An Indoor Positioning System (IPS) for Android

Andre Bododea

Introduction

This implementation is largely based on the oft-cited paper [1]. Support for an Android-specific method was found from the paper [2].

Minimum 4 pages, max 5 pages

This program does not attempt to map laterally, it simply focuses on a forward and backward movement. This is ideal for long indoor stretches such as hallways and shopping malls, where we are only interested in tracking the motion of the user moving in one plane.

User Guide

"An easy and straight-forward guide on how to use the application and experience its full features and functionality."

Training Phase

This phase allows a user to go to one of 3 pre-defined locations. These locations include various rooms within the pick a building building.

The layouts of these areas are overlayed on a Google Map. The idea behind the training phase is that a person

Database

Positioning Phase

Key Features

Programmer Guide

Uses Google Maps API in order to provide mapping functionality. Finds the latest GPS location either via GPS or via WiFi, depending on what's available.

In order to view floor plans on the map, a Ground Overlay is used. Users will be able to insert their own floor plan images if they so choose to.

I take my floor plan image and draw it as a Drawable object. This then allows me to draw over it.

https://developers.google.com/maps/documentation/android-api/groundoverlay

- Application Interface and functionality introduction
- Sensors used and their implementation
- Sensor data processing and any algorithm used to achieve function.
- Principal methods/listeners implemented in the code.
- Extra performance (if applicable) and its realization should be explained for marking purpose only

Conclusion

Write your conclusion here.

References

[1] Kamol Kaemarungsi and Prashant Krishnamurthy. Modeling of indoor positioning systems based on location fingerprinting. In *INFOCOM 2004. Twenty-third AnnualJoint Conference of the IEEE Computer and Communications Societies*, volume 2, pages 1012–1022. IEEE, 2004.

[2] Maxim Shchekotov. Indoor localization method based on wi-fi trilateration technique. In *Proceeding of the 16th conference of fruct association*, 2014.