

The Osmium MIMU22BT is a miniaturized Multiple Inertial Measurement Units (MIMU) based wireless inertial navigation module with on-board floating point processing capability and data memory. A Bluetooth module provides a wireless data link. It has on-board Li-ion battery charging circuit which makes it battery operable and enables dynamic switching between battery and USB powering. The IMUs' placement scheme, with their sensitivity axes in the opposite directions, mitigates effect of systematic errors. A dedicated micro-B USB connector is provided for JTAG programming and debugging. The module consists of a single board without any protruding connectors and has low profile.

The small form factor of MIMU22BT module makes it suitable for foot-mounted inertial navigation and other applications based on wearable sensors. Presence of an on-board floating point processing capability, along with four IMUs, makes navigational computation possible inside the module itself, which in turn results in very accurate tracking of wearer.

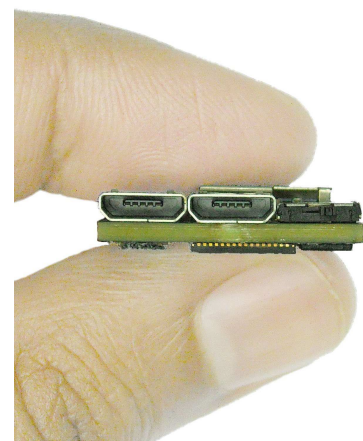
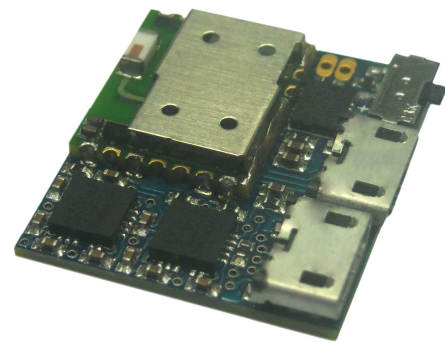
MIMU22BT is supported by an open source embedded code written in C, which is easily configurable to run any user implemented algorithm. The software is configurable to work as a standalone ZUPT-aided inertial navigation system and as a displacement & heading change sensor. MATLAB code is also available for communication.

The module has wide applications in pedestrian tracking and gait analysis. It is an easy to use research platform for Biomedical researchers, Behavioural scientists and Ubiquitous Computing researchers.

### Feature summary:

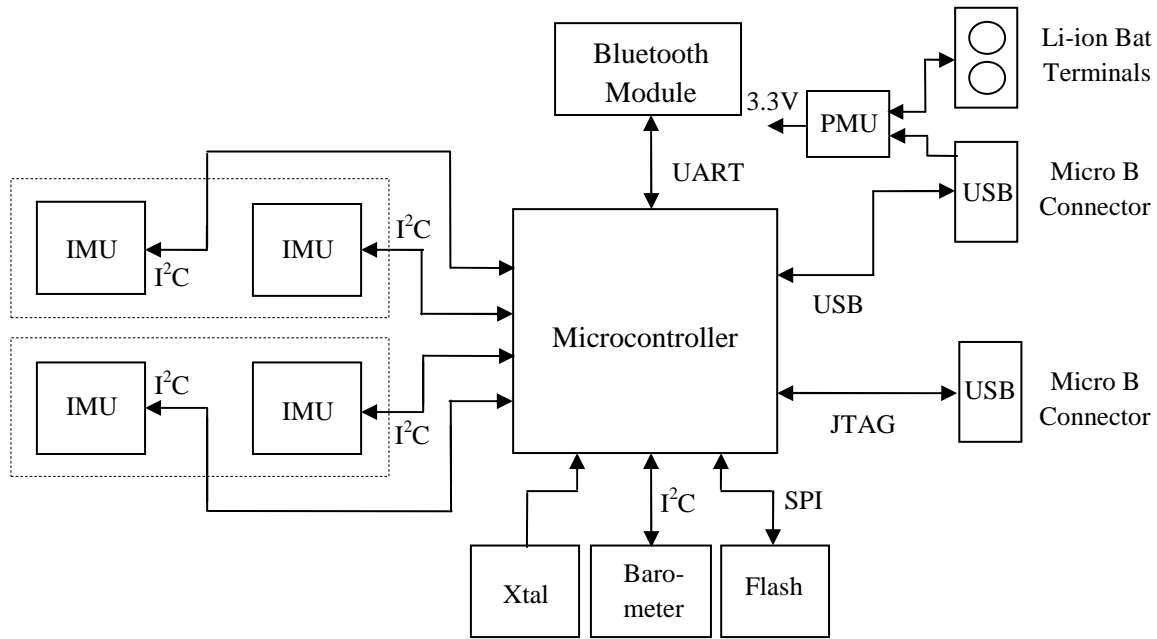
- Inertial measurement using four nine-Axis IMUs (Gyro + Accelerometer + Magnetometer\*)
- Processing using AT32UC3C 32-bits floating point microcontroller with 512 Kb internal flash memory
- Wireless communication enabled by Bluetooth serial interface module version v3.0
- USB 2.0 communication through USB micro-B connector
- Onboard 8 Mb DataFlash memory and Pressure sensor\*
- Power options: Li-ion battery, USB
- On-board USB battery charging
- Max continuous current: 100mA
- LED indications for battery charging, device powering and general purpose
- Power on-off control switch
- IMUs' orientation to minimize systematic errors
- JTAG programming and debugging through a dedicated USB micro-B connector
- Weight & Size: 3.5 g, 20.9mm x 22.7mm x 5.5mm

*As of now, software support for magnetometer, DataFlash memory and pressure sensor is not available.*



### Target Applications:

- |                             |                        |                       |
|-----------------------------|------------------------|-----------------------|
| • Pedestrian tracking       | • Gait analysis        | • Behavioural science |
| • Healthcare and Biomedical | • Ubiquitous computing | • Sports kinetics     |



PMU: Power Mgmt Unit

## Let us know your customization requirement



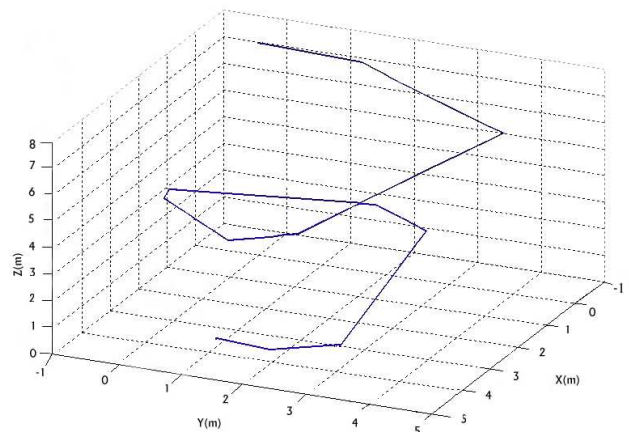
MIMU22BTP: Encased MIMU22BT



1 Km tracked path



3X closed loop (243 m)



Climbing staircase with MIMU22BT

## Contact Us



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