BUS MANAGEMENT SYSTEM

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Abstract: Bus provides eco-friendly, cheap, convenient, time-effective means of transportation. Bus lack regularization and management, due to which they increased the burden on public transportation system. Unusual and unexpected conditions on the roads affect the smooth operation of the bus system and the movement of vehicles. Problems faced by passengers such as traffic congestion, unexpected delays of buses, unorganised bus dispatching from depots takes place as a result of which passengers have to suffer a lot and they inevitably have to wait for arrival of buses. In present time, everyone is in hurry to reach their destination. In this situation, waiting for the buses in queue is not reliable. People who completely rely on the bus transportation, their major concern is to know the real time location of the bus, the time it will take to reach their bus stop, the information about the driver and the security. This information helps people in making better travelling decisions. This RFID-Based Bus Management System is useful, accurate, secure and flexible. In this Global Positioning System (GPS) and Radio Frequency Identification Tags (RFID) is used for obtaining the location of bus and information about passengers and driver. The paper aims at developing a real-time RFID-Based Bus Management System which focuses on providing convenience and safety to the passengers. The system will be working as an integrated function of RFID and GPS which will maintain the detailed information about passengers and bus. The main objective of this system is to develop flexible, user friendly and secure bus management system that caters the needs of passengers.

Keywords: Passenger inconvenience, RFID, GPS, management, Security.

I. INTRODUCTION

Since old times, buses are used as the most widely accepted means of transportation.[5] They provide convenient, cheap mode of transportation and hence is popular.[8] But there are certain problems regarding use of bus as means of transportation like safety of passengers, availability of buses, delay of buses due to traffic congestion at local area.[2] A system having barcode scanning software program is used for managing all the buses by scanning individual bus which is very difficult and time consuming task for the company. [1] Therefore, for reducing the difficulty of managing the buses and improving the facility and security to the passengers, a bus management system having GPS and RFID is planned which is used to find the current location of bus and in obtaining the information of the passengers and drivers.

II. LITERATURE REVIEW

Due to rapid increase in population and no proper system, there is need for efficient bus management system.[3] Initially, buses lack regularisation and management. There is increased burden on bus transportation because most of the population relies on the bus. Therefore, remote users need a real time system which provides real time information of bus. The management of the buses was still left unaddressed no grounds for the safety of the passengers was put forth.[4] Hence this gave rise to the need of a reliable, user-friendly and real time Bus management system.

A. *Drawbacks:*

- No proper scheduling.
- No information about routes.
- Non availability and delays of bus.
- No proper safety of passengers.

III. PROPOSED SYSTEM

So we proposed a new system which solves the drawback of current system. Our system handles all the data like current location of bus, management of buses, its schedule and security of passengers. Some technologies like GPS, RFID are used for development purpose. Our system provides the relevant information regarding all the buses from source and destination with the route details, real time location, availability, and passenger's information and security, and driver details. Generally, our system is operated by two modules these are:
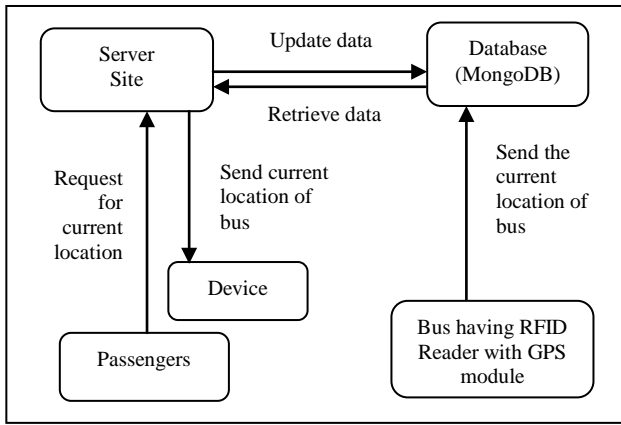
A. Module 1

Figure 1.   The Basic System of GPS.

Bus Management System is operated by GPS which is synched with RFID Reader. GPS from satellite receives signals, and then position co-ordinates with latitudes and longitudes are determined by it. The location is determined with the help of GPS and n transmission mechanism. After receiving the data the tracking data can be transmitted using any wireless communications systems. Figure 1 shows the basic system of GPS.

B. Module 2

The journey begins with the boarding of the passenger in the bus. The user upon boarding tucks his RFID card in the sensor and thus marks his entry point after the tuck in of the card, a message is sent to the passenger on the contact number provided by the passenger. Upon reaching the destination, a passenger again tucks his RFID card and thus marks his exit point. This is followed by a message being sent again to the passenger. The whole module depicts the journey of the passenger being carried out in efficient manner. Figure 2 shows the basic system of RFID.
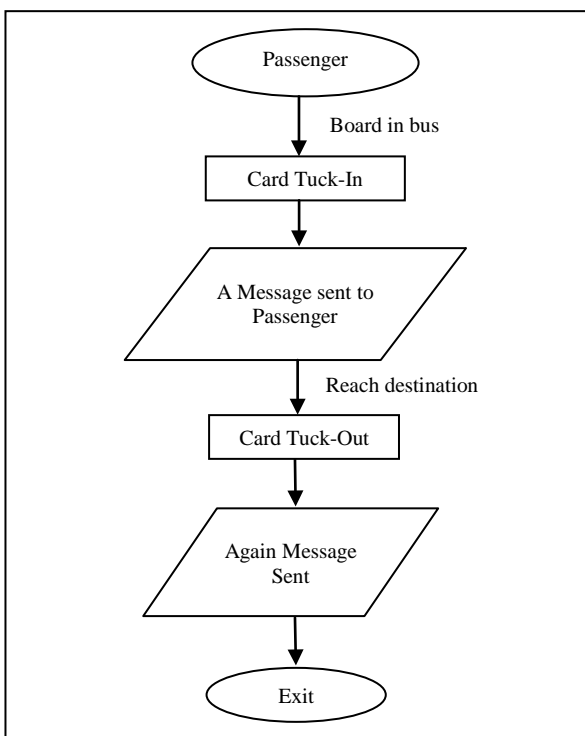

Figure 2.   The Basic System of RFID.

C. Description

1) RFID: Radio frequency identification is one of the most innovative technologies and promises important benefits to customers and business in object location and identification. RFID is a generic term that is used to describe a system that transmits Radio frequency and identification is used for the identification and tracking of the objects. It makes the use of electromagnetic fields and tags or labels. Tags are attached to the objects that need to be tracked or identified. Information is stored electronically in the tags. [7] Integrated circuit which is used for storing and processing data, a means of collecting power and an antenna which is used for transmission of signals constitute an RFID tag. RFID card reader is used to read RFID tags.[10]

2) GPS: GPS used for calculating position from signals sent by a network of satellites. To accurately determine the position and able to determine the strong signals.[6] It is easy to use, mobile friendly, interactive user interface and designed to communicate with the wide variety of GPS devices. GPS receivers are much simpler, it provides only the latitude and longitude position and rest was on account of the user who wants to calculate the map.[9]

IV.   ANALYTICS

The bus management system avails proper scheduling of buses, availability, routes, real time location. The availability of buses is uncertain especially on peak hours for which passengers have to wait for longer duration of time. Through analysis of data we can resolve all the conflict caused by miss-management of buses. With the help of analytics all the problems caused such as proper scheduling of buses, waiting of buses for a longer period of time and also real time location of the buses.

V.   CONCLUSION

In this paper we have reviewed a various existing techniques of bus management system. By implementing those ideas, we can improve the transportation safety and the quality of services of the buses. The system will have latest technology and optimized algorithms with moderate cost. This system gives the information about the bus location, arrival, routes and passenger details. The proposed system is more users friendly. And it also gives greater performance. The system may focus on accurate arrival time prediction and real time position of bus and also provide some security to the passenger.

VI.   REFERENCES

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