



Indoor Localization and Tracking

- Indoor localization of assets with 1 meter accuracy
- Active tracking of inventory, patients and persons
- Easy to install beacon infrastructure
- Sensor fusion for application-specific data gathering

Overview

Automated indoor persons and asset localization and tracking are relevant issues within organizations with moderate to high volatility of equipment, instruments and employees. Where outside navigation using GPS is very common, indoor navigation is less common. When tracking inventory, an important aspect is that the tracking device is small, needs no to little service and the localization shall be done within a meter accurate.



Topic localization system

The Topic localization system is based on tags with the latest battery-powered wireless communication technology in a small form factor and robust enclosure. These tags of 45mm x 18mm are easily and firmly attachable to any device that needs to be located. Individual person can be traced and located in a similar manner.

The localization tags connect with fixed beacons, strategically located in a grid within the premises. The tag information is aggregated and using a server the location of the tag is determined. Every tag is equipped by default with an accelerometer, gyroscope and a temperature sensor. Standard profiles include warnings when assets are moving or displaced, if the temperature becomes too high or low, etc.. It also enables geofencing, protecting assets being removed from the premises.

The information from the tags as well as the location or intended actions are accessible from the server on any smart device like tables, phones and computers. Standard functionality, like positional information and sensor status reading, is directly accessible. Tailored applications are easily implemented due to the programmability of the tag as well as coupling with applications like planning systems for e.g. bed sterilization and distribution, track and tracing of e.g. infusion pumps or other care products. Even patients and employees can be traced.

One of the services of Topic Embedded Systems is the tailoring of the system to other specific domains, such as fire

Key Features

Wireless sensor and localization module (TAG)

- Bluetooth low-energy radio
- 3-axis acceleration sensor
- 3-axis gyroscopic sensor
- Temperature sensor
- Customizable software platform

Small form factor – Ø45 mm x 18 mm

Beacon grid with 20 to 30 meter resolution

Tag battery lifetime > 5 years, depending on application

Performance of sensors

- 12.5Hz Accelerometer
- 25Hz Gyroscope
- 0.5Hz Temperature
- Connected: < 1.3 mA
- Advertising: < 110 uA
- Power save: < 11 uA

Processor capabilities

- 0.5 MIPS on Cortex M0
- 4.5 kB ROM code
- 0.5 kB RAM



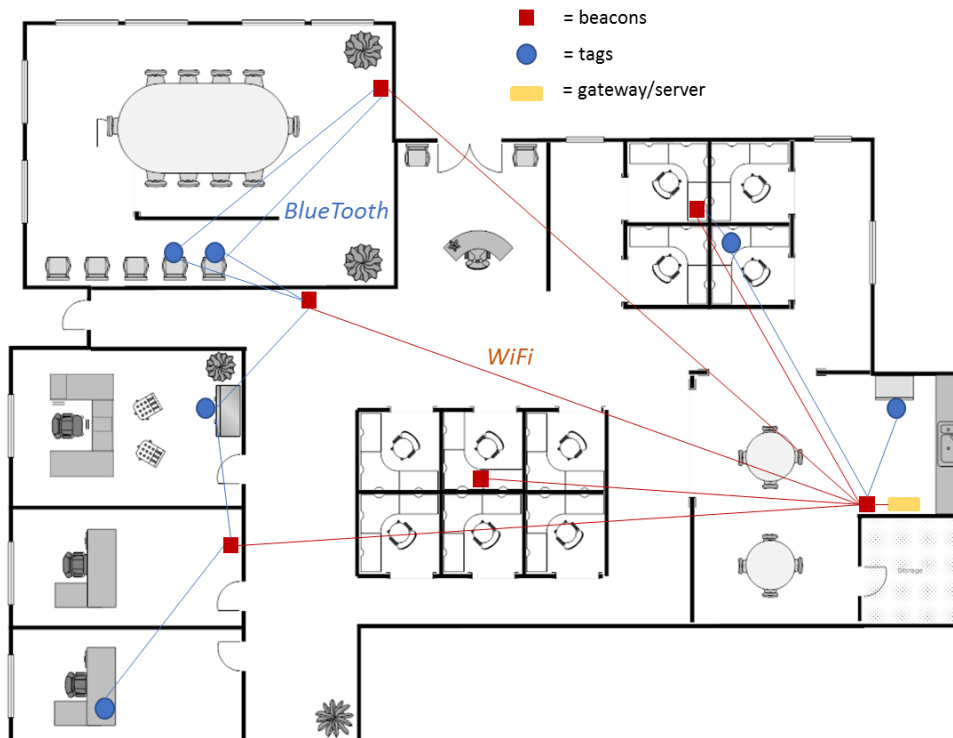
Benefits

- Indoor localization of assets with 1 meter accuracy
- Thousands of tags can be supported
- Active tracking of inventory, patients and persons
- Seamless Installation of the infrastructure
- Private and secure network
- Easy to use user interface on smartphone, tablet or PC

Customization services

Topic provides a wide variety of development services:

- Customization services
- Development of customer specific designs
- Application Software Development
- Operating System Porting as well as BSP/ driver development
- FPGA content development and board design
- E.g. IEC60601, ISO13485 and ISO14971 related development services



About Topic Healthcare Solutions

Topic Healthcare Solutions is a technology company leveraging digital healthcare to deliver a new perspective on clinical workflow management. We take a bird's eye view on processes in a care delivering organization and optimize them using state-of-the-art technologies. Combining an understanding of clinical workflow processes, smart sensors, mathematical models and deep learning algorithms, the Topic Healthcare Solutions team aims to transform the complexity of your clinical processes into a transparent and smoothly running flow.