

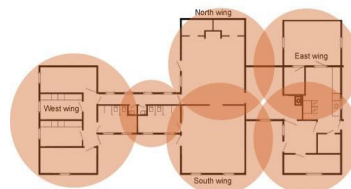


GPS & Indoor Positioning (GIPS): Combining Bluetooth and GPS Technology

Zonith provide solutions for safety, security and situation awareness and a core element in these solutions is to provide immediate information about staff locations if an incident should happen. Zonith delivers a software solution which uses standard wireless Bluetooth technology to determine positions inside buildings and standard GPS technology to determine the position when outside of buildings. By combining these two technologies into one solution the staff can be safeguarded no matter where they are located.

Bluetooth based Indoor Positioning

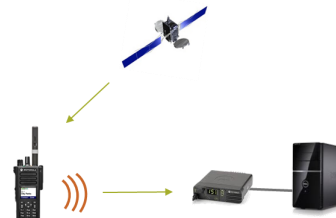
The Bluetooth Positioning is based on Zonith's Indoor Positioning System (IPS) which is a Windows software package collecting signals from Bluetooth devices and based on the measures calculating the actual position of the user/radio. The IPS uses Bluetooth Position Beacons which are LAN connected units monitoring the Bluetooth signals. The more Beacons installed the higher position accuracy.



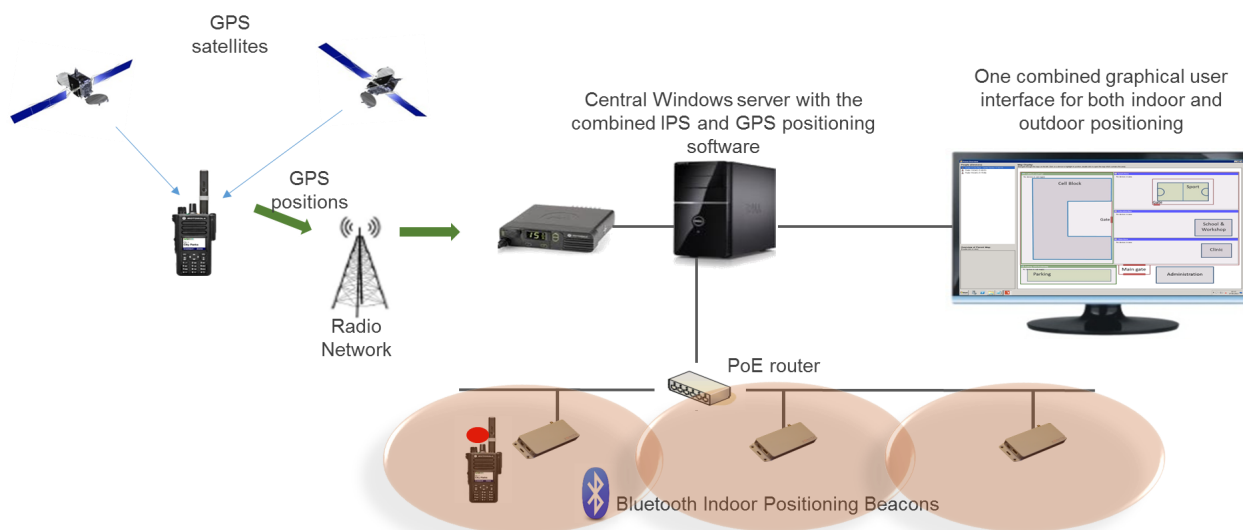
Bluetooth beacon set-up with high positioning accuracy

GPS based Outdoor Positioning

The GPS based Outdoor Positioning monitors the GPS positions received by TETRA or DMR digital radio systems. The radios will regularly transmit their GPS position via the radio network to the Zonith positioning software. If a problem arises or an alarm is raised, the response team can see where it occurred on a touch screen display, and will also receive a text message with the location if they are in the field.



Illustrates the GPS positioning process



Combining Bluetooth and GPS positioning technology

GIPS Benefits

Always Visible – One Device

By combining Bluetooth and GPS technology, staff can be located from any position in or around a facility. When leaving the Bluetooth area and going outdoors, staff handsets will seamlessly switch to GPS. Should an alarm be raised, the response team can be notified of their position via text in accordance with pre-defined geo-fence regions.

Cost Effective

Whilst Bluetooth positioning is a perfect indoor solution, it would be quite unrealistic and expensive to cover large outdoor areas with Bluetooth beacons if any sort of accuracy is to be achieved (for eg. Multi-campus universities). By converging GPS with Bluetooth technology, staff can be tracked with accuracy using just one device for a cost effective solution.

Single Platform

The ZONITH positioning solution can display graphically all radios positioned outside (GPS) and inside (Bluetooth) a facility on one map. This gives security and management a clear idea of where staff members are if an emergency situation arises, and who is in an area under threat (as seen in image below).

Fully Configurable

When an alarm is raised, staff will receive location information via text on their handset (or other means). It is important to keep things simple in emergency situations, therefore all indoor and outdoor areas can be given names such as 'sports area' so the response team know exactly where to go. These areas are called geo-fences and can be configured using both IPS and GPS (seen below).

The graphical user interface show both radios positioned outside via GPS and inside via Bluetooth.

Area for Bluetooth positioned radios

Areas for GPS Positioned radios

