A System For Accident Prevention Using Eye Blink Sensor

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Abstract- *The aim of the project is to develop a smart vehicle system with minimizing the limitations of existing methods and also enhancing the security of vehicles and human beings and also reduces the accidental injuries. Smart vehicle system will entail a speed and other parameters of vehicle sensing mechanism which automatically messages to traffic police with the details of vehicle position when a accident occurs using the GSM/GPRS system.*

The system also contains a vehicle black box, and an eye blink sensor. A eye blink sensor, ultrasonic sensor and various sensors which senses various parameters of the vehicle is connected to a microcontroller which detects when abnormal conditions occur or any accidents occur,then sends text message, using GSM technology, to a police ambulance services and the drivers relatives. The text send to various authorities contains the details of the vehicle and its position. When driver feels sleepy or eye is blinking while driving, with the help of eye blink sensor, motor(vehicle)speed is reduced and at the same time buzzer is activated, so that the driver can pay his attention.

Here we also use LCD to display all the data, which is attached to the microcontroller. In this proposed model, we also have a vehicular black box, which records audio and video clips and in case of any abnormal event, the recorded event will be sent to concerned person, which will be helpful for police investigation and to claim insurance.

I. INTRODUCTION

The accidents and the injuries in the world are increasing in our day today life, so there must be a good and efficient control for the safety of human life. Violation of traffic rules, drunk driving, careless driving are some causes of road accidents, as we know we cannot stop the accidents but we can reduce the accidents by some precautionary measures. Road accident is the most unwanted thing to happen to a road user, though they happen quite often. The most unfortunate thing is that we don't learn from our mistakes on road. Most of the road users are quite well aware of the general rules and safety measures while using roads but it is only the laxity on part of road users, which cause accidents and crashes. Most of the fatal accidents occur due to over speeding. It is a natural psyche of humans to excel. But when we are sharing the road with other users we will always want to take a control. Increase in speed multiplies the risk of accident and severity of injury during accident.

A vehicle moving on high speed will have greater impact during the crash and hence will cause more injuries. Some deaths also happen due to the lack of immediate first aid. Another problem is that the lack of information about the vehicle position.To solve the major problem, several methods have been adopted but most of them are largely ineffective or manually operated and depend on the user's ability to be alert, when using them. As such, a smart security to humans and alert and reporting system is needed which can inform a driver if any parameters are going wrong and also to the police to inform about the violation of laws occur.

II. EXISTING SYSTEM

- In the existing system they used to develop a drowsiness detection system.
- This system works by analyzing the eye movement of the driver and alerting the driver by activating the buzzer when he/she is drowsy.
- The system so implemented is a nonintrusive real-time monitoring system for eye detection.
- During monitoring, the system is not able to decide whether the eyes were opened or closed.
- When the eyes were detected closed for too long, a buzzer was issued to warn the driver.
- In addition, the system also has an option for making vibration when drowsiness was detected. The aim is on improving the safety of the driver without being obtrusive.

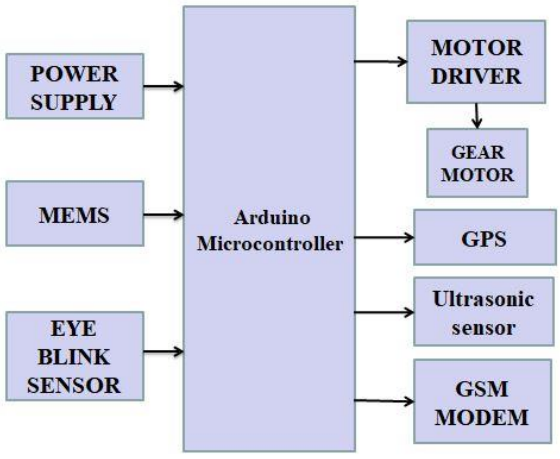
III. PROPOSED SYSTEM

- In this proposed system, we are using Matlab Dataset, ultrasonic sensor, with GPS and GSM technology.

- Herean ultrasonic sensor module to detect any obstacle in the surroundings of the vehicle and it intimates the microcontroller and the controller calculates the distance between the vehicles and if the distance is very less, then motor is activated to stop the vehicle automatically.
- With the help of eye blink sensor we detect and measure the driver fatigue. During monitoring, the system is able to decide whether the eyes were opened or closed in real time.
- When driver eye is blinking or closed,at that time buzzer is activated to warn the driver.If the driver does not turn off the buzzer ,then the vehicle speed reduces.
- A LCD is used by primary output to display the microcontroller data.
- The GPS (Global Positioning System)/ GSM (Global System for Mobile Communication) for driver assistance and car surveillance.
- Wireless black box using Matlab dataset and GPS tracking system is developed for monitor the accident.
- In the event of accident, if any injury happened the text send to various authorities contains the details of the vehicle and its position.

IV. BLOCK DIAGRAM - PROPOSED MODEL

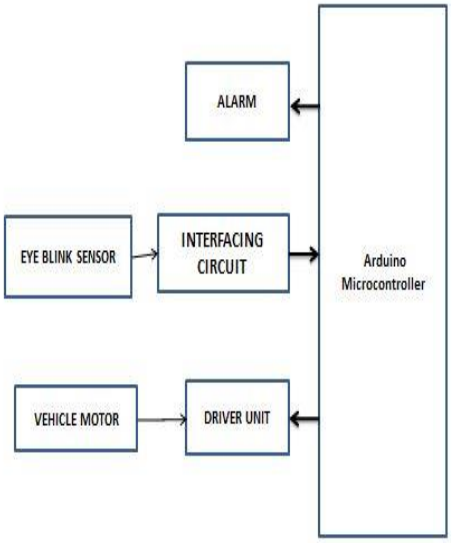
The brain of the system is a microcontroller. Microcontroller receives input from various sensors.Alarm and LCD are the primary outputs. The secondary outputs are GSM module and gear driver motor. Arduino Uno is a microcontroller board and it is the brain of the system. Arduino is a tool for making computers that can sense and control more of the physical world than your desktop computer.



Block Diagram

V. VEHICLE ACCIDENT PREVENTION USING EYE BLINK SENSOR

In this project ,the eye blink sensor is placed near the eye to sense the blink count and this information is transmitted in the form of pulses and is given to the Microcontroller.

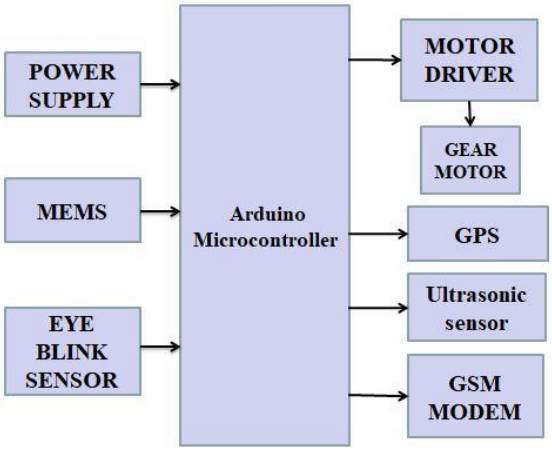


Eye Blink Part

VI. WIRELESS BLACK BOX AND GPS TRACKING FOR ACCIDENTALMONITORING OFVEHICLES

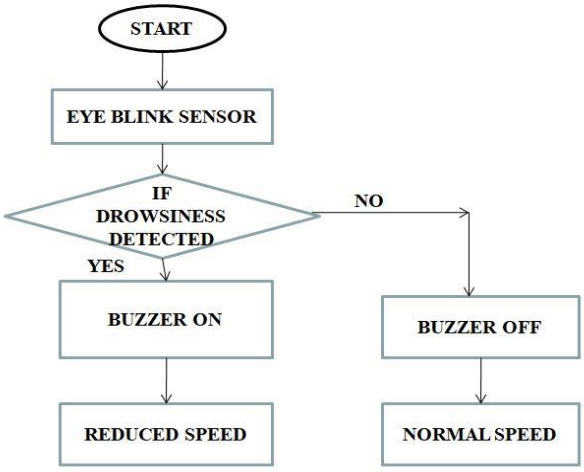
The main aim of this project is to implement a wireless box system which uses MEMS to monitor the vehicle movements and track the vehicle using GPS when an accident occurs to the vehicle.

The purpose of the project is to monitor vehicle parameters. To detect and track the vehicle when an accident occurs and intimate about this using GSM.. Main advantage of this project is it will automatically send a message to the ambulance service for immediate first aid.



Combined Block Diagram

VII. FLOW DIAGRAM



FLOW DIAGRAM

VIII. CONCLUSION

An efficient smart vehicle system has been proposed which gives good security to driving. We have done a detailed survey among the existing systems for vehicles. On the basis of our analysis, we are proposing smart vehicle method.The advantages of the proposed system over other methods include prevention of accidental injuries, to Improve safety of driving to Discourages careless driving, Helps to control traffic violation by an Adaptable simple Method which is of Low cost.

IX. FUTURE WORK

Future enhancements of this paper include analysis of the proposed scheme with GSM modem which will message to police control room when accident is occurred . The system can be adopted in bikes trucks ships etc.

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