



Introducing Applanix SmartCal™

The Applanix SmartCal is a new software compensation technology that allows Applanix to achieve exceptional performance from inertial measurement units (IMU's) manufactured specifically for mobile mapping applications.

Traditionally most Aided-Inertial Navigation solutions used for mobile mapping and higher-end robotics applications use off-the-shelf IMU's that have been originally built for tactical navigation or guidance. The Aided-Inertial architecture typically comprises a strapdown navigator regulated with a Kalman Filter processing aiding measurements from GNSS, odometer (DMI), magnetometer, optical flow and other types of positioning sensors. The Kalman filter contains a linearized set of differential equations that describes the errors in the navigation solution which are driven by the inertial sensor errors (gyros and accelerometers), and the aiding measurements allow these to be observed and corrected for.

IMU's that have been optimized for tactical navigation and guidance are designed and calibrated specifically for those applications and not for mobile mapping. This means their residual gyro and accelerometer sensor errors will limit what can be achieved for position and orientation performance in a mobile mapping application. This usually necessitates the need to use a higher-accuracy and hence higher cost IMU to achieve the desired level of performance.

The Applanix SmartCal technology however allows Applanix to achieve unparalleled performance from IMU's at lower price points. By understanding the requirements on the inertial sensor errors to achieve a specific level of performance in an Aided-Inertial architecture for mobile mapping and robotics use, Applanix is able to compensate the inertial sensor errors in a unique way for those applications.

The Applanix SmartCal technology is used on new generation of IMU's produced by Applanix for their commercial Position and Orientation System (POS) and the Trimble AP products for mobile mapping and positioning.

capture everything. precisely.

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