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Design and Implementation of Vehicle Monitoring System

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Abstract: *In today's modern world, travel is an important part of human life on earth. It can be a public transport or private vehicle; Both places are equally used to meet the need for travel. To ensure the safe and secure mode of transportation, the plan proposes a solution to determine the current location of the vehicle based on the vehicle's live status and global positioning system and radio communications, then send this information remotely to supervise the central / user cell phone.*

Keywords: *Vehicle, Black Box, Microcontroller, Computer interface, GPS, GSM.*

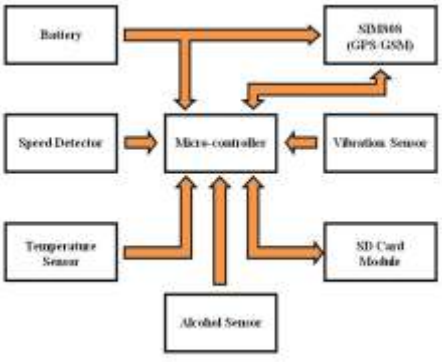
I. Introduction

In some cities, such as Delhi / Mumbai / Calcutta, it is really difficult to solve vehicle accidents related problems with the increase in vehicle numbers. Accidents in these cities have crossed the level of expectations and have caused human losses. To counter this agony, customization has been customized according to the requirements for running a safety system, and has been encouraged in developed countries for many years. Accidents also prevent the alcohol detection sensor from being used by the alcohol detection sensor, which causes the intake of alcohol to stop the vehicle and at the same time focusing on the mounted LCD monitor. Accidents are being avoided due to the local standards of automobiles, even though security measures and criteria have been tested and tested by governments these days from time to time .These modern, fast, moving and insecure worlds must know about one's safety. Maximum risks occur when traveling to money relations with employees.

II. Literature Survey

Several resources have been taken to help evaluate and design the project. A prototype of the black box can be designed with a minimum number of circuits for a vehicle test that can be mounted in any box. It helps to build safe vehicles, improves the risk of crash victims, help insurance companies with their vehicle crash investigations, and increase road condition to reduce death rates .We report the results of our study from two perspectives: 1) Traffic Accident Recovery (i.e. 78% In many cases the state is osteoarthritis Hobbies successfully marusrstisalpaduttave); And 2) Interactive car-down behavior of human subjects embedded in a virtual enviorment traffic situation .Clear video clips in the black box provide data integrity before transmitting to the police server.

III. Block Diagram



IV. Block Diagram Description

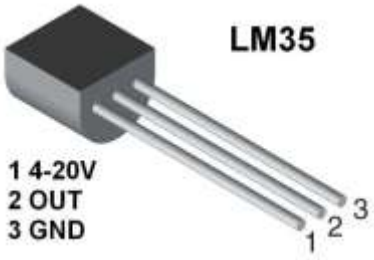
1.ALCOHOL SENSOR:-

Alcohol sensor is used to sense the presence of alcohol inair. If the person in the car is high on alcohol, then it can besensed with the help of this sensor. MQ3 alcohol sensor isone of the easy to use sensors that can be connected to theArduino. MQ3 gas sensor is high sensitive to alcohol. Itis a low cost sensor which can be used for variousapplications.

Alcohol Sensor

2.TEMPERATURESENSOR(LM35):-

LM35 is used to detect accurate temperatureCentigrade. Output voltage is a direct proportion Enrichment temperature. LM35 operates a wide range of temperatures ranging from -55 to +140 ° C. It draws only 60μA From electricity. LM35 can operate from 4 to 30V.



Temprature Sensor

3.SIM 808 (GPS+GSM) MODULE:-

GSM is the most widely used mobile communications system. The modem at various frequencies is 850, 900, 1800,1900MHz. The system uses SIMCOM SIM808. ATCommands are used to set up baud ratios. SIM808 volumeA GSM and GPS are shown in a function modules. It uses less power. GSM is used to sendCombined with a GPS alert message that combines the previously saved numbers.

4.Speed Sensor:-

The speed sensor is to find the speed of the scopeAutomobile. With the help of speed sensor, number of the cycles can be calculated per minute of the vehicle. TheVoltage range varies from 2 to 36V. This sensor can be used to find the speed of the vehicle at the time of the accident.

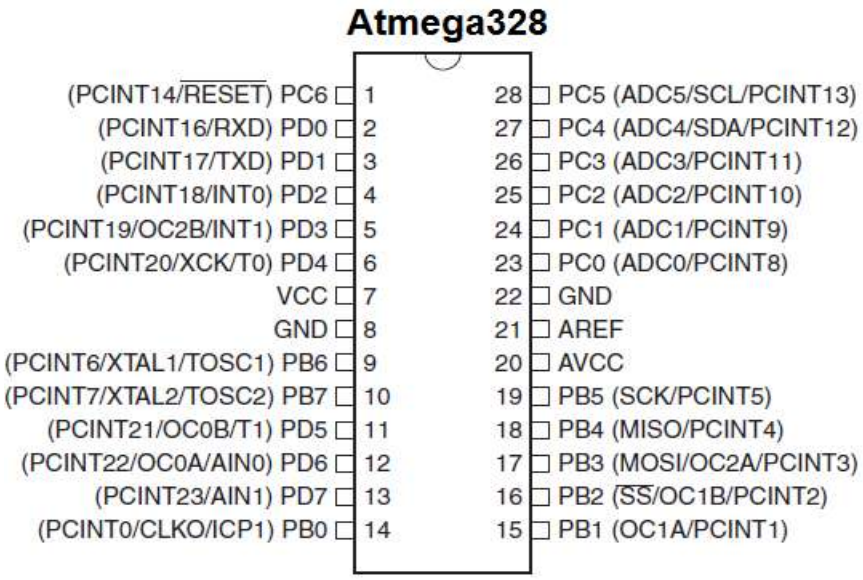
IR Proximity Sensor

5.Vibration Sensor:-

This module features a LM393 comparison chip to give an optimal platonometer, a vibrational sensor and an optimal digital output based on the vibration levels. The panhandimeter can increase and decrease sensitivity to the desired size. A logical level high (VCC) output and a low (GND) hnn.do block is an internal LED that turns into triggering block when the module is triggered.

6.Atmega 328 Microcontroller:-

PIN DIAGAM:-



V. Description:-

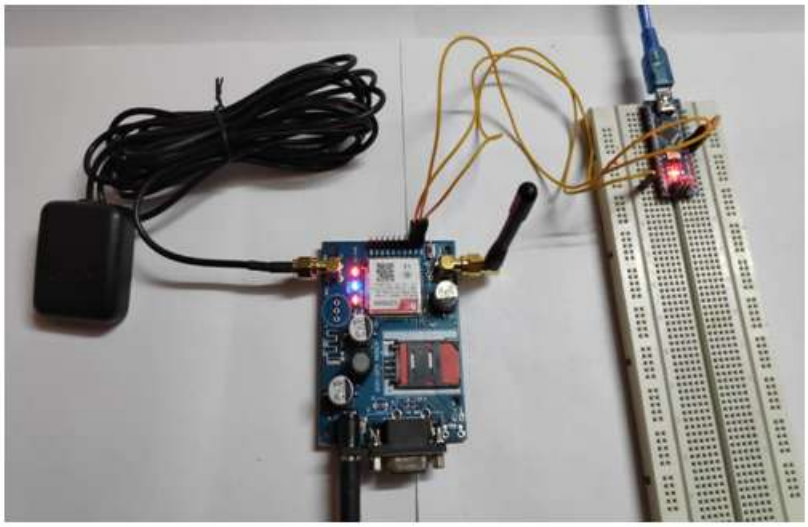
- The Atmel 8-bit AVR RISC-based microcontroller combines
- 32 kB ISP flash memory with read-while-write capabilities 1 kB EEPROM
- 2 kB SRAM
- 23 general purpose I/O lines

- 32 general purpose working registers
- three flexible timer/counters with compare modes
- internal and external interrupts
- serial programmable USART
- a byte-oriented 2-wire serial interface
- SPI serial port
- 6-channel 10-bit A/D converter (8-channels in TQFP and QFN/MLF packages)
- programmable watchdog timer with internal oscillator
- five software selectable power saving modes
- The device operates between 1.8-5.5 volts
- The device achieves throughput approaching 1 MIPS per MHz

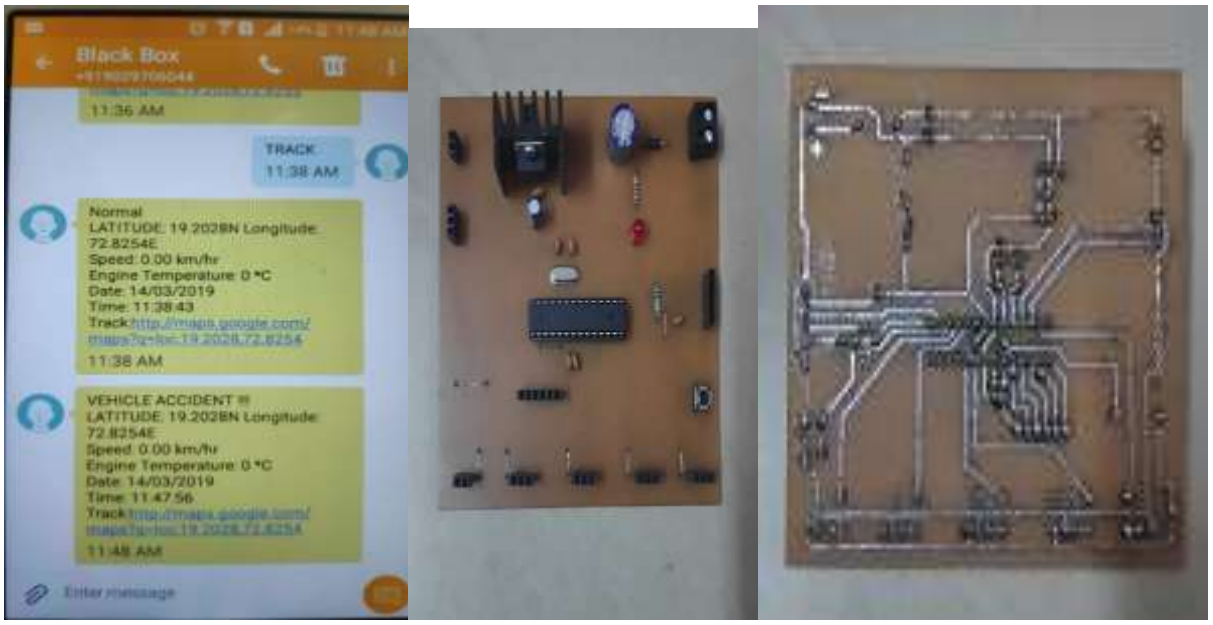
VI. Progress Of Hardware Module:-

Work Completed:-

- Block diagram has been made.
- Selection of components for the project has been made.
- Interfering of SIM808 and working with AT commands has been carried out for fetching the location details.



- Hardware module has been made.
- Temporarily module checked by arduno.
- Pcb has been made.
- Vehicle monitoring system has been track.
- observed the speed, latitude, engine temperature and other equipments.



VII. Advantage

• It is used to analyze the cause of vehicular accidents and prevent the loss of life and property arising from vehicle accidents.

• The system aims to achieve accident analysis by objectively tracking what occurs in vehicles.

•This is because most insurers base their premium calculations on a block of driver profiles and general statistical evidence.

VIII. Conclusion

This paper has presented a new vision for the vehicles industry, which is the Black Box system used for vehicles. The proposed system plays an important role in real time tracking and monitoring of vehicle by updating vehicle real time information to the owner mobile. A full and detailed description was made for every part of this system. This paper has also offered a user friendly embedded program to analyze the data of the accident. The Black Box system built can be implemented in any vehicle. As soon as the driver runs the motor, this system will begin saving the events of the corresponding vehicle. The last are always saved in the EEPROM of the Black Box, and in case of an accident, an additional 10 seconds of events after this accident will be saved. The data saved can be retrieved only after the accident for privacy purposes. Using serial transmission the EEPROM and display it to the user. In addition, a detailed report will be given to the user containing the recorded data in the memory.

IX. Future Scope

Use of GPS module with this system will be helpful in finding the accident location and take quick rescue operations. We can enhance the present system to check other parameters like fuel level, tyre pressure and working of headlights before starting the vehicle .Many other critical parameters can be read and stored in the memory. Another useful add-on to the present system could be cameras on front and backsides which keep recording live images and storing them in memory. This video data would be much useful for accident investigation.

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