

Ease Assistant Localization Network

Seamless indoor/outdoor navigation with energy efficient
Real Time Localization System (eeRTLS)

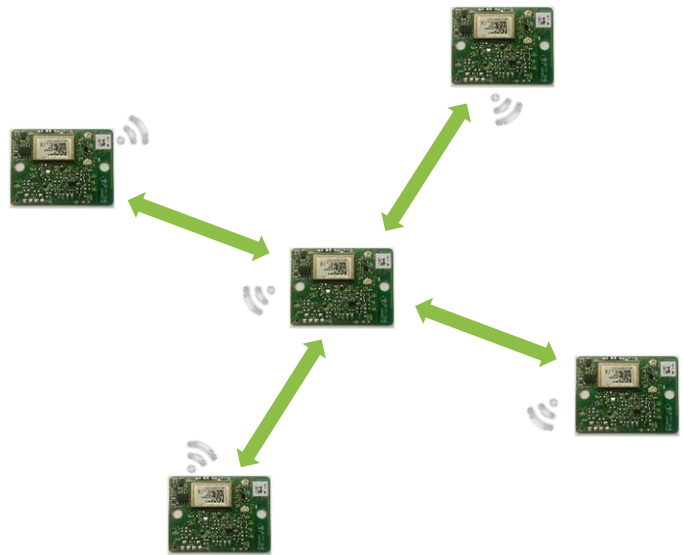


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With the recently developed wireless positioning technology you can add an important key feature to existing or planned wireless sensor and actuator networks (WSANs): the possibility to estimate the location of any of its members. The communication is based on the global standard IEEE 802.15.4 using the globally available 2.4 GHz ISM band.

Although it comes with small complexity, it provides accurate position information of any node within the wireless network. The energy efficient real time location system (eeRTLS) technology can be applied seamlessly in indoor, outdoor or mixed scenarios in a completely independent mode of operation. No satellite components are required.

Key Features

- Wireless real time location tracking system
- High accuracy
- Low power and low-cost IEEE 802.15.4 standard compatible radio technology
- Simple device commissioning
- Reliable and secure protocol stack
- Indoor and outdoor application scenarios
- Global applicable solution

GENERAL SPECIFICATIONS

General	Worldwide free ISM-band at 2.4GHz, communication via IEEE802.15.4, energy efficient sensor networks, Positioning based on phase measurement algorithm
Update cycle	Up to 10 independent positions per second
Quantity	One network can have up to 255 fixed anchors, and up to 1000 mobile tags
Lifecycle	Current consumption: active < 16mA / sleep < 2µA, frequency-based up to years, e.g.: - 1 Position /s [2.000mAh]: 0.5 years - 1 Position/ 5min [2.600mAh]: 7 years
Accuracy	up to 50cm, indoor & outdoor
Coverage	Range between 2 devices up to 300m, covered area can be expand due to multi-hop connection
Communication	Communication based on IEEE802.15.4, energy efficient low rate 250kBit/s (up to 2MBit/s)

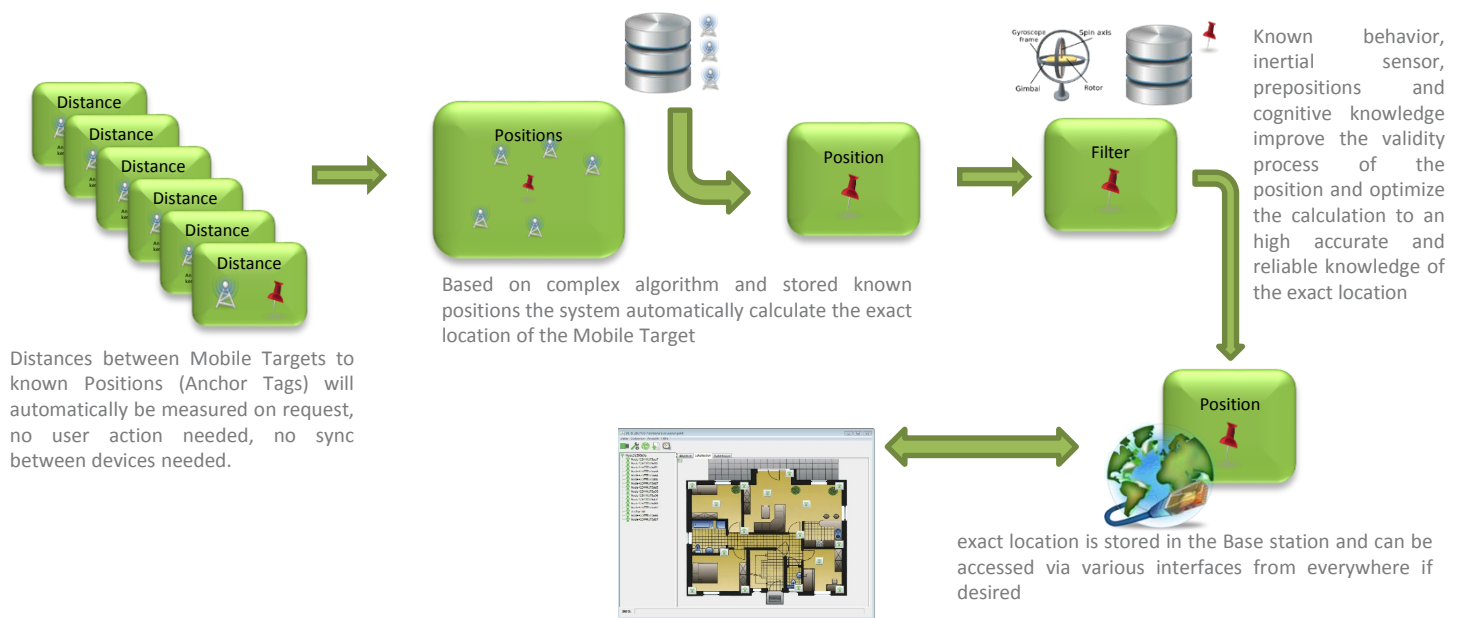


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With Ease Assistant Localization network ZIGPOS combines the advantages of Wireless Sensor Networks and the added values of Real Time Localization System to a energy efficient (eeRTLS) easy- ready-to-use solution.

Using time synchronized networks and cognitive mechanisms to automatically setting algorithm parameters based on user environment results in optimize solutions by saving more energy. Every single device can be accessed via defined Interfaces ready-to-go to the Internet-Of-Things (IoT).

API

- Socket connection
- Restful API with JSON or XML
- Database
- GUI (provided by ZIGPOS, JavaScript based webinterface, JAVA application)
- Customer specific interface

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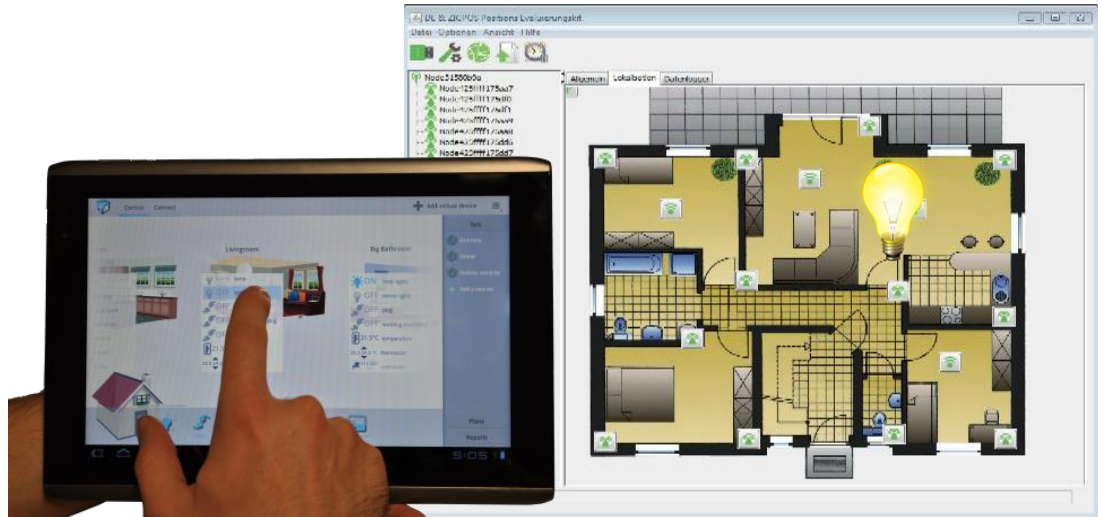
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TECHNICAL DETAILS	
General	No cables needed between Anchors, Tags, and Base-Stations
Update	SUOTA with easy Graphical Tool or WebInterface
Network	eeRTLS is combined with WSN based on IEEE 802.15.4, therefore any sensors/actuators can communicate via the network, (sensors might be plugged directly to nodes e.g. I ² C, SPI, UART)
Position	The system calculates Position independent with various algorithms: MDS, IMDS, proprietary in 2D & 3D
Filter	Based on Behaviour Models the system uses various Filter to smooth tracks: KCP, KCV, IMM, IMMS, Particle
Distance Estimation	Distances are based on PDOA (Phase-Difference Technology by ATMEL) and RSSI
Compatible Hardware	ZP2.4rn2, ZP2.4rnS3, ZPDongle





Ease Assistant Localization network can be used in application scenarios wherein the position of sensed data or the position of available is of Interest. Using ZIGPOS technology you are able to bring your home automation to the next level, as the lights could turned on not even remotely, but automatically based on your position. Logistics can be made more easy, because integration in existing environment is as easy as plugging few tags on the wall (stick and ready) to cover a whole hall without the need of gates or zones.

Expensive equipment can be located inside a building with sticking a tag on it. If available, an interface can be used to transmit service and maintenance values of the machines via the network or raise an alarm on failures. The device can be found by personal very quick as indoor navigation could be used to help employees of a service provider in unknown environment. Each sensor/ actuator is accessible from everywhere and next to the data the location helps to optimize Behavior Models and Data Engines.



Application scenarios:

real time object and person tracking for:

- home automation
- Industrial sensor/actuator networks
- logistics and retail chain support
- smart transportation
- smart shopping
- Internet of Things (IoT)

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