

IMPLEMENTAION SMART BUS TERACKNG SYSTEM USINF WI-FI

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ABSTRACT

On reviewing the past work of college bus tracking, monitoring and alerting system, there is a possibility to categorize various methodologies and identify new trends. One among them is a challenge for vehicle tracking, monitoring and alerting system. Now- a-days with the increase in the crime rate and accidents, parents worry about their wards when they are going to colleges. And many Students find themselves locked in a college bus in the bus parking lot after falling asleep on their way to college, miss the bus, or leave at the wrong station. This project makes use of the applicability of radio frequency identification (RFID) technology for tracking and monitoring Student during their trip to and from college on college busses. And it has the advantage of efficient tracking capabilities, low cost and easy maintenance. The individual RFID tags are effective and it is used for tracking and monitoring Student. Fire sensor is also used in this project to detect any fire accidents. Speed of the bus also can be calculated and send a message to the parents through GSM. The system consists of three main units, bus unit, parent unit and college unit. The bus unit is used to detect when a Student enters/exits from the bus using RFID Card. This information is communicated to the parent unit and college unit that identify the presence of Student. The system tracks the college bus by the IOT and also gets an alert if the bus crosses the speed limit.

Keywords:*Global Position System, Radio Frequency Identification, Global System for Mobile Communication, PIC 116F877A microcontroller, Sensors.*



1. INTRODUCTION

When it comes to public transportation, time and patience are essential. In other words, many people using public transport buses have experienced time loss because of waiting at the bus stops. Millions of Student needs to travel from home to college and vice versa every day. For parents, obtaining a safe transport for their Student is a critical issue. Crime against Student is increasing and every parent is requesting the respective college for the security of their Student while traveling from college to home and vice versa in college bus. The system will notify parents by SMS whenever Student enters or leaves college bus, this will assure parents that Student are safely reached to destination. Count through IR sensor will ensure that is college bus is vacant or still any Student is inside the college bus.

In this paper, smart bus tracking system has been proposed that when any student enter into bus the alert message will send to their parents and also arrival times, buses current locations, and bus routes on a map can be easily found out with the help of IOT. GPS (Global Positioning System) and Google maps are used for navigation and display services respectively.

GSM (Global System of Mobile Communication) used for sending alert message. Millions of Student needs to be moved from home to college and vice versa every day. For their parents, getting a safe transport for their Student is a crucial issue. At present days all are very much aware about the safety concerns. At the same time parents can send their Student to colleges which have high reputation and all facilities.

2. DETAILS

Now-a-days all colleges have bus facilities, even by their Student are going to college through college bus parents have some worry about their Student, whether they reached safely or in a dangerous situation. This system gives an alert message when Student boards and leaves the bus using the RFID tag wore by the Student by placing that tag before the RFID reader . The sensors and RFID reader are interfaced with Microcontroller. Each RFID tag has an information about and individual Student which was sensed by an RFID reader transmit the corresponding information to their parents using GSM. The outputs of this controller board are given to GSM module and LCD display. This GSM modem can sends the messages to authorized persons according to the received data.

For instance, the Australian College of Road Safety says that bus travelling in the safest form of road transport system is safer than the private car for the Student, and that the record for college bus travel in particular is very good. Global Positioning System and Global system for mobile communication module is designed for tracking and positioning the college bus. Also, the research undertaken by National Highway Traffic Safety Administration in USA notes that when comparing the number of fatalities of Student aged 5 to 18 years during normal college transportation hours, college buses are 87 times safer than private cars.

However, headlines like “Girl dies in bus tragedy” from the May 18, 2010 issue of the Peninsula newspaper in Qatar seems to be repeated several times every year in different places of the world. This system will issue the messages to parents to convey them that their Student are reached to college safely, and they are in the college and also give an alert message if any fire accident occurs. LCD displays the message about the speed



of the college bus. The tracking system includes the location and speed of the vehicle in current movement, speed of the vehicle is monitored and then sms alert is send to the parents through the GSM .

The proposed system shows that the RFID tracking International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181 Published by, www.ijert.org CONFCALL - 2019 Conference Proceedings Volume 7, Issue 11 Special Issue - 2019 1 technology is a practical option for monitoring and tracking the Student during their trip to and from college on college bus. The system tracks the college bus by the GPS Module and also gives an alert if the bus crosses the speed limit. The GPS Module is used for Live Tracking of the College Buses and alerting if fire accident occurs and send an alert message to the parents, college and also for the fire engine.

The system monitors the Student inside the bus in a safer manner. It uses the combination of RFID (Radio Frequency identification), GPS (Global Position System) technologies. Each Student carries a unique RFID card embedded in each of the student's college bags. When the student enters or exits from the bus the reader records and transfer data in the database.

Radio Frequency identification (RFID) is used to transmit Information of a subject using radio waves. This information consists of unique digital number which differentiates various objects. An RFID system is made up of two different parts viz. RFID tag and RFID reader. There is a microchip antenna inside tag; This chip consists of useful data in different forms. A study has showed that, the performance of reader decreases rapidly with increase in a distance. Student carries the unique RFID card. This RFID card is embedded on his own smartcard. When Student in or out from college bus, reader will record a response and send an alert to parents and college.

3.METHODOLOGY

3.1IMPLEMENTAION SMART BUS TERACKNG SYSTEM USINF WI-FI

The proposed system is divided into 3 main units as shown n below

A. Bus unit

B.Collage unit

C. Parent unit

A BUS UNIT

The Bus Unit is used for detecting the Student when the Student enters and exits the bus and send this information. The Bus Unit is used for detecting the Student when the Student enters and exits the bus and send this information to the College Unit as well as parent unit. The Bus Unit to the College Unit as well as parent unit.

The Parents who are not able to use the Android Application the messages will be send in the Inbox of the Parent Phone. There is the drawback for the Parents who are not using Android Application; they could not able to view the live bus location.

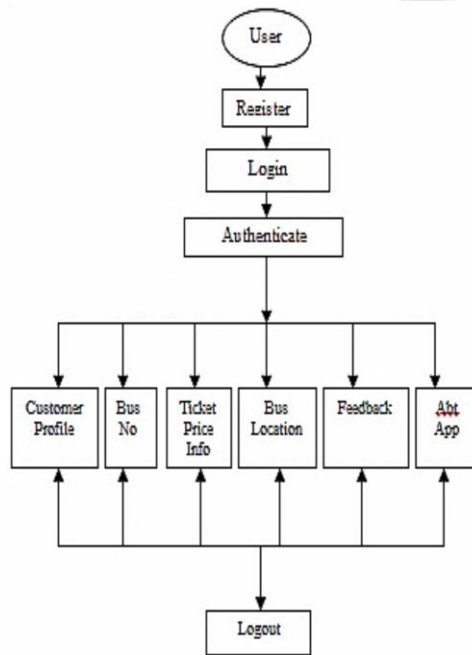


Fig1.1:-Flow Chart Of Users login

3.2Flow Chart Of Admin Login:

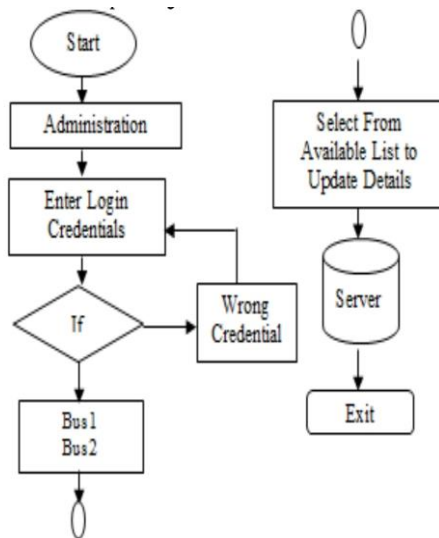


Fig1.2:-Flow Chart Of Parent login

B. COLLEGE UNIT

The College Unit consists of a Web Based Application where the Admin can be able to do all the Master Entries like Add, Delete, Update, Modify the details of the College Buses, Students, Routes, Stops and many more as required and hence it has been saved on the Server. Via GPS Module attached in the Buses; the College Unit can be able to view the bus locations of the Buses on the Google Map with optimized route and schedule given to cover each stop from source to destination. The College Unit gets the alert message instantly when the Bus Crosses the Speed Limit.

The College Unit keeps the records of the students, buses, routes, stops, speed of bus as well as the overall history with Student in/out, time into/from the bus; assigned optimized bus route, cover all the stops, etc. These all are included in the Reports on the Web Based Application which is been able to view by the Admin only.

C.PARENT UNIT

The Parent Unit consist of an Android Application where the Parent Sign up with the mobile number registered in the College Database Server and Login into the account to get the Student’s notifications automatically from the College Database Server and can also be able to track the bus in which the Student is traveling. The Parent Unit consist of an Android Application where the Parent Sign up with the mobile number registered in the College Database Server and Login into the account to get the Student’s notifications automatically from the College Database Server and can also be able to track the bus in which the Student is traveling.

4. FIGURE AND TABLES

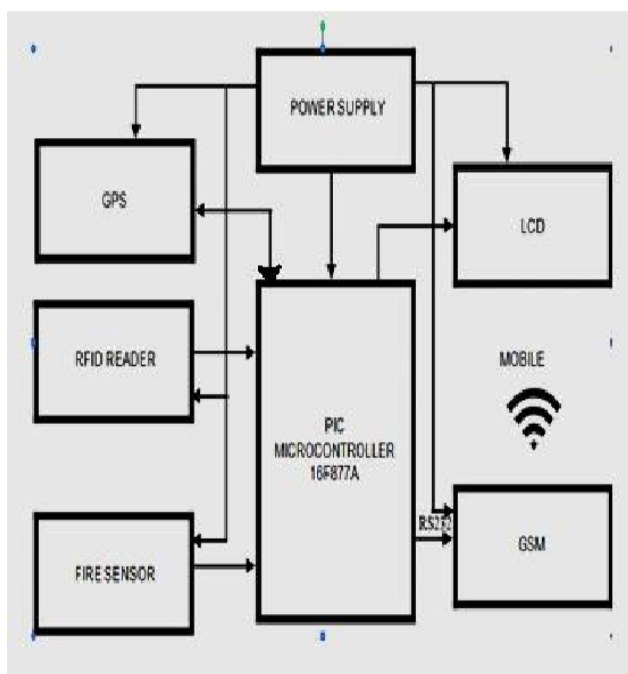


Figure 2. Block diagram

In this system fire sensor is used to detect the fire accident. If there any fire accident occurs, the sensors receive a physical signal and transmit a digital signal to a GSM module. The alert message will be send to the college unit and parents with the help of GSM and IOT. Each student consists of an individual RFID tag with the help of RFID tag, GSM, IOT. Parents and college unit can receives an alert message. The information of RFID tag is read by RFID reader. The reader transmits the corresponding information. RFID tag is used to send an alert message like the location of a person, speed of the bus to their respective parents. In this system GSM and IOT is used to send the alert message to the parents if their respective Student is get in the bus or get down the bus with the help of RFID tag and reader.

LCD stands for Liquid Crystal Display is a flat panel display technology commonly used in TVs and computer monitors. It is also used in screens for mobile devices, such as laptops, tablets, and smart phones. The



backlight in liquid crystal display provides an even light source behind the screen. This light is polarized, meaning only International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181 Published by, www.ijert.org CONFCALL - 2019 Conference Proceedings Volume 7, Issue 11 Special Issue - 2019 2 half of the light shines through to the liquid crystal layer. The liquid crystals are made up of a part solid, part liquid substance that can be "twisted" by applying electrical voltage to them. They block the polarized light when they are off, but reflect red, green, or blue light when activated. A DC Power Supply Unit (commonly called a PSU) deriving power from the AC mains (line) supply performs a number of tasks: It changes (in most cases reduces) the level of supply to a value suitable for driving the load circuit. It produces a DC supply from the mains (or line) supply AC sine wave. It prevents any AC from appearing at the supply output. Power supplies in recent times have greatly improved in reliability but, because they have to handle considerably higher voltages and currents than any or most of the circuitry they supply, they are often the most susceptible to failure of any part of an electronic system. GPS is a satellite navigation system used to determine the ground position of an object. Each GPS satellite broad casts a message that includes the satellite's current position, orbit, and exact time. A GPS receiver combines the broadcasts from multiple satellites to calculate its exact position using a process called triangulation.

5.CONCLUSION

This proposed system aims at enhancing the safety of Student during the daily transportation to and from college. RFID Reader located inside the bus detects the RFID tags of the Student. It sends instant notification with the relevant data from the college database server via internet. The parents can log into the Application and monitor the details of their Student and track the location of the bus.

The admin can add stops, and generate an optimized route and can have a live tracking of the bus. Further this system can be enhanced by Parking Management System, having VANET for bus to bus communication. This system can be extended for full-time monitoring of Student that will be helpful for parents and guardians at minimum cost.

6. REFERANCE

Dr. N. Dhanasekar, S. Soundarya R.Chandra Kumar, M.S.Mohamed Basam, S.Sanjay Kumar, S.Sathiya Selvan, [VOLUME 5 I ISSUE 2 I APRIL – JUNE 2018].E ISSN 2348 – 1269, PRINT ISSN 2349-5138.

Dr. N. Dhanasekar, S. Soundarya, Smart Health Monitoring System using IoT, International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181 Special Issue – 2018.

R. Malliga.ME, T. Narmatha,"RFID- based System for College Student Transportation Safety Enhancement", International Journal of Advanced Research in Computer Science and Software Engineering, Volume 6, Issue April 2016.

S.N.L Priyanka, D.Srirama Murthy, K.Vamsi Krishna, M.Sharmila Rani, T.S.S.K.Mohan, M.Kishore Students, Department of Electronics and Communication Engineering, DMS SVH College of Engineering, Andhra Pradesh, India. Associate Professor, Department of Electronics and ommunication Engineering, DMS



SVH College of Engineering, Andhra Pradesh, India,” International Journal of Innovative Research in Computer and Communication Engineering “,Vol. 5, Issue 2, February 2017.

J.Saranya, J.Selvakumar “Implementation of Student Tracking System on Android Mobile Terminals” International conference on communication and signal processing, April 3-5 2013, India.