

ABSTRACT

Title : Digitized GMR magnetometer and its application to multi-axis sensor
integration

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A digital GMR magnetic field measurement system was built utilizing software lock-in detection and USB data acquisition for sensor fusion with accelerometers. To detect the vector components of static magnetic field, AC modulation and voltage-to-field transformation were done by the software in real time. The system can achieve the orthogonality for both magnetometers and accelerometers. The combined sensor system can detect the 3-axis rotation angles of pitch, yaw and roll, which is demonstrated by integration with a web camera to detect its motion.