KUMARAGURU COLLEGE OF TECHNOLOGY

COIMBATORE-641049

(An Autonomous Institution Affiliated to Anna University)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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Project Report

VEHICLE ACCIDENT ALERT AND DETECTOR USING ARDUINO

Submitted by

Dimple kanna.K (18BEC129)

Abinaya .S (18BEC126)

Abarna. P (18BEC144)

Shupriyaasrhi. K(18BEC165)

Faculty Coordinator

Dr.S.Sasikala

ASP/ECE

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ABSTRACT:

Todaysworldhasmanytechnology. Thatmaintechnologyistheinventionof car.Nowadaysduetocarlotof accidentsarehappening.Thereason forthehappeningofaccidentisdueto overspeeding, drowsynessofthe driver,alcoholconsumption,distraction ofthedriver.Thedeathduetoaccident isincreasingdaytoday.In2019there were27,820killedorseriouslyinjured ,whichisincreased.Thereforeaccident detectionandmonitoringsystemusing GPSANDGSMmodulehasbeen experimentedtocontroltheaccident.In thisexperimentwecanalsosavethe manylivesfromriskwhichis monitorby GSMmodule.TheuseofGPSwilltell usthelocationofaccidentwhereit happens.

KEYWORD: *Arduino, gps module, gsm module.*

INTRODUCTION:

In modern world there is increase in population and increase in technology. In this the automobile industry has gone to high peak.As per the survey, in 2018 more than 1.5 lakh people lost theirlives in road crashes. In survey, twenty children under the age of14 die every day due to road crashes in the country. Due to theaccident the mortality rate is very high compared to otherdiseases. One seious road accident in the country occurs everyminute and 16 die on Indian roads every hour.Most of the people died in the accident due to the first aid can ̄tget in the correct time. In this paper, we had a solution foraccident detection and alerting system through GPS and GSM.And another solution is accident detection using accelerometer.

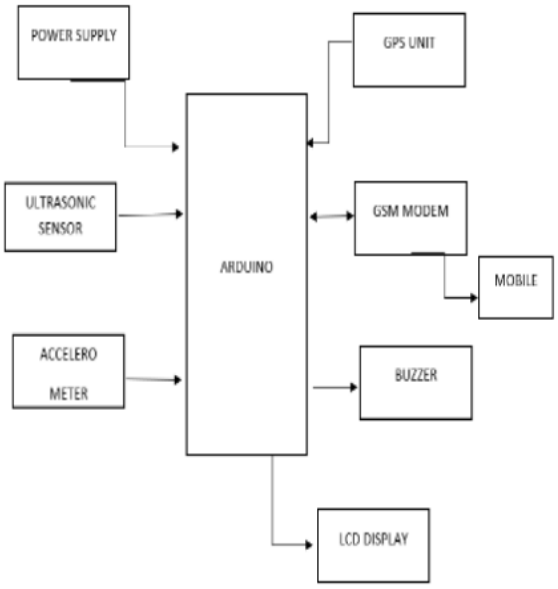
Literature survey:

This survey gives the information about the various type of accident detection methods used and its merits and demerits .Reference1. tells the An Ultrasonic sensor is connected with Arduino UNO to send the signal. An accelerometer sensor which is a device that measures the proper accelerationAccelerometer sensor detects the sudden changes in the axes of the vehicle.A U slot sensor is normally used as positional sensor switch to find the position of the wheel.An Arduino UNO is connected with GPRS.2 tells When an accident occurs, MEMS gets disturbed and sends output signal to the processor LPC2148 so that the location is identified using GPS.ARM processor consists of two modes of operation i.e; program mode and run mode.When an ARM processor reads the signal from MEMS it indicates that an accident occurred in order to locate the spot of the accident we use GPS, output of GSM

and GPS is given to MAX-232 .3.tells A piezoelectric sensor will sense the accident and give output to the microcontroller.

The gobal positioning system module detects the latitude and longitudinal position of the vehicle. The latitudes position longitude position of the vehicle is sent as message through the GSM. The phone number is pre-saved in the EEPROM.4.tells the GPS uses the tracking of the system this is lost along with information of longitude and latitude .This is sent to the GSM in form text message to the automobile user The sensor are used to sense the alcohol consumption and any accident detection is sensed the messages has been send to the GSM user .The sensor data has been updated in the thinkspeak channel.

BLOCK DIAGRAM:



COMPONENTS:

ARDUINO:

The main part of the vehicle tracking system is microcontroller. Arduino UNO is a open access microcontroller. Arduino controller board contains 16 input and output pins which are used to interfaced embedded devices. It works with a voltage of 5v. it has a flash memory of 32KB and static RAM of 2KB.Arduino controller can be programmed in embedded c language in Arduino IDE.

ULTRASONIC SENSOR:

An ultrasonic sensor transmit ultrasonic waves into the air and detects wave from an object. Ultrasonic trannsducer that is based on a transmitter and receiver and mainly used to determine the distance from the traget object with the wave length .it is wide range of applications including speed and direction measurement , wireless charging, medical ultrasonography.

GSM MODULE

GSM (Global System for Mobile communications) is an open, digital cellular technology used for transmitting mobile voice and data services. GSM is a digitalmobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of Time Division Multiple Access (TDMA) and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA) It operates at either the 900 MHz or 1,800 MHz frequency band. It supports voice calls and data transfer speeds of up to 9.6 kbit/s, together with the transmission of SMS (Short Message Service). The message sending module is SIM300, it is a Tri-band GSM/GPRS that works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS1900 MHz. SIM300 provides GPRS multi-slot class 10/ class 8 capability and supports the GPRS coding schemes.

GPS MODULE:

GPS (gobal positiong system) is used in vehicles for both tracking and navigation. Tracking systems enable a base station to track of the vehicles without the intervention of the driver where, as navigation system helps the driver to reach of the place where they are. When an accident occurred in any the sport then GPS module will tracks the position of the vehicle and sends the message to the particular person through GSM by alerting the person

LCD Display:

A Liquid Crystal Display is a thin, flat display device made up of any number of colour or monochrome pixels arrayed in front of a light source or reflectorIt is prized by engineers because it used as very small amount of power, and is therefore suitable for use in battery-powered electronic devices also.

FUTURE SCOPE:

To monitor drowsiness- we add eye blink sensor. It can be detect the eye blink count. If the abnormal eye blink count is present, the vehicle is parked at the left end of the road.To detect any obstacles-we add PIR sensor/Ultrasonic sensor. Itcan be detect obstacles while parking and the vehicle is going on.For accuracy-We use high end sensor.To detect alcohol-we add alcoholic sensor. Alcohol detection isdone at the start of the vehicle. If driver is drunk then the vehicledoesn ˜t allow the driver to start the vehicle. In another man inback seat has consumed alcohol it can ˜t be detected. Because,the alcohol sensor

range is low.And also security sensor can be added. For, security purpose.Then pulse rate sensor added to detect the driver s heart beat.

APPLICATION:

- *Can be used in Car/Motor Vehicles for the safety of drivers*
- *Can be used by health department of government to survey the number of accidents occur*
- *This can be interfaced with automobile detecting system .Monitoring and remote control .Security and transportation*
- *With some modification we can use this system for traffic estimation.*
- *This can be interfaced with automobile detecting system*
- *Monitoring and remote control Security and used in fleet management.*

ADVANTAGES:

- *To offer security.*
- *To Monitors hazards.*
- *Alerts accidents to police and hospital(emergency unit) viasms(short message service)*
- *It can be interfaced with different systems*
- *Easy to control for peoples.*
- *Low cost*
- *System reliable and easy to design*
- *If we use more sensor, it can be increase the accuracy andefficiency.*

CONCLUSION:

This project is used for vehicle accident detection and alert system regarding accidents, vehicle tracking using GPS Modem and GSM modem. In this project we have designed arduino based vehicle accident detection and tracking system using GPS Modem. Hence this project is useful for the the system to interact and respond for the variety of applications especially in case of control accident traffic control.

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