Nextome – Indoor Positioning and Navigation System

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ABSTRACT

Nextome is an indoor positioning and navigation system for smartphones and tablets that relies on the synergistic fusion of different indoor localization techniques: it uses Bluetooth Low Energy (BTLE) 4.0 technology for the installed sensors acting as broadcasters merged with others effective technologies such as a novel RSSI fingerprinting approach used in conjunction with other patent pending intelligent algorithms.

A fast convergence and position estimation algorithm is proposed to localize more precisely the user, in real-time, inside an indoor building.

All the logic works inside the smartphone/tablet, so the presence of a remote (online) infrastructure during the localization is not needed.

The number of sensors to be deployed in each room depends on the room size. These sensors are very cheap and it is possible to manage a 50 m^2 room with only 3 sensors with a cost of about 20$ per sensor.

The accuracy of the described approach goes from an error of 2 meters in worst cases (the 13% of time) to 0 meters of error (the 28% of time). In average the system has about $0.4 \sim 0.9$ meters of error for most of the time.

Nextome uses technologies with very low electromagnetic pollution and low energy consumption and is therefore environmentally friendly.

Nextome technology is PATENT PENDING, therefore detailed technical info cannot be publicly disclosed.

General Terms

Experimentation, Performance, Economics.

Keywords

Indoor Positioning, Indoor Navigation, IPS, Bluetooth Low Energy 4.0, novel fingerprinting approach, high accuracy, green technology.

Deployment Requirements

1. Map with rooms size and ceiling height.

2. Points of interest with descriptions and images.

3. Furniture (optional).

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