



An IOT Project Integrated with RFID and GPRS

Arpitha B N¹ | Dr M C Padma²

¹PG Scholar, Dept of CS&E, PES College of Engineering, Mandya. India.

²Professor & Head, Dept of CS&E, PES College of Engineering, Mandya. India.

ABSTRACT

In current scenario there is no security for the students and parents find difficulty to monitor the safety of the children when they move to school. Children may hold wrong bus or they may get down at wrong stop they may left behind the school or in the bus or they might simply skip the classes. In schools attendance were taken manually that kills the time for the teacher to call each student name and mark the attendance This project is very useful for the schools administrator to keep track of each and every student and look after their security. The main purpose of this project is to give the security for the students and to give the information for their parents to reduce their work and to reduce the burden involved in day-to-day activity of the teacher by taking the attendance. This software helps in reduce the hacking of the password and it is stored in the encrypted form. This development provides user friendliness. The main benefit of this project is for the administrator and also for the parents to reduce their burden. The project can be accessed by the authenticated users only and its dashboard helps the administrator to know about the student who is present for the class. It will notify the date and time of the student got into the bus so that it will helps the parents to know about the student information. Each module is made up of several supportive models performing various operations.

KEYWORDS: Radio frequency identification, GPRS, GPS, Security, Tracking.

*Copyright © 2015 International Journal for Modern Trends in Science and Technology
All rights reserved.*

I. INTRODUCTION

This project helps to track the student when the student move to the school parents does not know where exactly the student is going and whether the child got inside the bus or not. Parents find it difficult to monitor the safety of the children and parents can't wait until the bus reaches the pickup point so the parents will drop their child in the pickup point the and they will continue with their work. If the parents returns before the school bus arrival the problem is that the student might hold the wrong bus and get down at a wrong stop or they left behind the school or in the bus or might simply skip classes and their parents does not know the information about the child whether their child is attending the classes or not parents may think their child is in class.

Manually attendance is taken where it is a time killing process to call each and every student name where more time was taken to take the attendance.

By using the RFID technology it reduces the burden of the teacher to call out each student name it takes automatic attendance through the reader it reads and it is stored in the database whenever it is required through the dashboard the attendance is fetched through the server using the admin user password to fetch the data. It increases the peace of mind to the parents and they can concentrate in their work.

Through the GPS system the bus can be tracked so that the administrator of the school can provide more security to the student and they can see the current location of the bus to know where exactly the bus location and route of the bus is shown to the driver to move the bus in the required route only and the current location can be seen by the parents also where exactly the location of the bus is by using the password that is given to them.

All these problem leads to missing of child where parents were not known that where exactly the

child got down from the bus. It is a burden to the parents to keep track of the child. Parents take action in case of missing child against the school authority because when the child reaches the school it is their responsibility to take care of the students and the school authority were penalized heavily in case of missing child and also the classes were missed by the students. It also improves the quality of the student information. If the student gets down at the wrong stop the information is sent to the parents so that they can take care of their child. The vehicle information can be taken by the parent to know in which bus their child is travelling information. Report can be checked to know about the information about the student.

II. LITERATURE SURVEY

RFID (Radio Frequency Identification) is a method of identifying unique items by using electromagnetic waves and the data is exchanged between the electronic tag and the reader attached to an object for identifying and tracking the object [1]. When a tag enters a read zone, its data is captured by the reader and can then be transferred through standard interfaces to a host computer, printer, or programmable logic controller for storage or action [2]. RFID systems consist of three components in two combinations: receiver and antenna are usually combined as an RFID reader. A responder and antenna are combined to make an RFID tag [4]. Student might hold the wrong bus and get down at a wrong stop they left behind the school or in the bus or might simply skip the classes. Applications require more ID bits as well as discrimination between multiple tags in the same locality for a fixed read time, each tag requires a higher data rate and thus a higher operating frequency [1]

RFID technology allow you to track the school child that records the date location and time is recorded in the database that helps the parents to know about the kid security better and by using RFID is to tracking the student using RFID technology in an effort to reduce the chance they get on the wrong bus, get off at the wrong stop or left on the bus after a route is complete [6].It displays the user's information when the stored tag is read by the reader. The serial interface allows connectivity to a local database for data storage and retrieval [7].

This technology allows you to track the school children without using the line of sight RFID allow parents to know about the student reached the school/home or not by sending the message to the

parents by using the GPRS system and for the school administration it will help in monitoring the attendance without taking time in the class hours [9]. RFID will help you to know whether the child has got down from the bus or not in the case of child fallen asleep where at the completion of the trip driver will not notice the child it will lock the door and go where the child may die due to suffocation.

When the student get into the bus the reader will read the tag that is present in the identity card where the data is sent to the system the data is then matched with the database present in the system [8]. The information is sent to the parents that the student has boarded the bus and when it reaches the school in front of the school a reader is placed that reads the tag present in the identity card and it will monitor the attendance where it takes less time instead calling out the more student names. Location and route helps the parents to know where the bus is exactly present and parents will be informed that within few minutes the bus will arrive to the respective stop.

III. EXISTING SYSTEM

Parents have to leave all the work and they have wait until the bus picks up the child. If the parent returns before the school bus arrival the problem is that the student might hold the wrong bus and get down at a wrong stop. If the kid gets down at the wrong stop the parents were not getting the information where exactly the child is. Students were missing the classes without any reason. Manually attendance was taken where it takes more time for the teacher to call out the student name.

IV. PROPOSED SYSTEM

Project basically used for the security and safety of the students and reduces the burden of the parents and it helps for the administrative management for proper tracking of the student and they can enhance the security of the student it reduces the burden of the teacher by reducing the time taken for the attendance. By using the RFID (Radio frequency identification) technique to solve the problem. RFID technology in tracking and monitoring child during their trip to and from school busses and the RFID student tracking system generate a message to the parent's phone informing them that their child has boarded the bus/reached the school. RFID in school can be used to automate attendance and save time as

teachers don't have to take attendance manually it reduces the time and reduces the burden of the teacher. It also extends to drivers, wherein, the driver will have to swipe in at the start of the trip and at the end. The driver is asked to check if there is still any child left on bus while swapping out it is done through the dashboard where it informs the driver that no of student present inside the bus so it helps the driver to know the left out students inside the bus. This prevents sleeping kids from being trapped in the bus due to driver's negligence. Using GPS we can know the current location of the bus and also the route of the pickup point. It is very helpful for school comities and parents to give more security to the student/child. Detail report is generated to see the data of the student safety.

Advantages:

1. With this project we can enhance the safety and security of the school student
2. We can automatically take the attendance so that it will help the teacher
3. By using the GPS system we can track the location of the bus
4. It reduces the waiting time of the student on the road
5. In case if the student get down at wrong stop then the information is sent to the parents immediately

V. SYSTEM ARCHITECTURE

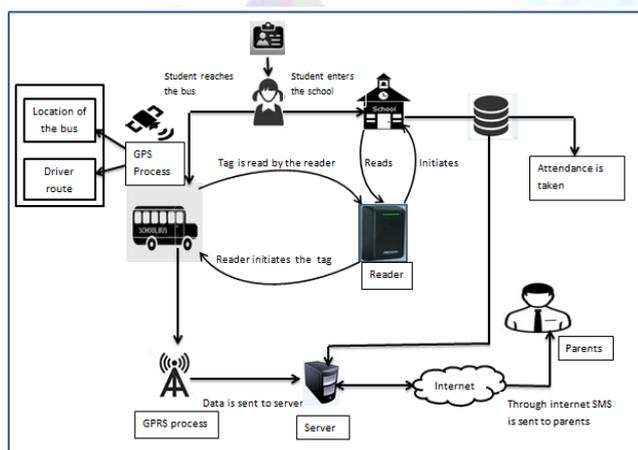


Fig: System Architecture

Modules

Administrator module:

Administrator module consist of many information entry forms where the information required data is entered into the form and that is stored in the server for the further use of the data in the next modules. Administrator takes all the data required from the student, teacher, driver and

the vehicle information. It also informs about the attendance when the student enters the bus.

- Student information
- Driver information
- Teacher information
- Vehicle information

GPRS module:

In GPRS module when the RFID reader reads the tag given to the student and through the GPRS kit SMS is sent to the parents through the internet. When the student enters the bus and exit the bus the information is send to the parents through the information taken from the administrator that is stored in the server that is fetched and through the internet the data is sent as SMS to the parents.

- SMS is sent to the parents through the internet

GPS module:

In GPS module the device of GPS is attached to the bus where it gives the longitude and latitude of the current position that is mapped with the Google maps where it will give the current location can be seen and route of the bus is shown. Current location of the bus can be seen by administrator and it can also be seen by the parents to locate where exactly the bus is moving. And for the driver it shows the route of the bus where exact route it has to move

- Current location
- Route

Server module:

In server module the data that is received from the reader is taken and the absent student is displayed and other information about the driver, bus information and driver information is displayed in the dashboard where the date wise information of the student can be seen by administrator and the information of the driver and vehicle can be seen in dashboard.

- Absent student information
- Student detail
- Vehicle and driver information
- Report

VI. CONCLUSION

The package is designed in such a way that future modifications can be done easily. The following conclusions can be deduced from the development of the project.

- With this project we can enhance the safety and security of the school student
- Reduces the burden of the parents
- We can automatically take the attendance so that it will help the teacher
- By using the GPS system we can track the current location of the bus
- Through bus route can be shown to the driver

REFERENCES

- [1] K. Finkelzeller, The RFID Handbook, 2nd ed., John Wiley & Sons, 2003.
- [2] R. Want et al., "Bridging Real and Virtual Worlds with Electronic Tags," Proc. ACM SIGCHI, ACM Press, 1999, pp. 370-377.
- [3] Stephen B. Miles "RFID Technology and application" Sanjay E. Sarma.
- [4] Susy d'Hont, "The cutting edge of RFID Technology and Applications for manufacturing and Distribution", Texas Instrument TIRIS, 2002.
- [5] Roy Want, "An Introduction to RFID Technology", IEEE Pervasive Computing, vol. 5, no. 1, pp. 25-33, Jan.-Mar. 2006.
- [6] L. Srivastava, RFID: Technology, Applications and Policy Implications, Presentation, International Telecommunication Union, Kenya, (2005).
- [7] J. Bohn, "Prototypical implementation of location-aware services based on a middleware architecture for super-distributed RFID tag infrastructures", Pers Ubiquity computing, (2008) Journal 12:155-166.
- [8] Stockman, H. (1948). Communication by Means of Reflected Power. Proceedings of the Institute of Radio Engineers. October. pp 1196-1204.
- [9] A. B. Smith, C. D. Jones, and E. F. Roberts, "Operational considerations in simulation and deployment of RFID systems", Journal, Publisher, Location, Date, pp. 1-10.