EMERGENCY VEHICLE SYSTEM BY USING GSM MODULE

Dinkar Jadhav[1], Sanket Kale[2], Saurabh Kokate[3], and Prof.A.A. Chandane[4]

[1,2,3]UG students Electrical Engineering, Sinhgad College of Engineering, Pandharpur
[4]Asst. Prof. Electrical Engineering SKN Sinhgad College of Engineering, Pandharpur

dinkarjadhav5225@gmail.com1, sanket36.bkale@gmail.com[2], saurabhkokate3850@gmail.com[3],
anjali.chandane@sknscoe.ac.in[4]

ABSTRACT

- The advancing technology has made our day to day lives easier. Since every coin has two sides similarly technology has its benefits as well as its disadvantages. Vehicle Accident Alert System using GPS, GSM and Accelerometer. Accelerometer detects the sudden change in the axes of vehicle and GSM module send the alert message on your Mobile Phone with the location of the accident. The rise in technology has increased the rate of road accidents which causes huge loss of life. The poor emergency facilities available in our country just add to this problem. Our project is going to provide a solution to this

Keywords :Arduino, GSM, GPS, LCD, Sensor.

INTRODUCTION

The high demand of automobiles has also increased the traffic hazards and the road accidents. Life of the people is under high risk. This is because of the lack of best emergency facilities available in our country. An automatic alarm device for vehicle accidents is introduced in this paper. This design is a system which can detect accidents in significantly less time and sends the basic information to first aid centre within a few seconds covering geographical coordinates, the time and angle in which a vehicle accident had occurred. This alert message is sent to the rescue team in a short time, which will help in saving the valuable lives. A Switch is also provided in order to terminate the sending of a message in rare case where there is no casualty,

this can save the precious time of the medical rescue team. When the accident occurs the alert message is sent automatically to the rescue team and to the police station. The message is sent through the GSM module and the location of the accident is detected with the help of the GPS module. The accident can be detected precisely with the help of both Micro electro mechanical system (MEMS) sensor and vibration sensor. The Angle of the rolls over of the car can also be known by the message through the MEMS sensor. This application provides the optimum solution to poor emergency facilities provided to the road accidents in the most feasible way. The usage of auto mobiles has improved linearly over the past decade, which increased in the risk of human life. This is because due to the insufficient emergency facilities.

LITERATURE SURVEY

At present criteria, we cannot detect where the accident has occurred and hence no information related to it, leading to the death of an individual. The research work is going on for tracking the position of the vehicle even in dark clumsy areas where there is no network for receiving the signals. In this project GPS is used for tracking the position of the vehicle, GSM is used for sending the message and the ARM controller is used for saving the mobile number in the EEPROM and sends the message to it when an accident has been detected. From the past event and the existing approach the below Drawback are been noted:
1. Manual system is adopted.

2. Tracking of accident is a crucial process in the system.

3. Required medical attention cannot be given to the needed person.

4. Life loss and property loss were not stopped in large scale.

5. The Automated system is used once the accident occurs.

Methodology:

The Prototype of this Accident Detection and information passing technique uses the following steps:

1. The Complete Setup is depicted in the form of block diagram.
2. Piezoelectric sensor detects the first occurrence of the accident and it is intimated to the MCU.
3. The Latitude and Longitude are detected using GPS and it is sent as message to the rescue team through GSM.
4. The message receiver number is pre stored in the EEPROM.
5. A OFF Switch is also provided at times of need to avoid false message.

List Of Component

- Hardware used: LCD
- Regulator
- GSM Module
- Switch
- Shock Sensor
- Ardunio UNO
- MPU 6050
- GPS

Software used: GSM Module

System Architecture:

In this project we are using accident detection unit which fitted the vibration sensor in the vehicle. For example, In case of accident, occurs if the car is hit to some other vehicle or an object it create some vibration in that case then the vibration sensor will detect the vibrating signal and it pass the message to the arduino. Arduino is used as a Central Processing Unit (CPU) of our project. When the arduino receives a signal from vibration sensor it immediately pass the message to GSM modem then the GSM modem will starts its process. In this project we used reset button it will be used by the driver if the accident is very normal for example if the driver hit the wall in some situation like parking then the driver will press the reset button this will inform the arduino to that system will not send SMS. But if the driver is not in a situation to press the switch or if the accident is really a major accident then the driver will not press the reset button and then the system will send SMS.
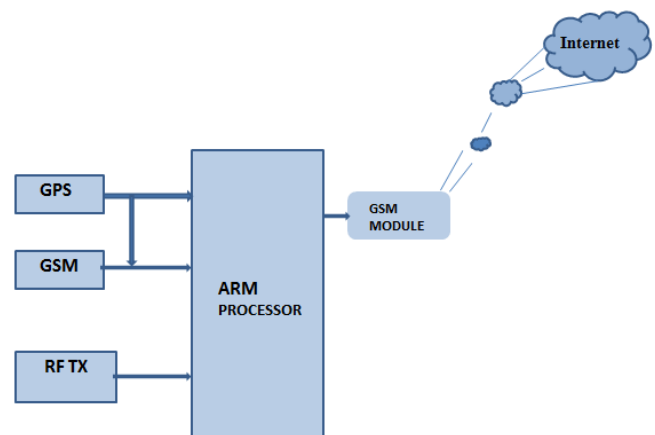

Fig. Block diagram

Working:

Now a days large amount of accidents are happening in highways due to increase in traffic and also due to rash driving of the drivers. And in many situation the family members or the ambulance and police authorities cannot able to get information regarding to that accident in an appropriate time. This result in delaying the help which is more important to that person who

suffer from that accident. Our project automatic accident vehicle detection and messaging system using GSM modem is designed to overcome such problem and to prove help for the person who met with accident and save their life too by passing message to rescue team in right time.

A. Hardware Design:
The system compromises numerous tools that are utilized to obtain the desired system. The tools are explained in two sections (Sensing and Actuators):
a) Sensing:
A piezoelectric sensor is used as accident detection sensor. A piezoelectric transducer has very high DC output impedance and can be modeled as a proportional voltage source and filter network. The voltage V at the source is directly proportional to the applied force, pressure, or strain. The output signal is then related to this mechanical force as if it had passed through the equivalent circuit.

1 GSM – GLOBAL SYSTEM FOR MOBILE COMMUNICATION GSM is used as a media which is used to control and monitor the transformer load from anywhere by sending a message. It has its own deterministic character. Thereby, here GSM is used to monitor and control the DC motor, Stepper motor, Temperature sensor and Solid State Relay by sending a message through GSM modem. Hence no need to waste time by manual operation and

3) *A Light Dependent Resistor (LDR) or a photograph resistor:* is a gadget whose resistivity is a component of the occurrence electromagnetic radiation. Subsequently, they are light sensitivity gadgets.

CONCLUSION

Our idea is used to detect accident and automate emergency assistance services. As a result, system is sending SMS to the nearest Emergency assistance service provider from accident location. The high demand of automobiles has also increased the traffic hazards and the road accidents. Life of the people is under high risk.
This is because of the lack of best emergency facilities available in our country. An automatic alarm device for vehicle accidents. This design is a system which can detect accidents in significantly less time and sends the basic information.

This alert message is sent to the rescue team in a short time, which will help in saving the valuable lives. A Switch is also provided in order to terminate the sending of a message in rare case where there is no casualty, this can save the precious time of the medical rescue team. When the accident occurs the alert message is sent automatically to the rescue team and to the police station and the message is sent through the GSM module

REFERENCES

R. Ganiga, Rohit Maurya, Archana Nanade,"Accident detection system using Piezo Disk Sensor", International Journel of science, Engineering and Technology Research(IJSETR) volume6,Issue3,March 2017,ISSN 2278-7798.

[2].Hemjit Sawant, Jindong Tan, Qingyan Yang Qizhi Wang," Using Bluetooth and Sensor networks for intelligent transport systems", In proceeding of Intelligent Transport System; 2004

[3].Helia Mamdouhi, Sabira Khatun, Javed Zarrin," Bluetooth Wireless monitoring, Manging and Control for inter vehicle in vehicular adhoc networks", Journal of computer Science, Science Publication; 2009

[4].Jules White, Brian Dougherty, Adam Albright, Douglas C," Using Smartphone to Detect Car Accidents and Provide Situational awareness to emergency responders chirs Thompson", Mobile Wireless Middleware, Operating system and Application;2010

[5].Khyati Shah, Vile Parle, Swati Bairagi,Vile Parle "Accident Detection and Conveyor System using GSM and GPS Module" International journal of Computer Applications (0975-8887) .
[6] EiThuzar Khin, Chaw M
yat et. al " Vehicles In Highway Communication System Using ZigBee And Bluetooth Network"Department of Electronic Engineering, Mandalay Technological University,

[7] B. Janani Saradha," Intelligent traffic signal control system for ambulance using RFID and cloud " Department of IT, Sri Sairam Engineering college, India.

[8]M. S. Uddin, A. K. Das and M. A. Taleb, "Real-time area based traffic density estimation by image processing for traffic signal control system: Bangladesh perspective", *2015 International Conference on Electrical Engineering and Information Communication Technology (ICEEICT)*, pp. 1-5, 2015.