Discovery kit features built-in MEMS sensors

STMicroelectronics has released an innovative easy-access development platform for projects based on its new high-performance STM32 F3 microcontrollers, which are now starting to enter volume production.

The new development platform, the STM32 F3 Discovery Kit, features built-in MEMS sensors—gyroscope and e-compass(1)—with 9 degrees of freedom (DOF) (2), enabling competitively priced sensor-fusion applications such as Attitude Heading Reference Systems (AHRS)(3) by leveraging the advanced signal processing and arithmetic capabilities of the new microcontroller family. Sensor fusion and powerful computational capabilities enable designers to realize advanced 3D motion-sensing systems in applications such as mobile gaming, augmented reality, optical image stabilization, portable navigation, robotics and industrial automated systems.

The STM32 F3 Discovery Kit contains everything engineers need to start all types of projects using the STM32 F3 microcontroller. The kit includes a ready-to-use prototype board containing an STM32F303 microcontroller and associated chips, as well as indicator LEDs, push-button controls, I/O pin headers, and a USB connection for the host PC. All of the microcontroller pins are brought out to accessible points, which aids testing and debugging. The MEMS devices provided on the board are the L3GD20 3-axis digital gyroscope and LSM303DLHC 6-axis geomagnetic module(2) from ST’s large MEMS portfolio of sensors and iNEMO® inertial modules. The STM32 F3 Discovery Kit is compatible with STM32 software-development environments from leading third-party vendors, including Altium, Atollic, IAR and Keil™.

(1) ST’s “e-compass” or “geomagnetic module” integrates, in a single package, a 3-axis digital magnetometer with a 3-axis digital accelerometer used for tilt compensation.

(2) 9 degrees of freedom are calculated considering 3 axes of linear motion plus 3 axes of angular motion plus 3 axes of

magnetic motion.

(3) AHRS systems provide attitude and heading information, using gyroscope, magnetometer and accelerometer measurements for calculating 3D orientation with a dedicated algorithm.

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