

Technology of the 4th INDUSTRIAL REVOLUTION

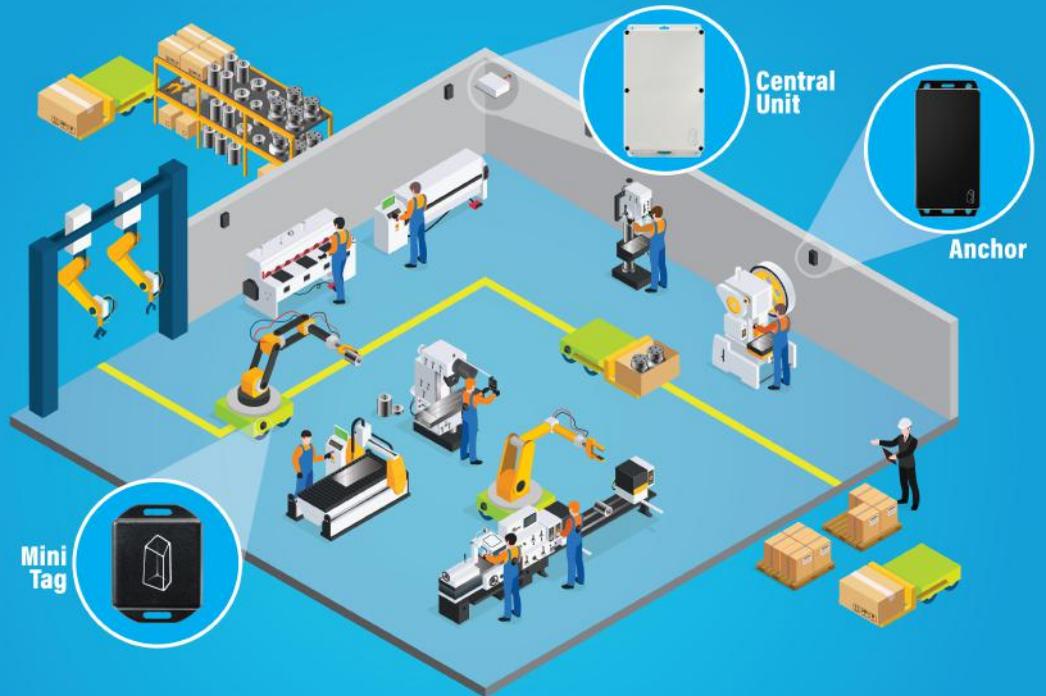
At OMT, we have designed a platform for real-time localization and industrial grade wireless communication that uses ultra wide band (UWB) wireless technology. SUNSTONE is a unique design of this platform specifically for industrial tracking, data acquisition and controlling applications.

How does it work?

SUNSTONE provides online tracking of active devices called **Mini Tags**. Similar to GPS's satellites, we use **Anchors** as reference nodes for the positioning. They need power, time synchronization, and data acquisition that is addressed by a wired interface to the **Central Unit**.

Practically, there is no limit in coverage area. With SUNSTONE, systems with thousands of tags at 10,000 m² are achievable.

The **Mini Tag's** position is calculated from high precision time of flight (TDoA) measurement of UWB radio signals. Measurement data is sent to **SUNSTONE Cloud** that calculates the position. This information is then stored in an optimized database while real-time and historical data is also accessible via a public REST interface.



HIGH ACCURACY

SUNSTONE hardware and software solutions are unique in the RTLS industry. Due to this technological advantage over competitors, we can provide cutting-edge performance down to decimeter level accuracy.



HIGH DENSITY

The system is designed in a way to be able to track a very high number of tags in a single zone. Hundreds of active devices can be tracked with a position refresh rate of seconds.



ROBUST CONNECTIVITY

SUNSTONE infrastructure can also be used as a high availability wireless network. We provide hardware for wireless linking RS-232/RS-422/RS-485 connections via our network, and also an OEM UWB radio module with a complete WSN stack.



REAL TIME CONTROL

The location of each tag is calculated with a total processing time of a few milliseconds, that enables very fast controlling responses based on the location.





Central Unit

The Central Unit is the heart of SUNSTONE. It has wired connections up to 8 wall units. Together they make up one RTLS zone, that enables accurate positioning of hundreds of tags in a 2000 - 3000 m² area.



POWER

110-230 AC power source required. The unit has IEC 60320 C14 connector. Typical power consumption is 10-26 W based on the number of Anchor units.



COMMUNICATIONS

Maximum 8 Anchor wall units can be attached via Cat7 FTP cable with a maximum length of 70 m. Positioning and sensor data is accessible via TCP/IP that requires a 100Mbit Ethernet connection.



PROCESSOR

Central Unit has an embedded 4 core ARM® Cortex™ A53 CPU that is enough to calculate the position of a few dozens of tags. Optionally, a more powerful server can serve hundreds of tags and multiple zones.



CASING

Shining ABS casing provides IP-20 protection. No cooling required.



Anchor

Anchors are the wall-mounted units of the SUNSTONE system. At least four of them requires to be mounted on the edge of each RTLS zone at a fixed position. These anchors are installed on walls, ceiling, cable trays, etc. The wall units also work as distributed antenna system providing unmatched reliability for wireless communications.



POWER

12-24V DC from Central Unit via a standard Cat7 FTP cable. Typical power consumption is around 2W.



WIRELESS COMMUNICATIONS

Ultra Wide Band impulse radio compliant with UWB PHY IEEE 802.15.4-2011 and optionally Bluetooth Low Energy 4.2.



CHIPSET

Decawave DW1000 for UWB and Nordic nRF52832 for Bluetooth 4.2.



CASING

Shining ABS casing with optional IP protection. No cooling required.



Mini Tag

SUNSTONE's unique system design enables the tracking of hundreds of low-cost, battery powered tags in real time.



POWER

400 mAh LiPo battery rechargeable via microUSB. Several months recharging periods in typical applications.



WIRELESS COMMUNICATIONS

Ultra Wide Band impulse radio compliant with UWB PHY IEEE 802.15.4-2011 and optionally Bluetooth Low Energy 4.2.



CHIPSET

Decawave DW1000 for UWB and Nordic nRF52832 for Bluetooth 4.2 and MEMS accelerometer for motion detection.



CASING

Grey or black ABS casing provides IP-54 protection.

