

Motorized Alcoholic Impediments and Control the Vehicle Accident

V. Gayathri¹, K. Amuthachenthiru², S. Bhuvaneshwari³, A. Maheswari⁴, S. Nivetha⁵

¹Assistant Professor, Dept. of CSE, P. S. R. Rengasamy College of Engineering for Women, Sivakasi, India

^{2,3,4,5}UG Student, Dept. of CSE, P. S. R. Rengasamy College of Engineering for Women, Sivakasi, India

Abstract: In highly populated Countries, everyday people lose their lives because of accidents and poor emergency facilities. These lives could have been saved if medical facilities are provided at the right time. This project implies a system which is a solution to this drawback, when a vehicle meets with an accident immediately a Vibration sensor will detect the signal, and sends it to the Arduino microcontroller. Microcontroller will send an alert message through the GSM modem including the location to the police station or a rescue team. So the police can immediately trace the location through the GPS modem after receiving the information. The proposed systems have been simulated and practically design by the use of hardware components and the results are satisfied with the expectation.

Keywords: GPS, GSM, SMS, UNO

1. Introduction

With the growing population the use of vehicles has become superfluous .and this has led to increase the traffic hazards and the road accidents, which causes huge loss of life because of the poor emergency facilities. The purpose of the project is to find the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system, Most of the times we may not be able to find accident location because we don't know where accident will happen. When a vehicle meets with an accident immediately Vibration sensor will detect the signal, and sends it to Arduino microcontroller. Microcontroller sends the alert message through the GSM modem including the location to the police station or a rescue team. So the police can immediately trace the location through the GPS modem after receiving the information.

2. Methodology

A. Research framework

With the growing population the use of vehicles has become superfluous .and this has led to increase the traffic hazards and the road accidents, which causes huge loss of life because of the poor emergency facilities. The purpose of the project is to find the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system. Most of the times we may not be able to find accident location because we don't know where accident will

happen. When a vehicle meets with an accident immediately Vibration sensor will detect the signal, and sends it to Arduino microcontroller. Microcontroller sends the alert message through the GSM modem including the location to the police station or a rescue team. So the police can immediately trace the location through the GPS modem after receiving the information.

3. Design

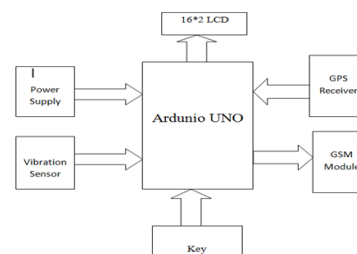


Fig. 1. Block diagram

A. Key

Work as a switch for reset the circuit when there is no need for the ambulance or the police.

B. Power supply

A power supply is an electronic device that supplies electrical energy to an electrical load. Here Arduino Uno, sensor, GPS, GSM operates with DC 12V supply.

C. Arduino Uno

It is a microcontroller development board made using ATmega328. ATmega328 has 14 digital input/output pins 6 analog inputs. It works on 16 MHz crystal oscillator, a power Jack and a reset button. It provides everything needed to support the microcontroller development board; it can be directly connected to computer with a cable and USB jack. Instead of using converter Arduino uses USB-to-serial converter

D. Vibration sensor

Vibration sensor SW18010P is used for measuring and analyzing linear velocity, displacement or acceleration. Features of SW18010P. This is spring type directional vibration sensor. Which can detect vibration in any angle.



Fig. 2. Vibration sensor

E. 16X2 LCD

16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, command and data. The command register stores the command instruction given to the LCD. A command is an instruction gives to LCD to do a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD.



Fig. 3. 16X2 LCD

F. GPS receiver

Global Position System (GPS) is a space based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the earth where there is an unobstructed line of sight to four or more GPS satellite. The system provides critical capabilities to military, civil, commercial users around the world.



Fig. 4. GPS receiver

G. GSM module

A GSM network consists of the following components

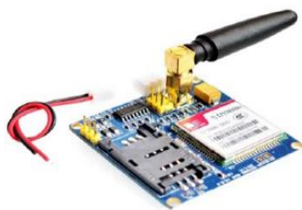


Fig. 5. GSM module

H. Flow chart

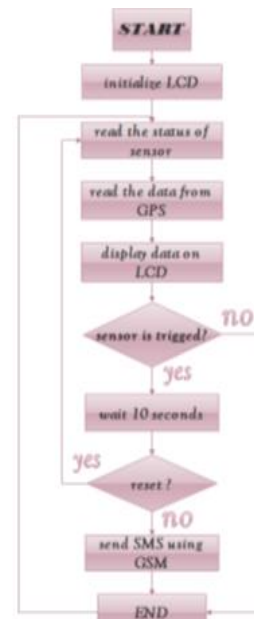


Fig. 6. Flowchart

4. Result

The system detects accident from a vehicle and send message through GSM module. The message is received by another GSM module. GPS Module track the exact location of the accident, hence there is small variation in the coordinates, initial value of latitude and longitude are same but fractional value changes with small difference. At the simulation we treat the GPS and GSM modules with Virtual terminal, it acts same as the modules work with more efficient at PROTEUS program. We connect the vibration sensor in the simulation with a variable resistance to control vibrate level. The results we get from the simulation are shown in the figure 4.1. At hardware we built, Arduino receive analog signals from the vibration sensor , it display on the LCD , We set a certain limit for the amount of vibration if the shock exceed the limit then a delay of 10 second will display at the LCD and start count down to 0 , we introduced a key that will abort sending message if the key have been pressed before counting down finish , GPS will send the coordinates to microcontroller , GSM will send a message to the recorded numbers , the message that will be send.

5. Conclusion

This paper presented the implementation of motorized alcoholic impediments and control the vehicle accident.

References

[1] G. R. Shete, D. A. Shah, A. Gaidhani, S. D. Shinde, and S. R. Sharma, "Smartphone based Vehicle Tracking and Accident Prevention System," International Journal of Computer Applications & Information Technology, vol. 8, p. 172, 2015.

- [2] R. Rathinakumar and D. Manivannan, "Wireless accident information system using GSM and GPS," *Research Journal of Applied Sciences, Engineering and Technology*, vol. 4, pp. 3323-3326, 2012.
- [3] R. Kumar and K. Jayasree, "GSM & GPS Integrated with ARM Based Event Data Recorder for Accident Detection," *IJSEAT*, vol. 2, pp. 468-473, 2014.
- [4] P. P. Pingle, A. S. Marathe, and P. R. Ahirrao, "Intelligent Vehicle Accident Detection & Notification System (VADANS) Using Smart Sensor and GPS Technologies," *Imperial Journal of Interdisciplinary Research*, vol. 2, 2016.
- [5] M. S. Amin, M. B. I. Reaz, M. A. S. Bhuiyan, and S. S. Nasir, "Kalman filtered GPS accelerometer-based accident detection and location system: A low-cost approach," *Current Science*, vol. 106, pp. 1548-1554, 2014.
- [6] A. R. Wakure, A. R. Patkar, M. V. Dagale, and P. P. Solanki, "Vehicle Accident Detection and Reporting System Using GPS and GSM," *International Journal of Engineering Research and Development*, vol. 10, pp. 1-4, 2014.
- [7] M. Abinaya and R. U. Devi, "Intelligent vehicle control using wireless embedded system in transportation system based on GSM and GPS technology," *International Journal of Computer Science and Mobile Computing* ISSN 2320-088X IJCSMC, vol. 3, pp. 244-258, 2014.
- [8] H. D. Pham, M. Drieberg, and C. C. Nguyen, "Development of vehicle tracking system using GPS and GSM modem," in *Open Systems (ICOS)*, 2013 IEEE Conference on, pp. 89-94, 2013.