

Smart School Bus Transport Safety Using RFID,GSM And GPS

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Abstract –Ensuring the safety of students during school bus transportation is a paramount concern for educational institutions and parent alike. This project purposes a comprehensive solution leveraging Radio Frequency Identification (RFID) and global system for mobile communication (GSM) technologies to enhance the security and efficiency of school bus transportation.

Key Word: RFID, GSM Modem ,GPS Module.

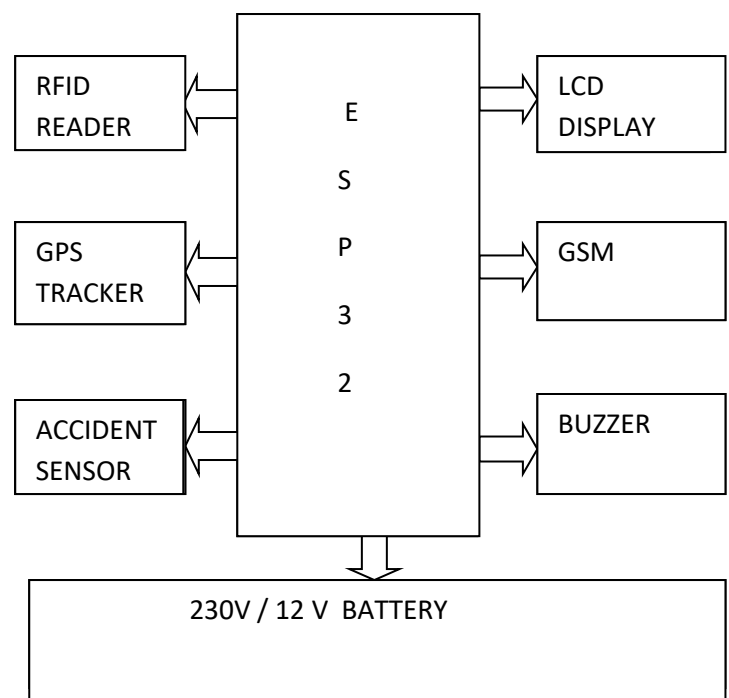
1.INTRODUCTION (Size 11io fre, Times New roman)

Children safety is most concern and priority of parents these days. Children are our most important resource ,but they lacks skills to protect themselves. So it is the responsibility of parents/ teachers and as a person ,to safeguard and to teach them the skills to be safe .Now a days most of parents are working due to which they are not pick up/drop off there children daily to/ from the school .Today ,most of student are travelling to school by school buses or school vans. Parents things that their children are safe if the travel by school bus.There are many common problems such are school bus getting delayed in traffic, school bus accident. This system provides best solutions in reducing the parent work load and shows the current location of the bus.

2. Literature Review

This paper proposed a bus safety system design to control the entry/exit of bus students. The system performs many tasks ,including the identification of personal information of each student using an RFID card ,which will exchange data with an RFID reader using radio waves and display the name of each student on the LCD screen. This will allow the student to know the number of student on the bus and the students who left the bus. In addition, the inside the system has an emergency alert system in case a child is inside the bus after the bus stop at the destination by sending a text message to the school admins using GSM modem. In addition ,if the bus leaves and arrives successfully from the source to the destination ,it will inform the administration via SMS of it's the proposed methodology is the use of efficient energy systems for supports tasks. Although it is not within the exact range ,the same data can be used to assess the time of departure and arrival, and the number of student traveling every day. If the accident will occur then the accident sensor sens the vibration and the system will send the SMS to parents number.

Table -1:Block Diagram



The system will use following components:

ESP 32: A low cost,low power microcontroller with wifi and bluetooth connectivity.

RFID Reader: Radio frequency identification technology is a faster growing automatic data collection(ADC)technologies and is a wireless communication that uses radio wave to identify objects or people.It comprises of one or more reader and RF tags/transponder through which data transfer is achieved using electromagnetic waves.

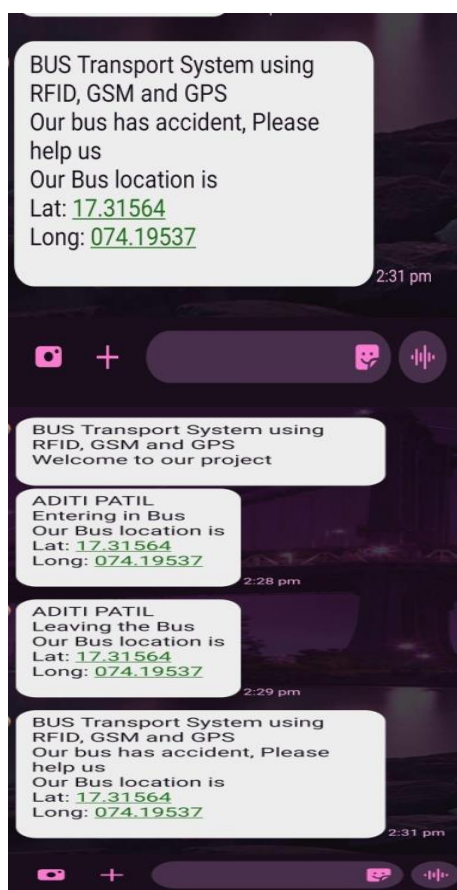
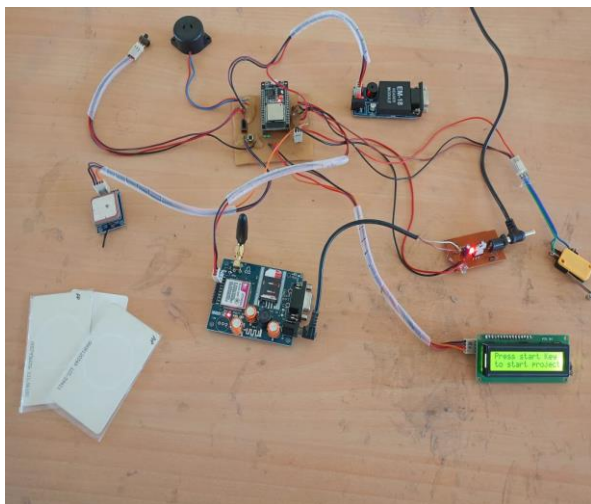
GPS Module: A sensor that determines the location of the device . GPS module continuisly sends data to the microcontroller.

GSM Module : GSM module sends data via SMS to user.Global system for mobile communication can be used to sends and receive SMS or make/receive voice calls.GSM modem is built with dualband GSM/GPRS engine.GSM/GPRS modem is having an internal TCP/IP stack which enables to connect it to the internet via SMS to users.

Accident sensor: A sensor that sens the vibration.

Battery: A backup power source for the system.

Result:-



3. CONCLUSIONS

The integration of RFID and GSM technologies for safety and security purpose is very important nowadays due to increase in accidents of children gets missed out at the bus which may lead to death due to suffocation. In this project, bus safety system for school children has been developed. Using this system, concerned authorities, bus driver can be alerted as it's visible from the RFID card. At the same time, in case if there was a student on the bus, the system will send an SMS message to the management of the school to take the right decision.

FUTURE SCOPE:

The work believe that not only security about a school child is concern which leads to gap between parents ,child and teacher. Another important factor affecting the relationship between this entities are studies .To solve that issues we incorporate the RFID based security system with the help GSM and GPS technology which helps the parent to better understanding child education this project also track able to track student anywhere at any time. The feature is plan to enhance with sending picture and video clips of the location where the child found. which gives detailed information about the location and situation to the parents and teacher and also finding the location of person at all the time.

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