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GPS Based Real Time Vehicle Tracking System for Kid's Safety Using RFID and GSM

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ABSTRACT

The reports from international crime bureau that a child goes missing for every three minutes in the world. This is the big issue which has to roll in parents mind. They always worry when they send their children to a place behind their eyes the places like school. To lessen the parent's anxiety about their children, a vehicle positioning system is formulated by merging radio frequency identification and global positioning system. The system consist of RFID tags and reader which is designed to scrutinize the entry and exit of a person in vehicle each person is assigned the tag which holds the precise identification details when children enters the vehicle, the readers reads the person tag and stores the details of entry and exit. This information is notified to the concerned authority via android app and website. The proposed system facilitates to know about the area where the vehicle has crossed the path using rfid. The gps technology connected with this system helps in acquiring updated in the school server. This proficient tracking structure with enriched feature is designed and implemented for the purpose of protection in various stream. It is up and coming technology in the field of communication and network. The tag on road model is an evolving and just able technique in the future world. The projected system here is planned to be implemented is school chilies for the safety of the students and it can also be installed in the professional security system.

Keywords: *RFID, GPS, GSM.*

1. INTRODUCTION

In the world child goes missing for three minutes according to international crime record bureau. Around 80,000 children go missing in a year out which 55% of have not been found. In India 2010, a 10 year old girl and her 7 year old brother were kidnapped from school by taxi driver when they were waiting for the van that usually takes them to the school. Child safety is the major concern among parents this is especially true when the children are coming late home, parents will naturally want to know where they are fortunately you can ease parents concerns within moments by taking a look at the location of the school bus.

2. MOTIVATION

The aim of this paper is to develop a Bus Safety System which provides the details of entry and exit of the student from buses using RFID and GSM technologies. The proposed system provides a facility to track the exact location of the bus using RFID and GPS in a cost effective way. So this could be implemented even in small scale schools. Such systems must be installed in order to reduce the number of abduction taking place

3. RELATED STUDIES

The Authors Med hat Wadalba and Dawood Al-Abri in presented the system to enhance the safety of the school children to and from school. This system is used to detect when the child board or leaves the bus and gives an alert message to parents. The disadvantage of this paper is that we can't track the school bus if the school bus gets late to drop the children at the respective places. This system includes a child module and two receiver modules to track the missed children.

It also conveys information about the child cry through text message to parents. It uses Voice Recognizing sensor which senses the cry of the child and when it matches the cry of the child which is stored in school, it sends the message to parents. The main drawback in [4] is the whole system is integrated in a small chip and attached to the person body. It May harm the child. Another children tracking system using android based phone for getting information about the missed child is proposed [5]. This application helps parents to monitor their child cell phone activity but also helps in tracking the children location using GPS. The fault in the system is each child and parent might not have the android phone and use of phone in school is strictly prohibited. The paper [6] focuses on children tracking system which includes panic button. When the child feels that he is in danger, he presses the panic button. It adopts Bluetooth communication among mobile terminals in every group to collect information and delivers to respective server using wireless LAN. The child module in the form of chip gets fixed to the ID card. The problem is that the child might never know that he should press the panic button when it requires. Children tracking system using android mobile device in parent's hand and database is maintained in control room of the school. This system includes child module and two receiver modules. If the child goes beyond the coverage area the information is sent to control room of the school and to their respective parents as well. It uses wireless LAN and Bluetooth device to collect information and cluster head delivers the same through tags to server at school using wireless LAN. The limitation is the cluster head sends the information about the children group and not about each individual. This makes difficult for the parents to identify their child information. The system is designed to track the children while entering and leaving the bus using RFID and GSM Technology. This helps the driver to know how many children had got into and left the bus. If the students get missed in the school bus the information will be sent to the school. The shortcoming of this paper is only the entry and exit of the student is identified.

4. EXPERIMENTAL WORK

RFID system is now an emerging technology in various fields, which is well known for its compact size, processing speed etc. It also plays a leading role in security and process management. The RFID technology is a means for uniquely. Identifying an object with a wireless radio link, allowing data to be stored on an RFID tag and retrieved in remote application at a later point of time. The details about the student like his/her name, roll number, boarding place will be recorded in the computerized database and also on the RFID tag. Radio Frequency Identification (RFID) is a common term used to depict a system utilizing radio waves by which the object or person is identified by means of a unique serial number. The microcontrollers are very useful to an extent in communicating with the devices such as displays, sensors, etc. The RFID & GSM based system helps in tracking the vehicles. Zigbee is used for communication between the vehicle unit and the main server. This security system is simple and cost effective. RFID technology is a relatively new Technology in road construction field that has widely spread in intelligent transportation systems (ITS) [8-15]. Because of its benefits, construction and transportation industries are researching and implementing RFID technology to improve data acquiring and storage applications.

5. EXISTING MODEL

Each student is given with the RFID tags which contain the details of the student, contact person and their phone number etc. The RFID reader, kept in the bus, will read the serial number of the tag that contains the details of the Students. The information read is stored in the microcontroller and sent to School server via GSM modem. Once the tag is read by the reader simultaneously a message is sent to parents. The block diagram is shown in figure 1.

A. Proposed Model

A RFID tag contains the details of the area, is placed in the bus stop. Once the reader reads the tag the information is sent to school server via GSM modem and a message about the current location of bus is sent to the parents. Usually the bus tracking system consists of GPS system but it provides only The LAT and LAN value. But usage of RFID provides the exact location of the bus as the tags are pre-programmed. The architecture of proposed system is shown in figure 2

B. Database Server

The school server maintains a database that contains the details of the students such as name, contact person, mobile number of the concerned authority and the location of the bus. This server can be accessed by the parents anytime to know the entry and exit of their children and the current location of the bus.

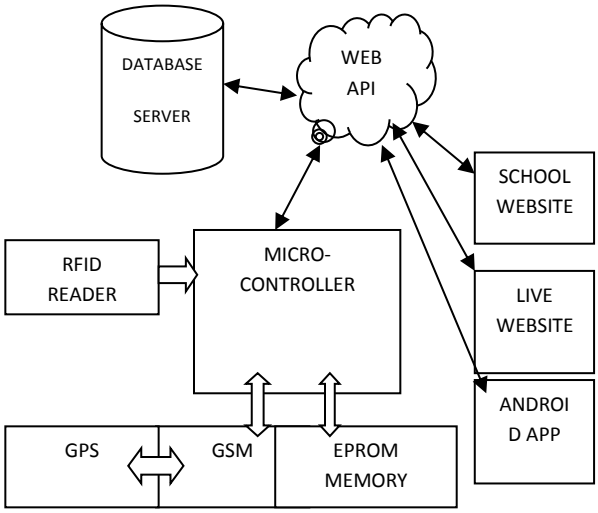

Figure1. Architecture of Proposed System

6. CONCLUSION

This security system endeavors the safety transportation for the school children during the daily outing. The system uses RFID for detecting the child whether boards or leaves the bus along with the stopping (boarding place) of the children. The message will be sent simultaneously to the parents and the School. The details of the boarding and leaving the school bus will also be updated in the school database. The GPS used is to track the position of the bus if it goes other than the usual Path.

7. REFERENCES

[1] Amit Agarwal and Saloni Jain, "Efficient Optimal Algorithm of Task Scheduling in Cloud Computing Environment", International Journal of Computer Trends and Technology (IJCTT), vol 9, no 7, pp. 344-349, 2014.

[2] L. I. U. Chun-Yan, Z. O. U. Cheng-Ming, W. U. Pei, "A task scheduling algorithm based on genetic algorithm and ant colony optimization in cloud computing", in 13th International Symposium on Distributed Computing and Applications to Business, Engineering and Science, 2014, pp. 68-72.

[3] Z. Liao. "Real-time Taxi Dispatching using Global Positioning Systems". Communications of the ACM, 46(5):81-83, 2003

[4] Z. Liao. "Taxi Dispatching via Global Positioning Systems", IEEE Transactions on Engineering, 48(3):342-347, 2001.

[5] ST Electronics, "Fleet Management Solution Wins The award", Electronics Review, 20(2), 2007.

[6] Z. Xiang, S. Song, J. Chen, H. Wang, J. Huang, and X. Gao. "A Wireless LAN-based Indoor Positioning Technology", IBM Journal of Research and Development, 48(5/6), 2004.

[7] W. M. Yeung, J. K. Ng. "Wireless LAN Positioning based on Received Signal Strength from Mobile device and Access Points", 13th IEEE Int. Conf. on Embedded and Real- Time Computing Systems and Applications, pp. 131-137, 2007.

[8] G. T. French. "Understanding the GPS: An Introduction to the Global Positioning System", Geo Research, 1996.

[9] G. J. Morgan-Owen, G.T. Johnston. "Differential GPS Positioning". IEEE Electronics & Comms. Engineering Journal, 7(1):11-21, 1995.

[10] S. Chen; Y. Wang, F. Chen. "A study of differential GPS positioning accuracy". 3rd IEEE International Conference on Microwave and Millimeter Wave Technology Proceedings, pp. 361-364, 2002 R. Filjar, L. Busic, T. Kos. "Differential Satellite Positioning Accuracy for LBS: A Zagreb Case Study", 18th IEEE Int. Conf.on Applied Electromagnetics and Comm., pp. 1-4, 2005 T. Kos, M. Grgic, G. Sisul. "Mobile User Positioning in GSM/UMTS Cellular Networks", IEEE Conference Proceedings, pp. 185-188, 2006.

