

Rapid development of Real-Time Inertial Navigation Applications

For over a decade, RISE Acreo has been pioneering the development of high performance, high dynamic MEMS inertial motion sensors and applications. We've acquired in-house knowledge in sensor physics and electronics, as well in as data processing and application development. This makes us the ideal partner for your new motion-tracking applications.

Experience

Acreo is a world leader in MEMS motion sensing and has been for over a decade. We work on all the levels from the design of MEMS sensor chips to custom electronics and complete IMUs, data fusion algorithms and application-specific graphical user interfaces. We have experience from using high-performance MEMS sensors for inertial navigation of road vehicles, submarines, rockets, rescue workers and crash test dummies, as well as in drill-hole surveying.

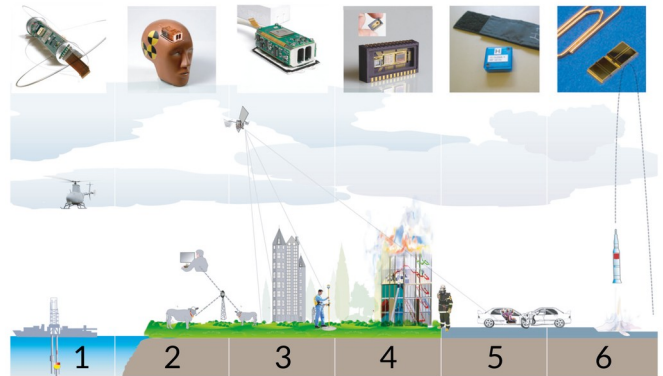
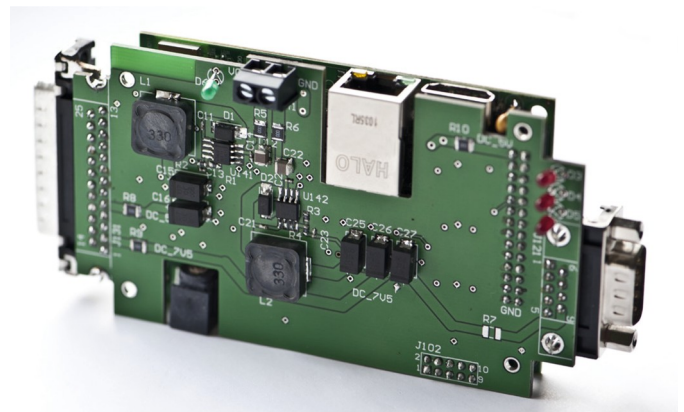
RETINA platform

To accelerate the start-up of complex application-development projects, Imego has developed RETINA, a hardware/software platform for real-time inertial applications. This enables us to go out in the field to collect real measurement data and start developing algorithms from day one. Using model-based design and code generation we can quickly implement complex algorithms that are easy to validate and deploy for production.

Acreo's generic RETINA processing hardware measures a mere 93x60x20 mm and packs a 1 GHz CPU, 512 MB of RAM and dual flash storage while drawing only 1W of power. It's small but packed with connectivity: Ethernet, Wi-Fi, RS232, RS422, RS485, SPI, CAN, USB host, USB devices, Bluetooth, analog in/out, video in/out. This enables us to support the Sensoror STIM300 six-axis IMU, the Acreo IMT40 large-dynamics IMU, and many other sensors without further modifications. The built-in WiFi enables remote operation with advanced user interfaces using computers or smartphones.

Scalability

The RETINA hardware can easily be customized by adding or removing interfaces and by scaling to fit your application's demands. Based on Linux, our software platform can be run on virtually any processor, from low-power microcontrollers to high performance computation clusters.



1. IMUs for unmanned vehicles (UAV, ROV)
2. High dynamics, high bandwidth (e.g. crash tests)
3. Inertial navigation (e.g. personal navigation)
4. World-leading MEMS gyro systems
5. Data processing, motion, classification, wireless interfaces
6. MEMS accelerometers for navigation and seismic applications

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