Bus Tracker Application

Group 2

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Project Report and Specifications

Term Project

Database Management Systems

Indian Institute of Technology, Kharagpur

Contents

1 Introduction

The main purpose of the project is to design an android based application which can be used to track the location of certain mobile locomotives and estimate a time in which it would reach closest to the location of a user.
It is modified and adapted to track the buses in Indian Institute of Technology, Kharagpur.

2 Installation Instruction and Project Requirements

Application can be installed by running the BusTracker.apk file.

2.1 Project Requirements

- GPS enabled Android based phone with the Bus Driver.
- GPS enabled Android based phone with the User.

3 Database

Firebase, an online database is used to store the location of the buses at any point of time.
The data is stored as json objects.
Figure 1 shows the information storage in the database.

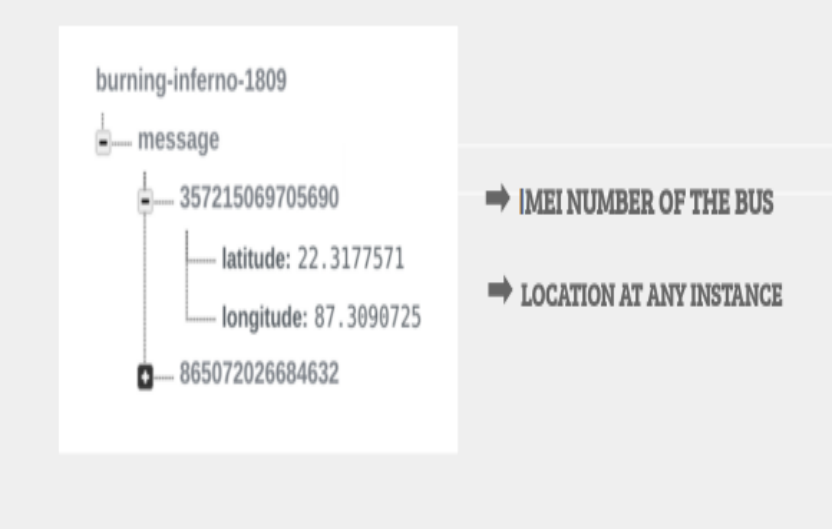

Figure 1: Database Storage

4 Methodology

4.1 Location of Bus

- The database stores the IMEI numbers of the mobile phones of the bus drivers.
- If the IMEI number of any user matches with any in the database, he is recognized as a bus driver and his location is broadcasted to all the users.
- The path taken by a particular bus is also stored.

4.2 Location of User

- For any user who isnt a bus driver, the app shows the user his location and the location of all the buses using different markers.
- It also shows the minimum time taken by a bus to reach its nearest bus stop.

4.3 Estimation of time

- Google Maps API finds a route connecting the bus to a bus stop closest to a particular user.
- It also computes the time that will be taken by a bus to travel that distance.

5 Result

The following screen shots defines the good efficiency of the project.

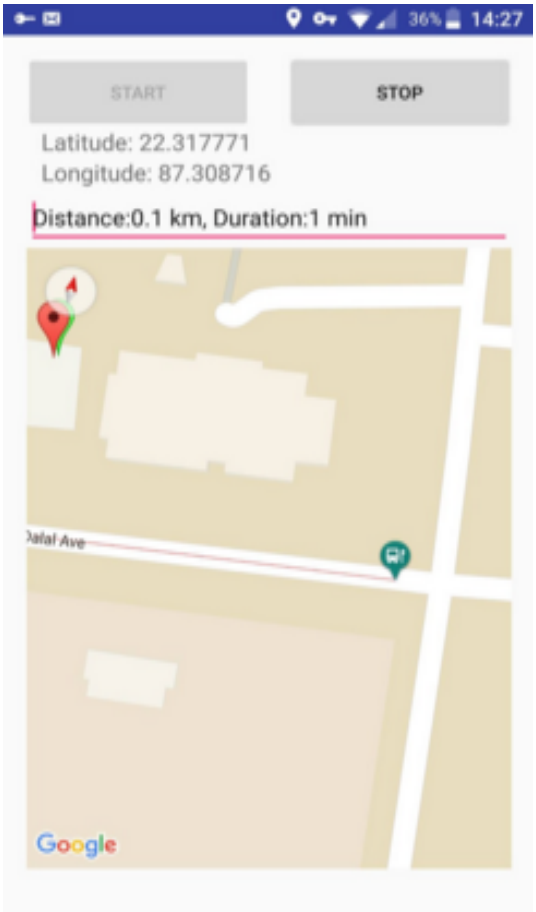

Figure 2: User and the nearest bus stop

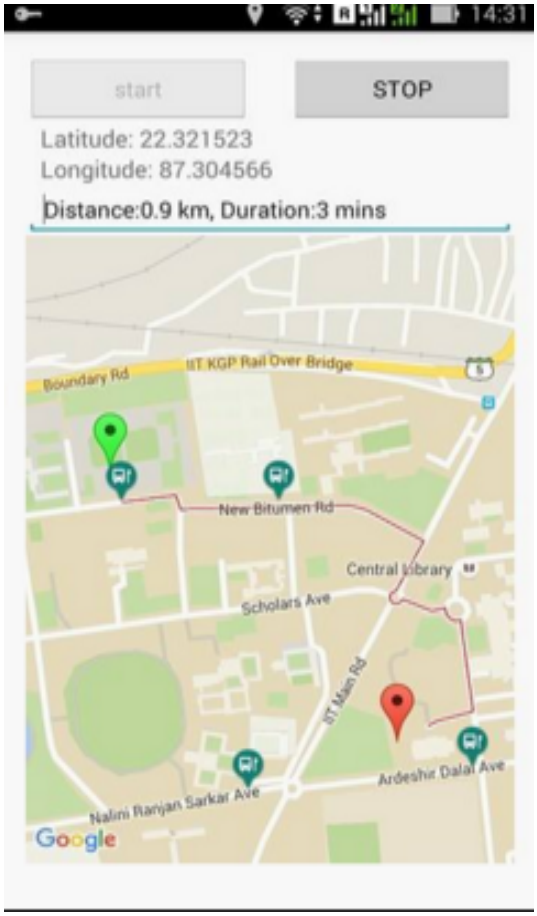

Figure 3: Location of Bus, User and the Route the bus takes

6 Future Plans

- Instead of using drivers mobile phones to broadcast the locations of the buses, a GPS system can be installed on them. This way, battery wont be an issue and it would be more definitive in identifying the bus location.
- Presently, every bus broadcasts its location at an interval of 5 seconds. This is done keeping in mind the battery consumed by a mobile phone. It should be reduced to a minimum number so that the buses can be tracked accurately.