

## INDOOR POSITIONING SYSTEM

### Technological advantages

#### Innovative :

- Tracking objects through signals within a surface using various techniques (multilateration, ...).
- Applicable to many sites even where GNSS signals are not available both indoor and outdoor.

#### Efficient :

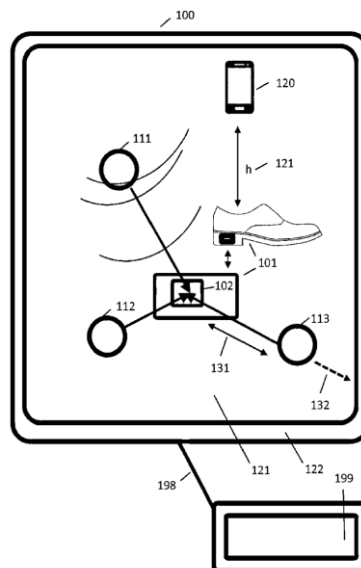
- Fast and accurate tracking using several reference emitters.

### Invention synthesis

The invention deals with the location of an object on a surface waveguide.

Objects or people tracking can be difficult especially when GNSS signals are disturbed or not available (for example inside buildings). Existing techniques using Wi-Fi lack accuracy, reliability and may have latencies.

The invention proposes the use of at least 2 signal emitters (/receivers) with known positions. Emitters can also be associated with a GNSS receiver. The signals are propagated within a surface (embedded in the waveguide) to track the object position using one or more techniques from multilateration, signal strength, fingerprinting, angle of arrival, time of flight.



Schematic example based on this invention

- (101) Object to track
- (102) Surface coupling device
- (111,112,113) Signal emitters
- (120) Smartphone
- (121) Surface / Signal propagating in the surface
- (122) Room

### Commercial benefits

- Tracking people / vehicles indoor and outdoor with accuracy in real time.
- Applicable to a large set of objects, sites and environments.

### Potential applications

- Pedestrian (indoor/outdoor) or vehicle tracking.
- Applicable to roads, sidewalk, floors, ...

Patented invention - under license.