

Title: MEMS Inertial Sensor Systems for Mass Market Electronics

Speaker:

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Abstract:

*Problem*

Keys to success in the mass market are to make integration simple, keep an exceptionally high quality level, and prove the end user with highly accurate, responsive, and dependable products. Since MEMS inertial sensors (e.g. linear accelerometers and angular rate sensors/gyros) are relatively new devices in the consumer electronics market, developers that use them are faced with many challenges. Working with these devices requires expertise in understanding the sensors' performance variances due to environmental factors, mechanical stress, and aging. These complexities make it extremely challenging for product designers and application developers to use the raw data provided by these sensors to produce products at the quality level required for mass market acceptance.

*Innovation of solution*

Application and product developers require an integrated solution so they do not need to become experts in MEMS or motion sensing. These systems integrate hardware, software and complex motion algorithms that use the raw sensor data to produce information that is easily incorporated into an application environment. The algorithms use data from multiple sensors to provide additional motion data and correct for performance variances in the sensors. Software then translates this processed data into application-ready motion outputs to be interpreted by application software.

*Current/future applications*

MEMS inertial sensors have many applications in mass market consumer electronics including: TV remote controls, video game controllers, and mobile phones. The growth in Internet connected TVs is creating a new opportunity for MEMS inertial sensors to control interactive application environments. Remote controls that include an inertial motion sensing 'system' can enable point-and-click control of video-on-demand, social media, and photo sharing applications as well as enable a new class of casual games with point-and-click and full six degree of freedom motion control.