White House Boosts GPS Budget, GPS III Procurement Decision Still Pending

The White House is asking Congress to boost overall funding for the GPS program back over $1 billion, with the largest infusion of new money earmarked to cover the cost growth of the Next Generation Operational Control System (OCX).

If approved, overall spending on the GPS program would reach $1.09 billion in fiscal year 2018 (FY18) with funding for OCX surging to $510.94 million from the $393.27 million allocated by Congress for FY17.

The OCX program, which has experienced repeated cost increases and schedule delays, "continues to make progress," Maj. Gen. Roger Teague, the director of space programs in the Office of the Assistant Secretary for Acquisition, told reporters in May — though he cautioned that "the program is not out of the woods." "The Air Force will continue its extensive review," Teague said, adding that close monitoring would be "required for the foreseeable future."

The new cost estimates for OCX were still being finalised when the budget came out though increases were widely expected. Work on the budget numbers should be complete the week of June 19 when OCX undergoes a Milestone B program review. The review was required after cost overruns triggered a critical Nunn-McCurdy breach last year.

Read more in *Inside GNSS* article. http://www.insidegnss.com/node/5510

2017-06-15

Galileo Satellite Team Wins European Inventor Award

The invisible signals that Europe's Galileo satellites are beaming down to the world are officially award-winning: the team behind their design has won the European Inventor Award, run by the European Patent Office, reports the European Space Agency.

The 12th European Inventor Award (Research) was given at a special ceremony on 15 June at the Arsenale di Venezia in Venice, Italy.

Just like the Galileo satellites and their globe-spanning ground stations, the Galileo signals themselves needed to be designed, having to pack multiple Galileo services aimed at different classes of users within the limited frequency bands allocated for the system by the International Telecommunications Union.

This task was accomplished by the Galileo Signal Task Force, a multinational group of experts who came up with a pair of innovative signal modulation techniques.

This team was led by Spanish engineer José Ángel Ávila Rodríguez – now part of ESA's Galileo team – and his French colleague Laurent Lestarquit from France's CNES space agency, sharing in the European Patent Office's European Inventor Award 2017.

The team also includes German Günter Hein, formerly head of the department studying the evolution of EGNOS and Galileo for ESA, as well as Belgian Engineer Lionel Ries, now in ESA's technical directorate, as well as French CNES engineer Jean-Luc Issler.

Read more in *GPS World* article. http://gpsworld.com/galileo-satellite-team-wins-european-inventor-award/

2017-06-16

Adelaide Paves The Way For Driverless Cars

Travellers in Adelaide may soon be able to catch a driverless airport shuttle and students will be able to book a self-driving shuttle around Flinders University.

South Australia is leading the country in the push toward self-driving cars. It was the first state to allow on-road trials of driverless cars and has pledged $5.6 million to a range of driverless services.

"In my city we have a strategic plan for the next four years that includes the implementation of autonomous technology and we're building the infrastructure that will enable it to be used in the city," said a City of Adelaide adviser, Steve Harrison.

He told a parliamentary committee into the new technology in Canberra that the city was working in partnership with business on the infrastructure.

"We've pulled it off...without any funding from the council. It's more about us providing the conduit, access to that conduit and the ability to put up wireless devices in the city," he said.

The federal inquiry into the social implications of driverless vehicles has received 43 submissions from a range of organisations and companies such as Toyota, Volvo, the Australian Automobile Association and Telstra.

http://www.afr.com/technology/adelaide-paves-the-way-for-driverless-cars-20170613-gwqmzd

2017-06-14

New Reports Confirm Near-Perfect Performance Record For Civil GPS Service

The U.S. Air Force released two technical reports demonstrating that the Global Positioning System (GPS) continues to deliver exceptional performance to civilian users around the world. GPS is a U.S. Air Force satellite system that provides highly dependable positioning, navigation, and timing (PNT) services to military and civilian users around the world, free of direct user charges.

The 2014 and 2015 performance reports confirm that the GPS Standard Positioning Service (SPS) satisfied nearly all measurable performance commitments documented in the GPS SPS Performance Standard, furthering the status of GPS as the "Gold Standard" for PNT.

The GPS Directorate at the U.S. Air Force's Space and Missile Systems Center commissioned the GPS SPS performance reports to enhance public transparency of the real-world performance of civil GPS. The reports confirm that GPS met all of the evaluated commitments for calendar years 2014 and 2015 with one exception.

Read more in *GPS Daily* article.
http://www.gpsdaily.com/reports/New_reports_confirm_near_perfect_performance_record_for_civil_GPS_service_999.html

2017-06-21

Tim Cook Confirms Apple is Working on Driverless Cars

Apple is working on the "autonomous systems" behind driverless cars, Chief Executive Tim Cook said in an interview published by Bloomberg on Tuesday, in his most detailed comments about the company's secretive plans.

The technology giant has been tight-lipped on any of its autonomous vehicle plans, despite numerous reports that it has been researching them under codename "Project Titan".

Cook's comments illustrate that Apple is working on the software behind the vehicle.

"We're focusing on autonomous systems. And clearly, one purpose of autonomous systems are self-driving cars. There are others," Cook said in an interview with Bloomberg on June 5.

"And we sort of see it as the mother of all AI projects. It's probably one of the most difficult AI projects actually to work on and so autonomy is something that's incredibly exciting for us, but we'll see where it takes us."

http://www.cnbc.com/2017/06/13/apple-driverless-cars-tim-cook-confirms.html

2017-06-13

BDS Precise Service System Covers Over 300 Chinese Cities

The Precise Service System of the BeiDou Navigation Satellite System (BDS) has been used in creating 317 smart cities in China, according to the Smart BDS Precise Application Summit opened on Monday 12 June.

BDS Precise Service System can provide precise positioning services for household gas and heat, power grid, water supplies,drainage and smart transportation.

Sun Jiadong, an academician of the Chinese Academy of Sciences, said Beidou has a wide range of applications and its precise positioning services should be developed practically.

Read more in *GPS Daily* article.
http://www.gpsdaily.com/reports/BDS_Precise_Service_System_covers_over_300_Chinese_cities_999.html
2017-06-14

Google's Street View Turns 10!

Would you believe it has already been 10 years that Google's Street View has been dishing out some pretty amazing, weird and funny imagery of the world around us? From a peep inside the White House to panoramic views of your dream vacay spot, this incredible service guarantees to satisfy spatial curiosities with just a few clicks.

But more than a decade ago, when Google co-founder Larry Page first pitched the concept of creating a 360-degree map of the world, naysayers were quick to dismiss it as being too far-fetched – as is the case with every revolutionary idea. Nonetheless, Larry found a passionate bunch of Googlers to work with him on the first prototype and rolled out the first Street View car in the streets in 2006. These cars traversed through San Francisco, New York, Las Vegas, Miami, and Denver for a year before Google released the first imagery in May 2007.

Today, Street View cars have traveled almost 10 million miles, covering every single continent and 83 countries in total, a celebratory blog post by Google reveals.

http://geoawesomeness.com/googles-street-view-turns-10/

2017-05-31

Galileo Provides Healthy Signals 97.33% of the Time

Europe's Galileo satellite navigation system has undergone its first performance report since it started work at the end of last year, and it passed with flying colors, said the European Space Agency.

The European GNSS Agency, GSA, through its GNSS Service Centre, has published the first of its regular quarterly performance reports on Galileo. This European GNSS (Galileo) Initial Services Open Service report, now available online, covers the first three months of 2017 and documents the good performance of Galileo Initial Services to date.

The report shows the 11 satellites then operating in the Galileo constellation were able to provide healthy signals 97.33 percent of the time on a per satellite basis, with a ranging accuracy better than 1.07 m and disseminating global UTC time within its signal to within 30 billionths of a second on a 95 percentile monthly basis.

"Galileo Initial Services were declared by the European Commission on 15 December 2016," said Joerg Hahn of ESA's Galileo System Office.

Read more in *GPS World* article. http://gpsworld.com/galileo-provides-healthy-signals-97-33-percent-of-the-time/

2017-06-05

Alphabet is Making a Drone-Tracking System to One Day Manage a Sky Full of Flying Robots

Before thousands of drones hit the skies to make widespread package delivery a reality, there's going to have to be some kind of air traffic control system to make sure drones can fly autonomously without colliding into each other.

The team from Project Wing — the experimental drone delivery project at Alphabet's X "moonshot" umbrella organization — has recently tested a new system to manage drone traffic.

Taking part in tests convened by NASA and the U.S. Federal Aviation Administration, Project Wing conducted trials of its own drone traffic control platform at Virginia Tech, where the FAA has set up a test site for flying drones. Wing discussed the project in a blog post.

The problem of tracking and managing drone flights will be critical to figure out before drone delivery can come to fruition. Drones don't take off and land from the same place on set routes — in the way airplanes use airports — but rather are supposed to work more like cars, going direct to and from homes and offices. Operators will need to know where other drones are flying in order to prevent collisions, as well as which areas to avoid and when, like if there's a major sports event or a wildfire.

https://www.recode.net/2017/6/7/15749994/alphabet-project-wing-autonomous-drone-tracking-faa-nasa

2017-06-07

Galileo Grows: Two More Satellites Join Working Constellation

Two further satellites have formally become part of Europe's Galileo satnav system, broadcasting timing and navigation signals worldwide while also picking up distress calls across the planet.

These are the 15th and 16th satellites to join the network, two of the four Galileos that were launched together by Ariane 5 on 17 November, and the first additions to the working constellation since the start of Galileo Initial Services on 15 December. The growing number of Galileo users around the world will draw immediate benefit from the enhanced service availability and accuracy brought by these extra satellites.

The launch into space and the manoeuvres to reach their final orbits still left a lot of rigorous testing before the satellites could join the operational constellation. Their navigation and search and rescue payloads had to be switched on, checked and the performance of the different Galileo signals assessed methodically in relation to the rest of the worldwide system.

Read more in *GPS Daily* article.
http://www.gpsdaily.com/reports/Galileo_grows_two_more_satellites_join_working_constellation_999.html
2017-06-09

New Contract to Take EGNOS to Next Level

ESA has signed a contract with Thales Alenia Space for an upgrade of Europe's EGNOS satellite navigation augmentation system, which underpins the safety-critical use of satnav across the continent. Designed by ESA and being exploited by Europe's GNSS Agency, GSA, the European Geostationary Navigation Overlay Service (EGNOS) improves the precision of US GPS signals over most European territory, while also providing continuous and reliable updates on the 'integrity' of these GPS signals.

A network of ground monitoring stations throughout Europe performs an independent measurement of GPS signals, so that corrections can be calculated and then passed to users immediately via a trio of geostationary satellites. The result is that the EGNOS-augmented signals are guaranteed to meet the extremely high performance standards set out by the International Civil Aviation Organisation standard, adapted for Europe by Eurocontrol, the European Organisation for the Safety of Air Navigation.

Paul Verhoef, ESA's director of the Galileo Programme and Navigation-related Activities, signed the contract at ESA Headquarters in Paris with Philippe Blatt, vice president of Thales Alenia Space France.

Read more in *GIM International* article. https://www.gim-international.com/content/news/new-contract-to-bring-egnos-to-next-level

2017-06-07

Japan Launches Satellite In Bid For Super Accurate GPS System

Japan successfully launched a satellite Thursday 31 May as part of a broader effort to build a homegrown geolocation system that boosts the accuracy of car navigation systems and smartphone maps to mere centimetres.

An H-IIA rocket blasted off Thursday morning from the Tanegashima space centre in southern Japan carrying the "Michibiki" No.2 satellite, which was later released into orbit. "The launch was a success," a Cabinet Office spokeswoman said.

Satellite geolocation systems, initially designed for the US military, now power countless civilian applications, from car navigation to internet browsing on mobile phones. Japan relies on the US-operated GPS. Thursday's launch was part of a broader plan to build a domestic version with four satellites focusing on the country and wider region.

The first satellite was put into orbit in 2010 and the third and fourth are to be launched by March 2018 to start the service. The Japan-built system will still need to operate in tandem with GPS.

Read more in *GPS Daily* article.
http://www.gpsdaily.com/reports/Japan_launches_satellite_in_bid_for_super_accurate_GPS_system_999.html

2017-06-01

Australians "Not Ready" For Driverless Cars

DESPITE ploughing billions globally into the new technology, the boss of Ford's local operation has admitted that Australians are "not ready" for driverless cars and it will be a struggle to persuade them to buy new vehicles. Talking to news.com.au, Ford Australia and New Zealand CEO Graeme Whickman also cautioned Australia was "late to the party" when it came to paving the way for autonomous vehicles, otherwise known as driverless cars.

He also said troubling ethical questions surrounding vehicles without a human driver - such as who would be responsible if there was an accident - were yet to be resolved. Earlier this month, the US global car giant announced a change in leadership replacing 30-year-company veteran Mark Fields with Jim Hackett who becomes global boss after previously overseeing the unit developing driverless cars.

"As somebody who is a true believer, who understands the economic and societal benefits of [autonomous vehicles] if anything [the appointment of Hackett] puts more emphasis on it," Mr Whickman told news.com.au during the Vivid Ideas festival in Sydney. The company houses one of its three global research centres in Victoria. Last year it announced it would double its Australian research investment to $450m - much of that in autonomous car development at its Broadmeadows base close to Melbourne Airport.

https://www.whitsundaytimes.com.au/news/australians-not-ready-driverless-cars/3184039/

2017-05-30

How to Steal a Ship

In 2013, Professor Todd Humphries of the University of Texas made news by demonstrating how he could “takeover” navigation of a large yacht by co-opting its navigation system with false GPS signals. Even though the captain and crew knew what was going to happen, the vessel was out of sight of land and the changes in course were too subtle for them to detect.

In the most recent edition of the Institute of Navigation’s Journal “Navigation” Professor Humphries and a colleague explain over the course of 16 pages how it was done. From the paper’s abstract:

“An attacker’s ability to control a maritime surface vessel by broadcasting counterfeit civil GPS signals is analyzed and demonstrated. The aim of this work is to explore civil maritime transportation’s vulnerability to deceptive GPS signals and to develop a detection technique that is compatible with sensors commonly available on modern ships. It is shown that despite access to a variety of high-quality navigation and surveillance sensors, modern maritime navigation depends crucially on satellite navigation and that a deception attack can be disguised as the effects of slowly-changing ocean currents …”

But bad actors need not be able to penetrate the complex formulas of this technical paper in order to pose a significant hazard to shipping. At the annual Defcon hackers’ convention in 2015 a Chinese technologist gave step by step instructions on how to build a GPS spoofing device and was selling kits for $300.

Maritime executives and security professionals should take note.

http://maritime-executive.com/editorials/how-to-steal-a-ship

2017-06-01