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A Peek at the Secret English Farm Where Amazon Tests Its Drones

By MARK SCOTT OCT. 1, 2016

WORSTED LODGE, England — After hours of searching, I pulled onto a dirt track here in the rolling hills of Cambridgeshire and spotted a small dot whirring across the blue sky, gently swaying in the breeze as it steadily flew about 200 feet above the ground.

Jackpot: It was an Amazon drone.

Barely visible to the naked eye, the unmarked aircraft, about the size of a large model plane, floated across a field about 1,000 yards in the distance, the lights on its four-pronged sensors flashing brightly against the afternoon sun.

Amazon, the giant e-commerce company, began secretly testing unmanned aircraft this summer at an undisclosed location in Britain (its largest outdoor test site, according to an Amazon executive). I set out to find the top secret site, wanting to see how we all may one day receive online deliveries.

Amazon is not alone, however, as other companies conduct drone trials around the world. In New Zealand, Domino's Pizza is testing drones to ferry fast food across the country. Google is offering burrito orders delivered by drone in Virginia. JD.com, the Chinese e-commerce giant, already has a fleet of drones flying autonomously for a maximum of 15 miles round-trip, to reach rural communities at a fifth of the cost of traditional trucks (though a person still takes the package on the last leg of its journey to the recipient).

In Britain, Amazon is working with local authorities to test several aspects of drone technology like piloting the machines beyond the line of sight of operators, a practice still outlawed in the United States. Regulators here first authorized the commercial use of drones in 2010 — years before the Federal Aviation Authority eased its restrictions on remotely piloted aircraft in June. Amazon settled on Britain after the United States initially denied it approval for such tests.

http://www.nytimes.com/2016/10/02/technology/britain-amazon-drone-test-delivery.html

Possible UAV Sighting Reported Above Savannah River Site.

The Aiken (SC) Standard (9/29) reported that a Savannah River Site employee on Thursday "reported a potential unmanned aerial systems sighting, otherwise known as a drone, flying over the site." The UAV was "reported in a site-wide security alert around 10:30 a.m. Thursday." If investigators "confirm that Thursday's sighting was a drone, and not another aerial vehicle, it would be the tenth drone sighting since June." Every sighting "initiates an internal email to employees with information about the situation."

SPHERE Space UAV Applies Machine Learning To Navigate ISS.

Engadget (10/1) featured a piece on the Synchronized Position Hold Engage and Reorient Experimental Satellite (SPHERE) UAV aboard the International Space Station (ISS), which for the first time applied machine learning to teach itself how to navigate the station's confines using a single camera. ESA Project Coordinator Dario Izzo said the team has been working toward the goal of self-supervised learning for five years, and that, "In space applications, machine learning is not considered a reliable approach to autonomy: a 'bad' learning approach may result in a catastrophic failure of the entire mission." A video of the SPHERE UAV accompanies the article.

Lee: US Moving Forward On Self-Driving Cars, Slow To Approve UAV Regulations.

In a San Francisco Chronicle (10/1) column, Thomas Lee discussed recent US Department of Transportation regulation of self-driving cars, noting that while federal rules and standards are expected to bring autonomous cars "onto roads as soon as possible," UAV advocates complain that the FAA "has been dragging its feet" on regulation that will bring UAV technology to the market. According to AUVSI Vice President for Advocacy Tom McMahon, the conservative culture of the FAA is not necessarily focused on keeping pace with rapidly evolving technology such as UAVs. "There is a feeling within the industry the FAA should be moving faster," McMahon said. "Even the FAA would agree that they are behind, that they have a lot of catching up to do."

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Drones inspecting Hampton Roads power lines for Dominion

By Kimberly Pierceall The Virginian-Pilot

The ability of drones to do the work of humans is already a reality. On Monday, Dominion Virginia Power showed off how the technology can do the job more quickly and efficiently on a power line. The power company has been using drones equipped with cameras to inspect some of the 6,500 miles of transmission lines in Hampton Roads and look for storm damage since August 2015. It started testing the technology in 2013.

In a year, the drones discovered six critical issues that the company was able to catch before they became a problem, said Steven Eisenrauch, manager of Dominion's electric transmission forestry and line services. A job that would normally require a worker to climb a transmission line or hover in a helicopter can now be done in minutes by a whirring, eight-rotor aerial drone.

Eisenrauch said the cost savings has been negligible because federal rules require drone operators to physically see the drone they're operating. That requires crews still to traverse physical areas that might be difficult to reach. He expects the utility will save much more when the federal government permits drones to be operated out of a "line of sight," allowing them to fly over swamps and rocky conditions, something Dominion is testing at Virginia Tech.

Dominion doesn't own or operate drones but contracts with Virginia Beach-based Hazon Solutions. A two-worker team flies the drone and controls the camera.
http://pilotonline.com/business/drones-inspecting-hampton-roads-power-lines-for-dominion/article_a598f73c-192e-599b-b7be-f5b714fb1b1d.html

Facebook Seeks Partner Countries for Drone Trials

By ROBERT WALL Updated Oct. 3, 2016 4:23 p.m. ET

Facebook Inc. is in talks with several countries for trial broadcasts of internet content from highflying drones, underscoring the social media company's push to provide bandwidth to poorly connected parts of the globe. Several companies aim to provide bandwidth to far-flung places that can't easily be connected by terrestrial links. Alphabet Inc.'s Google this year ran the first tests of its "Project Loon" that seeks to connect users via high-altitude balloons. OneWeb Ltd. is working on a large constellation of satellites to deliver fast global internet service from space.

But many of the projects face big obstacles. Drone and balloon projects require approvals from national governments to operate in their airspace. Other regulators have to approve the use of radio spectrum to broadcast signals to the ground. That makes working with governments crucial for the companies to succeed. Martin Gomez, Facebook's director of aeronautical platforms, said a number of countries may be involved in trials. "Some of the countries that are really clamoring to host this first demo have huge regions where there is zero or very poor internet connectivity," he said on the sidelines of a Royal Aeronautical Society drone conference in London.

The demonstrations could take place in 2018, he said, though an exact schedule hasn't been fixed. Facebook's drone project took a big step forward on June 28, when it took to the air for the first time in Yuma, Ariz. The aircraft, dubbed Aquila, which weighs less than 1,000 pounds and has a 138-foot wingspan—larger than a Boeing 737 single-aisle plane—remained aloft for 96 minutes, more than an hour longer than first planned. http://www.wsj.com/articles/facebook-seeks-partner-countries-for-drone-trials-1475523050?mod=LS1

Facebook's Aquila UAV Will Not Need Landing Gear. Flightglobal (10/3) reports that at the Royal Aeronautical Society's UAV conference in London, Facebook Director of Aeronautical Systems Martin Gomez said that the company's Aquila UAV, intended to fly at high altitudes for months at a time, will not be outfitted with landing gear. The design is intended to reduce weight and drag and increase endurance. According to Gomez, less than 1% of Aquila's total flight time will be dedicated to take-offs and landings.

IBM, Aerialtronics To Use UAVs For Inspection Services.

Fast Company (10/3) reports that IBM has partnered with Dutch UAV maker Aerialtronics to create an airborne inspection service that will use UAVs to inspect cellphone towers. Fast Company adds that the UAVs will use "Watson's visual recognition APIs" to help identify problems and alert a company's maintenance team to them.

Australia's Rise Above Named Reseller For Precision Agriculture UAVs.

Farm Online (AUS) (10/3) reports that "Australian drone system business Rise Above has been appointed as a re-seller for Sentera NDVI solutions," giving it "access to Sentera's agriculture drones, precision sensors, and AgVault Software." Rise Above Director Rafi Mehdi said, "Precision agriculture provides lots of benefits to farmers, from the ease of use of capturing the data, to the tangible benefits which can be seen in yield increase, and reduction in water and fertilizer usage." Farm Online discusses applications for precision agriculture, the capabilities of NDVI UAVs, their sensor payloads, and an app farmers can use to plan flights.

Aerialtronics, Neurala and NVIDIA Demonstrate AI-Powered Drone Inspection

Published: 03 Oct 2016

Aerialtronics, in conjunction with Neurala, a pioneer in deep learning software, and NVIDIA, has demonstrated automated inspections by an intelligent drone at the GPU Technology Conference Europe. This new "intelligent drone" identifies objects and their condition in flight, which dramatically increases the efficiency and accuracy of documenting assets, lowering costs, and making it easier for frequent inspections. It adds to the use of commercial drones to help businesses access difficult and dangerous areas, such as cell towers and turbines.

Aerialtronics and Neurala collaborated to make the demonstration on the Altura Zenith UAS, which incorporates the NVIDIA Jetson TX1 module. The resulting system can visually inspect a cell tower and recognize the equipment mounted on the mast. This is the first step required to start automating the documentation of assets, and assessing the mechanical functionality and condition of the cell tower to identify rust and other defects. The intelligent drone application is expected to be extended beyond cell towers to include inspection of bridges, buildings, wind turbines and other infrastructure as business benefits from scalability and rapid adoption of new technology.

"Not only can we do clever things with the vision and thermal data, we can connect the flight computer so the drone is fully aware of it surroundings," said Robin van Putte, chief of product strategy at Aerialtronics. "We don't want to end our inspection mission with a SD card in our hand and invest a lot of time in data offload and post-processing." "Instead we want to be able to immediately verify the results and take quick decisions. Having artificial intelligence technology onboard accelerates our roadmap to full automation of the drone workflow."
http://www.unmannedsystemstechnology.com/2016/10/aerialtronics-neurala-and-nvidia-demonstrate-ai-powered-drone-inspection/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=475a5c3843-

Unmanned_Systems_Technology_eBrief&utm_medium=email&utm_term=0_6fc3c01e8d-475a5c3843-111778317

Latitude Engineering HQ-60 UAV Sets New Flight Record

Published: 30 Sep 2016

Latitude Engineering has announced that, in conjunction with a team coordinated by L-3 Unmanned Systems, it has surpassed the world record for time aloft of a vertical takeoff and landing (VTOL) aircraft, using Latitude's HQ-60 Hybrid Quadrotor UAV. The record was set during the Joint Interagency Field Experimentation Program (JIFX), with L-3's team consisting of Power4Flight, Trillium Engineering, and Silvus Technologies. The HQ-60, procured by L-3, launched at 2:06 PM PST and continuously flew until 12:39 PM PST the following day, successfully surpassing the record for time aloft of a VTOL aircraft, with a total flight time of 22 hours, 29 minutes, and 38 seconds, with fuel to spare. The Boeing A160 had previously flown the longest at 18 hours, 45 minutes.

http://www.unmannedsystemstechnology.com/2016/09/latitude-engineering-hq-60-uav-sets-new-flight-record/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=475a5c3843-Unmanned_Systems_Technology_eBrief&utm_medium=email&utm_term=0_6fc3c01e8d-475a5c3843-111778317

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MIT Scientists Develop Programmable Rubber To Soften Blow Of UAV Accidents.

Inc. Magazine (10/4) reports that a team at MIT's Computer Science and Artificial Intelligence Laboratory "found a way to 3-D print materials that could lessen the impact" in the event a UAV falls from the sky. The researches invented "programmable" rubber materials that, "if used to make drones, could cause less severe impact on anything they ram into – people included." The article characterizes the product as giving manufacturers "the ability to create safe, shock-absorbing components themselves," which "would mean they'd also have the ability to print and test materials" leading to safer products.

Textron's Phillips: Aerosonde SUAS' VTOL Provides "Complete Runway Independence."

Shephard Media (10/4) reports that Textron Systems is showcasing its Hybrid-quad Aerosonde variant at the 2016 Association of the US Army Annual Meeting in Washington DC. The UAV "combines the vertical takeoff and landing (VTOL) capabilities of a multi-rotor platform with the Aerosonde SUAS fixed-wing aircraft," and is due to undergo testing by military and commercial customers next month. The article features footage of an interview with Textron Vice President of Small and Medium Endurance UAS David Phillips, who said the Aerosond's new VTOL capability provides "complete runway independence" for customers who operate in "austere locations" without runways.

Syracuse To Host 2016 Unmanned Traffic Management Convention.

The Syracuse (NY) Post-Standard (10/4) reports that the 2016 Unmanned Traffic Management (UTC) Convention will be held fromNovember 8 to 10 in Syracuse, New York, and that "up to 500 air traffic management professionals are expected to attend." Attendees will have an opportunity to tour Griffiss International Airport, "one of the FAA's designated test ranges for unmanned aerial systems management," where Lockheed Martin will demonstrate remote operation of "an Indago quadcopter and a Desert Hawk III fixed wing [UAV]...and full-size K-MAX and S-76 helicopters." Griffiss is a former US Air Force base "that has been equipped with special radars and communications systems to detect, identify and track small, low-flying [UAVs.]" Convention sponsors include the Air Traffic Controllers

Association (ATCA), the Association for Unmanned Vehicle Systems International (AUVSI), Empire State Development Corp., Onondaga County, Oneida County, and Syracuse University.

Antares Launch Date Now Scheduled For October 13.

Space News (10/4, Subscription Publication) reports that NASA and Orbital ATK have scheduled the launch of the Antares launch vehicle for October 13. The Antares 230 rocket will launch with its Cygnus spacecraft payload from the Mid-Atlantic Regional Spaceport at Wallops Island, Virginia at 9:13 pm. The article reports that one factor in scheduling the launch for later in the month could be a desire to avoid Hurricane Matthew, which is forecast to pass through Wallops Island on October 8.

Tennessee's Hamilton County Sheriff's Office To Use UAVs.

The AP (10/4) reports that Tennessee's Hamilton County Sheriff's Office will begin using UAVs to "gather evidence for court cases, detect bombs and find missing persons." Sheriff Jim Hammond said in a news conference Monday "that the equipment will not be used to invade people's right to privacy." The country has purchased six UAVs for a total cost of $10,000.

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GE Rotor UAV To Speed Methane Inspections For Oil Industry.

Bloomberg News (10/5) reports that General Electric is developing a rotocopter UAV called the Raven, which it plans to use "to sniff for methane emissions at well sites," as well as for other applications, leveraging Raven's custom software for flight planning and data analysis. GE Oil & Gas CEO Lorenzo Simonelli said in an interview, "When you think of Project Raven and the usage of new tools and applications, it's going to be key to take the industry forward." According to GE Research Engineer Ashraf El-Messidi, the company hopes Raven will help increase the efficiency of methane inspections.

Amazon "One-Upped" By Frozen Yogurt Chain.

KTVD-TV Denver (10/5, 9:28 p.m. MDT) reported that Orange Leaf Frozen Yogurt "one-upped" Amazon by using a UAV to deliver frozen yogurt to college students in Western Michigan. The UAV can carry up to 30 pounds, and customers must place an order for a minimum of 30 frozen yogurts.

Las Cruces Students Attend NMSU Unmanned Aircraft Systems Road Show.

KRWG-FM Las Cruces, NM (10/4) reported that students from Las Cruces Public Schools recently attended an Unmanned Aircraft Systems Road show at New Mexico State University (NMSU), where they took part "in different learning stations for hands-on learning to understand the science, technology, education, and math" behind UAVs. NMSU Physical Science Lab Deputy Director Henry Cathey said that these students "have great opportunities in these STEM fields, especially in the UAS world. We are looking at an industry that is a six, eight, ten, possibly up to a $20 billion industry in the United States by 2025."

Students Learn About UAVs Through 4-H Youth Science Day.

USA Today (10/5) reports that some 100,000 students from around the country took part in the 4-H National Youth Science Day on Wednesday, noting that the theme of the event was "drone discovery." Students crafted rudimentary gliders and got the opportunity to operate a quadcopter from UAV manufacturer DJI.

U.S. News & World Report (10/5) reports that students "worked in groups overseen by volunteers to explore the science behind drones and apply it to real-world problems. Younger students experimented with drone engineering and design, while high schoolers learned about computer coding for remote sensors and unmanned flight."

Tuskegee Students Learn To Program And Fly UAVs At "Drone Day."

WSFA-TV Montgomery, AL (9/27) featured a video reporting on "Drone Day" at the Tuskegee Institute Middle School, where more than 60 students learned how to program and fly UAVs. Tuskegee University Professor Javier Khan said that "we want these kids to be exposed to this technology so they get motivated to remain in the science, math, engineering, and technology area." Funding for the program came from the FAA's Center of Excellence.

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Verizon to Start Selling Wireless Data Plans for Drones

Plans would allow drones to connect to the internet, stream videos and pictures

By RYAN KNUTSON Oct. 6, 2016 1:22 p.m. ET

Soon, companies will be able to get a data plan for their drones. Verizon Communications Inc. said Thursday it would begin working with drone makers to connect the flying vehicles to Verizon's wireless network. Drone data plans will start at $25 a month for 1 gigabyte of data and $80 for 10 gigabytes, company officials said in an interview. The prices roughly align with what consumers pay now for data.

Initially, the data plans will allow drones to essentially connect to the internet during flight, and stream videos, pictures or other sensory data back to earth. Verizon says it could be used by companies that inspect oil pipelines, farming yields or wildfires. But the service could eventually evolve into a means of piloting drones remotely. Federal regulations currently require a drone operator to remain in direct sight of the drone, and the devices in most cases can't be flown higher than 400 feet without special permission. Drones today are typically operated with remote controls that use free, public airwaves to create a direct link between the pilot and the drone. Verizon also plans to use drones like flying cell towers to plug holes in its own network during emergencies, such as when networks are damaged during storms.

http://www.wsj.com/articles/verizon-to-start-selling-wireless-data-plans-for-drones-1475774573

Verizon, AT&T Consider Using UAVs To Expand Cell Service.

Bloomberg News (10/6) reports that Verizon is developing a UAV with a 17-foot wingspan and "loaded with wireless antennas for extending service areas" outside of its cellular network. Verizon is testing the UAV in a "simulated post-storm disaster" in Cape May, New Jersey this week with "emergency management officials" running "trials using the plane's mobile connections." Bloomberg notes that AT&T has been using UAVs "to inspect cell towers," and has been considering "flying antennas over concerts and other big-crowd events to boost service."

Fortune (10/6) reports that the UAV is designed "to provide LTE mobile connectivity to first responders." Fortune says Verizon engineers hope to determine from this week's testing the area that "can be provided with service" and "optimal altitude." The article adds that the company has larger plans than just UAVs for emergencies, with the company seeing "business potential" in using UAVs for Internet of Things platforms, such as use "by customers to gather traffic data, inspect agricultural fields, or measure storm damage."

AT&T Uses UAVs To Screen Sports Stadium For Signal Strength.

The Washington Times (10/6) reports that AT&T demonstrated the use of UAVs to improve cellphone network coverage "in sports arenas and other densely populated places" on Wednesday at the AT&T Stadium in Dallas, Texas. According to the company, UAVs are able to "screen an entire stadium for weak signals in a matter of hours," while screening by humans on the ground would usually take a week. AT&T's Art Pregler said, "We fly drones here so we can understand what is going on at each seat in the stadium so we understand the user frustration. ... From that drone information we can target specifically where we need to make upgrades to our network, and we can add that capacity."

South Jersey Aims To Attract UAV Companies.

The Press of Atlantic City (NJ) (10/6) reports on efforts by South Jersey "officials and entrepreneurs" to attract UAV companies to the region as a location with facilities and regulation conducive to UAV development and field-testing. According to Stockton Aviation Research & Technology Park Executive Director Joe Sheairs, organizations such as

the Red Cross and DARPA have missions booked at the center, which “works closely with Cape May Airport and other local agencies and institutions to draw drone business to South Jersey.” The article notes that Cape May County, and the Delaware River and Bay Authority are partnering to sponsor an Unmanned Aircraft Systems Conference from October 13-14, to take place at Cape May Convention Hall.

UK Police Using UAVs To Deter Criminal Behavior.

The Daily Mirror (UK) (10/6) reports that police officers in South Wales “have 10 pilots using their force drones in a bid to catch people breaking the law” and deter “anti-social behavior.” Residents living near city parks have been complaining about the noise from dirt bikes, and in response police have used UAVs to conduct surveillance on the area. Officers “have not only received the information needed to seize bikes, but they are seeing the techniques acting as a deterrent to the riders which is meaning a reduction in the number of bikes accessing the land.” The UAVs deployed by the officers have a battery life of about seven hours, “can travel at up to 40 mph, and most importantly for the officers, the devices can capture high quality images from a distance.”