



xsens

MTw Development Kit Lite

The MTw Development Kit Lite (MTw DK Lite) offers an easy to use solution for applications where orientation tracking is required via a wireless connection. The MTw is highly suitable for markets like training & simulation, pedestrian navigation, test & measurement and robotics

The MTw Development Kit Lite contains an accurate, small, lightweight and wireless IMU with full AHRS capabilities, providing drift free orientation. It also includes a miniature wireless receiver, convenient mounting tools and Xsens' user-friendly MT Software Suite, compatible with the MTi product portfolio. The proprietary Xsens wireless communication protocol enables real-time performance with a range of up to 10 meters.

Applications

- Training and simulation
- Head mounted displays and head trackers
- Pedestrian Navigation
- Miniature robots

Ease of use

- Completely wireless
- Long battery life of up to 4 hours
- Compatible with software for MTi 10-series and MTi 100-series
- Intuitive Windows software for real-time view, logging and export
- Extensive SDK with example code for system integration

Accurate data

- Highly sensitive MEMS inertial sensors
- Internal sampling at 1800 Hz and internal pre-processing maintains accuracy under challenging dynamic conditions
- Sensor fusion algorithms ensures highly accurate, drift-free output



Image courtesy of Cybermind Interactive Nederland

Customer Case:
Autonomous Indoor Positioning and Navigation with an Inertial Measurement Unit

Background

Modern fire fighting in urban areas under dangerous conditions and restricted visibility is a real challenge not only for every single fire fighter, but also for the responsible of the operational command. The success of such operations essentially depends on the fact of arriving on time at the site of operation, as for example the fire source itself or fire-captured persons. In order to guarantee this, the fire fighter needs a rapid and secure orientation on the target on the one hand and the commanders need a permanently updated situational awareness of all events, especially the precise position of all persons in the area of operations, on the other hand.

Method

AIONAV-F allows the autonomous 3D positioning and navigation of individual fire fighters, the display of the position on any geo-referenced map as well as the fusion of the information for the situational awareness on a command station; all this with high accuracy and in any area of operations.

Determination of the position is primarily done by a foot mounted inertial sensor (Xsens MTw) and can secondly be fused with position data of additional systems (GPS, barometer, RFID, etc). A further improvement of results can be achieved by using building interaction techniques in case floor plans are available. The basic high accuracy of the IMU results is achieved by newly developed, meanwhile patented Zero-Velocity-Update algorithms.

Results

Below the results of 150 test runs with a length of 150m to 5km are summarized. As error measure serves the difference between the starting and end point of the travelled path. At the same time the local deviation on the map or in the floor plan has never been larger than this final value. The test runs were accomplished over 2 years, starting with Xsens MTx sensors. With the employment of better sensors (today we use Xsens MTw) the results improved remarkably.

Click the QR code for the full customer case.



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