# Project Proposal

**for**

# Improving Bus Transportation Services in Indian Cities

**Mode of Preparation:** Group
**Date of Submission:** 10-Apr-2014
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## Team Members


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## Supervisor

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**Date:** 05-Apr-2014

**Version Number:** 2.0

## Document Revision History

| Version | Author | Date | Change |
|---|---|---|---|
| 1.0 | Joshi Dnyanesh Madhav | 29-Mar-2014 | **1.** Created the document |
| 2.0 | Joshi Dnyanesh Madhav | 05-Apr-2014 | **1.** Added proposal for a text based (SMS) client application<br>**2.** Elaborated on the project<br>**3.** Minor corrections |
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## Contents

## Objectives of the Project

In most urban centers in India, public transportation poses a considerable discomfort not only for daily commuters but also for concerned administrative authorities. Although most of the major cities such as Delhi, Chennai, Bangalore, Kolkata and others run an expanded system of public bus transportation system within the cities, predictability of such services requires much improvement.

This project aims at developing an Internet application that will provide

- timetable of the public bus transportation system to the users
- number of buses available in a particular route from a particular station
- time of the next bus arriving in particular routes at a particular stop
- duration the user's destination will take to reach
- updated information on any disruption in the schedule
- real-time location of buses on routes of interest
- traffic updates

## Functionalities

The application will be a client-server Internet application. It will comprise

1) a server program which will interact with the client programs and a database system
2) a client Android app running In the phone inside the bus which will feed the coordinates of the bus into the server program/database (basically it's going to be our GPS inside the bus)
3) a client Android app running in the user's phone which will interact with the server program/database to provide services mentioned above to the user
4) an alternative text based (SMS) application for the users who do not have an Android phone and/or access to the Internet via the phone

The application will do the following functions:

**Provide a timetable of the public bus transportation system to the users**

The application will provide a static bus timetable.

**Provide the number of buses available in a particular route from a particular station**

The application will let users find out how many buses ply on a particular route.

**Provide time of the next bus arriving in particular routes at a particular stop**

The application will provide the estimated time of arrival of the next bus in particular routes at a particular stop (the user's source) based on real-time bus location data. The routes in this case are all routes which pass through the user's source and destination stops.

**Provide duration the user's destination will take to reach**

The application will estimate the remaining time based on the real-time distance of the user's bus from his/her destination.

**Provide updated information on any disruption in the schedule**

The application will provide this information based on inputs it receives from the transport system officials.

**Provide real-time location of buses on routes of interest**

The application will show on a map the real-time location of the approaching buses on the routes of interest. The routes of interest are all routes that pass through the user's source and destination stops.

**Provide traffic updates**

The application will take feed from the traffic police and broadcast it to users.

## Project Deliverables

**Milestones**

- Conducting a survey to gather requirements of passengers
- Reading existing journals and other material related to the problem
- Reviewing existing Android applications
- Analyzing the survey results, journals and reviews of the existing applications to identify the requirements and documenting them (Software Requirements Specification)
- Preparing a technical design (Technical Design Document) that is traceable back to the requirements
- Implementing the static functionality
- Implementing the real-time bus location functionality
- Implementing the traffic update functionality
- Unit testing and peer reviews
- Integration of components developed by individual team members

- Integration and system testing
- Submission of the project report and the software along with the relevant documents

**List of Final Deliverables**

- Project Proposal Document
- Project Management Document
- Software Requirements Specification
- Technical Design Document
- Unit Test Cases and Results
- Code
- Integration/System Test Cases and Results
- Project Report
- User guide
- Timesheet

## Project Schedule

- **Project Start Date:** 20-01-2014
- **Estimated Project End Date:** 30-06-2014
- **Estimated Total Time (in Hours):** 480 person hours

## Hardware Requirements

- An x86 based PC per team member
- At least two Android phones
- A GSM phone to act as the GSM modem for the server to send and receive SMS texts

## Software Requirements

- Android SDK, version 2.3 (Gingerbread)
- Eclipse, version Indigo with ADT (Android Development Toolkit) plug in

## Architecture/Design

- The Model-View-Controller (MVC) pattern will be used.
- The database design will be done by all team members together.
- Each member will implement 2-3 use cases.
- Integration will be done.

## Technology

- The entire application will be written in Java (at least to the maximum possible extent.)
- MySQL database system will be used on the server to store the application data.