

Group No. 6

Indoor Navigation Using Beacons

Akshay Bhosale - 101506
Gloria Benny - 101512
Robin Jaison - 101525
Adil Khot - 101537

Roadmap

1. Problem Statement
2. Literature Survey
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Problem Statement

To build a general app that will trigger the user to use indoor navigation so as to navigate anywhere inside the infrastructure as well broadcast the employees/users.

Literature Survey

- Survey of Wireless Based Indoor Localisation Technologies
- Beacon Placement for Indoor Localization using Bluetooth
- An Analysis of the Accuracy of Bluetooth Low Energy for Indoor Positioning Applications
- The Eddystone Beacon Platform

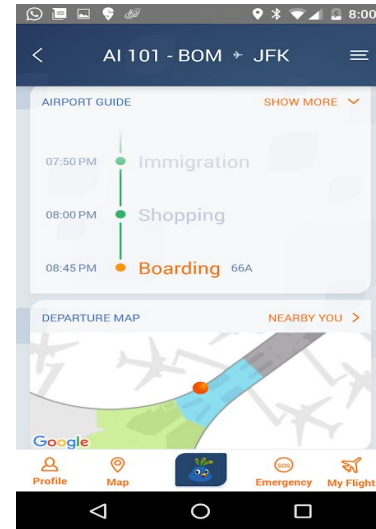
Existing System

Guide maps. (To guide people inside a shopping mall, guide maps are mounted at certain location that help in locating stores, food courts & restrooms.)



Existing System

Mumbai T2 App. (The app plays a complete navigation guide with user-friendly technology, helping passengers locate anything at the airport with a single click process.)



Proposed System

Client side- A website that will take blueprint of the facility as the input and the location of his/her infrastructure.

User side-A dynamic app that will push notifications every time a user enters the facility and enable them to use the indoor map with voice navigation.

Admin portal-Will manage location specific data and will be used to generate map for given infrastructure.

S/w & H/w Requirements

Hardware requirements:

1. Smartphone with
 1. Bluetooth
 2. GPS
 3. Accelerometer
 4. Gyrometer
 5. Magnetometer
 6. 512 MB RAM
2. Kontakt Beacons (Eddystone)

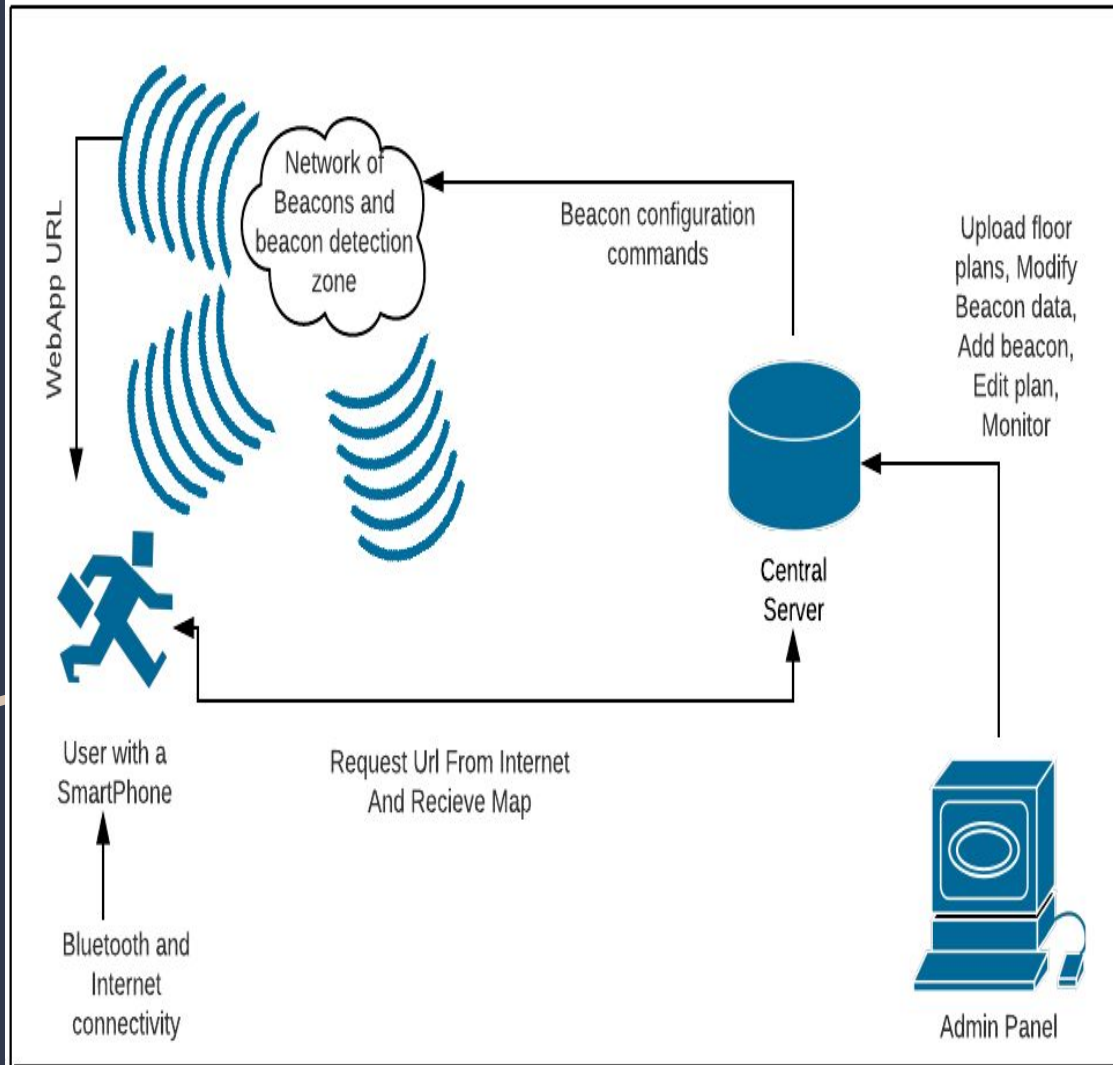
Software Requirements :

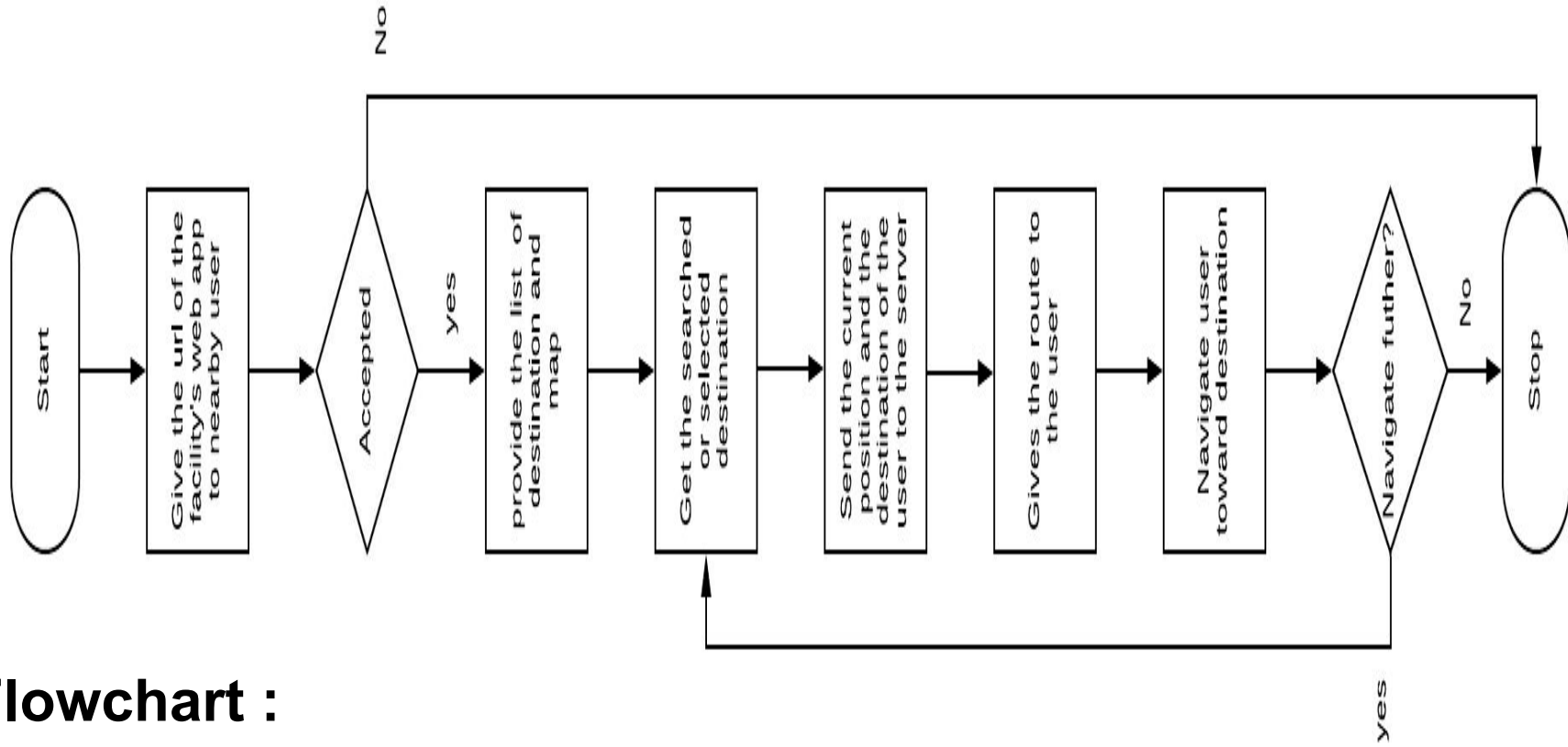
1. Android Beacon Library
2. Nearby Notification API
3. Android Nearby API
4. Indoor Atlas tool
5. Web browser(Chrome)
6. Mapbox

OS Requirements :

1. Android(v4.4+)/iOS

Design (Block Diagram)





Flowchart :
User Interface

Conclusion

- Few research papers have been studied and understood on beacons and indoor mapping.
- Comparative studies of the existing system and their flaws have been analyzed and understood.
- Understanding infrastructure architecture of various malls, hospitals etc and concluding beacons as the best choice for uninterrupted and cost effective navigation experiences.

References

Beacon Placement for Indoor Localization using Bluetooth

Author : Sudarshan S. Chawathe

Survey of Wireless Based Indoor Localisation Technologies

Author- Junjie Liu, junjie.liu@wustl.edu

An Analysis of the Accuracy of Bluetooth Low Energy for Indoor Positioning Applications

Author-R. Faragher, University of Cambridge, UK; R. Harle, University of Cambridge, UK

Google Beacon Platform

<https://developers.google.com/beacons/overview>

Automated Indoor Space Representation for Beacon-Based Wayfinding

Author-Seyed Ali Cheraghi, Vinod Namboodiri, Kaushik Sinha Department of Electrical Engineering and Computer Science Wichita State University, Wichita, KS, USA

Thank You