AnyPlace

Indoor Positioning and Navigation in the Big-Data Era

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Overview

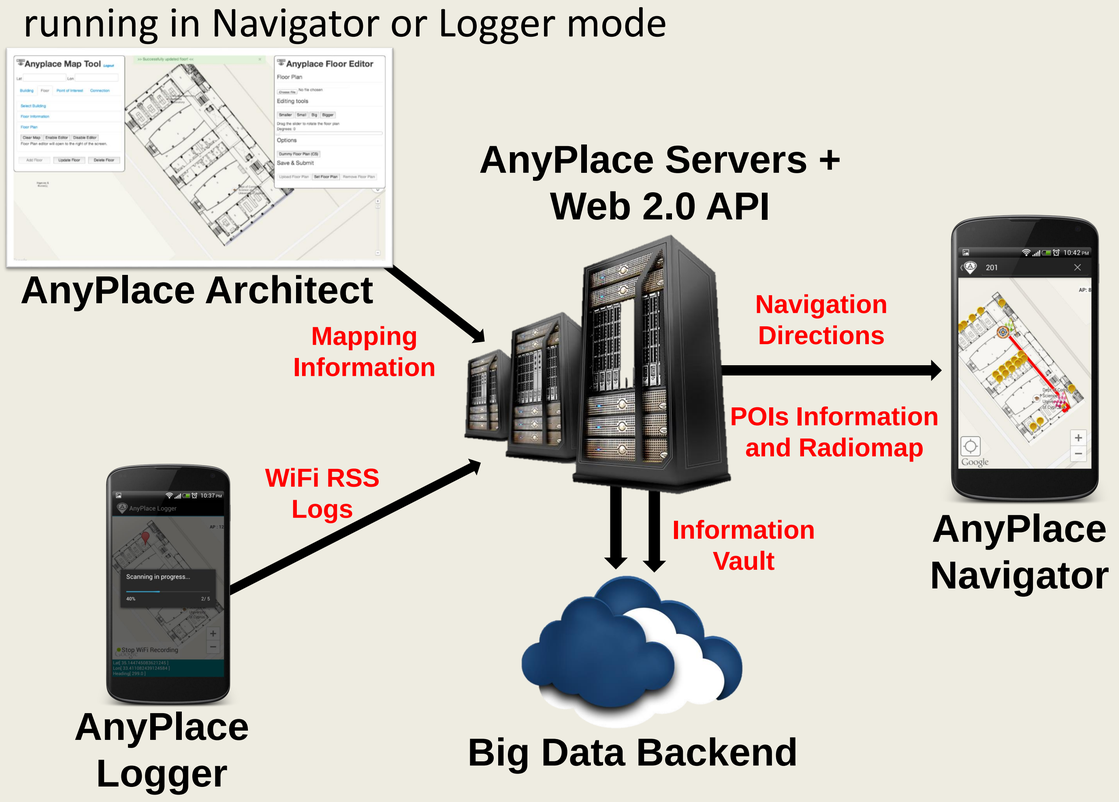
- Operates on top of Google Maps with a big-data management Web 2.0 back-end service
- Leverages rich multi-sensory data available on smartphones
- Allows entities (users, companies, organizations) to realize indoor information management systems
- Indicative applications include product search and point of interest (POI) navigation

AnyPlace Server

- Follows a big-data architecture and provides a Web2.0 API using JSON objects for Mapping, Navigation and Positioning
- Responsible for storing buildings, floor plans, and POIs information
- Creates and delivers indoor navigation directions to the end-user upon request
- Uses Couchbase as its backend database for scalability and fast metadata retrieval

Architecture

The platform consists of the ***AnyPlace Server***, the ***Architect and Viewer*** website and the Android ***Client*** application running in Navigator or Logger mode



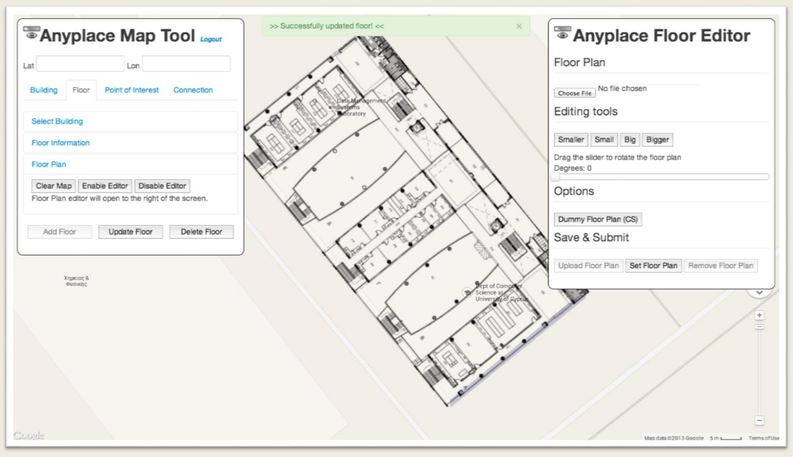
AnyPlace Architect / Viewer website

AnyPlace Architect website offers:

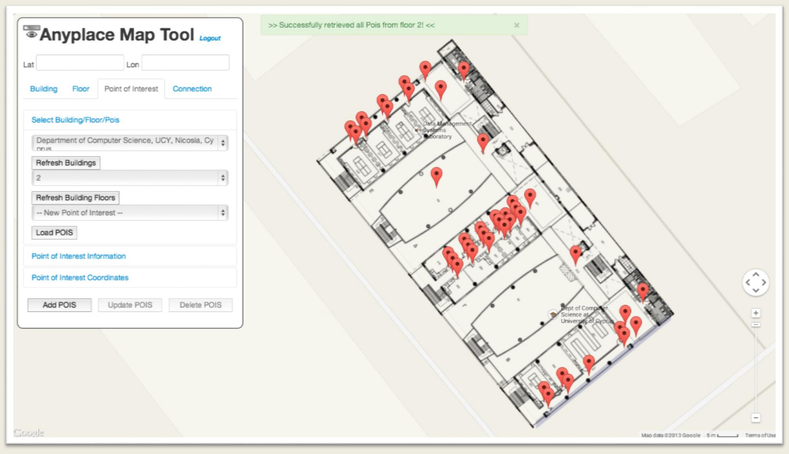
- User-friendly interface for placing floorplans on top of Google Maps
- Multi-floor support
- Convenient addition, annotation and geo-tagging of POIs inside the building
- Easy connection of POIs to indicate feasible paths among them

AnyPlace Viewer website offers:

- Read-only access to building, floorplan and POI information



AnyPlace Architect floor editor



AnyPlace Viewer POI visualization

AnyPlace Client for Android smartphones

Navigator mode

- Shows the building where the user resides automatically
- Users can load the floorplan and associated POIs
- Displays user location on top of the floorplan map using a powerful WiFi positioning algorithm developed in-house
- Users can search for POIs and get navigation directions from their current location to the desired POI

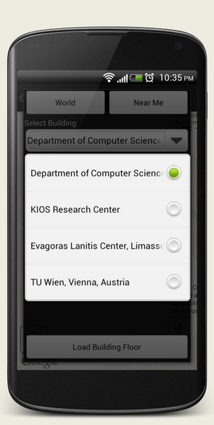
Automatic loading of building, floor and POIs

WiFi localization and POI selection

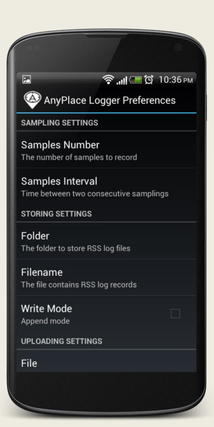
Navigation to selected POI

Logger mode

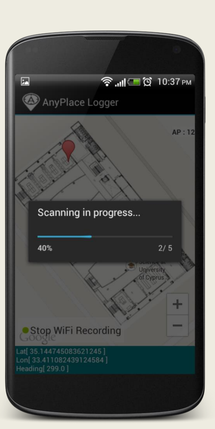
- Users can select the building and the floor for recording data
- Users may record Received Signal Strength (RSS) information from nearby WiFi APs
- Developed around the Android RSS API for scanning RSS data
- Users can upload the collected samples to the *Anyplace Server* through the API for crowdsourcing the RSS radiomap



Select Building



Logger preferences



Record WiFi RSS

Web: http://anyplace.cs.ucy.ac.cy/

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