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P R E S S R E L E A S E

New free software 'Toolkits' bring EGNOS accuracy and integrity to smart phones

The European Commission has introduced free, downloadable and ready-to-use Toolkits to help anyone develop enhanced location and timing applications that harness the power of Europe's EGNOS satellite-based augmentation system.

Integrating EGNOS capabilities into GNSS-based positioning applications can be a time-consuming endeavour. The new EGNOS Toolkit provides an easy and effective way to harness EGNOS corrections in smart phone devices by clearly explaining what is needed and providing all the necessary files and resources.

What is an EGNOS Toolkit?

EGNOS Toolkits include easily downloadable software packages, demo applications and other supporting materials, allowing application developers, researchers, university students and others to create, use and maintain EGNOS-capable positioning applications.

For receiver manufacturers and mobile phone developers, the EGNOS Toolkit contains free source code, allowing the easy integration of EGNOS capabilities into a smart phone.

For those who are simply curious, an EGNOS Toolkit provides a means of exploring and understanding the entire chain from the raw GNSS satellite signal to enhanced EGNOS positioning data.

The EGNOS Software Development Kit (SDK)

Along with EGNOS-enabling software tools developed under the EU 7th research framework programme-funded projects, 'SIGNATURE' and 'PEGASE', the new 'EGNOS SDK' provides an easy way incorporate all EGNOS corrections and integrity capabilities, allowing developers to perform real EGNOS integration directly into a smart phone. EGNOS SDK is a highly flexible tool that works with different operating systems, including Android, Apple and RIM.

Michaël Mastier, EGNOS SDK Project Manager at the European Commission, says, "With the publication of the EGNOS SDK, the Commission aims to provide documentation and easy-to-use software to foster the development of applications that harness the advantages of EGNOS on smart phones and handheld receivers."

Andreas Kroier of EGNOS SDK developer, DKE Aerospace, says both static and kinematic tests have been conducted and EGNOS performed well in both cases: "The EGNOS SDK provides an average increase of 30% in position accuracy over GPS alone."

The demo application: Users can install the demo application on a smart phone for a lively introduction to the EGNOS SDK world. Red dots on screen represent the normal positioning information from GPS alone and green dots represent the enhanced position with EGNOS.

The source code: The EGNOS SDK provides all the necessary files for the demonstration application, for use as a basis for a new application, as well as core libraries, to integrate enhanced EGNOS positioning capability into an existing application.

Download it for free today!

The EGNOS SDK (core software, demo application, documentation) is now available for download from the EGNOS Portal website: www.egnos-portal.eu

The EGNOS Toolkits make it easier than ever to benefit from the power of EGNOS.

EGNOS. It's there, use it!

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BACKGROUND INFORMATION

The EGNOS SDK (Software Development Kit) is a project funded by the European Commission and aims to further support and encourage the use of EGNOS in location-based service applications for smart phones.

The EGNOS SDK can help developers save time and energy by providing a ready-for-use source code and a demo application showing the advantages and possibilities offered by EGNOS. It also takes advantage of ESA's SISNeT. SISNET is paving the way toward the use of the EGNOS Data Access Service (EDAS) on smart phones. EDAS offers ground-based access to EGNOS data, which is particularly useful when EGNOS satellites are not in view (i.e. in urban canyons, under tree canopy, etc.)

Since EGNOS is fully interoperable with other SBAS, a receiver fitted with the EGNOS Toolkit can provide enhancements in any part of the globe covered by an SBAS system.

SDK Technical aspects

The EGNOS SDK includes a core software package, a demonstration application and the related documentation. The core software provides a series of functions offering the possibility to make use of EGNOS corrections in any application in order to get a more accurate position and to develop innovative applications benefiting from the integrity feature. The demonstration application and the documentation will help developers by providing guidelines on the potential and how to use the core software.

In order to include EGNOS corrections independently from the EGNOS signal-in-space, the core software also includes functions to access the SISNeT service. SISNeT is a server that provides EGNOS corrections over the Internet as if they would have been received from the satellites.

A developer can use the core software in an application to easily make use of the EGNOS enhanced position via a single function call. The software requires GPS pseudo ranges as inputs, which are the raw one-way measurements of the distances from the GNSS satellites to the user's receiver. Since the current generation of GNSS receivers for smart phones does not allow access to pseudo ranges, the core software can be used on smart phones that use Bluetooth to connect to an external GNSS receiver that is able to provide GPS pseudo ranges. The first version of the core software targets the Android, Blackberry OS, iOS and Windows Phone 7 platforms, and is available in C, JAVA and C#.

The EGNOS SDK is a European Commission-funded project implemented by:

- DKE Aerospace: for the technical and structural design, development test and documentation. www.dke-aerospace.com
- VVA – Valdani Vicari e Associati: for market strategy, market research and coordination aspects: www.vvaconsulting.net

About EGNOS

EGNOS (the European Geostationary Navigation Overlay Service) is a pan-European 'satellite-based augmentation system' or 'SBAS', which complements GPS by delivering reliability information to users. EGNOS uses GPS signals and improves the service by adding correction and additional information. It will also complement Galileo.

Along with increasing accuracy, EGNOS also informs users about the current integrity (level of reliability) of the system based on GPS satellite orbits, atomic clock accuracy and ionospheric delay. If the accuracy of the signal falls below a given threshold, users are warned within six seconds.

The *EGNOS Open Service* - for applications where human life is not at stake such as personal navigation, goods tracking and precision farming - has been available for users since October 2009.

The *EGNOS Safety-of-Life Service* - where human lives depend on the accuracy and integrity of the signals - became available for its primary purpose of aircraft navigation (beginning with vertical guidance for landing approaches) in March 2011.

EGNOS is based on a network of ground stations, control centres and three geostationary satellites. The ground stations gather data on the current accuracy of GPS signals and embed it in the EGNOS signal, which is uplinked to the satellites to be transmitted to users.

EGNOS is designed against international standards set by the International Civil Aviation Organisation (ICAO) and its development was coordinated with other SBAS around the world: WAAS in the US, MSAS in Japan, and GAGAN in India.