
CHILD SAFETY AND SCHOOL BUS TRACKING SYSTEM THROUGH RFID

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Abstract:

A database containing various location details is stored in the memory of Arduino controller. This database is used in locating exact location of the bus. Also the informations stores in the RFID Tags of the students are made utilized by the RFID receivers situated in the school buses. If the particular student enters the bus and the drivers start the bus then the information is send to the parent's of particular students, indicating that the bus has been started from the current location and their child has entered or exited from the bus through messages. Once, if it reaches the next stop then the stop location message is being sent. Suppose if there is a breakdown, then the driver can trigger a button indicating about the breakdown and time taken to recover it. If the drivers chooses an alternate path instead of usual path then the alert message will be send to all the parent's and the management indicating that the route has been changed. In this way the student's safety is enhanced.

Keywords: *RFID Tag,RFID Reader,GSM,GPS*

I.INTRODUCTION

At presently the chances for the safety of the school children turns to a question. Though parent's drop and pickup their children from schools the safety precautions are very much to be considered. Even many kidnapping and murdering of school children is still prevailing in the society. Thus an attempt is made to enhance the safety of the school children during their travel to their school and back to their homes. An attempt is made to monitor the motions of the school children those who travel in their respective route buses. Starting up from the entry of the child into the school bus till he leaves the bus for school or back to home, all his activities are being monitored. If this attempt gets success then this can be implemented in larger level that enhances the safety of the children.A new improvement has been made by combining the features of child safety and the bus tracking systems in a single system. This would make use of new technology that is based on the Arduino Mega 2560 and it works on GPS/GSM module database containing various details about the student and the school bus stopping locations. This database is used in transferring the messages to the parents.

II.PROPOSED SYSTEM

2.1Block Diagram

The RFID tags are placed in the identity card of every student and when the student boards the bus they are instructed to show their identity cards having the RFID tags to the RFID receivers. The RFID readers then reads the datas and sends it to the Arduino Mega 2560 and that the messages are send to the parents of the particular student indicating the current status of the student along with the bus location through GSM and GPS. This provides an enhancement in the child safety and the bus tracking is also implemented so that the parents those who missed the particular stopping can make use of the latitude and longitudinal values received in their phones to catch the school bus in the next upcoming stop .The following block diagram explains the system in a better way.

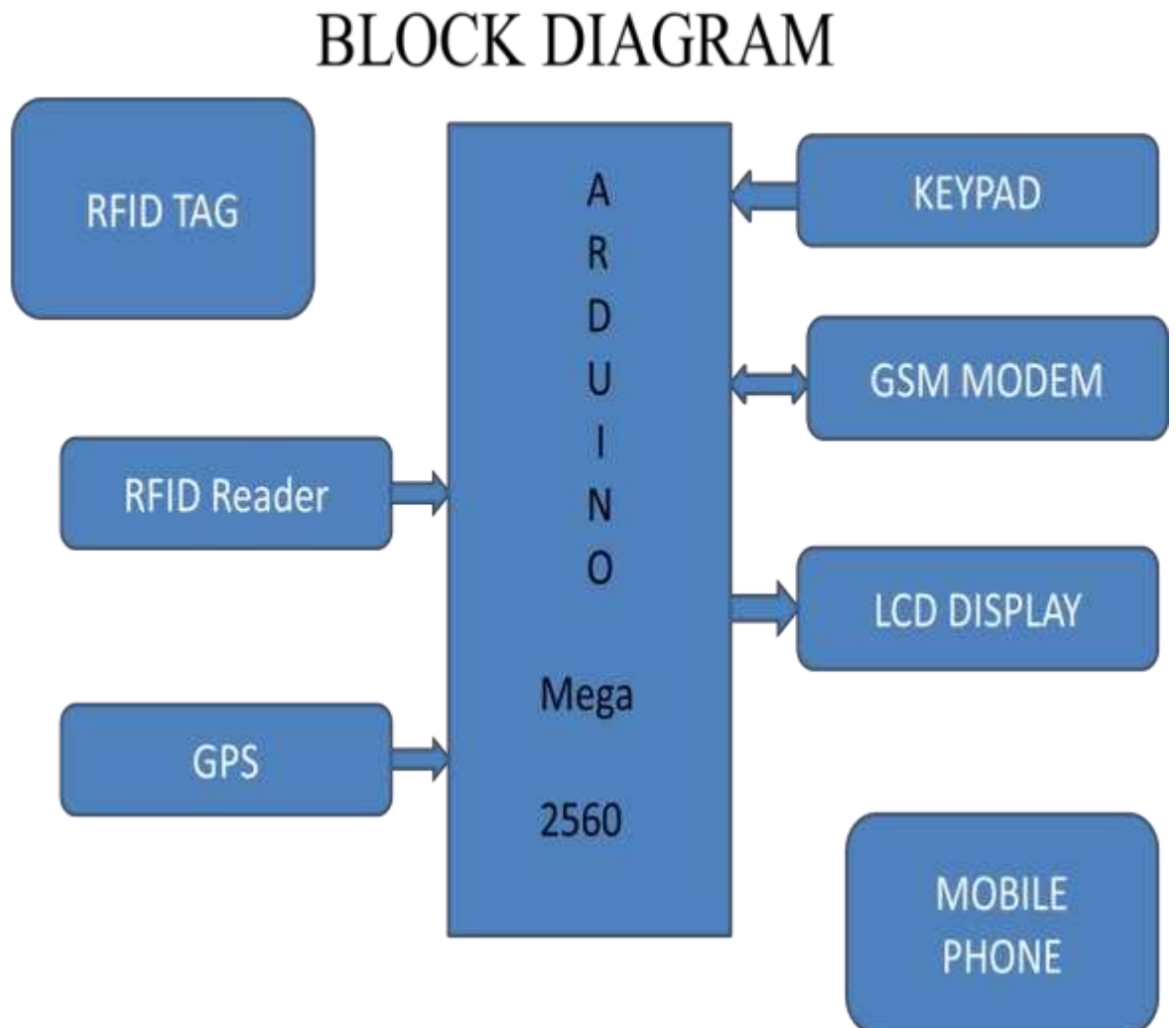


Fig.1. Block Diagram of Proposed system

2.2 Experimental Setup

The process can be well explained with the block diagram that initiates the details of the student from the RFID tag to the RFID reader through the radio frequencies. This is then processed in the Arduino Mega2560 that has 54 digital input and output pins and also 3 serial communication ports. When the information is processed, the particular parents receive the location message of their children through the GSM in their mobile phones along with the GPS locations. The similar message is sent to the school indicating the presence of the student in that particular stop gone through by that particular route bus along with the name of the driver. In case the student is absent with the knowledge of the parents, then that absence message is sent to the management by the driver of that bus. Similarly, when the child is not stepped out in his particular stop, then that message will be sent to the parent and to the management. Thus, the parents and the management could be able to analyze that their child/student is in an emergency situation. At this time, the emergency message is sent to the nearby cops. All these activities are done by the technology of RFID that uses the GPS and GSM technologies also. The RFID is used to transfer the data about the student to the parents and to the school management. While GPS is used in determining the locations of the bus with the clear values of the latitudes and longitudes. The GSM is used to send and receive the messages to the parents and to the management.

III. RESULTS AND DISCUSSION

Thus, on working with this project, the positives are able to attain from it. Thus, this shows the process of success rate for the further development and the future real-time implementation.

- 1) Test case 1: overall hardware output
- 2) Test case 2: Latitudinal and Longitudinal Values
- 3) Test case 3: Message received in particular parent's phone
- 4) Test case 4: Message received when child gets down the bus
- 5) Test case 5: Message is also sent when their child has entered in different stop

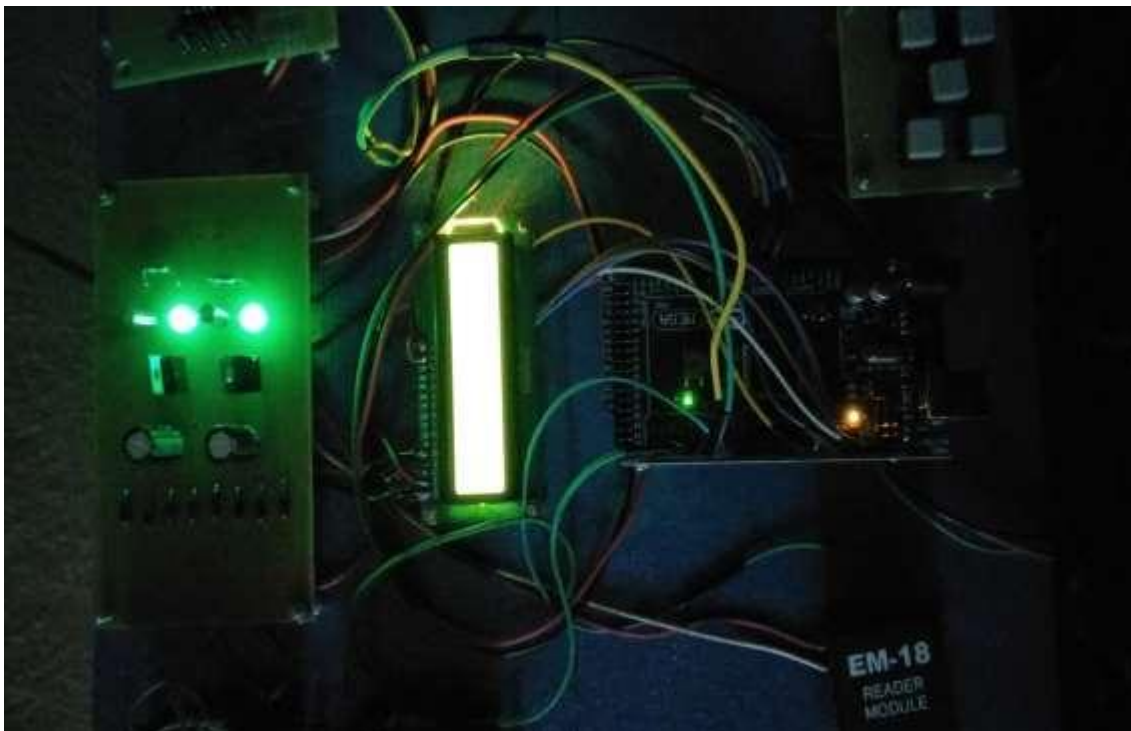


Figure 2 Overall Hardware Output



Figure 3 Latitudinal and Longitudinal Values



Figure 4 Message received in particular parent's phone



Figure 5 Message received when child get down the bus



Figure 6 Message is also sent when their child has entered in different stop location

IV.CONCLUSION

The existing system is used very rarely but this proposed system can be used in every application like school, colleges, Software Companies and industries. The parents will know the exact location of their children during their travel to schools. This may even provide an attendance system for the students before they enter the schools. This system can be enhanced by means of providing various conditions of the vehicle to the parents and school by GSM and GPS technology.

V.FUTURE WORK

Advancement has be implemented inorder to enhance the safety of the school children during their travel to their respective schools. In this a new improvement has been made by combining the features of child safety and the bus tracking systems in a single system. The proposed system would make use of new technology that is based on the Arduino Mega 2560 and it works on GPS/GSM module database containing various details about the student and the school bus stopping locations are stored in the memory of Arduino Mega 2560. This database is used in transferring the messages to the parents. When the drivers start the bus then the information sharing gets started indicating that the bus has been started from the current location and then the location message is sent commonly to the parents of those children present in the respective bus.

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