

Implementation on Real Time Public Transportation Information Using GSM Query Response System

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Abstract

Buses transportation system is one of the busiest systems in the world. Transportation of goods and people is essential to fiscal and human progress and the accessibility of secure and unswerving transportation can have wide implications. Bus schedules notify user of a civic bus scheme when the buses are believed to depart terminals and when they are supposed to arrive at significant stops, but actual arrival and departure times show a discrepancy from the planned times. This may be due to various reasons like traffic jams, traffic lights, and outsized numbers of people travelling on the bus. In addition to having a admittance to the schedules, users akin to be conversant of the real circumstances so that they can plan around deviations from the schedule. Various technologies like GPS, GSM and embedded system in order to provide the user more comprehensive information about the real time location of buses and prediction of the travel time in accurate.

Keywords: Global Positioning System (GPS), Global System for Mobile Communication (GSM)

1 Introduction

We propose a solution that uses the real time location of the bus using GPS and prediction of the travel time of the buses, to provide the users more detailed information which is accurate. A combination of technologies like GPS, GSM and embedded systems will be used for the implementation of the system. The technology use of GPS provides the real time location of the bus on a continuous basis whereas GSM acts as communication medium and the embedded system is used in the bus device to manage the operation of GSM and GPS.

2 Existing Approach

Growing traffic congestion has posed threat to the quality of life of people in many countries over the past few decades. Congestion leads to a decrease in accessibility, travel time loss and air Pollution. In developed countries still most of the people use private vehicles. A good public transport is necessary to maintain and improve quality of life by providing mobility and accessibility. Moreover, it helps to secure the environment, brings economic development and increases social cohesion. Predicting onset time of buses is a key challenge in the milieu of structuring smart public transportation systems. In earlier research, an proficient non-parametric algorithm is described which states extremely precise predictions based on real-time GPS measurements[1]. In these approaches, The technological developments of the transportation bodies are still poor, Automation of operations is not given importance, Check-in process still follows old methods and Accurate information is not available for the computers.[4],[5],[6].

3 Proposed Approach

In this proposal, three segments are implemented. The first segment is the users who request the information of the buses. The second segment is a device fitted in the bus, which provides real time updates about the location and the travel of the bus. The third segment is a central server, that interacts with the device in the buses and gathers the location of the various buses and when required gives this information to the user. The Information is not just about the number of a bus or the route of the bus, but more detailed information in terms of the current location of the bus and also the expected arrival time of the bus. In addition to this the seat position in the bus will also be included. The project will implement a query responses structure, where in even a user who does not know anything about the

place and just knows his starting and destination will be able to make use of the system. The device in the bus could be made to do dual function of ticketing as well as communicating with the server. There by the device already know the ticket status and the seat availability status in the bus. This device will be the replacement to the device used by the conductors for generating the tickets in the buses. In this manner the user knows the number of buses for a particular direction or route which is provided by the server based on the request.

4 System Implementation with Result

a. Querying user

User sends the request to central server using mobile phone and its passing the central server through GSM. Central server gathers the location of the buses.

b. Data Field

Users query the bus location to central server. Receiving the user’s request, the central server connects with bus device which has GPS receiver. GPS receiver finds and sends the current location of the bus to the central server. [2][3].

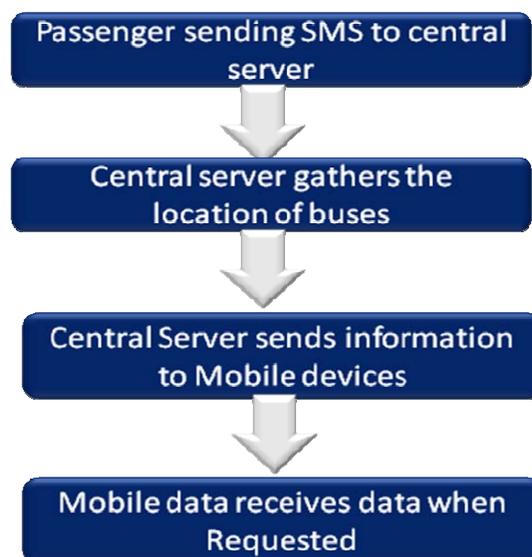
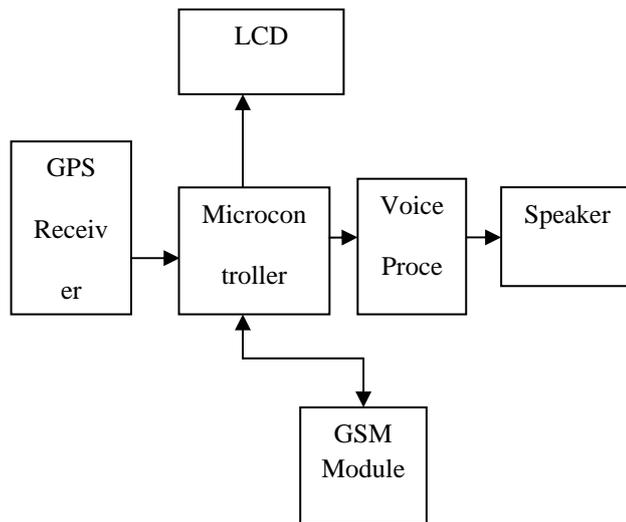
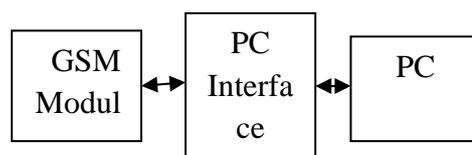


Fig 1: Flow of proposed approach

The above Fig1. Represents the flow of the proposed approach whereas user requesting the location of bus to tollfree number and central server responding to the user.

Bus Device:**Server Side****Fig 2: connection of proposed approach**

In this Fig.2 we have the connection diagram of both server and bus side system. For both here common is the GSM module which sending and receiving message.

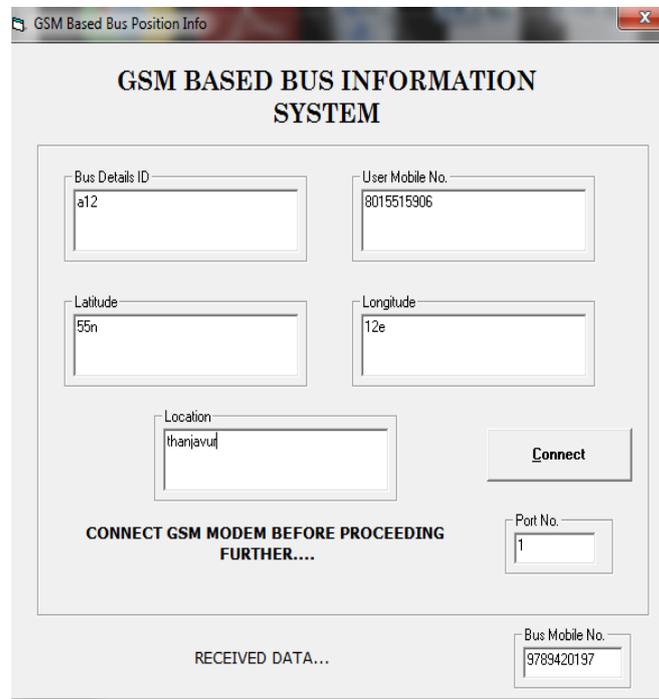


Fig 3: Output of user

The GSM based information system output shown in fig.3.

5 Conclusion

The “Real Time Public Transportation Information using GSM Query Response System” has been developed to satisfy all proposed requirements. The system is capable of tracking a large number of buses simultaneously, detecting their service routes and directions automatically, and predicting their arrival time to downstream stations with an acceptable accuracy. Minimal efforts required by the computers for acquiring the information which are transferred through simple SMS conversation. Future plans are, Bus location and arrival time can be used for research purposes by organizations or institutions to learn about what a person looks at most in a day. This can be used to provide information specific to those area to the particular customer on his/her next visit to the software. The system is capable of tracking a large number of buses simultaneously, detecting their service routes and directions automatically, and predicting their arrival time to downstream stations with an acceptable accuracy.

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