

Software Requirements Specification

For

BUS TRACKING SYSTEM

Version 3.0

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Revision History

Name	Date	Reason for Changes	Version
Bus tracking System 1.0	16-01- 2019		1.0
Bus tracking system 2.0	23-01- 2019	ER diagram, User conventions, Appendix	2.0
Bus tracking system 3.0	30-01- 2019	User interface, User documentations	3.0

1. Introduction

1.1 Purpose:

The main goal of the work is to improve bus system of colleges and universities by adding necessary additional features into the application like accurate bus timing, correct bus number and location and moreover adding GPS tracker to it. It tends to reduce the waiting time for students as well as develop stimulation of sharing of update information between bus driver and student. Any change in the scheduled movement of bus will be updated instantly. Bus locations and routes are shown on the dynamic maps using Google maps. Student can rate the ride.

1.2 Document Conventions:

Entire document should be justified. This document uses the following conventions. Convention for main title-Font face: Times new roman, Font size: 16, Font style: Bold convention for subtitle: font face: Times new roman, font size :14, Font style: Bold convention, For Body: Font face: Times new roman, Font size: 12

1.3 Intended Audience and Reading Suggestions:

Our product will potentially have many users, as there may be many add-ons to the product each one catering to different types of users in various industries.

- Home User (Student) – A user who wants to use the product to keep track of bus any time. They won't need to have extended functionality.
- Bus driver– This is a user who uses the product to make his life easier and to perform specific tasks. Such tasks for a bus driver, for example, would be to keep track of where the students are waiting for the bus.

1.4 Product Scope:

The application is user friendly that student of specific institution will be able to use the app for free. It will help to monitor the location the bus driver nearby and be able to wait at any place. By using GPS tracker driver to identify that his passenger is waiting at that place and meet at the pickup point. The proposed system is divided into two modules, 1. Gives information about all routes of source to destination as well as map location. 2. Give information about bus number, bus availability, bus driver. Student can rate how the ride was.

1.5 References

1. <https://www.slideshare.net/AbhishekSinghNagvanshi/bus-tracking-application-project-report>
2. <http://www.cs.utah.edu/~holty/declspec/deliverables/srs.htm>

2. Overall Description

2.1 Product Perspective

This product is a new and self-contained product. We are using Android GUI builder (XML based interface), Firebase Real Time Database and MySQL Database, Google maps API (Map API, places API, direction API, geo location API)

A Bus Tracking system stores the following information-

- **Route Details:**
It includes the originating terminal and destination terminal, along with the stops in between.
- **Student description:**
It includes student ID, name, address and phone number. This information may be used for keeping the records of the student for any emergency or for any other kind of information.
- **Bus description:**
It includes supervisor details, Bus number, time and date updates.

2.2 Product Functions

The functions of the product are-

- Real time location of the bus
- Bus schedule and route time table
- Rating for the best supervisor

2.3 User Classes and Characteristics

- All_Users (To save all users' data)
- Bus (To save the data of bus type user. Subset of All_Users class)
- Student (To save the data of student type user. Subset of All_Users class)
- Active Bus (To save the data of the buses on the roots)
- Active Student (To save the data of the students waiting near the roots)

2.4 Operating Environment

This application is for android platform. It will be operational on any android device with Android API level 19(KitKat) or higher.

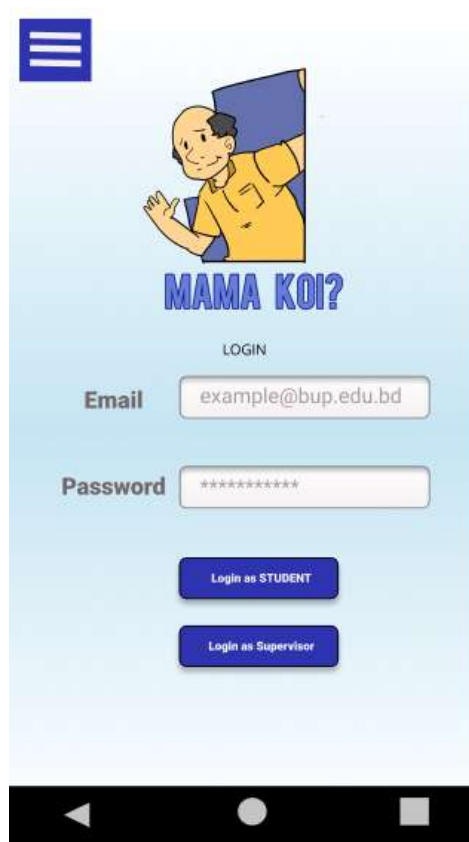
2.5 User Documentation

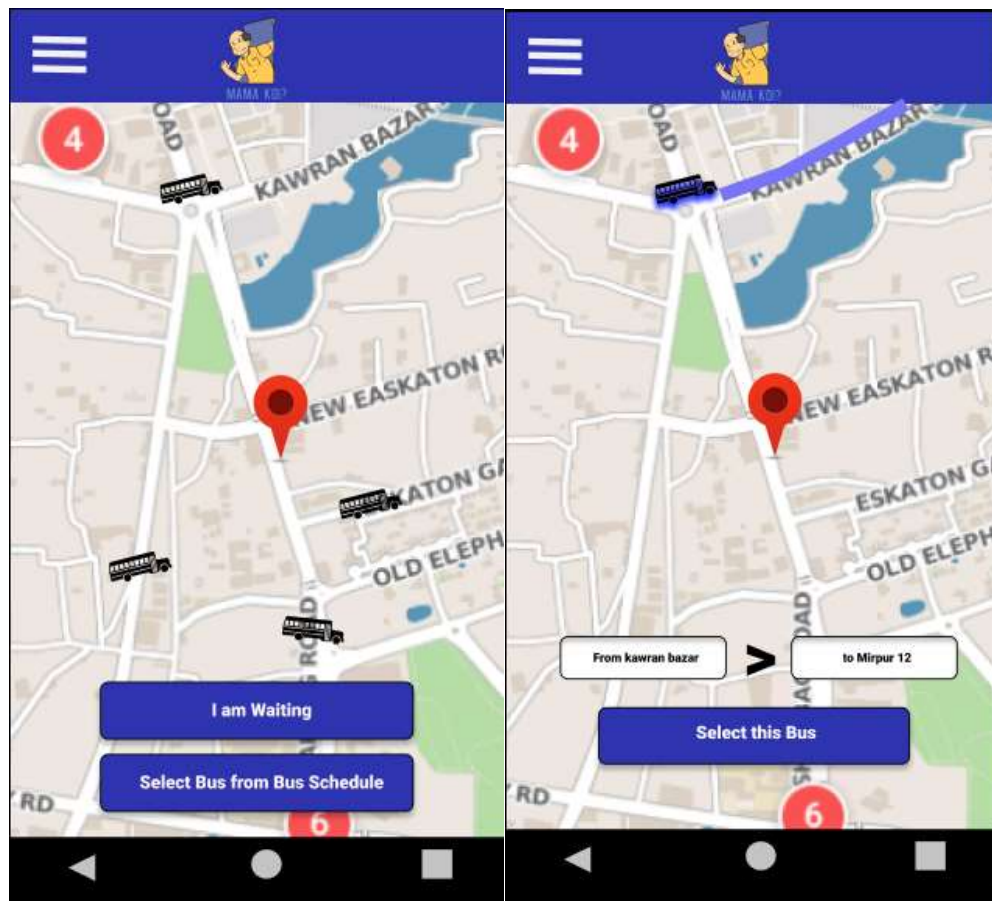
There will be a help menu as a guideline for the users. When a user will face any problem they will search for the solution in the “Help” option from the menu bar. There they will select whether they are students or the conductors. Whatever they choose some selected FAQ according to that choice will appear and the answer will be given below. But if the answer is not there then there will be a search option as well which will help the user to get any answer from the database which is related or similar to the keyword they input.

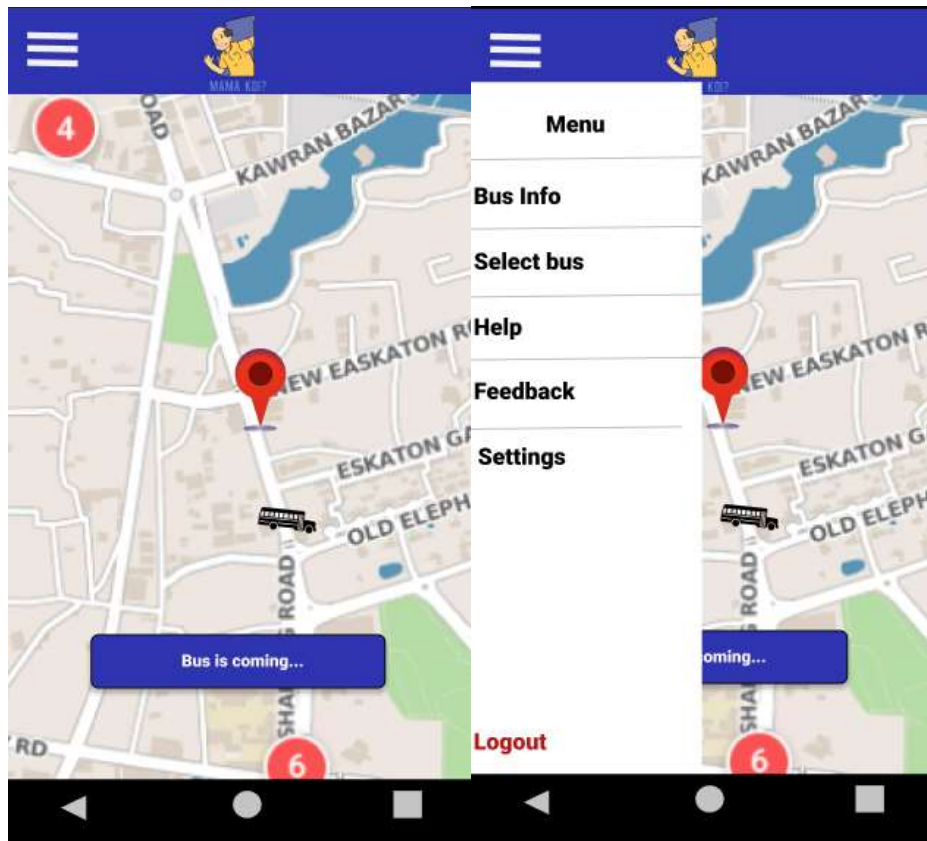
3. External Interface Requirements

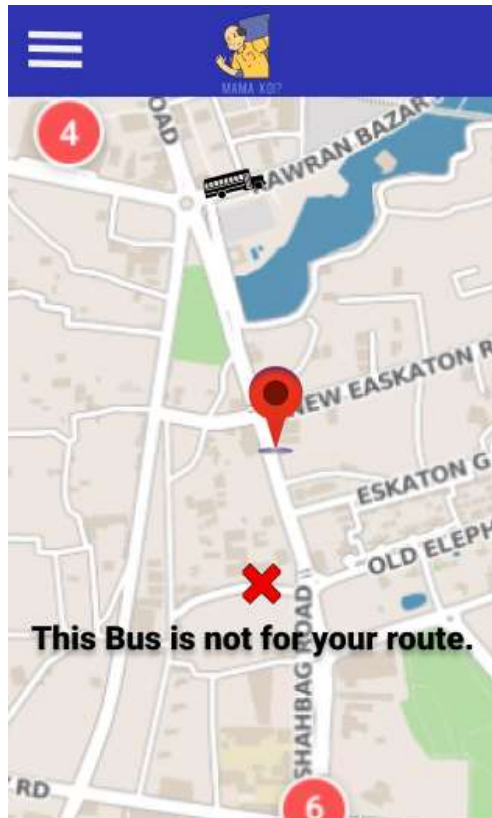
3.1 User Interfaces

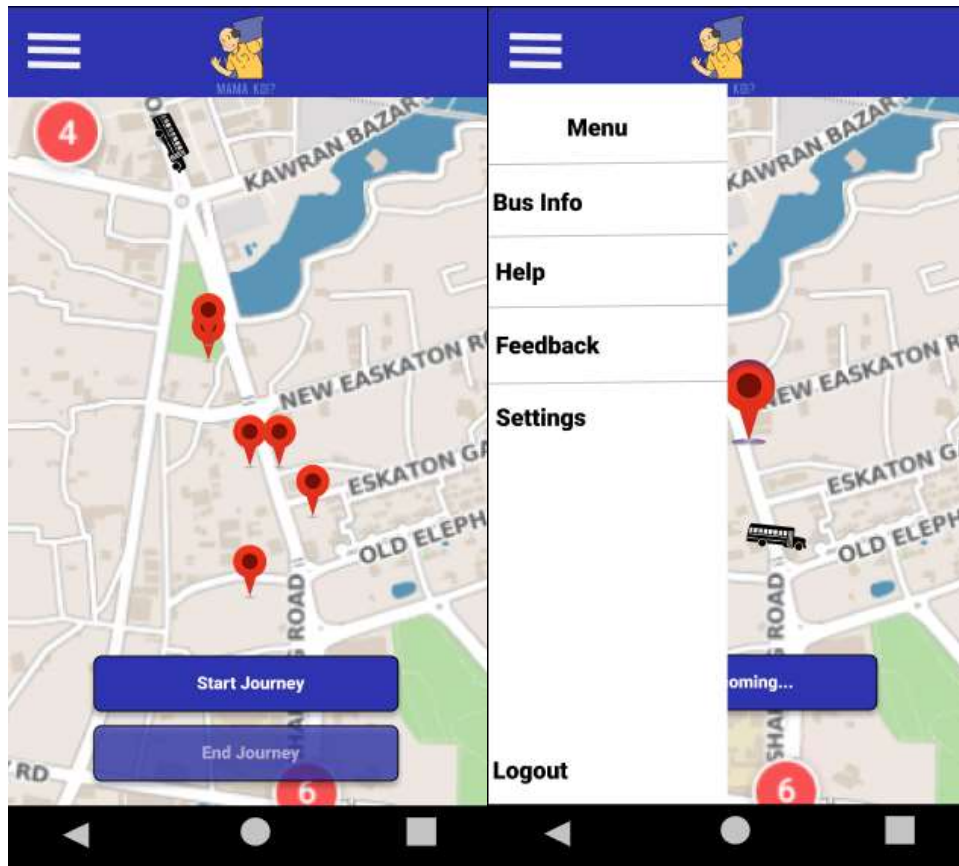
The application is develop using Android GUI Builder (XML based interface) to design the prototype for Android. The user interface will include a login page, which takes it to the second interface (different for users such as- Passenger and Drivers), where it avails us to a map provided by Google Maps. For drivers logged in, the maps with denote the pick-up point of the passengers as marked/alarmed from the passenger's device along a route which is shown on the map. For passengers logged in, the maps will show the bus's location by tracking the driver's device (logged in) and place markers to denote the next stop for the bus approaching along the route. In addition, the user can estimate the times of arrival that will be displayed on the markers set. The time estimation will be determined as per the starting time of the bus from its Arche location. In the end of the travel, both the users- driver and passenger may rate the journey for valuing an appreciation.











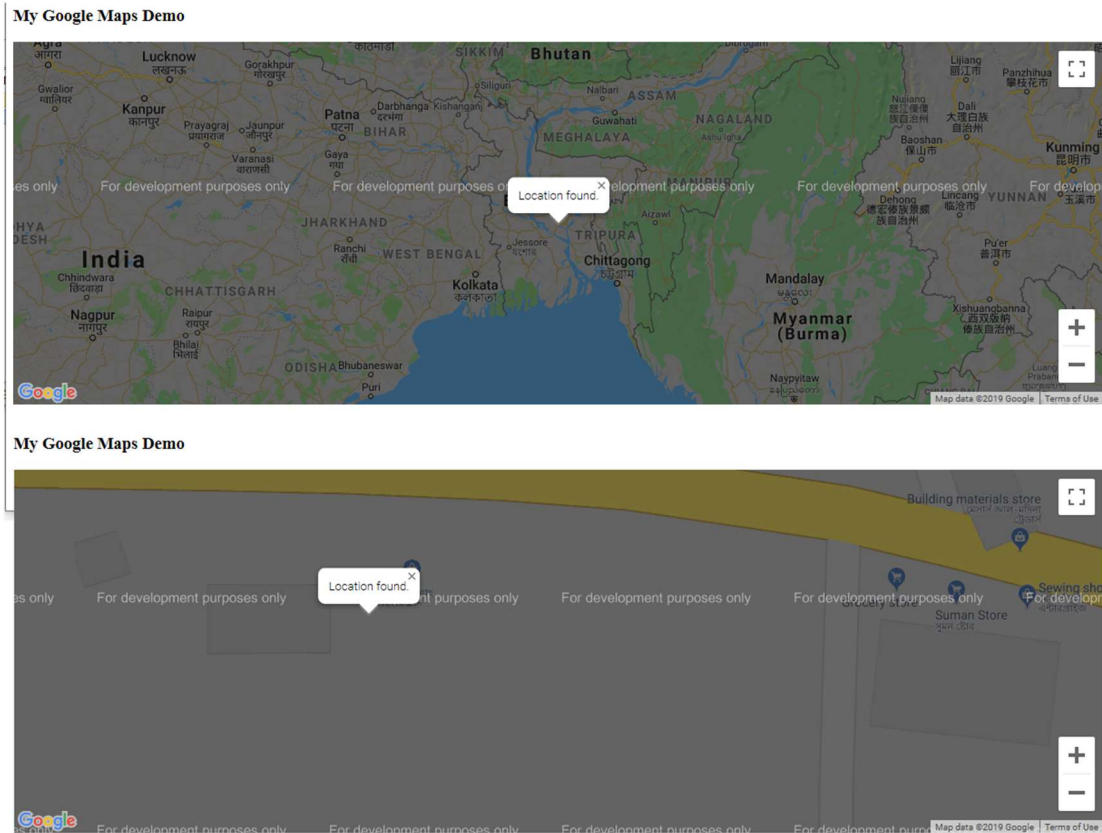


Figure: Desktop View

3.2 Software Interfaces

Firebase real-time database and MySQL database will be used.

3.3 Communication Interfaces

Google maps API (Map API, places API, direction API, geo location API)

4. System Features

4.1 Bus Tracking

4.1.1 Description and Priority

This allows the passengers to track the location of the bus, if crossed the passenger's location on the route.

High Priority

4.1.2 Stimulus/Response Sequences

User first have to log in the application.

4.1.3 Functional Requirements

An Android device with a minimum ram of 1GB.

4.2 Rating

4.2.1 Description and Priority

This allows the user to rate the journey experience. It will have a 5-star rating system. For each star in the rating system the conductor will get a point. Points will be counted in the end of the month. Top scorer will get a notification for the next whole month that he is the best conductor of the previous month. It will encourage them and others to do even better next month. We will use the database to store their score.

4.2.2 Stimulus/Response Sequences

Users first have to log in to their account. The User ID and the password for our conductors will be different from each other and will be provided by the admin. The scores are stored aligning to the User ID. When the User (here the conductors) will log in using using his ID, he will get to know is score.

4.2.3 Function Requirements

User must have an android device with a minimum ram of 1GB.

5. Other Requirements

For this mobile application, there is a requirement for access and permission for reuse of the UCAM software of BUP and its database for bus service users and drivers. In addition, officials will be educated and put to observe and service management.

Appendix A:

API Application Program Interface

GUI Graphical User Interface

XML Extensible Markup Language

Android GUI Builder An android UI design tool for collaboration and development

Firestore real-time database a cloud-hosted NoSQL database that lets you store and sync data between your users in real-time

Google maps a web mapping service provided by google

Real-time a level of computer responsiveness that a user senses as sufficiently immediate or that enables the computer to keep up with some external process

Appendix B: Analysis Model

