Software Requirement Document

Alt-F4

BUSTALK

Software Requirements Specification

1.0 Overview

Public transport is a necessity today as traveling is a major requirement for people today. Buses are one of the prime modes of transportation and for the ordinary passenger, utilizing the bus service can be a difficult task and time inefficient due to the waiting time. The proposed system is an interactive application to enable real time bus tracking and to develop a platform to enhance communication between bus users, drivers and the management team. The main target is to minimize waiting time and enhance route and scheduling information, to make information such as maps, schedules, stop locations and operating hours readily available to users. The management team is able to utilize the platform for statistics collection of buses and drivers.

2.0 User Requirements

There are two main target users for the system, the bus users and the management team. The users will be able to retrieve bus information relating to the selected routes; the nearest bus stop and the real time location of the bus en route.

The management team will be able to track the bus arrivals at every bus stop to track the accuracy of the bus timing. In addition, the system will keep track of the driver's log in and log out times to be utilized as a time attendance system.

3.0 Functional Requirements

Functional requirement refers to the functionalities that must be applied to the system.

1. The system is able to show the list of bus routes and active buses
2. The system allows users to retrieve information from mobile devices or computers.
3. The system must be able to do mapping with the location data retrieved from bus drivers and show the bus position in a map view to user.
4. The system provides a means of clocking in work hours of drivers for management view.
5. The user shall be able to view a section with information about the app and the transit system in general.
6. The user shall be able to view and interact with a route map

4.0 Technical requirements

1. The server should be available on standby 24/7/365 to serve user requests except during maintenance or upgrade.
2. The location output should be accurate to 2 decimal points of coordinates and should provide best estimate and avoid conflicting and misleading outputs when the inputs are unreliable in cases of GPS failure.
3. The response time should be generated within a maximum of 10 seconds depending on the connection speed
4. The database should be able to handle 500 transactions per second
5. The system should be able to serve 500 users simultaneously.
6. The application for users should utilize minimum amount of resources - CPU and memory

5.0 Design Constraints

For users, the system will be browser based to enhance accessibility, users do not have to download an app. The use of a web browser will also enable backwards compatibility and usability with different operating systems such as Android or iOS. The development is based on PHP and HTML.

The application on the driver side will run on the android platform and the development is based on Java. Therefore, it has to rely on Android APIs, SDKs, plugins and tools. Google maps external library will be used to add navigational functionality to the system.

To limit resource usage on mobile phones, the database will be cloud based; it will be connected to the remote server via internet and it will fetch required data. The database will be created using MySQL through XAMPP. A good internet connection is required to receive accurate real time updates.

Major changes to any of above will cause several changes to the system. For the first release of the application, a limited number of bus, bus stops and routes will be implemented. Further modification and expansion will be done in later releases.