



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 Issue: XII Month of publication: December 2019

DOI: <http://doi.org/10.22214/ijraset.2019.12030>

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A Survey on RFID based School Bus Monitoring and Attendance System

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Abstract: This is a system to monitor the daily bus pick-up and drop-off of children to enhance the overall safety of the daily bus transportation to/from school. In this project we focus on a particular risk associated with the daily bus trip to and from school. The system aims at automatically detecting when a child boards or leaves the bus and issue an alert message when a child does not board or leave the bus to reduce the parents' concerns about using the bus for the daily transport of their children without being lost or forgotten.

I. INTRODUCTION

Children's wellbeing is at most significance to their guardians. Despite the best wellbeing measures, kids because of their absence of abilities to secure themselves may find in a circumstance that harm their life (for example going across the street without focusing on traffic). In this project we are focused on specific hazard related with the everyday transport to and from school. There have been past occurrences where a youngster is overlooked in the transport and end up died as a result of suffocation. To improve transportation wellbeing, a few schools utilize a transport supervisor to take care for the kids inside the transport. In any case, human oversight or absence of supervisor may lead to a terrible incidents as in the recently happened to stories. This is a system to monitor the everyday transport get and drop-off of children to improve the general awareness and care of the day by day transportation to/from school. In this project we focused on specific risks or hazard related with the everyday transporting of students to and from school. The system goes for consequently identifying when a student loads up or leaves the bus and issue an alarm message when a kid doesn't load up or leave the bus to reduce the guardians' worries about using the transport for the everyday transport of their kids without being lost or forgotten.

II. DIFFERENT TYPES OF SCHOOL BUS MONITORING AND ATTENDANCE SYSTEM

A. Children Safety and School Bus Tracking Solution

Despite of the severe majors taken for children's security by the officials the wrongdoings over kids are expanding on huge sum. To limit these wrongdoings it is critical to improve security for kids. Setbacks and missing of kids are making guardian stress over their kids. School authority might be punished intensely for these disasters, so school transport checking is a powerful major to limit these setbacks. This paper proposes an installed system which is focused on kid's wellbeing, following of school transport and correct area of school transport with the assistance of GPS and sending data through SMS. Every student has a RFID tag without anyone else smartcard which is valuable for distinguishing the student. Two IR sensors are utilized to check whether a student is showing up or leaving transport. Thus, we have proposed "LPC 2148" based system which gives a total answer for students' wellbeing and school transporting.

1) Block Diagram

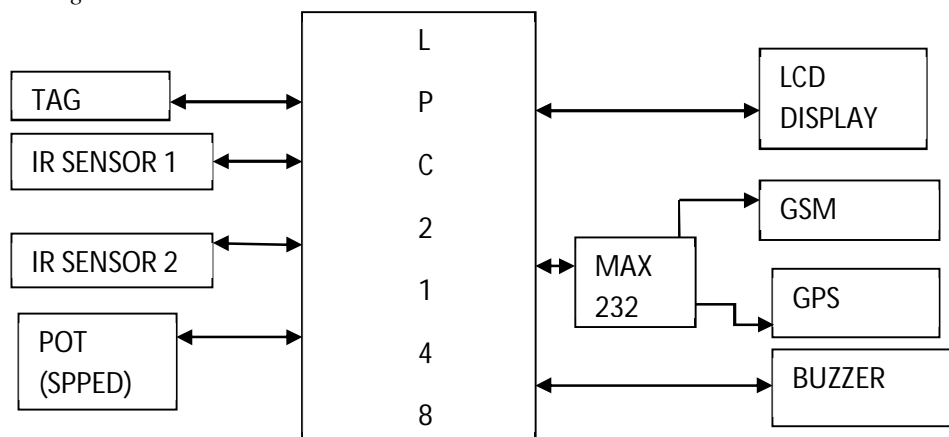


Fig. Block Diagram.

2) *Performance*: Radio Frequency identification is used to transmit Information of an action with the use of radio waves. This information includes particular digit number which different for various devices. An RFID device is made up of exceptional components viz. RFID tag and RFID reader. There is a microchip antenna inside tag. This chip consists of useful details in different forms. Children bring a unique RFID card. This RFID card is embedded on his own identity card. When student is in or out from bus, reader will get a response and this information is being given for next process. This secured statistics records does not require any interference from driver or student. The machine will notify guardians by means of SMS on every occasion children enters or leaves school bus, this will make guarantee to parents that their children is correctly reached to school. Along with notifying guardians, faculty management also gets a SMS of every student travelling. Count through IR sensor will ensure this is bus is vacant or still any kids are remains in school bus. GPS technology is tracking your vehical and continues tracking on them. This monitoring system is useful to tell you approximately area and route travelled by bus.

B. School Bus Tracking & Monitoring System

An increased concern amongst parents today is the safety of their children on their journey back and forth from school. A cheap and efficient solution for schools to ensure parents about the safety of their children during transit and keeping them updated all time can be provided by the GPS enabled school Bus Tracking System. Continuous tracking and positioning of the school bus can be implemented using GPS enabled devices at bus which can only be accessed by authorized personnel so that tampering of the device is prevented. The device software can be programmed to manage location coordinates, access to a central server, maintain schedules, and unauthorized trips. The features of the system can also help identify aggressive trends and habits of the driver. This system provides an alert to the school administration and keeps parents updated in case of any emergencies besides notifying guardians on boarding and leaving of students from the school bus. The school bus tracking system is a matter of students safety and requires efficient and accurate equipment.

1) *Block Diagram*

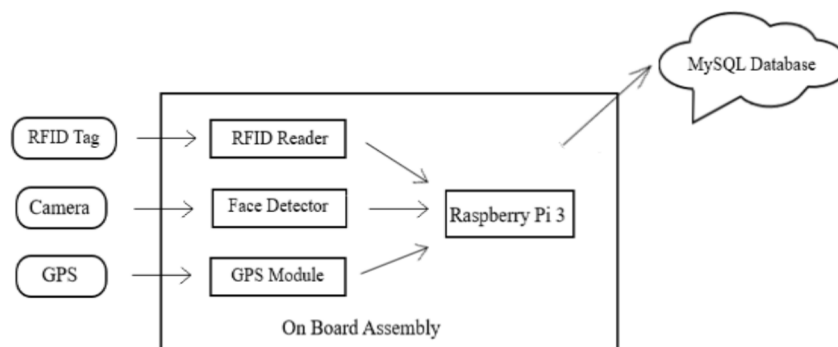


Fig. Block Diagram.

2) *Performance*: In this system the main objective is to monitor school bus. The parents of students and the school authorities will get the extra features and have complete monitor and surveillance on school bus on any route. In this project there is sensor network connected with the internet and a mobile application which we use to send the data as SMS to parents. This project system uses MQTT instead of HTTP for data transmission purpose. It is completely tested and ready to implement project. We should consider the server, drainage system and collision avoidance system for future scope.

C. College Bus Tracking System Using GPS And GSM

School transport Tracking System (SBTS) is the innovation used to decide the area of a vehicle utilizing various strategies like GPS and other radio route frameworks working through satellites and ground based stations. By following triangulation techniques the following framework empowers to ascertain simple and exact area of the vehicle. Vehicle data like area subtleties, speed, separation voyaged and so forth can be seen on a computerized mapping with the assistance of a product by means of Internet. Indeed, even information can be put away and downloaded to a PC from the GPS unit at a base station and that can later be utilized for investigation. This framework is a significant instrument for following every vehicle at a given timeframe and now it is getting progressively prevalent for individuals having costly autos and henceforth as a robbery aversion and recovery gadget.

- a) The framework comprises of present day equipment and programming segments empowering one to follow their vehicle on the web or disconnected. Any vehicle following framework comprises of for the most part three sections portable vehicle unit, fixed based station and, database and programming framework.
- b) *Vehicle Unit:* It is the equipment segment appended to the vehicle having either a GPS/GSM modem. The unit is arranged around an essential modem that capacities with the following programming by accepting sign from GPS satellites or radio broadcast focuses with the assistance of receiving wire. The controller modem changes over the information and sends the vehicle area information to the server.
- c) *Fixed Based Station:* Consists of a remote system to get and advance the information to the server farm. Base stations are furnished with following programming and geographic guide valuable for deciding the vehicle area. Maps of each city and tourist spots are accessible in the based station that has an in-fabricated Web Server.

1) *Block Diagram*

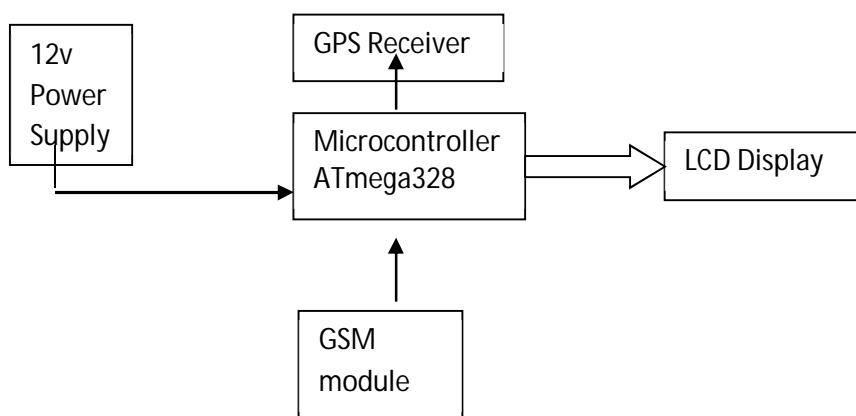


Fig. Block Diagram.

- 2) *Performance:* This task plainly utilizes two primary modules of GSM and a microcontroller. The client when sends the messages through his telephones those arrives at the GSM, through the AT directions every one of those messages comes to the microcontroller. That microcontroller takes the information regarding bits through the Max232. Those data will be transmitted to the LCD show. The microchip based framework is worked for controlling a capacity or scope of capacities and isn't intended to be modified by the end client similarly a PC is characterized as an implanted framework. An installed framework is intended to perform one specific assignment though with various decisions and choices. Installed frameworks contain preparing centers that are either microcontrollers or computerized signal processors. Microcontrollers are commonly known as "chip", which may itself be bundled with different microcontrollers in a cross breed arrangement of Application Specific Integrated Circuit (ASIC). When all is said in done, input consistently originates from an identifier or sensors in progressively explicit word and in the mean time the yield goes to the activator which may begin or stop the activity of the machine or the working framework. An implanted framework is a mix of both equipment and programming, each inserted framework is one of a kind and the equipment is profoundly spent significant time in the application area. Equipment comprises of processors, microcontroller, IR sensors and so on. Then again, Software is much the same as a cerebrum of the entire inserted framework as this comprises of the programming dialects utilized which makes equipment work. Thus, inserted frameworks programming can be a broadly changing encounter.

D. *Real Time College Bus Monitoring and Notification System*

In today financial and traffic condition nobody can predicts at what time and when the necessary transportation of an individual can show up. The point of the desk work to give an application which can be utilized for undergrads with the goal that they can deal with the time during all days conveniently and get to their vehicle point at the opportune time and not lose the transport or some other school transportation get gave by the school. I plan to utilize IOT and ideas with the assistance of Arduino to finish and execute of this item. This paper likewise intends to include highlight like gauge time of appearance, notice, understudies information base and so on.

1) Block Diagram

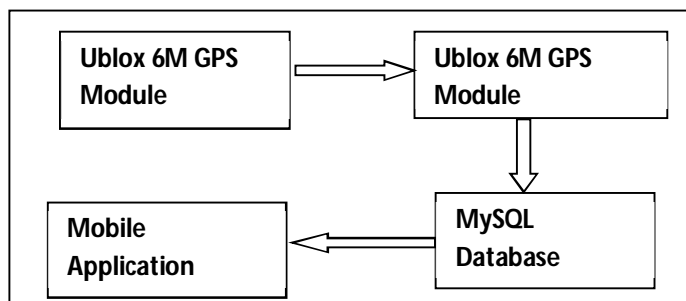


Fig. Block Diagram.

2) *Performance*: The functionalities of the proposed model incorporates following the area, the speed, the rundown of travelers which ought to be locally available and the course of the transport and plotting these data on a guide coordinate dosing the Google Maps API. The UI is of an android application which serves has the apparatus to find the transport, to appraise its season of appearance and tells the necessary understudy likewise. The application has the ID card of every single understudy how utilizes the transportation administration in a database and when the understudy login in with his/her roll no it appear. The application will likewise send you the warning on changes of the transport or transport course we have to take on a condition bases. Figure shows the general square outline and the progression of the framework. The equipment get together is kept at the passage of the school transport. The sensor incorporated to the microcontrollers the GPS framework. The GPS framework is utilized to follow the ongoing transport area and send the data to the server in like manner which is then utilized by the application that are utilizing to application to follow their vehicles areas and subtleties. The GPS module ceaselessly peruses the directions of the transport's present area and the speed at which the transport is voyaging which is along these lines perused by the microcontroller. The information is persistently transferred to server utilizing the Wi-Fi availability in the transport. The transfer information is then show the application for live following. This information additionally causes us in figuring the ETA. The portable application for the model chips away at the Android working framework. The application can oblige three sorts of client organization, understudies and drivers. On joining, the exceptional ID will be created the school for the future check. The understudies at that point should utilize a similar secret word with their roll no to login. A Google Map API is incorporated to the application UI to plot the area and course of the transport.

III. CONCLUSION

This is a creating venture with the assistance of the IOT and Android studio. This framework will be useful for the guardians just as educational system. Understudies are continuing following and current area of a kid can be identified utilizing this framework regardless of the incident or hijacking instance of a kid. In this venture we attempt to spare the hour of the understudies primarily and some personnel who utilizes the school transportation administration and we likewise will in general help them with simple and strain free mornings for a splendid and tranquil day. The later advancement and the precision of the venture rely upon the improvement in both equipment and programming. We additionally expect to build up this task for school and open transportation benefits soon.

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