INDOOR MAPPING

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ABSTRACT

With the gradual maturating of ubiquitous computing and the rapid advances in mobile devices and wireless communication, indoor Location Based Services have gained increasing interests as an important application of indoor ubiquitous computing. In this paper, we propose an evaluation framework which combines the key aspects of indoor navigation for investigating mobile indoor navigation systems.Based on this evaluation framework, we give a comparison and analysis of the current mobile indoor navigation systems, and identify some challenges which require further research and development.

Keywords: - *mobile indoor navigation systems, indoor positioning, route communication*

1. INTRODUCTION

The ubiquity of mobile devices (such as cell phones and PDAs) has led to the introduction of Location Based Services (LBS), or Location-Aware Services. LBS aim at providing information/services relevant to the current location and context of a mobile user. For indoor applications, different positioning technologies are needed to replace GPS. As a result, more detailed dimensions on positioning, such as signal (infrared, ultrasonic, radio signals, etc.) and signal metric (Cell of Origin, Time of Arrival, Time Difference of Arrival, Angle of Arrival, etc.), are needed to evaluate the various positioning technologies.

1.1 Existing system

As for positioning, the first several systems (CyberGuide, IRREAL, CricketNav, BPN, and Drishti) mainly use Infrared and Ultrasound as positioning signal, CoO as signal metric, proximity as positioning algorithms. This is mainly due to the high availability of infrared technologies in mobile phone. Recently, due to their broad availability in mobile devices and their continuously decreasing prices, radio signals, such as WiFi, Bluetooth, Zigbee, UWB, and RFID, are employed in more and more indoor navigation systems and fingerprinting (RSS) are also developed to increase the positioning accuracy.

1.2 Issues in Existing System

Our case studies and deployments cover both company and public-sector settings and the deployment and evaluation of several types of indoor Wi-Fi positioning systems deployed for several years. The paper's contributions are as follows: We present findings of important requirements in different organisations based on case

studies of deployed indoor Wi-Fi positioning systems both in company and publicsector settings user groups, providing software platform independence, low maintenance, and enabling of positioning for user devices regardless of form factor.

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1.3 Proposed System

[1] Motivated by the challenge of indoor positioning, a substantial amount of research has focused on methods for indoor Wi-Fi positioning. For instance, a search for Wi-Fi and positioning on Google scholar returns over ten thousand papers. Already in 2007 a survey covered over fifty papers presenting different methods for Wi-Fi positioning [2]. Since then research on the topic has increased its output and is by now accompanied by articles that study the links between WiFi positioning and other positioning technologies.

[2] Research articles on WiFi indoor positioning are foremost method oriented, e.g, most of them propose a new technique to address one general goal, e.g., positioning accuracy as evaluated on collected datasets. General arguments are given to promote addressing the specific topic of the presented contribution. However, these claims are often not backed up with statements grounded in insights from positioning system stakeholders (e.g., future owners or users) or real-world use experiences with deployed systems.

2. SYSTEM ARCHITECTURE

In this chapter we are going to discuss about the system architecture of the stock analysis and prediction system. The stock data and the twitter sentiment data is uploaded as a training set into R language and the ARIMA model is applied upon them to get the predicted outcome. This predicted outcome is taken as input for Tableau and image magick software as a combination, then the predicted stock outcomes are presented to the user in the form of graphical representation. The architecture of this system is kept as simple as possible to make it accessible to a wide range of consumers and to maintain a simple user interface.

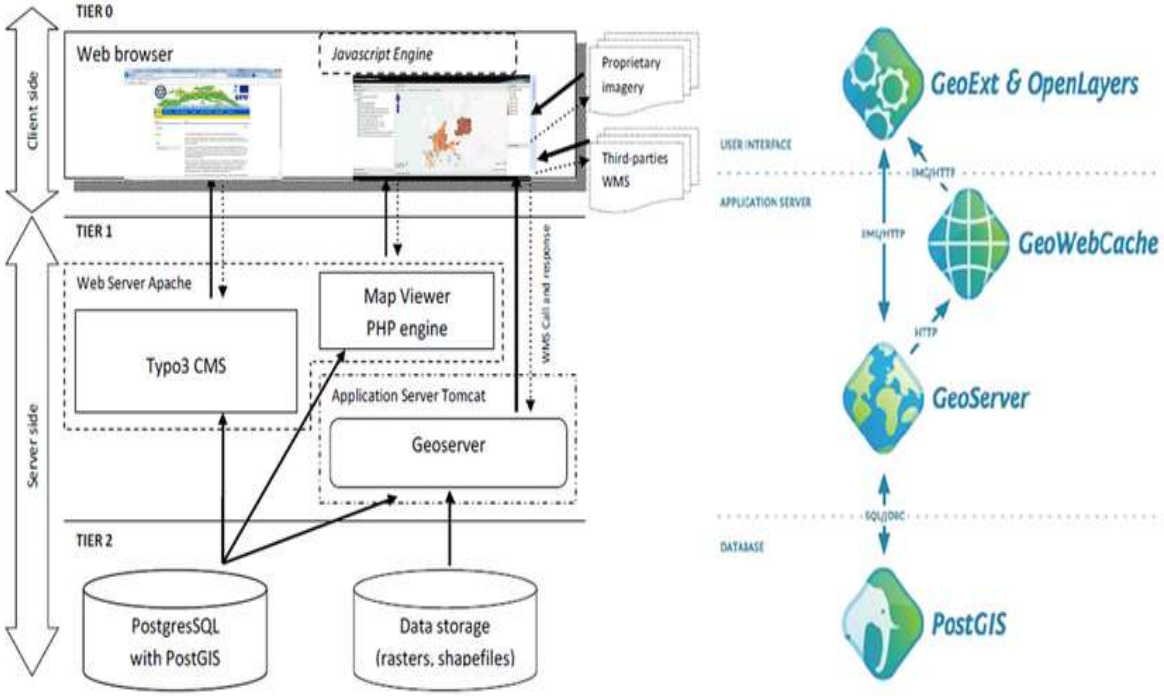

Fig -1 System Architecture Diagram

3. IMPLEMENTATION

Data puller is used to extract the historical data. The csv file is converted into excel file and it is imported into r studio. Steps involved in implementations are:

Step-1: Understading the javascript and object oreinted concepts
Step-2: Create a javascript code
step 3: Declaring the application as HTML5
step 4: Loading the Google Maps JavaScript API

3.1Working

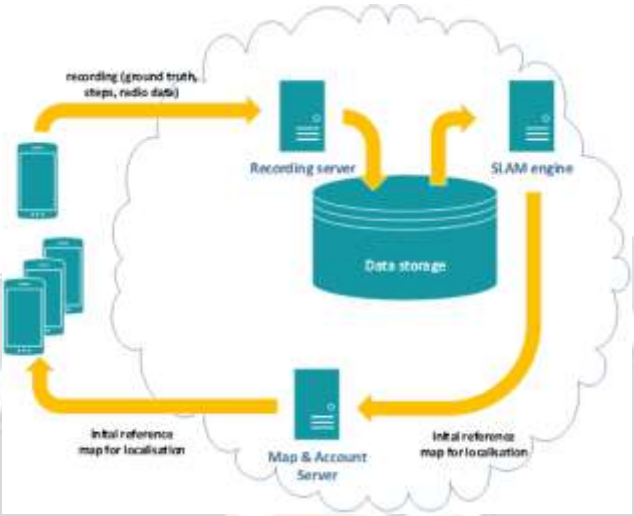

Fig -2 Data Flow Diagram

DialogFlow (formerly Api.ai, Speaktoit) is a Google-owned developer of human– computer interaction technologies based on natural language conversations. The company is best known for creating the Assistant (by Speaktoit), a virtual buddy for Android, iOS, and Windows Phone smartphones that performs tasks and answers users' question in a natural language. Speaktoit has also created a natural language processing engine that incorporates conversation context like dialogue history, location and user preferences.

This online service allows us to design an map through defining the intent/activity and entity using JSON object.

[1] Intent- Defines the activity which is performed by identifying the query given by the user. Intent is the described activity defined in the dialog flow.
[2] Entity- The database of the synonyms that is provided by the developers.
[3] Response- The Response module is the actionable data that is provided by fetching the information from the API and presenting to the user.

3.2 Indoor mapping

The indoor mapping has five sets of modules. The application divided into the modules helps to find the bugs/errors and fixing them easily.

Thus the modules are custom and can be edited for the correction or modifications. The constants in the modules contains all the constant values used throughout the app: things like sensor which is used to control the device as sensor detects the activity of the device, chatbot is used which is used to control the device remotely, network interface is used so that home appliances is connected to the app, cloud is generally used to store the backend files in the open databases like javascript, api etc.

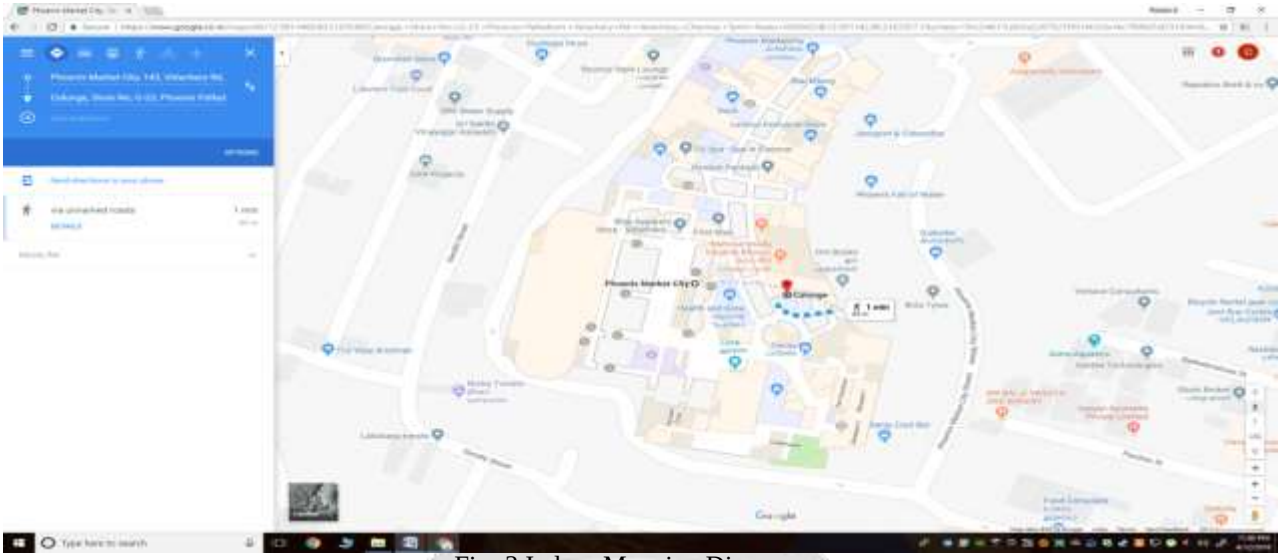

Fig -3 Indoor Mapping Diagram

4. CONCLUSIONS

In this paper, we proposed an evaluation framework which combines the key aspects of indoor navigation for investigating mobile indoor navigation systems. Based on this evaluation framework, we gave a comparison and analysis of the current mobile indoor navigation systems, and then identified some challenges which require further research and development. From the survey, we can draw the conclusion that indoor navigation systems are still on an early development stage. More attention should be paid to sensor fusion, context-awareness, route communication, seamless switch between indoor and outdoor navigation, and ubiquitous indoor computing.

5. REFERENCES

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