VEHICLE ACCIDENT PREVENTION USING EYE BLINK SENSOR

S.Hariprakash[1], S.Manikandan[2], K.Harishankar[3], O.Abishek[4], M.Bharanidharan [5], Gokulprasath.Y[6]

[1][2][3][4]UG scholars, [5] Assistant Professor, [6]Assistant System Engineer
[1,2,3,4,5]Department of Electronics and Communication Engineering,Knowledge Institute of Technology, Salem
[6]Tata Consultancy Services Ltd, Chennai
[1]horriblehari@gmail.com, [2]manikandansece24@gmail.com, [3]k.harishankar12@gmail.com ,
[4]abishekece94@gmail.com, [5]mbece@kiot.ac.in

Abstract-**Accident due to drowsy is prevented andcontrolled when the vehicle is out of control. And also the drunken drive also prevented by installing alcohol detector in the vehicle. The term used here for the recognition that the driver is drowsy is by using eye blink of the driver. In recent times drowsiness is one of the major causes for highway accidents. These types of accidents occurred due to drowsy and driver cant able to control the vehicle, when he/she wakes. The drowsiness is identified by the eye blink closure and blinking frequency through infra-red sensor worn by driver by means of spectacles frame. The alcohol consumption is also verified during the starting process of the vehicle using alcohol detector. If the driver is drunk then the buzzer indicates and the vehicle doesn't allow the driver to start the vehicle. If the driver is drowsy, then the system will give buzzer signal and the speed of the vehicle is reduced and the obstacle sensor will senses the adjacent vehicle to avoid collision with that, and if there is no vehicle in left adjacent side then the vehicle move to the left end of the road by auto steering and controlling and vehicle will be parked with prior indications.**

Keywords: Driver drowsiness detection, Alcohol detection in vehicles, Automatic vehicle movement control, IR sensor.

I.INTRODUCTION

"Driving to save lives, time, and money in spite of the conditions around you and the actions of others." This is the slogan for Defensive Driving. Vehicle accidents are most common if the driving is inadequate. These happen on most factors if the driver is drowsy or if he is alcoholic. Driver drowsiness is recognized as an important factor in the vehicle accidents. It was demonstrated that driving performance deteriorates with increased drowsiness with resulting crashes constituting more than 20% of all vehicle accidents. But the life lost once cannot be re- winded. Advanced technology offers some hope avoid these up to some extent. This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening Position. This output is given to logic circuit to indicate the alarm. This project involves controlling accident due to unconscious through Eye blink. Here one eye blink sensor is fixed in vehicle where if anybody loses conscious and indicate through alarm.

A.BASIC MODEL OF THE SYSTEM

The block diagram depicts the total blue print of the proposed project. The total essence and the functioning of the project are represented in a single block diagram. The block

diagram mainly consists of 5 parts. They include LM358 Comparator Eye Blink Sensor (IR) Alcohol Sensor PIC16F877A Microcontroller Obstacle Sensor.

B. SCOPE

We can't take care of ours while in running by less conscious. If we done all the vehicles with automated security system that provides high security to driver, also gives alarm. All vehicles should be equipped with eye blink sensor and alcohol detector in future avoids these types of accidents.

C. FUNCTION

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Driver drowsiness resulting in reduced vehicle control is one of the major causes of road accidents. Driving performance deteriorates with increased drowsiness with resulting crashes constituting 20%-23% of all vehicle accidents. The National Highway Traffic Safety Administration (NHTSA) conservatively estimates that 100 000 reported crashes are caused by drowsy drivers each year in the U.S. alone. These crashes result in more than 1500 fatalities, 71 000 injuries, And an estimated $12.5 billion in diminished productivity and property loss Many efforts have been made recently to develop on-board detection of driver drowsiness. A number of approaches have been investigated and applied to characterize driver drowsiness using physiological.
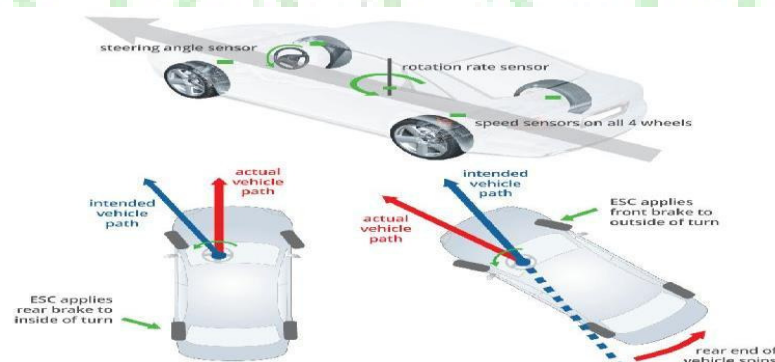
A. RELATED WORKS ON VEHICLECONTROLLING

Fig.1 Automatic Wheel Steering

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A driver state of drowsiness can also be characterized by the resulting vehicle behavior such as the lateral position, steering wheel movements, and time-to-line crossings whom correspondenceshould be addressed not intrusive, they are subject to several limitations related to the vehicle type, driver experience, and geometric characteristics and condition of the road. Among these various possibilities, the monitoring of a driver's eye state by a camera is considered to be the most promising application due to its accuracy and Non-intrusiveness. The driver's symptoms can be monitored to determine the driver's drowsiness early enough to take preventive actions to avoid an accident.

Though many studies have developed image-based driver alertness recognition systems using computer vision techniques, many problems still remain. First, eye detection remains a challenging problem with no inexpensive or commercial solutions. For some applications, eye feature detection can be satisfactory, but these only used frontal face images taken with controlled lighting conditions. In a car, the constantly changing lighting conditions cause dark shadows and illumination changes, such that effective techniques in stable lighting often do not work in this challenging environment. The performance of current algorithms degrades significantly when tested across different postures and illumination conditions, as documented in a number of evaluations. A second problem is that current systems do not use identification and correlation analysis of various visual measures. Typical visual characteristics of a driver with a reduced alertness level include longer blink duration, slow eyelid movement.

B. EYE BLINK DETECTION

This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. This output is given to logic circuit to indicate the alarm. This project helps in controlling accidents due to unconsciousness through Eye blink. Here one eye blink sensor is fixed in vehicle where if driver loses consciousness, then it is indicate through alarm.

C. DROWSINESS FEATURES

The drowsiness features are characterized by the blinking frequency of the eye by the driver.
* Awake-conscious-normal.
* Drowsy-less conscious-risky.
* Sleep-out of conscious-at extreme risk.

III. PROPOSED METHODOLOGY

Recently there has been an enormous increase in road accidents due to sleep deprivation resulting to driver fatigue. The driver loses control of the vehicle when he falls asleep which leads to loss of many lives.

A. BLOCK DIAGRAM

This is because of the fact that the driver is not able to control his vehicle when he is asleep and by the time he realizes it, there is an accident. The vehicle is at a very high speed on highways due which handling is tough and getting the vehicle to halt in such a condition is difficult. Due to this many automobile companies are trying to research onto how an accident which occurs due to driver fatigue can be prevented. In this project we will generate a model which can prevent such an incident. The Purpose of such a model is to advance a system to detect fatigue symptoms in drivers and control the speed of vehicle to avoid accidents. The main components of the system consists of an eye blink sensor for driver blink acquisition and an adaptive speed controller designed using stepper motor for providing precise positioning of the throttle valve to control the speed of vehicle.
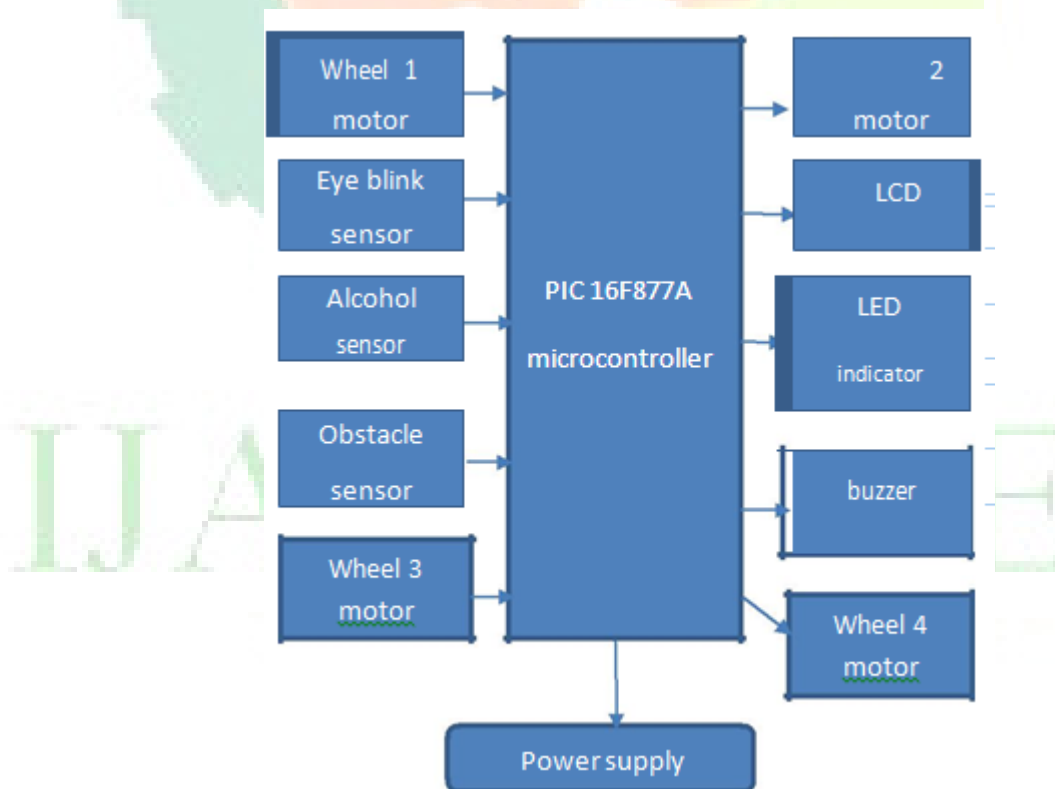

Fig.2 Block Diagram

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IV.RESULT

The drowsiness level detection through eye and processing the image from spectacle with actual level using image processing. The consumption of alcohol by the driver is identified & alerted through buzzer and LCD. The automatic parking controls of vehicle corresponding to the level of drowsiness detected.

ADVANTAGES

- Intelligent Transportation

- Accidents due to drowsiness can be avoided.

- Drunken driving also prevented by using alcohol detector.

- Safe parking with no damage or distraction to nearer vehicles.

- Spectacle are used to detect the eye movement and closure, it's free from reflection & easy to use.

VI.CONCLUSION

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