

Security Tracking System Based on IoT

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Abstract: Millions of children need to commute between homes to school every day. Safer transportation of school children has been a critical issue as it is often observed that, kids find themselves locked in the school bus at the bus stop after going to school, they miss the bus, or ride the wrong bus with no way to track them. This project intends to find yet another solution to solve this problem by developing a bus safety system that will control the entry and exit of students from the buses through an energy efficient methodology. The proposed system will control the entry and exit of students to and from the bus using RFID (Radio Frequency Identification) and GSM technologies to ensure the entering and exiting of all students to and from the school bus in a safer manner. The process does not require any additional action by the student and drivers. The system will do all the process and allow the student to be tracked while entering and leaving the bus. If the bus journey is successful from the source to destination, it will send an SMS to the management to inform its departure and arrival. To trace the students, we implemented a system which uses RFID, GPS, GSM and AT Mega 2560 microcontroller. In this paper we have shown the result which are implemented and tested.

Keywords: ATmega 2560 microcontroller, Global Position System (GPS), Global System for Mobile Communication (GSM), Radio Frequency Identification (RFID).

1. Introduction

This project is based on student's security which can be implemented in schools and colleges keeping in view some kidnapping cases which took place in Nagpur in renowned schools some years ago, this device can help parents to track their child. These days a lot of readymade devices are available, we are trying to integrate our embedded device with Android application. This app can be easily used to track the child. This app will also give the notification of student's entry in the school. In present scenario the number of crime against children is going on increasing in every 10 minutes a child gets kidnapped and it is growing very fast. Most of the kidnapping cases occurs during school time. The authority of school and parents do not know that the child has arrived to school or not. And it has become very difficult to know how's the child and where he is. Recently we see most of the headlines in newspaper that the four years' girl get kidnapped, teen age boy gets kidnapped, 17-year-old girl get kidnapped during their day to day routine. From last year the cases of kidnapping for ransom increased from 1 to 3. According to the 2017-18 report of MHA, 54,723 children were kidnapped in 2016. As many as 41,893 such incident were recorded in 2015 and 37,854 in 2014. Even

though most of the lynching in the recent past where fuel by rumors of child lifting on social media the statics shows that fear of child kidnapping among people, especially those in rural areas is not completely unfounded. More than 20 people have been lynched over the last two months suspicion of child lifting.

2. Related Work

Raja Godwin D, Abishablesy E, Dhivyapriya K, Koodeswari B, Seshavardhan S.

They worked in school bus tracking and monitoring has been proposed. RFID is used for the identification of the children. Each student has their individual RFID tag with the help of the RFID tag the student can be monitored by their parents and also by school. When the student enters or exits from the bus the reader records and transfer data in the database. For every entry and exit RFID tag is sensed by the RFID reader. The number of students can be counted in the bus. Here front door is considered as the entry door and rear door is considered as the exit door. Sensor is fixed on both the doors and the sensor counts the exit and entry of the student. Only one person can enter or exit at a time [1].

Anwaar, Lawati, Shaikha, Jahdhami, Asma, Belushi, Dalal, Adawi, Medhat Awadalla and Dawood, Abri.

In this paper presented an RFID-based system that aims at enhancing the safety of children during the daily bus trip to and from the school. RFID-based detection unit located inside the bus detects the RFID tags worn by the children. It then sends, via a GSM modem, the relevant data to the system database server. The system checks and detects which child did not board or leave the bus and issues an alert message to this effect. In addition, the system checks the children attendance and updates the database. The parents can log into system website and monitor the details of their children. [2]

Santhosh Raj R, Kannan S. A, Hari Krishnan R, Sruthi Raj S.

In this paper the most related work regarding the issue intended by this project is presented in this segment. In the author, Saranya proposes a framework that traces location of youngsters using a child module that transmits the following data to a database and a cell phone. The drawback of this framework is that the module may not be suitable for children and wide-scale deployment is costly. Present day world is getting unsafe for children. Many cases of kidnapping and child abuse are reporting day by day. In light of this, our proposal is very suitable for monitoring students on their way to school and

back. Modern technologies like RFID suitably controlled and data are sending to mobile phones of parent by utilizing IOT. This proposal eliminates the need of supervising and tracing the pupils during their drive to and from school. In addition to this, a drunk and drive prevention mechanism ensures safety to child inside school bus and safe and smooth ride in roads. Also, this system can be made practical cost effectively [3].

Anusha R, Dr. R. China Appala Naidu, this section checks the related works. There are many systems which uses Bluetooth devices worn as necklace bracelets etc [1]. But this works only for a particular range. There are biometric products also [2]. Here if the children fail to place the palm correctly on the reader, proper image can't be obtained. The use of RFIDs makes it easier to maintain and usage. The authors of [3] used RFIDs to detect the children and entering and moving out of the bus. The students are not mistakenly locked in the bus. This system informs the parent and driver whenever the students board the bus and exit. They don't provide a facility to check whether the children are being dropped at the correct stop or elsewhere. Our paper devised a method to identify the students are dropped at correct locations and if they are dropped elsewhere the location is identified and alert is sent to parent. [4]

P.S. Kurhe, S.S. Agrawal, In this paper the designed model of children safety satisfies the requirements of human beings in today's world. The main advantage of our model is flexible i.e., we n know the exact location based on latitude and longitude values easily. we can also use the emergency button in any emergency situations this button which is used to provide the safety of children. And all these messages can be viewed on mobile phone. To control all these, we are using Arduino, RFID, RFID READER, GPS Receiver and GSM module. In present world parents are busy with their job the main advantage is to know all the information about their children when the child step into bus and the child step down bus with exact location message by simply on mobile phone. It is 100% efficiency as it saves time to parents, helps to know if the child is in danger situation [5].

Rumana Anjum, Vijaya Kamble, in this paper, they had proposed an idea of the attendance in colleges and classes are done manually. The proposed system i.e student tracking and attendance management system using RFID technology will improve the process of manual attendance, especially in an organization or school environment. So, we have come up with a system which would mark the attendance of the student as well as track them in and around campus. This system gives automated approach to maintain the student attendance. In proposed system it is necessary to issuing RFID tag to each and every student in the college. The students have to swap their RFID cards to the RFID reader. By using this system, we will track the particular student and check whether he/she is bunking his/her lectures [6].

K. Vidyasagar, G. Balaji, K. Narendra, Reddy Sathupally, the developed working model is implemented on 30 feet length

road constructed in the laboratory. The bus driving mechanism is able to move the bus with no deviations and the children security imparted to promote for real time applications. While returning to their home with this mechanism no student is permitted to move away from security without knowing the authorities. The return information message is sending to the parent in an advance will be an added advantage of the children from kidnapping. In future this proposed methodology is enhanced with anti-collision mechanism and biometric system is to be proposed to replace with the existing RFID technology [7].

Maheshwari V. Chandrawar, Miss. Shital Y. Gaikwad, In this paper Antitheft security system can be installed in automobile easily Because of this security system, it is too hard to an unknown person to access. Here an attempt is made to make a low-cost and excellent vehicle anti-theft control system which uses very low power supply, not only this but also some extra features like face recognition, alcohol sensor can be added to give more security. Future scope is that the system should be more compact i.e. Can be embedded on single chip and more secure [8].

Vaibhav A. Alone, Ashish Manusmare, Trupti Bhoskar, in this research an intelligent and sophisticated Women safety is proposed. The paper shows that the system ensures complete women safety during public transport. And this proposed system gives self-defense to the women [9].

3. Conclusion

The proposed system was successfully executed. This unit tries to detect the students who starts from home but don't reach the college. Whenever a student gets down from the bus, a message is sent to the parent and the school informing the location obtained through the GPS unit. Parents can use the coordinates given in the message and use any map application to identify where the student is. So, the parent can keep an eye on the actions of their children after leaving for the school.

4. Future Scope

There is always a chance to improve any system as research and development is an endless process.

1. This device is made so small that can be used as a hand band.
2. It is compatible with mobile phone.
3. Text can message can be sent during need.
4. It can track the location of children.

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