Kionix Introduces Sensor Fusion Software Solution with Maximum Flexibility and Performance

LAS VEGAS, NV—January 9, 2012–Kionix, Inc., a leading provider of inertial sensors for the consumer electronics and mobile-products markets, today introduced its 9-axis sensor-fusion solution. This new software solution is flexible, scalable and optimized for low power and high performance, addressing the needs of a wide variety of motion-based product-development challenges.

The Kionix Sensor Fusion software is a single platform that is scalable in three ways:

- *Scalable across the full range of sensor combinations*—accelerometer and magnetometer (AM); accelerometer and gyroscope (AG); and, accelerometer, magnetometer and gyroscope (AMG). This approach allows customers to utilize a single software platform across multiple product lines even though they may be using different hardware configurations;
- *Scalable across operating systems*—from embedded, fixed-point microcontroller real-time operating systems (RTOS) to floating-point, 32-bit mobile-phone OSs such as Android and iCore Windows 8 systems; and
- *Scalable from embedded microcontrollers to application processors*—either of which can be used for processing the data.

Kionix Sensor Fusion software also includes sophisticated power management techniques that help designers manage sensor interaction and data processing with minimal overhead. These techniques result in unparalleled power-performance for the accelerometer-gyro configuration in most smartphones—~600uA power for sensors with 3MIPS computation. For 9-axis accelerometer-gyro-magnetometer configurations, power-performance is equally impressive, at <6mA power with 8-10MIPS computation.

Additionally, Kionix will provide full documented source code, including the right of use with Kionix sensors. This includes the sensor fusion software, bias calibration and sensor-compensation algorithms, as well as power management, control and the user interface API.

“Kionix wants to provide a robust basic level of sensor fusion that’s necessary in today’s mobile consumer electronic devices,” states Scott Miller, vice president, engineering, Kionix, Inc. “We provide the foundation that can be further optimized to allow enhanced-performance third-party or customer-developed software—such as gesture recognition or activity monitoring—to be built on top.”

Solving Challenges

The rapid adoption of multiple MEMS sensors in mobile-device designs has spawned the need for sensor fusion, which has created a host of challenges for designers. Integrating the sensors can produce enormous amounts of data that need to be processed (fused), interpreted, and communicated at the system level. Equally important, the interaction among the MEMS sensors can either enhance or inhibit the overall performance of the device.

Kionix Sensor Fusion software addresses these challenges and more. According to Kionix CTO and Co-founder Tim Davis, “Our solution gives customers the flexibility and performance they’ve been looking for. Our solution works with multiple sensors, across multiple platforms and hardware configurations, and we provide source code and direct support. That makes it the most powerful combination on the market.”

Features Summary:

- *Offers scalability across the full range of sensor combinations:* accelerometer and magnetometer (AM); accelerometer and gyroscope (AG); and, accelerometer, magnetometer and gyroscope (AMG). This allows customers to use a single software platform across multiple product lines, regardless of their hardware configurations;
- *Allows designers to more easily:*
    - calibrate, compensate and correct for biases and anomalies;
    - manage sensor power-draw to increase battery life; and
    - prevent interference among different types of sensors;
- *Scalable between different operating systems (OSs)*—ranging from real-time to floating-point, 32-bit mobile phone OSs—including Android and iCore Windows 8;
- *Supports third-party or custom-developed software* for enhanced motion processing and application-specific functions;
- *Provides board-support packages*—allowing engineers to apply the software to designs using embedded microcontrollers, application processors, x86-type, and radio-frequency (RF) integrated-circuit platforms; and
- Source code available to qualified customers.

Availability

Kionix Sensor Fusion demonstration software is available now from Kionix for qualified customers. Fully validated and documented software will be available by the end of Q1 2012. More information is available by email: salesna@kionix.com; or from a Kionix sales office.

About Kionix

Kionix, Inc., located in Ithaca, New York, USA, is a wholly owned subsidiary of ROHM Co., Ltd. of Japan. The Company pioneered high-aspect-ratio silicon micromachining based on research originally conducted at Cornell University and today enjoys a global reputation for MEMS product design, process engineering and quality manufacturing. Consumer electronics leaders worldwide utilize Kionix's products, development tools and application support to enable motion-based gaming; user-interface functionality in mobile handsets, personal navigation and TV remote controllers; and hard-disk-drive drop protection in mobile products. Kionix's MEMS products are further diversified into the automotive, industrial and healthcare sectors. Kionix, which offers one of the industry's broadest families of MEMS devices, incorporates 3-axis accelerometers and gyroscopes along with the mixed-signal-interface integrated circuits that provide algorithm processing of sensor data. Kionix is ISO9001:2000 and TS16949 registered. For more information on Kionix, visit: http://www.kionix.com. For additional information on ROHM, visit http://www.rohm.com.

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