Navizon Indoors for Navigation

Navizon Indoors for Navigation is an indoor positioning system (IPS). It enables navigation and wayfinding by providing mobile apps with their current position. Accuracy ranges from sub-meter (less than 3 feet), using the SDK on iOS and Android, to about 6-15 feet/2-5 meters using the API on other OS platforms.

What it does

Navizon Indoors uses ambient radio signals to deliver a mobile device’s position (latitude, longitude and level). No hardware deployment is normally required at the venue, except to boost the local signals to improve accuracy. Custom apps may run on smart phones, tablets or custom devices. SDKs are available to build custom apps on iOS and Android. An API enables building solutions for all OS platforms.

How it works

A site survey or training of the venue is required to create a database of ambient signal fingerprints throughout the target area or site. A mobile device can then take a snapshot of local ambient signals (a local fingerprint) and have Navizon Indoors server determine the device’s location by interpolation with the site’s database. The site should be an environment rich in Wi-Fi access points and/or Bluetooth beacons (iBeacons). An area poor in ambient signals is likely to deliver low accuracy and poor performance.

What is a Site Survey or Training

In an area with dozens of access points and/or iBeacons, signals and their strengths will vary widely in different areas.

A site survey builds a database of signal identities and strengths sensed at multiple known locations. Site surveys are performed using the Navizon Indoors mobile app available for iOS and Android.

Building custom mobile apps

Developing custom apps that use Navizon Indoors is facilitated by the client-side libraries (SDK) available for Android and iOS. Any authorized app on a Wi-Fi enabled device, able to use Web services may query Navizon Indoors’ API to obtain its position.

Highly accurate locations

Determining a mobile device’s specific location within the site requires taking a snapshot of ambient signals at the device’s current location. That local fingerprint is looked up on the site’s database.

The SDK works client-side, augmenting the estimate with readings from the device’s internal sensors, which may deliver accuracies under 3 feet/1 meter.

The API estimates locations server-side, delivering an accuracy ranging from 6 to 15 feet/2-5 meters.
Navizon Indoors Features

System components
- Navizon Indoors cloud-based server
- SDK for iOS and Android
- REST API for use by any other OS platform
- Online dashboard provided with your account
- Navizon Indoors app
- Custom mobile apps

Requirements to deploy Navizon Indoors
- An area rich in Wi-Fi access points or iBeacons (4 or more signal sources must be detectable; and yes, their SSID must be visible!)
- Connection to any Wi-Fi access point is not needed
- Map or floor plan of each floor in the site in either PNG, GIF, or JPG format
- iOS or Android phone or tablet for site surveying
- Internet connectivity via 3G, 4G or Wi-Fi
- An account provided by Navizon

Initial Setup
- Upload floor plan(s), properly scaled, via online dashboard provided for your account
- Perform site survey or training of the site
- Verify training using Navizon Indoors app

Training a site
- Site survey or training is done using Navizon Indoors' app for Android or iOS
- Training is performed moving across the site taking signal snapshots at specific locations
- The site’s floor plans must first be uploaded to the dashboard
- The trainer should walk at a steady pace, without pausing, visiting each spot displayed by the Navizon app on the floor plan.

Navizon Indoors app
- Available for (Android and iOS)
- Uses:
  - Evaluate this technology
  - Perform site survey or training
  - Verify system accuracy
  - Test different settings

Requirements to keep in mind
- Mobile apps must be able to connect to the internet when activated by users
- Devices' Wi-Fi and/or Bluetooth must be enabled
- Location accuracy is dependent on the density of available signals and the quality of the training
- If ambient signals (Wi-Fi and/or BLE beacons) change considerably, the site should be retrained to maintain location accuracy

Applications
- Custom mobile apps can provide services such as
  - Navigation (wayfinding)
  - Geofencing
  - Location-aware media delivery, such as notifications, promotions and alerts
  - Basic tracking is possible by having the app periodically report its location to an external system.

NOTE: If tracking people or assets is a key requirement, consider using the companion product: Navizon Indoors for Tracking.
Sample Applications by Industry

- **Retail**: Wayfinding app for shopping malls guiding visitors to the desired shop or to product sections in a supermarket.
- **Museums**: To help visitors find collections and exhibits.
- **Hotels**: Visitors can search for the hotel's facilities.
- **Events**: To guide visitors inside a trade show or fair.
- **Hospitals**: For patients and their relatives to find their way around a facility.
- **Emergency**: To help police, fire brigade or medical services to find their way inside buildings.

License

Two options:

1. Software-as-a-service on a public cloud, by subscription
2. Standalone, installed in a private data center

Pricing

Software-as-a-service subscriptions can be:

1. Month-to-month
2. Pre-paid yearly fee, discounted

Please, contact our sales team for details.

References

**Navizon Indoor mobile app** is available from Google Play for Android, and the iTunes store for iOS.

Documentation

- [Online Documentation](#)
  - Follow links under "Navizon Indoors"
- [Glossary](#)