Location-Placing Solution Claimed Most Accurate

STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications and the leading supplier of MEMS (Micro-Electro-Mechanical Systems) for consumer and portable applications,[1] today announced a complete hardware solution for advanced sensing applications with 10 degrees of freedom (DoF)[2]. A set of three thin, high-performance MEMS sensors provides accurate and comprehensive information on linear, angular and magnetic motion together with altitude readings, enabling enhanced navigation and smarter user interface in mobile phones and other portable consumer devices.

An emerging new class of mobile consumer applications, such as location-based services and pedestrian dead-reckoning for indoor and multi-floor navigation, require rather complex sensing capabilities. By using just three ST MEMS sensors - a geo-magnetic module, a gyroscope, and a pressure sensor â€“ a consumer device can have a complete indication of its linear acceleration, angular velocity, earth gravity, heading and altitude. With this information, mobile users will be able to identify their direction and precise location in all three dimensions everywhere they go, including in places with no or low GPS signal, such as inside buildings in urban canyons or in mountainous and forested terrain.

Facilitating the fusion of complex motion-sensor data in smart consumer devices, ST has also recently introduced the industry's first advanced filtering and predictive software engine, which integrates the outputs from 3-axis accelerometers, gyroscopes and magnetic sensors. Fusing these sensors' data through sophisticated algorithms, the iNEMOâ„¢ Engine delivers dramatically more accurate and reliable sensor performance â€“ the kind of performance now in demand by makers of next-generation smart consumer devices for enhanced motion-based applications.

"Multi-sensor capabilities enhance the mobile user experience with previously unseen realism and accuracy in next-generation motion- and location-based applications," said Benedetto Vigna, Group Vice President and General Manager of

ST's MEMS, Sensors and High Performance Analog Division. "With its formidable arsenal of world-class MEMS components, software, design and manufacturing expertise, ST is leading the way to fusing multiple sensors in mobile phones, navigation systems, and other consumer devices."

Designed and produced using the same micromachining technology process that the Company has already successfully applied to more than 1.2 billion sensors sold in the market, ST's MEMS chips boast ultra-small size and minimized current consumption coupled with superior accuracy and reliability. The three-chip 10-DoF sensor solution comprises the following components:
â€¢The LSM303DLHC geo-magnetic module integrates high-resolution, three-axis sensing of linear and magnetic motion in a 3 x 5 x 1mm package, with operating current consumption as low as 110 microamps. The device delivers extremely accurate output across full-scale extended ranges up to Â±16g (linear acceleration) and Â±8 Gauss (magnetic field), with excellent stability over time and temperature. In addition to that, it comes with a host of advanced features, including 4D/6D orientation detection and two programmable interrupt signals that enable immediate notification of motion detection, free fall and other conditions.
â€¢Housed inside an ultra-small 4 x 4 x 1mm package, the L3G4200D 3-axis digital gyroscope provides state-ofâ€“the-art performance in terms of output accuracy and stability over temperature and time. The device couples a 16-bit data output with a wide set of user-programmable full-scale ranges from Â±250dps up to Â±2000dps. An embedded FIFO (first-in first-out) memory block removes the need for continuous communication of between the sensor and the host processor, decreasing dramatically the overall power consumption.
â€¢ST's soon-to-be-announced silicon pressure sensor uses an innovative technology to provide extremely high resolution measurements of pressure â€“ and therefore also of altitude â€“ in an ultra-compact and thin 3 x 3 x 1mm package. The device has an operating pressure range of 260 â€“ 1260 millibars, corresponding to the atmospheric pressures between -700 and +10000m relative to sea level, and can detect height variations as small as 0.3 m. ST's 10-DoF sensor solution is now available for evaluation, with mass production scheduled for the end of Q3 2011. Unit pricing for the three-chip set is $5.90 for volumes in the range of 100,000 pieces.

To date, ST's MEMS sensors have enabled motion-activated user interfaces in a number of popular consumer devices, including game consoles, smart phones and remotes. Also, computer manufacturers widely use the Company's acceleration sensors for free-fall protection in laptop hard-disk drives. ST shipped its one billionth MEMS sensor in November 2010 and its dedicated 8-inch MEMS fabrication line, which was among the first in the world, currently produces more than two million devices a day.

For further information on ST's MEMS solutions, go to www.st.com/mems

Source URL (retrieved on *03/12/2014 - 1:28am*):
http://www.wirelessdesignmag.com/product-releases/2011/05/location-placing-solution-claimed-most-accurate