Bus Tracking using GPS – TRACK

Mini Project

IBM Career Education

Disclaimer

This Software Requirements Specification document is a guideline. The document details all the high level requirements. The document should be used as a guideline by the students to design the Solution Architecture for the project. The document also describes the broad scope of the project and high level logical object model. But while developing the solution if the developer has a valid point to add more details being within the scope specified then it can be accommodated after consultation.

INTRODUCTION

The purpose of this document is to define scope and requirements of an Automated Bus Service Tracking using GPS - TRACK for a leading State Transport Corporation (SRTC). The proposed system will provide a real time tracking of all the bus services plying on various routes to significantly enhance the customer service by:

1. Providing a real time view of the required bus service to customers.
2. Ensuring “on-time” service by managing routes in real time.

This document is the primary input to the development team to architect the solution the project.

System Users

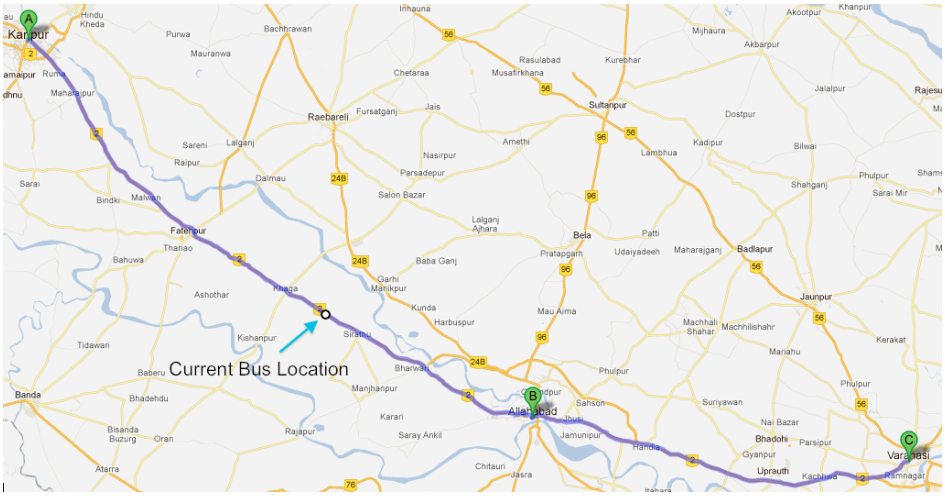
The customers and the administrative staff of the State Road Transport Corporation will primarily use the TRACK system.

Assumptions

1. Typically GPS updates are received over the cellular network either using periodic SMS stream or small data packets using Edge or 3G networks. Such GPS devices are mounted inside the vehicle. In our case, we will accept these inputs on a simple web-based data entry screen.
2. The data pertaining to the routes will also be uploaded using a CSV file.

REQUIREMENTS

TRACK will display the current bus location on a Google map along with the complete route for the required bus service. Following example map shows a route for bus service plying between Kanpur and Varanasi via Allahabad.



Basic System Operation

1. The system will accept the “bus service number” on a page and on clicking “submit” button, it will display the route map for the required bus service. This bus service data is uploaded in to the system in CSV format.
2. The system will display the last updated location of the bus on this map. This page will be continuously refreshing itself at regular interval (say every 30 seconds).
3. Another screen will allow manual update of location data for a bus service. Every such update will show the new bus location on the Google map on the next refresh.

Bus Service Data Input

The TRACK software will receive the input in a CSV whose format will be as follows:

Bus Service	Seq	Station	Latitude	Longitude
323	1	Kanpur	26.460738	80.333405
323	2	Allahabad	2	…
323	3	Varanasi	1	…
634	…	…	…	…
.	.	.	.	.
.	.	.	.	.

The “Seq” highlights the sequence in which the bus will pass via various (bus) stations. The station’s exact location on the map is tracked from its latitude & longitude.

Bus Service Location Updates

This screen will accept the “bus service number”, “time stamp”, “latitude” and “longitude” data. Every update from this screen will add a new row in a table with the above data.

DEVELOPMENT ENVIRONMENT

TRACK will be developed as a web application using Java/JSP and DB2 database. Eclipse will be used as the IDE for the same. Google Maps will be used to create the mash up. Basic Google Map Parameter details can be found at http://mapki.com/wiki/Google_Map_Parameters URL. More details can be found at https://developers.google.com/maps/ URL.