

THE PROBLEM ADRESSED

Despite more than 20 years of indoor navigation research and development, it is still difficult to combine accuracy and easy implementations.

LocI offers a simple and efficient approach to this problem using dedicated radio transmitters deployed withing the building.

TECHNOLOGY

LocI uses a strategy like the Global Navigation Satellite System (GNSS). A constellation of transmitters spread through the building provides signals which allow receivers to determine their location.

The system generates two synchronous coded signals, positioning is obtained through:

- Carrier phase difference measurements for distance estimates
- Angle of arrival calculation by interferometric measurements

Software Defined Radio (SDR) transmitters and receivers.

Dual antenna transmitters, Single antenna receiver.

2 emitters required at minima for 2D positioning, 3 minimum for 3D.

COMPETITIVE ADVANTAGES

- Dual antenna for differential calculation:
 - Low noise and accurate signal
 - Decimetric positioning (for 2D precision in laboratory conditions)
- Very simple to deploy :
 - Autonomous transmitters
 - No calibration required
 - **No synchronization required** between transmitters nor with the receivers.
- Only a limited number of transmitters is necessary for high coverage of large spaces
- Receivers with low computing power (similar to those of a GNSS receiver)

APPLICATION

Indoor localization applies to:

- Railway stations, airports,
- Factories, warehouses, supermarkets,
- Performance tracking in sports,
- Exhibition centers, conference centers...

DEVELOPMENT STATUS

TRL 2/3: Operational SDR receiver
System performance characterized in laboratory conditions and anechoic chamber with GNSS-like signals. (antenna sizes: 20 / 10 / 3 cm)

INTELLECTUAL PROPERTY

FR3038064 (priority date June, 24th 2015),
filed in FR, EP and US

INVENTORS & CONTACTS

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PUBLICATIONS

100+ publications on Indoor Positioning

- "A GNSS-based Inverted Radar for Carrier Phase Absolute Indoor Positioning Purposes", IPIN 2016, 2nd Best Paper Award

LOOKING FOR

- Partners for indoor tests under real operating conditions.
- Scaling up: improving the business model