sentrax

BLE (RSSI) Based Locator and Gateway Provides Proximity Location Tracking

VERSION 1.0

ZENIX LEN Deployment Guide

Contents

1. Pre-Guideline

- The RSSI Scanner gets the RSSI value of the surrounding tags/ beacons, their deployment is simpler and easier than the angle of arrival based BLE gateways.
- RSSI Scanners offer a larger scanning range but are not much precise compared to simple AoA-based positioning systems.
- The RSSI Scanner range goes out on all 4 sides (makes a circle of scanning radius 15m to 20m). They can be easily mounted on the walls of the room.
- The minimum size of room required for the deployment of RSSI Scanner is 6m x 6m.
- For better positioning 3 scanners should be used to cover any given area, the higher the number of scanners the higher the accuracy will be.

2. Single RSSI-Scanner Deployment

- When evaluating the RSSI-Scanner, it is recommended that one should place the scanner on that wall of the room which best line of sight of the whole room.
- Avoid placing the scanner near corners or metal surfaces, as this will cause high inaccuracy in the result.
- In cases where there is another room on the other side of the wall and another scanner is placed there, then scanner can be deployed against the wall at least 5 to 6 meters away from that wall.

Note:

1. In wireless applications a corner makes a reflector which reflects the signal coming at it.
2. A single scanner is enough if you only need to know which room a tag is located in. However, to determine the exact direction or proximity of the tag, three scanners are required.

Example Deployment

An example case scenario is displayed to give an idea of deployment for single RSSI Scanner,

- A simple room of 10m x 10m
- Scanner with an optimal range 15m (radius) range.

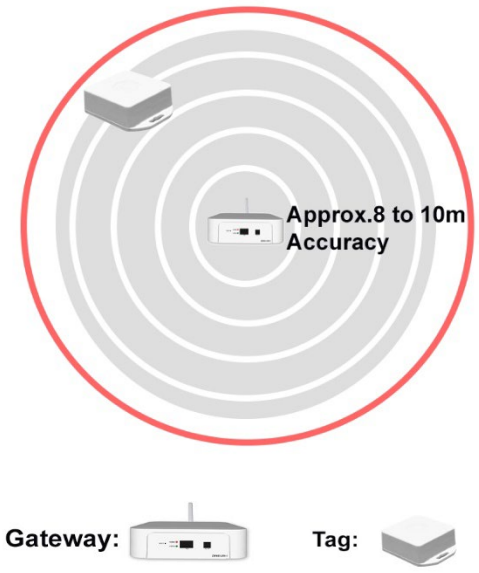

Figure 1 Single RSSI-Scanner Deployment

Note:

The single scanner only gives the presence of tag that lies anywhere between the scanning radius, to find the closer proximity of the tag, three scanners are required.

3. Multiple RSSI-Scanners Deployment

- When working with the multiple RSSI-Scanner, one should place the scanners at a maximum 25 meters away from each other to have a maximum coverage.
- Avoid placing scanners near metal surfaces and at corners, as this will cause high inaccuracy in the results.

- In cases where there is another room on the other side of the wall and another scanner is placed there, then scanner can be deployed against the wall at least 5 to 6 meters away from that wall.

Note:
In wireless applications a corner makes a reflector which reflects the signal coming at it

Example Deployment

An example case scenario is displayed to give an idea of deployment for multiple RSSI Scanners,

- ❖ A simple room of 50m x 50m
- ❖ Scanners with optimal range 15m (radius) range.

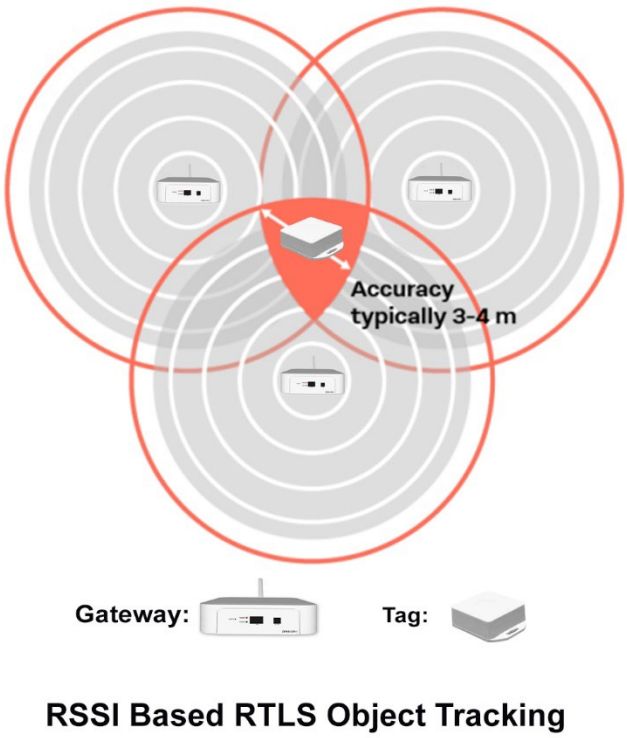

Figure 2 Multiple RSSI-Scanners Deployment Case

4. Gateway Mounting

The RSSI Scanner can be easily mounted on the walls of the room using the screw set provided with the kit. The mounting screws are placed 90mm apart from each other as seen in figure 3 and then the **Zenix LEN** is mounted on these screws as seen in figure 4.

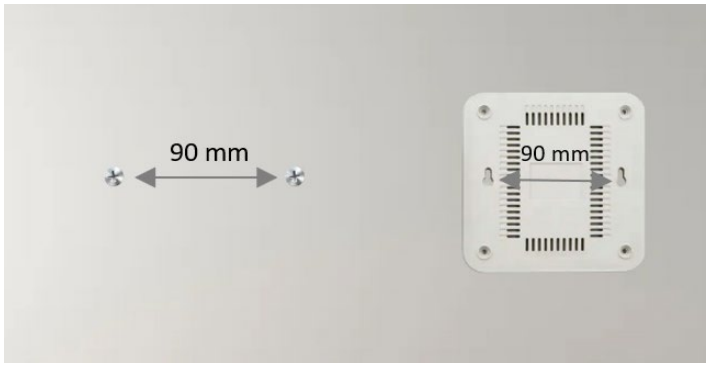

Figure 3 Zenix LEN mounting and screw placement

Figure 4 Zenix LEN mounted