iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 4 **Issue:** IX **Month of publication:** September 2016

DOI:

www.ijraset.com

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

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Accident Vehicle Number Tracking System Using GSM And RFID

K. Ritu Subhadra[1], I. Ganesh Kumar[2], K. Siva Kumari[3]
Electrical & Electronics Engineering Department, Pragati Engineering College, JNT University, Kakinada

Abstract— Trace out the accident vehicle number and auto informing system by using GSM and RFID technology is used to recognize the location of the accident and easily to reach the location and also to record the vehicle number which leads to accident. In this project we have used an detecting sensor in vehicle which senses and detects accident and sends messages continuously to their relatives within every 5 minutes. In this process microcontroller is connected with GSM and GPS modules. GPS module gets the position of vehicle with longitude and latitude then via GSM it sends the messages to the relative of the driver while accident happens of vehicle then there is possibility of save life without late.
Keywords— LCD;RFID;LED;DIP;TTL;RAM;UART;GSM;SIM; CMOS;A.C;D.C;GPS

I. INTRODUCTION

GSM and GPS based vehicle location and tracking system will provide effective, real time vehicle location, mapping and reporting this information value and adds by improving the level of service provided [1-4]. A GPS-based vehicle tracking system will inform where your vehicle is and where it has been, how long it has been [5-6]. The system uses geographic position and time information from the Global Positioning Satellites. The system has an "On- Board Module" which resides in the vehicle to be tracked and a "Base Station" that monitors data from the various vehicles. The On-Board module consists of GPS receiver, a GSM modem

A. Vehicle Tracking System: A vehicle tracking

System combines the installation of an electronic device in a vehicle, or fleet of vehicles, with purpose designed computer software at least at one operational base to enable the owner or a third party to track the vehicle's location, collecting data in the process from the field and deliver it to the base of operation [1]. Modern vehicle tracking systems commonly use GPS or GLONASS technology for locating the vehicle, but other types of automatic vehicle location technology can also be used. Vehicle information can be viewed on electronic maps via the Internet or specialized software [4]. Vehicle tracking systems are also popular in consumer vehicles as a theft prevention and retrieval device. Police can simply follow the signal emitted by the tracking system and locate the stolen vehicle. When used as a security system, a Vehicle Tracking System may serve as either an addition to or replacement for a traditional Car alarm. Some vehicle tracking systems make it possible to control vehicle remotely, including block doors or engine in case of emergency. The existence of vehicle tracking device then can be used to reduce the insurance cost.

B. GSM Overview: Global System for Mobile

Communications or GSM (originally from Group Special Mobile), is the world's most popular standard for mobile telephone systems. The GSM Association estimates that 80% of the global mobile market uses the standard [6]. GSM is used by over 1.5 billion people [2] across more than 212 countries and territories [3]. The GSM standard has been an advantage to both consumers, who may benefit from the ability to roam and switch carriers without replacing phones, and also to network operators, who can choose equipment from many GSM equipment vendors.

II. EXISTING SYSTEM

Now a day's lots of accidents happen on highways due to increase in traffic and also due to rash driving of the drivers. If any other vehicle driven person will observe the accident the he immediately intimate hospital and police. The ambulance will arrive quickly to that place and carry the accident affected persons to the hospital to save their lives.

Problem:

Some of the transport centers don't have security facility. If accident occident occurs, then no one observe that condition then accident effected people will lost their lives due to late response. At this condition the crime person will easily escape from that situation.

Volume 4 Issue IX, September 2016
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

III.PROPOSED SYSTEM

In this project we are going to use an accident detection unit which will be fitted inside the front and rear bonnet of the car. This accident detection unit consists of switches which are kept at little distance apart from each other. In case of accident, if the car is hit to some other vehicle or an object then due to the impact the switch changes to close position. Due to this a signal will be sent to microcontroller. Microcontroller is the central processing unit CPU of our project. Once microcontroller gets signal from metal plates, then it will immediately turn on the buzzer [1-4]. A key will be provided for the driver. If the accident is very normal, or driver has hit the wall in some situations like parking then driver will press the key. This will inform the microcontroller that this is a very normal accident. But if driver is not in situation to press the switch or if the accident is really a major accident then driver will not press the key. Then microcontroller will get the coordinates from the GPS modem then it will send this information to the GSM modem, GSM modem is used to send this information via SMS. SMS will be sent to the family member, so that they can take immediate action to help the persons suffering due to this accident. RFID reader reads the Vehicle number of opposite vehicle. Vehicle Number & accident location can be sent to the Vehicle owner's /predefined Number [5-6].

GSM Modem:

A GSM modem is a wireless modem which accepts a SIM card, which sends and receives data through radio waves. The number of SMS messages that can be processed by a GSM modem per minute is very low only about six to ten SMS messages per minute. The working of GSM modem is based on commands, the commands always start with AT (which means ATtention) and finish with a <CR> character. For example, the dialing command is ATD<number>; ATD3314629080; here the dialing command ends with semicolon; The GSM modem is interfaced to 8051 microcontroller using level shifter MAX232 [5].

A. Block Diagram

The main part of this project is an accident detection unit which will be fitted inside the front and rear bonnet of the car. This accident detection unit consists of switches which are kept at little distance apart from each other. In case of accident, if the car is hit to some other vehicle or an object then due to the impact the switch changes to close position. Due to this a signal will be sent to microcontroller. Microcontroller is the central processing unit CPU of our project. Once microcontroller gets signal from metal plates, then it will immediately turn on the buzzer. A key will be provided for the driver. If the accident is very normal, or driver has hit the wall in some situations like parking then driver will press the key. This will inform the microcontroller that this is a very normal accident. But if driver is not in situation to press the switch or if the accident is really a major accident then driver will not press the key. Then microcontroller will get the coordinates from the GPS modem then it will send this information to the GSM modem, GSM modem is used to send this information via SMS.

Main Components of the Project

1) Microcontroller based motherboard with regulated power supply.
2) GPS Receiver for Location Information.
3) GSM Modem/Mobile phone for remote communication.
4) RFID to identify vehicle number
5) LED Indicators

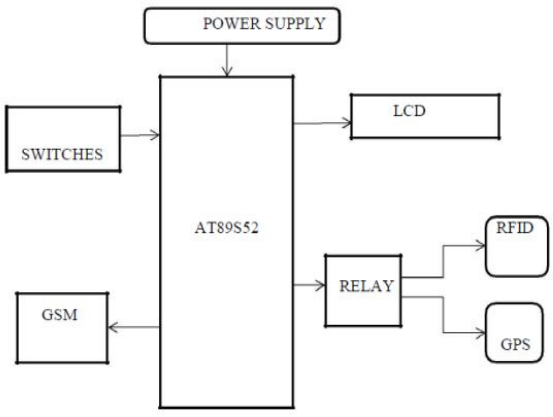
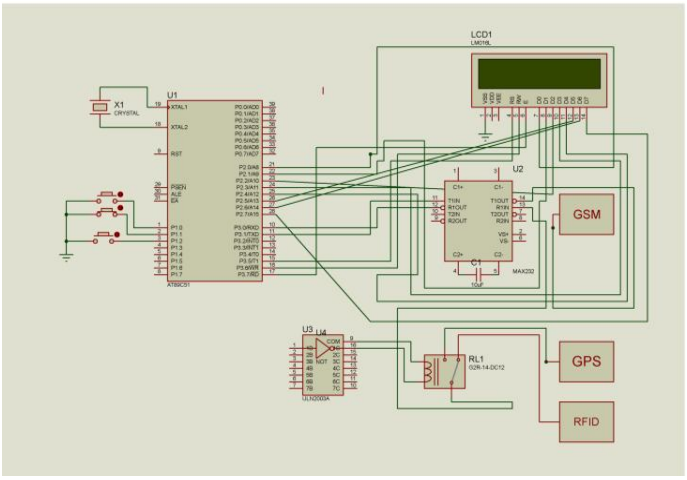


Fig1. Block Diagram

Volume 4 Issue IX, September 2016
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

The specifications and characteristics for GSM frequency band— The frequency range specified for GSM is 1,850 to 1,990 MHz (mobile station to base station). Duplex distance—the duplex distance is 80 MHz Duplex distance is the distance between the uplink and downlink frequencies. A channel has two frequencies, 80 MHz apart. Channel separation— the separation between adjacent carrier frequencies. In GSM, this is 200 kHz. Modulation— Modulation is the process of sending a signal by changing the characteristics of a carrier frequency. This is done in GSM via Gaussian minimum shift keying (GMSK). Transmission rate—GSM is a digital system with an over-the-air bit rate of 270 kbps.

IV. SCHEMATIC DIAGRAM



GSM Modem is RS232 logic level compatible, i.e., it takes-3v to -15v as logic high and +3v to +15 as logic low.MAX232 is used to convert TTL into RS232 logic level converter used between the microcontroller and the GSM board. The signal at pin 11 of the microcontroller is sent to the GSM modem through pin 11 of max232.this signal is received at pin2 (RX) of the GSM modem. The GSM modem transmits the signal from pin3 (TX) to the microcontroller through MAX232, which is received at pin 10 of IC1

The hardware interface with GPS units is designed to configure the NMEA requirements. They are also compatible with most computer serial ports using RS232 protocols, however strictly speaking the NMEA standard is not RS232. All units that support NMEA should support this speed at a b/s rate of 4800; you can easily send enough data to more than fill a full second of time. For this reason some units send updates every two seconds or may send some data every second while reserving other data to be sent less often. In addition some units may send data a couple of seconds old while other units may send data that is collected within the second it is sent. Commonly time is sent in some field within each second so it is pretty easy to figure out what a particular GPS is doing. Some sentences may be sent only during a particular action of the receiver such as while following a route while other receivers always send the sentence and just null out the values. Other difference will be noted in the specific data descriptions defined later in the text service.

V. RESULTS

A. Overall view of the kit

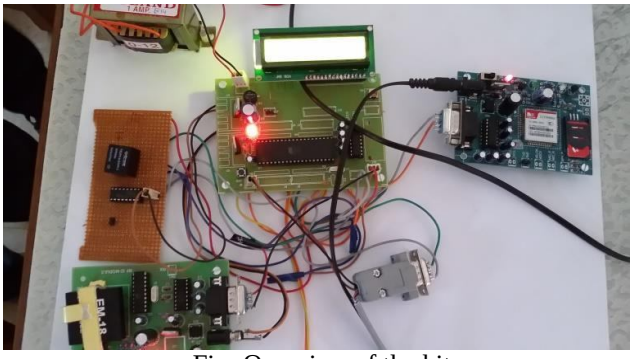


Fig: Overview of the kit

The details of the accident location will go to the Mobile number that showing on LCD

Volume 4 Issue IX, September 2016
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Fig: Mobile number that showing on LCD when accident occurs

The following is the latitude and longitude values of accident location given by GPS shown in LCD display.

Fig: the latitude and longitude values of accident location given by GPS shown in LCD display.

The message which will be sent to the predefined number will be in the form as below. On clicking the link we can obtain the exact position of the vehicle.

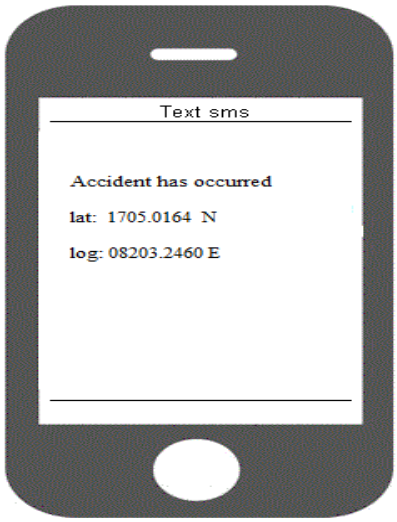


Fig: The message which will be sent to the predefined number will be in the form.

VI. CONCLUSION

Finally with this project, when accident occurs it will send the message to the predefined number. The message contains vehicle number that hits our vehicle and also the link which contains latitude and longitude values of the location with that the position will be easily traced. So we can easily save the human lives. This project is much helpful to the government they can implement the RFID chips in the number plate in order to identify the vehicle number.

REFERENCES

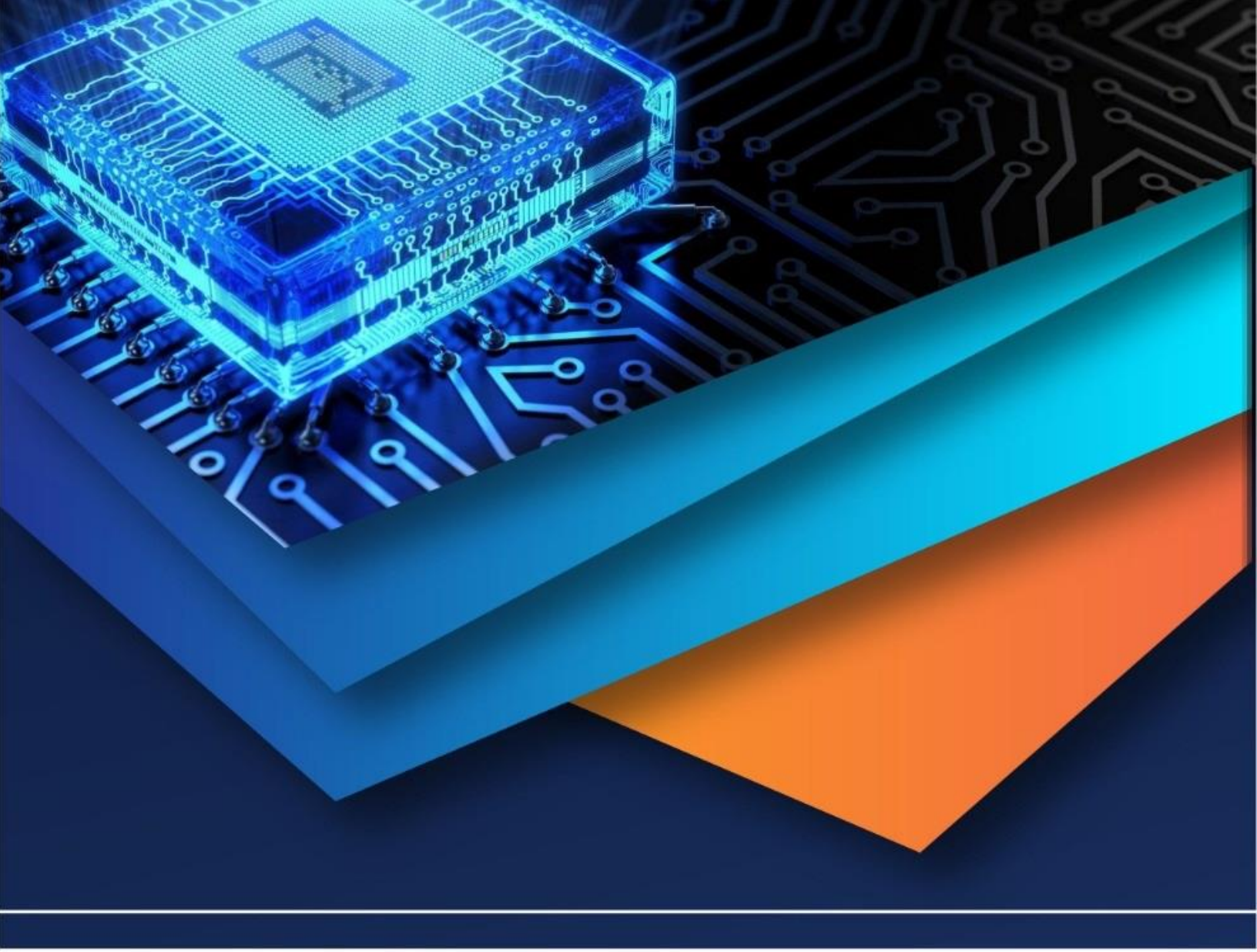
[1] Ashish Kushwaha, Gaurav Katiyar, &Harshita Katiyar, Hemant Yadav, Saxena 'GPS And GSM Based Accident Alarm System';National Student Conference On "Advances in Electrical & Information Communication Technology"AEICT-2014 .
[2] Hu Jian-ming; Li Jie; Li Guang-Hui, "Automobile Anti-theft System Based on GSM and GPS Module," Intelligent Networks and Intelligent Systems (ICINIS), 2012 Fifth International Conferenceon , vol., no., pp.199,201, 1-3 Nov. 2012
[3] T. Krishna Kishore, T. Sasi Vardhan, N. Lakshmi Narayana "Vehicle Tracking using A Reliable Embedded Data Acquisition System with GPS and GSM" International Journal of Computer Science and Network Security, February 2010.
[4] NiravThakor, TanmayVyas, Divyang Shah; Automatic Vehicle Accident Detection System Based on ARM &GPS ;International Journal for Research in Technological Studies ISSN: - Applied (Online) Vol-1, Issue - 1, Dec 2013.
[5] Sri Krishna Chaitanya Varma, Poornesh, Tarun Varma, Harsha; Automatic Vehicle Accident Detection And Messaging System Using GPS and GSM Modems; International Journal of Scientific & Engineering Research, Volume 4, Issue 8, August-2013.
[6] C.Prabha , R.Sunitha , R.Anitha ;Automatic Vehicle Accident Detection and Messaging System Using GSM and GPS Modem;International Journal of Advanced Research in Electrical,Electronics and Instrumentation Engineering.
[7] Raj Kamal, "Embedded System Architecture Programming and Design" (2nd edition) ,Tata McGraw Hill.
[8] Car Authentication And Accident Intimation System Using Gps And Gsm by R.Monisha1, Jessen Joseph Leo2, B.T.Tharani Sri Sakthi3.
[9] Real Time Based Smart Vehicle Monitoring And Alert Using Gsm by S.Boopathi1, K.Govindaraju1, M.Sangeetha1, M.Jagadeeshraja 2, M.Dhanasu3.
[10] Vehicle Accident Automatic Detection And Remote Alarm Device by Varsha Goud, V.Padmaja.

AUTHORS PROFILE

Kshatri Ritu Subadra Sai Bai pursuing B.Tech in Electrical and Electronics Engineering at Pragati Engineering College, Surampalem, East Godavari District Andhrapradesh. Her areas of intrests are Power Electronics, Electrical Machines.

Indana Ganesh Kumar pursuing B.Tech in Electrical and Electronics Engineering at Pragati Engineering College, Surampalem, East Godavari District Andhrapradesh. Her areas of intrests are Power Electronics, Electrical Machines.

Karnasula Siva Kumari pursuing B.Tech in Electrical and Electronics Engineering at Pragati Engineering College, Surampalem, East Godavari District, Andhrapradesh. His areas of intrests are Power Electronics, Electrical Machines.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY