

Intelligent Transport System for Real Time School Bus Tracking For Safety and Security of Child Using GPS

Ruturaj Shelake
Student
Computer Engineer

Reshma Chavan
Student
Computer Engineer

Raju Rai
Student
Computer Engineer

Mangesh Manake
Project Guide
Computer Engineer

D.Y. Patil Institute of Engineering and Technology, Ambi Pune University, India

ABSTRACT: Schools are obliged to provide a safe transport system for kids so they can focus on their studies. Parents are as concerned about the safety measures a school has in place as they are about the level of education they expect the school to impart on their child. One way schools can ensure protection for their students is by using a Bus GPS tracking system. A high end GPS system is installed in the school vehicle all the signals from the vehicle are routed to an integrated central server for real time monitoring Information from the server can be transmitted via message alerts and Emails, or can be checked on the web or using mobile apps. What are the features of School Bus GPS Tracking System? The parent is informed estimated arrival time of their child's bus before it reaches the stop before/after school. Guardians can track the area of the transport progressively utilizing the application. Parents without smart phones can use the know your bus feature to receive a text message which informs them of the current location of their child's bus. In case there is a traffic jam, natural calamity or any other problem, an text message is immediately dispatched to the parent informing the reason for delay Benefits of GPS Tracking for School Buses. The advantages of using GPS tracking systems in school buses are plenty. The most important benefit is the peace of mind it provides parents as

they are continually updated of their child's whereabouts.

School management will have access to detailed reports such as distance moved by each vehicle, time of arrival at each stop etc which can prove to be invaluable. The school admin can review routes to ensure that the drivers are sticking to planned routes and aren't missing any stops. The transport manager is also informed via alerts if the drivers over speed or if the vehicle has been in an accident.

KEYWORDS: Computer Communication Network, I.C.2.0 General, Data Communication, Open System Interconnection Reference Model, Security and Protection (e.g. Firewall), Mobility, Network Operations, Public Network, Distributed System, Client Server.

I. INTRODUCTION:

Today, most of students are traveling to school by school buses or school vans. Guardians imagine that their children are secure when they go by school transport. But are they really safe? There are many common problems such as students getting kidnapped out of school, bus getting delayed in traffic and your kid is last one to get down in bus and is alone in bus. So we can't exactly say that they are safe with school bus. What, if it is possible to track the bus? Find out whether they are in trouble? Or even why they are late? And also, are you fed-up with calling here and there?

“School bus tracking project can be introduced to overcome these problems. In proposed system it will continuously send text message to the user containing longitude and latitude of location of school bus. Once user or parent receives the message, then by using those data and Google maps the user could easily track the bus. By propose system school management will be able to figure out the distance each bus travels, recognize stops where students are being picked up, how long until it arrives and even number of students remaining in the bus. And also this will enhance operational efficiency and saves money. GPS Tracker project is required to improve the safety of school children and remove unwanted money wastes. Traffic in the school time is one of the headaches which everyone faces. By enhancing this project we can make additional services to the society other than school children’s safety. By the daily traffic analysis the bus can sent through the most suitable route which will help to reduce the traffic in the urban areas (one solution to the urban crisis). And also this will enhance operational efficiency and saves money. GPS, GSM technologies are merged into school bus tracking device and it is a compact unit. Being a single piece of hardware, it is relatively effortless to install this device in quick time. The quality of hardware ensures there would be minimum maintenance required and provides the maximum service to the user.

II. PROBLEM STATEMENT:

To design a web based application for the users who want real time information about the estimated time of arrival (ETA) buses in the School. Use of centralized server to share the calculated ETA to bus student through any convenient way to Real Time School Bus Tracking For Safety and Security of Child Using GPS.

III. LITERATURE SURVEY:

Paper 1

Title:-A Trip-detection Method for Smartphone-assisted Travel Data Collection.

Year:-2015

Description:- This paper introduce a new method to automatically detect trips/trip segments based on the instantaneous movement attributes of individuals that can be collected automatically by smartphone sensors. The goal is to enhance the accuracy of collected data by better identifying single mode trips/trip segments, while minimizing participants involvement and preserving battery life. The proposed system works independent of external databases and can be implemented in smartphone applications to enhance the accuracy of collected data and minimize the required data transfer. The implementation of the model increased data accuracy, in terms of the duration and length of recorded trips. Such as the GIS database of the study area, as well as the history of participants travel activities. However, this enhancement is subject to the availability of these external data sets for a specific study area.

Paper 2

Title:-Tracking and Behavior Reasoning of Moving Vehicles Based on Roadway Geometry Constraints

Year:-2017

Description:- The paper presents unified frameworks to simultaneously track the vehicle motion and infer the behavior of vehicles. The IMM filter was used as a basis of unified tracking and behavior reasoning because the IMM filter can simultaneously infer the vehicle behavior by finding the appropriate behavior model based on the model probabilities and estimate the vehicle motion by weighing the filtering result of the selected behavior model. The experimental results show that the heading accuracy improved compared to the tracking algorithm within the Cartesian coordinate system.. This accuracy improvement can enhance the performance of the vehicle motion prediction for the motion planning system. Furthermore, the behavior reasoning results can also be used to improve the motion and behavior prediction.

Paper 3**Title:-A Data-Driven Method for Trip Ends Identification Using Large-Scale Smartphone-Based GPS Tracking Data.****Year:-2016**

Description:- Global Positioning System (GPS) is widely applied for survey in the transportation field. The vehicular GPS equipment or smartphone-based GPS applications record travelers trajectory. At the same time, these travelers are prompted through Internet, telephone interview, email, paper-and-pencil based questionnaire, etc. to collect information about their socio-demographics, as well as verify the travel records.

Paper 4**Title:- Comparison of advanced imputation algorithms for detection of transportation mode and activity episode using GPS data****Year:-2016**

Description:- Various procedures have been proposed in the literature to identify activity-travel patterns. A common approach is to detect activities and trips in separated steps. First, trip ends are detected to divide the full sequence into segments, and then the transportation mode for each trip segment is inferred well time is normally used to identify trip ends. This procedure involves the risk that any error in detecting trip ends may propagate into the process of mode detection. As an alternative, one can detect transportation mode and activity episode simultaneously.

Paper 5**Title:-Processing GPS raw data without additional information.****Year:-2008**

Description:- The GPS data was collected vehicle-based or person-based. In vehicles are usually equipped with GPS loggers that record only, when the engine of the vehicle is running. Accordingly, the detection of individual trips is relatively easy using the time differences between the recorded points. In addition, short stops during which the engine is not turned off can be found fairly reliably by identifying times when the speed of the vehicle is zero. However, there are also some short comings related to vehicle-

base data. First and foremost, all other modes are omitted, even though they are essential for the analysis of transport behavior in an urban environment. Second, the real trip origins and destinations have to be guessed since only vehicle movements are recorded. Therefore, person-based GPS studies have recently become more popular, although they raise the requirements for the post-processing procedures considerably.

IV. CONCLUSION:

Using Intelligent Transport System For Real Time School Bus Tracking For Safety and Security of Child Using GPS developed an Android Application to track the School buses and provide relevant information to their users. This described the design and architecture of our school bus tracking system. Our system is composed of smart phones and a server. The system is able to demonstrate its performance to track school bus from any area. Furthermore, our system is low cost as it doesn't require any external hardware for location tracking. A feature can be added for parents, where they could be given a privilege of receiving a text message that bus safely as soon as they get into the bus. A Real Time School Bus Tracking Application which runs on Android smart phones. This enables parents to find out the location of the bus so that his/her child won't get late or won't arrive at the stop too early. The main purpose of this application is to provide exact location of the students respective buses in Google Maps besides providing information like bus details, driver details, stops, contact number, routes, etc. This application may be widely used by the college students since Android smart phones have become common and affordable for all. It is a real time system as the current location of the bus is updated every moment in the form of latitude and longitude which is received by the students through their application on Google maps. The application also estimates the time required to reach a particular stop on its route. The application uses client-server technology.

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