entire process is repeated."

However, as much fun as we could imagine a ball-catching drone would be around the office, Brescianini says the work has other, broader applications. Specifically, the vehicle and trajectory generation algorithm presented could be used in any scenario that requires flying to any desired attitude and position with a high degree of exactness and timing.
https://www.digitaltrends.com/cool-tech/play-catch-ball-drone/

23May17

JD.com Seeks To Develop Heavy-Duty UAVs.

The Wall Street Journal (5/22, Subscription Publication) reports that Chinese e-commerce provider JD.com said that it is developing heavy-duty UAVs that will be capable of delivering payloads of one ton or more.

Although many companies such as Amazon, UPS, and Airbus are experimenting with UAV deliveries, their focus is largely on small, high-value packages. Heavy-duty UAVs have several barriers to overcome for implementation, including the need for dedicated landing pads, the noise they make, and the greater potential for causing damage. https://www.wsj.com/articles/chinese-online-retailer-jd-com-is-developing-heavy-duty-delivery-drones-1495438200

Chinese Company Promotes New Rotorcraft UAVs.

Shephard Media (5/22) reports that China-based Ziyan Unmanned Aerial Vehicle Company promoted three new rotorcraft UAVs at IMDEX Asia 2017 in Singapore.

Only one of the types, the Blowfish, was displayed, but Ziyan's brochure included a military rotorcraft UAV, dubbed the Infiltrator Surveillance and Strike Aircraft, capable of carrying air-to-ground missiles**.**

One was a military rotorcraft UAV, "dubbed the Infiltrator Surveillance and Strike Aircraft, capable of carrying air-to-ground missiles." The UAV is also "capable of electronic reconnaissance and surveillance, with a maximum payload of 10kg" and has the option to "include a laser radar, dual-axis high-definition camera turret, tri-axial single-photon high-definition camera turret, thermal-imaging infrared camera, 3-D scanner and 30x platform camera, plus it can drop aerosol bombs for marking targets or riot control." https://www.shephardmedia.com/news/uv-online/imdex-asia-china-promotes-armed-uavs/

DJI Will Limit UAV's Functionality, Range If It Isn't Activated Online.

Gizmodo (5/22) reports that UAV manufacturer DJI is requiring all of its customers to activate their aircraft online.

If customers decide against going through the activation process, their UAV's "range will be limited to a laughable 164-foot (50-meter) radius, and it won't be able to fly higher than 98 feet (30 meters)." http://gizmodo.com/dji-will-cripple-your-drone-if-you-dont-register-it-on-1795427600

Texas House Passes Bill That Would Limit UAV Use Near Border With Mexico.

The AP (5/22) reports that the Texas state House voted 143-2 on Monday to approve a bill that would ban the use of UAVs to survey private property near the Mexico border, sending the legislation to the Senate. "Flying unmanned aircraft to survey private property, and any people on it, is currently illegal throughout the state – except within 25 miles of the border," and the bill removes the exception in order to respond "to concerns that border residents are unfairly subject to more surveillance solely because of where they live."

Enthusiasts Meet To Discuss UAV Industry's Future.

Loudoun (VA) Now (5/21) reports that UAV enthusiasts took part in a panel called Unmanned and Ready for Business last Friday in Sterling, Virginia to discuss "the bureaucracy of piloting an unmanned vehicle" in the DC area and how to keep pushing the industry in a positive direction.

Graham Keithley, an associate at the legal firm Baker McKenzie who specializes in aviation regulation, told attendees that the "FAA has open doors for commercial unmanned aircraft, with a bunch of waivers for the rules they've imposed now," and encouraged them to "push those boundaries." FAA Safety Inspector Jack Strange also attended the event and said that he did so in order to "see what's going on in the industry" and to "let people know what's available to them." The panel was held as part of Loudoun County's Small Business Week.
http://loudounnow.com/2017/05/21/enthusiasts-explore-drones-rising-role-in-economy/

Is There A Commercial Market For Large Unmanned Aircraft?

Is there a Moore's Law for drones? Will bigger ever be better?

*May 19, 2017*Graham Warwick | *Aviation Week & Space Technology*

Which raises the question of where are the markets for large UAS? AeroVironment is still pushing its SkyTower concept of persistent solar-powered UAS flying at 60,000-80,000 ft. to provide communications services (see photo).

Facebook's Aquila is a similar concept, as is Airbus's Zephyr, but while these machines are large, they are not heavy. Aquila has a wingspan of 138 ft. but weighs only 934 lb. Zephyr weighs just 137 lb. Such vehicles will be handled like satellites, with one crew managing a constellation of aircraft.

General Atomics is looking at the commercial market for the type-certifiable version of Reaper, called SkyGuardian, now under development. This is a 12,500-lb. UAS that can fly for 40 hr. at 40,000 ft. carrying a 4,000-lb. payload. If there is a commercial market, it is likely for an aircraft that can carry multiple sensors long distances and service multiple customers at the same time, says Peter McNall, manager of strategic business development at General Atomics.

Missions could include communications relay, long linear inspections of rail, power and pipelines, border security and fisheries protection. Other missions for more specialized large UAS could include crop spraying and cargo carrying. "Freight is where I see the industry going," says McNall. But for now, he admits, "We are not seeing a market pull to large UAS."

http://aviationweek.com/technology/there-commercial-market-large-unmanned-aircraft?NL=AW-05&Issue=AW-05_20170523_AW-05_555&sfvc4enews=42&cl=article_7_1&utm_rid=CPEN1000003332045&utm_campaign=10135&utm_medium=email&elq2=7774f2cf92934bffaae0999181d1286c

Centaur UAS Demonstrates Unpiloted Air Taxi Service

Published: 22 May 2017

Aurora Flight Sciences demonstrated the use of its Centaur unmanned aircraft as an unpiloted air taxi service during the opening of the new unmanned aerial systems (UAS) runway at NASA's Wallops Island Flight Research Center in Virginia.

The 8-minute flight saw Virginia Governor Terry McAuliffe become the first sitting U.S. governor to fly in a fully automated aircraft. The flight took place one week after the Governor's announcement of the Autonomous Systems Center of Excellence, which aims to further Virginia's position within the Autonomous Systems community.

Governor McAuliffe commented: "I have witnessed first-hand the impact that the UAS industry will have on the future of transportation and our lives will change as we know it. You will be able to do just what I did today – hop in a plane, press a button and the machine takes you where you want to go!" http://www.unmannedsystemstechnology.com/2017/05/aurora-demonstrates-centaur-uas-nasa-flight-research-center-runway-opening/

Lockheed Martin Indago UAS Selected for Search and Rescue Operations 19 May 2017

Lockheed Martin has announced that its Indago quadrotor small unmanned aerial system (UAS) has been selected by sheriff's agencies in the US to perform search and rescue operations as part of the Project Lifesaver International (PLI) program that supports clients with autism, Down syndrome and dementia. Indago is paired with Project Lifesaver's electronic location equipment used by first responders to find special needs individuals who may wander. Upon receiving a distress call, operators can rapidly deploy Indago to locate missing individuals.

Sheriff's offices in New Jersey and Virginia have added the PLI Indago to their inventories, with additional first response agencies soon to join the ranks. "The Indago UAS will allow us to increase our capabilities in locating a client who has wandered. This new asset will give us the ability to search even more efficiently over a broader area and will increase the probability of a successful recovery," said Somerset County New Jersey Sheriff Frank J. Provenzano, who oversees the first sheriff's office in the country to adopt the Indago system. Somerset County has 40 clients enrolled in Project Lifesaver: 23 children who have autism or Down syndrome

and 17 adults who have dementia.
http://www.unmannedsystemstechnology.com/2017/05/lockheed-martin-indago-uas-selected-search-rescue-operations/

UAV Range Extender Enables BLOS Operations 17 May 2017

Flyability SA has announced the introduction of the Range Extender, an accessory for the company's collision-tolerant indoor drone Elios. The Range extender opens new applications for demanding indoor drone inspection and exploration missions, where communication between the drone and the pilot is particularly difficult.

In environments such as underground galleries, stacks or mines, signal propagation can be limited by the geometry of the place to inspect and remotely operating a robot becomes difficult. By placing the remote control antennas to a better location, closer to the drone, it is possible to extend the range of the drone. To that end, Flyability has developed the Range Extender: an accessory that connects to Elios ground station, providing an extended signal reach for beyond line-of-sight operation. http://www.unmannedsystemstechnology.com/2017/05/uav-range-extender-enables-blos-operations/

24May17

This RoboCop has its own drone

BY YI SHU NG

A Singapore startup has released a four-wheeled security robot that has its own built-in drone. The O-R3, an autonomous robot created by Otsaw Digital, has a drone that can be launched after intruders.

Otsaw's drone-in-robot design extends the range of a typical ground-based autonomous robot by up to 100m (328 ft), allowing the O-R3 to do things typical security robots cannot achieve.

"[If] you have obstacles on the ground, we can launch a drone that has an aerial view of where the intruder is hiding, maybe on the other side of the wall, on the fence, or the gate, stuff like that," said Ling Ting Ming, CEO of Otsaw Digital and its parent company ActiV Technology.

Aside from its in-built drone, the O-R3 is also able to do things like recognize intruders, as well as suspicious objects like unattended bags. It's also able to send alarm to a forward command center, where security will be activated. And if that wasn't enough, the O-R3 can charge itself when its battery goes flat. The O-R3 is powered by data to make all of this possible. Otsaw says that it's employing machine learning in its systems, so that its robots can differentiate between whether a person is a regular visitor, an employee, or an intruder.

http://mashable.com/2017/05/22/robocop-drone/#GYIae0P4aqqO

Tepper: Petco Park Incident Bolsters FAA's Argument That Non-Commercial UAVs Should Be Registered.

TechCrunch (5/23) reporter Fitz Tepper analyzes this week's incident in which a recreational UAV crashed into Petco Park's upper deck during a baseball game between the San Diego Padres and the Arizona Diamondbacks.

Tepper writes that when incidents like this happen, they "bolster the FAA's argument that drones need to be registered so owners can be held accountable for their actions, especially when that action is flying a drone above tens of thousands of people." https://techcrunch.com/2017/05/23/the-faa-gets-a-case-study-with-a-drone-crash-inside-an-mlb-stadium/

UAV Sales Expected To Keep Growing.

Business Insider (5/23) reports that according to the Consumer Technology Association, UAV sales are projected to cross the $1 billion mark in 2017. Additionally, "Gartner expects global personal drone sales to grow from $1.7 billion to $2.36 billion in 2017."

Texas Senate Bans UAV Flights Over Jails, Sports Arenas.

The AP (5/23) reports that the Texas Senate "voted unanimously Tuesday" to ban UAV flights over sports arenas and jails. The regulation is "designed to protect the public from weapons" that UAVs "could possibly carry," as well as to prevent UAVs from "sneaking inmates drugs or contraband." The measure makes flying a UAV "intentionally over a stadium or correctional facility punishable by up to six months in jail."

Report: Trump Administration Asks Congress To Pass Rules Allowing US To Track And Destroy UAVs.

The New York Times (5/23, Subscription Publication) reports that the Trump Administration "is asking Congress to give the federal government sweeping powers to track, hack, and destroy any type of drone over domestic soil with a new exception to laws governing surveillance, computer privacy and aircraft protection."

The document is a “draft and summary of legislation the executive branch circulated among several congressional committees on Tuesday, according to a congressional aide.” https://www.nytimes.com/2017/05/23/us/politics/drone-surveillance-policy.html?_r=0

Singapore joins group looking to regulate UAS use globally AUVSI News

Singapore has joined a 15-member group established by the United Nations' civil aviation arm to create global rules and regulations for the safe use of unmanned aircraft, including UAS. Formed in 2016, the group is made up of eight countries including the United States, China and France. The global pilots' association is also a part of the group.

Last December, the group developed an online toolkit made up of information on unmanned aircraft and how the systems can safely be operated, and they provided the toolkit to aviation authorities and regulators. Next, the group hopes to develop a more comprehensive global framework that will address the concerns of pilots and other stakeholders.

The International Civil Aviation Organization also says that “the sooner this framework is agreed upon internationally, the sooner the industry will be able to align their developing UAS businesses within harmonized systems.” http://www.auvsi.org/blogs/auvsi-news/2017/05/22/singapore-joins-group-looking-to-regulate-uas-use-globally

25May17

Tethered UAV-Kite Hybrid Provides Solution For Broadcasters.

Reuters (5/24) reports that ETH Zurich has developed a UAV that flies like a kite and can stay airborne indefinitely through a tether connected to a power source on the ground, providing a camera-carrying solution for broadcasters. Controls Lead Markus Zahner explained that the Fotokite Pro “is very autonomous,” and is “the first commercially available drone that has been approved to fly around and above people by the FAA in a commercial way.” A crowd-funded consumer model, the Fotokite Phi, is also available. Reuters explains that the tethered design helps to address privacy concerns for UAVs since “the operator is never anonymous,” and if “the power fails or the tether is cut, a built-in fail-safe begins a controlled descent back to the ground.”

FAA Faces Uncertain Prospects In Small-UAV Registration Battle After Ruling.

Aviation Week (5/25) reports that the FAA is mulling its next move following the US District Court for the District of Columbia’s decision last week striking down the agency’s small-UAV registration rule.

“Industry experts believe an appeal would not succeed because the Registration Rule was never enshrined in legislation,” and “they expect the FAA will have to go back to Congress for statutory authority, but question whether lawmakers have the will or the time to incorporate the change into a new FAA reauthorization bill,” which the article casts as already facing uncertain prospects. However, industry groups, including the Drone Manufacturers Association (DMA) and Association for Unmanned Vehicle Systems International (AUVSI), have indicated that they will support efforts for a future US UAV registration system. http://aviationweek.com/defense/faa-ponders-next-move-small-uas-battle

Ruling Draws Mixed Responses. Popular Science (5/24) reports that that the Academy of Model Aeronautics (AMA) “praised” the decision, saying that the “federal registration shouldn’t apply at such a low threshold that it includes toys” and that it “also shouldn’t burden those who have operated harmoniously within our communities for decades, and who already comply with AMA’s registration system.”

However, DMA “was more skeptical of the ruling,” with DMA Executive Director Kara Calvert saying that the group believes the “existing system has worked well to protect the interests of safe and responsible pilots as well as the interests of society at large,” and hopes that “all sides see the benefit of a reasonable and minimally restrictive form of basic regulation that has helped make drone operations in America overwhelmingly safe.”

AIAA To Hold Second DEMAND For UNMANNED Next Month.

In a press release carried on its website, the American Institute of Aeronautics and Astronautics (5/24) announced that it “will hold its second DEMAND for UNMANNED® symposium on June 6–7 at the Sheraton Denver Downtown Hotel ... in conjunction with the 2017 AIAA Aviation and Aeronautics Forum and Exposition (AIAA AVIATION Forum), June 5–9.” The symposium will examine “the technical, legal, institutional and cultural implications” of UAVs; be moderated by former NBC4 Washington technology reporter I.J. Hudson; and include several sessions on different topics and a range of speakers spanning NASA, industry, and academia. sUAS News (UK) (5/24) also carried AIAA’s release.

The drone era is upon us

MARIANA IRIARTE, ASSOCIATE EDITOR

From the moment an autonomous car gave Weather channel celebrity Jim Cantore a lift to the stage to start his keynote address to the xPonential audience to his introduction of Federal Aviation Administration (FAA) administrator Michael Huerta, the message of the event was clear: Drones are going to be part of our daily lives sooner rather than later.

The speed at which this industry is accelerating is staggering. “This pace of this development is something that we talk about a lot. It’s something that inspires a great deal of awe,” Huerta says. “In the traditional aircraft industry, new jetliners are introduced maybe once every 10 or 15 years. In the world of unmanned aircraft, 10 or 15 new products might be introduced every year.”

Huerta noted that he has been asked what it was like to be present “at the birth of a whole new sector of aviation, a whole new industry.” In reality, he says, “I certainly didn’t think of it that way, until the question came up – I guess it’s human nature to become so focused on the incremental stuff that we are doing day-to-day, that we forget to take stock of how far we’ve actually come in a very short period of time.”

The numbers back him up. “Today, more than 820,000 operators have registered their aircraft,” Huerta noted. “More than 745,000 of those are hobbyists, leaving 60,000 or so that are commercial operators of unmanned aircraft. We have issued more than 43,000 Remote Pilot Certificates under Part 107, in the short time that it’s been in effect. Just last month, we published more than 200 facility maps to help streamline authorizations in the airspace around some of our busiest airports.”

Yet while the pace is exciting to many there are just as many industry observers, commercial airline pilots, and the general flying public not so much an awe at the growth but nervous about the safety of unmanned aerial vehicles (UAVs) flying in the same airspace as their Southwest flight from New York LaGuardia to Orlando for the family vacation to Disney World.

Huerta noted this in his speech and said that safety must be paramount. Regulations regarding drones are still lacking, actually lagging behind the innovations. Although the FAA did issue some preliminary guidance on unmanned aerial vehicles (UAVs) in 2015, state and local governments want more clarification to deal with this growing industry. http://mil-embedded.com/6838-the-drone-era-is-upon-us/

26May17

The DJI Spark Is The First Drone I Actually Want To Buy Alex Fitzpatrick

May 24, 2017

DJI on Wednesday unveiled the Spark drone, the smallest model the popular Chinese dronemaker has released to date.

A first for DJI, **the Spark can be controlled entirely through hand gestures** for quick airborne selfies. Piloting it with an accompanying app allows for a broader array of maneuvers, including flight patterns like "Helix," which mimics Hollywood-style action movie helicopter shots. An optional remote control adds further control options and dramatically increases the range.


Josh Raab for TIME

Like other recent DJI drones, the Spark is capable of detecting and avoiding objects in its flight path. When it comes time to land, tapping the Spark's "Return to Home" button brings the aircraft back to its departure point.

The Spark's camera can shoot 12 megapixel photos and record 1080p high-def videos. That's roughly equivalent to a a typical smartphone, but it's not as good as DJI's higher-end drones, which can shoot ultra-high-def 4K footage. The Spark also has a "ShallowFocus" setting that blurs out the backgrounds behind your subjects, similar to the iPhone 7 Plus' Portrait Mode.

DJI claims the Spark has up to 16 minutes of battery life. It's rechargeable via MicroUSB, meaning you'll be able to top it off in the field with a portable charger, provided it's big enough.

Alex Fitzpatrick for TIME

The Spark is compatible with DJI's Goggles headwear for flying with a first-person view from the aircraft. The Spark is available for pre-order starting immediately; shipments will begin in mid-June. It will cost $499 for the basic package, while a more extensive bundle with a second battery, remote, bag and other extras will go for $699. http://time.com/4792769/dji-spark-drone/