iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** XII **Month of publication:** December 2018

DOI:

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue XII, Dec 2018- Available at www.ijraset.com

Safety Tracking System for School Students

Tejas S.Shah[1], R. Pratik[2], Wajid S. Shaikh[3], Bhushan S. Sonwane[4]
[1, 2, 3, 4] *Sandip Institute of Engineering and Management, Computer Department, Nashik*

Abstract: ***The system has a developed GSM based database-driven application that facilities its management and provides useful information about the children to authorized person through SMS using GSM. The system consists of two main units, first one bus unit and second one school unit. The bus unit system is used to detect when a child boards or leaves the bus. This information is communicated to the school unit that identifies which of the children did not board or leave the bus and issues an alert message accordingly. A complete prototype of the proposed system was implemented and tested to validate the system functionality. The results show that the system is promising for daily transportation safety. FID-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.***

Keywords: Sensors and actuators, Software Prototyping, Database Query Languages (Principles), Bootstrapping, Database web servers, Database design and models.

I. INTRODUCTION

Nowadays, most of the cases regarding child kidnaping and rape cases of small girls is increasing .So in our proposed system we are developing a band for the school children to reduce the cases for the same. If in case the child is lost or does not reach the school or back to home from school then the system will notify alert to the concerned authorities. Manual attendance of the student is done in the current system but in our system the attendance is marked automatically when the student enters school premises. If student band is lost or stolen, an alert notification is sent to the concerned authorities. This system has ability to uniquely identify and take attendance of the students. The users only need to present in school premises for marking their attendance. They do not need to go through the long list to look for their name. Hence, it is a very time effcient system. In recent years, RFID is one of the automatic identification technologies. There is a wide research and development in this area trying to take maximum advantage of this technology, and in coming years many new applications and research areas will continue to appear. RFID system has been successfully applied to different areas as diverse as transportation, healthcare, agriculture, and hospitality industry to name a few. RFID also brings about some concerns, mainly the security and privacy of those who work with or use tags in their everyday life which is proposed in. RFID is used to uniquely identify tagged objects or people. RFID systems have been widely used in many application areas such as inventory control, product tracking through manufacturing and assembly, parking lot access and control, Bank Locker Security System, Automatic Toll Collection System (ATCS), Library Management system (LMS), Attendance Management System etc. The aim of this paper is to monitor student's attendance by using RFID for administration. Notification will be sent to parents as well as school's authority in case of absence of students. Commercially available antitheft devices are very expensive not affordable. The developed system makes use of an embedded system based on GSM, GPS, and RFID technology. The designed developed system can install in the student's band. GSM is the most popular accepted standard for mobile phones in the world. The band is provided with the RFID reader.

II. LITERATURE SURVEY

A. Gowtham, R. Mohanraj, A. Anadhan , S. Mohan, has proposed Implementation Of School Children Tracking System and Transportation Safety Enhancement by Using RFID Technique. The system has a developed GSM based database-driven application that facilities its management and provides useful information about the children to authorized person through SMS using GSM. The system consists of two main units, first one bus unit and second one school unit. The bus unit the system is used to detect when a child boards or leaves the bus. This information is communicated to the school unit that identifies which of the children did not board or leave the bus and issues an alert message accordingly [1]. Vishaka Asundkar ,Prof.S.P.Godse, has proposed Enhance Safety Security and Tracking System for School Bus and Children. A system monitors the daily transportation service for school going children to enhance the security and safety of the children. The system consists of three main units, bus unit, parent unit and school unit. The bus unit consist of hardware parts. The bus unit is used to detect when a child enters/exits from

©IJRASET: All Rights are Reserved

the bus using RFID Card. This information is communicated to the parent unit and school unit that identifies the children did/did not enter/exit the bus. The notification like the students whose next stop is, sent to the parent who stays on the next stop using Geofence. The system enhances the security of the children like the bus hijacked, extracting the location and instantly sending notification to the admin as well as the nearest police station using SOS and Spherical Cosine Rule. The system develops an android application for the parent for getting notifications and live tracking of the bus and web based application for the admin that facilitate the management and provides useful information about the children and some specific details like routing, allocating stops, scheduling, optimized route and reports. The system tracks the school bus by the GPS Module and also gets an alert if the bus crosses the speed limit [2]. C. Deenadayalan, M. Mural, L.R. Baanupriya, has proposed Implementing Prototype Model for School Security System (SSS) Using RFID. Now days, the number of crime over children is increasing day by day .the implementation of School Security System(SSS) via RFlD to avoid crime, illegal activates by students and reduce worries among parents. The project is the combination of latest Technology using RFID, GPS/GSM, image processing, WSN and web based development using PHP, VB. net language apache web server and SQL. By using RFID technology it is easy track the student thus enhances the security and safety in selected zone. The information about student such as in time and out time from Bus and campus will be recorded to web based system and the GPS/GSM system automatically sends information (SMS / Phone Call) to other parents [3].

Anusha R, Dr. R. China, Appala Naidu ,has proposed GPS and RFID Based School Children Tracking System. The educational institutions are unable to trace the students who don't attend college during regular working hours. To resolve this, in this paper we have implemented a new system which will help the parents to identify whether their kid reached the educational organization at correct time or not. In this paper the system keep track of the wards who board the bus and reach college or who manage to get down on the way to college or back home. To trace the students we implemented a system which uses an RFID, GPS, GSM and ARM processor. In this paper we have shown the results which are implemented and tested in our own organization [4].

Judy Thyparampil Raj, Jairam Sankar, has proposed IoT Based Smart School Bus Monitoring and Notification System. It is important for every school to have a trustworthy and secure transportation service to ensure the safety of the students. It helps the school administration to effectively manage their bus fleet and potentially reduce mishaps. This is where vehicle monitoring takes effect. The proposed system provides real time information about various parameters of the vehicle like the location, the route, the speed, the list of passengers, the adherence of drivers to schedule and much more. The system further allows the parents to be notified when their ward alights or boards the bus. In this system, we make use of RFID and GPS technologies and connect them to a remote server over WiFi using an ESP8266 microcontroller[5].

Jisha R.C, Aiswarya Jyothindranath, Sajitha Kumary L has proposed IOT Based School Bus Tracking and Arrival Time Prediction. Nowadays, parents are perturbed about school going children because of the increasing number of cases of missing students. On occasion, students need to wait a much longer time for arrival of their school bus. There exist some communication technologies that are used to ensure the safety of students. But these are incapable of providing efficient services to parents. This paper presents the development of a school bus monitoring system, capable of providing productive services through emerging technologies like Internet of Things (Iota). The proposed IoT based system tracks students in a school bus using a combination of RFID/GPS/GSM/GPRS technologies [6].

Vinoth Rengaraj ,Prof. Kamal Bijlani ,has proposed a study
and implementation of Smart ID card with M-Learning and Child Security. Among the Organized crime, Human trafficking hold third place where as the first and second or drug and weapon trade across the globe. Human trafficking is a shame on Humanity. As per the report of Human Rights
commission of India over 40,000 children are reported missing every year of which 11000 are untraced Another statics report saying 80% of human trafficking is done for sexual exploitation and rest is for bonded labors [7].

III.PROPOSED SYSTEM

Our system contains AVR microcontroller, IoT Cloud, GPS + GSM ,RFID (Active), Proximity Sensor. The AVR Microcontroller is used to process and control the overall proposed system .The IoT cloud(Internet of Things)is a Salesforce platform which stores large amount of data. It stores all data and it will only pass the details of those students to the concerned authorities whose notification has to be send. GPS is used for continuous tracking of student and GSM is used for sending data to the cloud and sends notification to the concerned authorities .Through active RFID identification of the bus and school is done. Further the bus id and school id is used for tracking the bus and marking automatic attendance of students according to student id. Proximity Sensor is used to sense the safety band which is on students hand .Android application used to display the details of students
which is send by IOT cloud.

©IJRASET: All Rights are Reserved

A. Mathematical Model

Let S is the system for tracking the student with student wearing a band in his/her hand.

S = (I, SR,O)

Where,

S:System

I ={ST,BU,SC}

Are set of inputs

Where,

ST: Student

BU: Bus

SC: School

SR={SDB,BDB,CDB}

Are set of database servers

Where

SDB: Student Database

BDB: Bus Database

CDB: School Database

O={LT,N,AT}

Are set of outputs

Where,

LT: Location Track

N: Notification Message

AT: Automatic Attendance

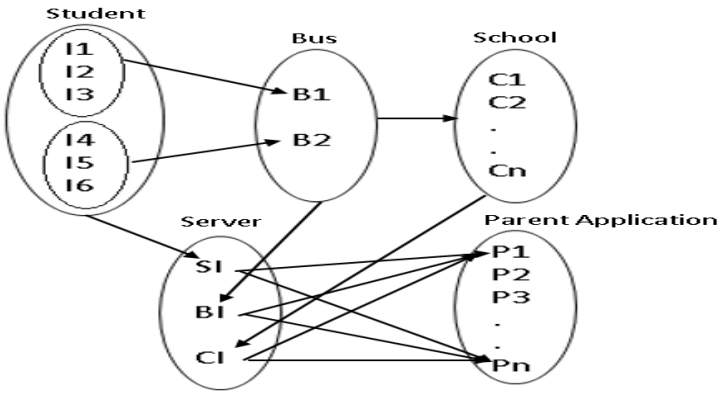
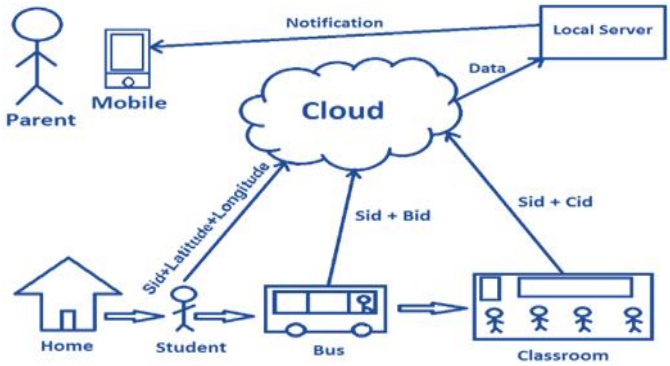


Figure 1.Venn Diagram



Where, Pid : Parent Identity Cid : Classroom Identity
Sid : Student Identity Bid : Bus Identity.

Figure 2. System Architecture

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue XII, Dec 2018- Available at www.ijraset.com

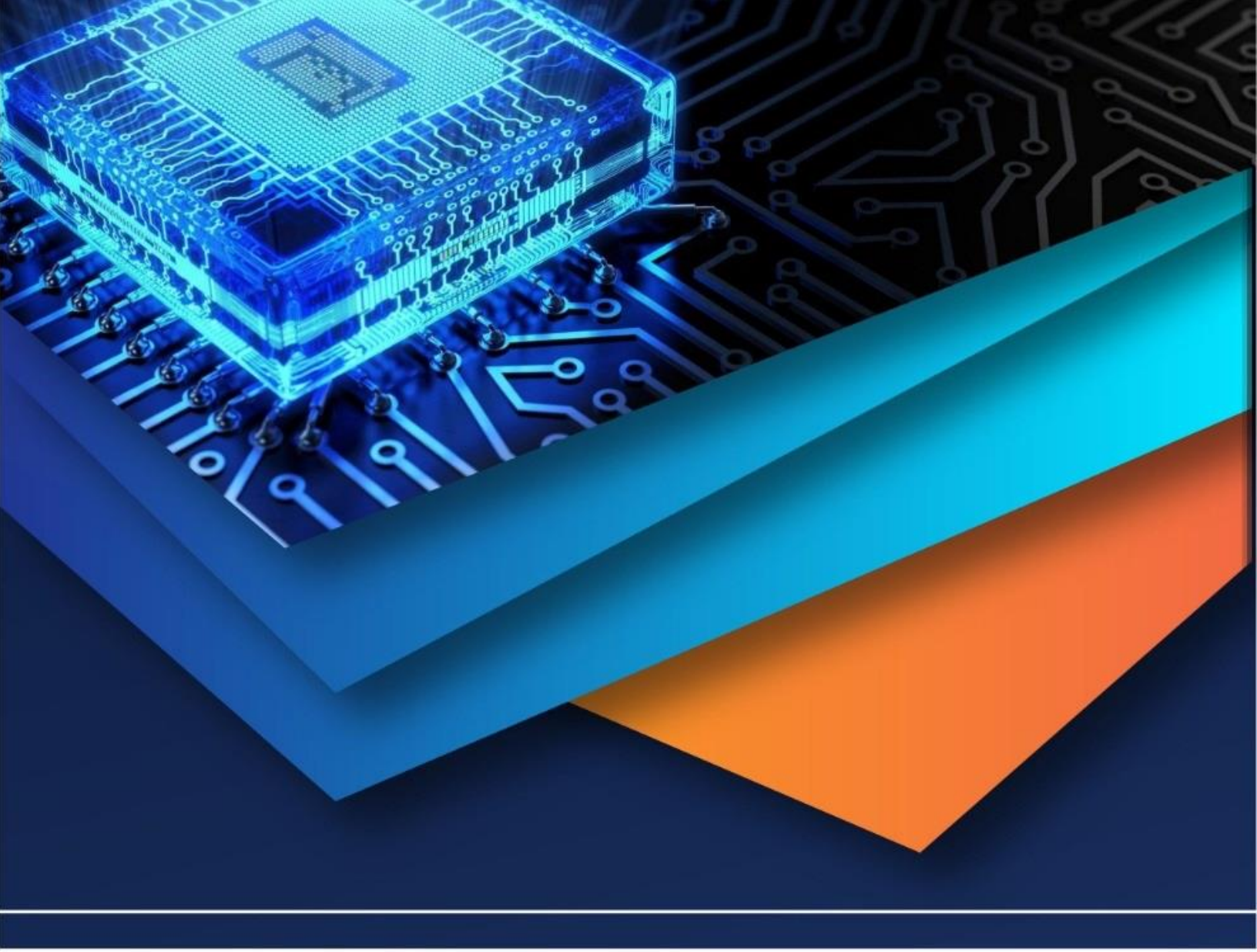
IV. CONCLUSIONS

In our proposed system we have design the safety band to track the students and send the notification to the concerned authorities and in this way we are contributing towards society to save the children from being targeted by the criminals.

REFERENCES

[1] Gowthaman , R.Mohanraj, A.Anadhan, S.Mohan, Implementation Of School Children Tracking System and Transportation Safety Enhancement by Using RFID Technique
[2] Vishaka Asundkar,PROF.S.P.Godse, Enhance Safety Security and Tracking System for School Bus and Children.
[3] C.Deenadayalan,M.Mural,L.R.Baanupriya, Implementing Prototype Model for School Security System (SSS) Using RFID.
[4] Anusha R, Dr.R.China,Appala Naidu , GPS and RFID Based School Children Tracking System.
[5] Judy Thyparampil Raj ,Jairam Sankar , IoT Based Smart School Bus Monitoring and Notification System.
[6] Jisha R.C, Aiswarya Jyothindranath, Sajitha Kumary L IOT Based School Bus Tracking and Arrival Time Prediction.
[7] Vinoth Rengaraj ,Prof. Kamal Bijlani , A study and implementation of Smart ID card with M-Learning and Child Security.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)