International Journal of Interdisciplinary Innovative Research & Development (IJIIRD)

ISSN: 2456-236X

Vol. 02 Issue 02 | 2018

Driver Drowsiness Detection and Real-time Vehicle Diagnostics and Tracking System Tools

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ABSTRACT

Drowsiness can be defined as the blinking of continuous eyes during the period of over-driving, lack of sleep or over-consumption of alcoholic drinks of any type. There is the major possibility of an accident due to the over drinking of alcohol i.e. drowsiness we have to add few precautions for drastically increasing accident in society, to stop such accident we have added few safe and security majors and this paper tells a method to control or monitor driver safety levels using various Application like Smartphone and Bluetooth sensors. We have seen that rate of accident due to drowsiness as increased. Level of security is most top level. Safety of human beings on road has become a major/important problem. The risk of driving in accident-prone zones is increasing day by day and another reason is in Recent Years, We want more secure and safe lifestyle that is why we are including some important features in this system hence we are trying to make efficient uses of proper resources and build such a system which can increase the safety measure of people. It is important to confirm that the driver is following all road safety Measures required for him or her to be safe and also keep other people on a safer side. Therefore including all these measures of safety and combining them into one system is the main aim of building this system.

***Keywords:** Alcohol sensor, Eye scanning sensor with notify and buzzer, GPS, Fuel Level Sensor.*

1. INTRODUCTION

The increase in a number of high accidents due to driver's negligence or not following safety measures makes it important to develop a system which ensures safe driving which will, in turn, ensures the safety of driver as well as co-passengers. Drowsiness has a different feature that researchers over the decades have found difficult to define. It is one of the biggest factors in traffic accidents all over the world. A system which will start ignition only if the driver passes the test for driver authentication, alcohol consumption, and seat belt. The driver will be allowed to start ignition only after he validates himself while the vehicle is in motion it will capture values for speed control, it will ensures engine temperature is maintained and the touch sensor ensures driver is holding steering while driving another feature of the system is the drowsiness sensor which starts a buzzer or starts interaction with the driver so he does not feel sleepy to access diagnostics data of the vehicle as early as possible is important to avoid serious faults. Early detection and correction will increase safety up to a very large extent using GPS the location of the vehicle can be obtained with the help of longitude n longitude values. Onces the right defects are obtained then instruction can send to the driver as to how to handle the situation. SMS will be sent to relatives in case of accidents.

2. METHODS & RESULTS

• Android Based Vehicle Diagnostic system.

The above system is low-cost hardware for vehicle diagnostics and is very user-friendly. The Android-based mobile device helps in creating an onboard vehicle diagnostic system. The application interacts with the hardware unit with Bluetooth and it acquires vehicle parameters through ECU of the vehicle. This value is viewed by the driver and also the server from which the vehicle can be handled by the owner of the vehicle and it can also be stored in a database.

•Vehicle speed limit alerting and crash detection system.

This paper is design in order to avoid accidents and alert the drivers about the speed limit. Many Systems provide road safety and has proposed various methods for speed limitation and accident avoidance but in reality, controlling the vehicles speed in real time is very difficult so instead of controlling the speed the driver is alert about his speed so that he can reduce his speed to a safe limit.

• Eye scanning sensor with notify and buzzer

Looking at the eye blink of the driver, estimating the driver status and control of the car accordingly. With the help of the systems prototype by scanning the eyes of the driver and the face position by detecting we can decide if the eye blinks is more than the driver is very sleepy and he is not in that mood of driving, or else he has Drank and it will automatically turn off the vehicle, The major task of this proposed technique is developing real-time system, Face detection system and Iris detection under different conditions like position of the driver without or with spectacles, lighting etc. and blink detection. The above sensors will also notify the driver and a buzzer will ring if the driver is not in any condition to drive.

•Basic Method of system.

In recently, years there has been an increase in a number of road accident because of sleep deprivation resulting to driver fatigue. Because of sometimes rash driving or by some other consequences such has driver getting sleep driver losses control over the vehicle which leads to loss of many lives. This is because the driver is not able to control or stop his vehicle when he is very sleepy and before he realizes it there is an accident. The vehicle is at a very high speed on highways due to this many automobile companies are trying to research on to how an accident which occurs due to driver fatigue can be prevented. In this project, we will create a model or a structure which can help in preventing such accident. The above model checks or detect fatigue symptoms in the driver and control the speed of the vehicle to avoid road accidents. The main components of the system consist of an eye blink sensor for driver blink acquisition and adaptive speed controller designed using a stepper motor for providing precise positioning throttle valve to control to control the speed of the vehicle.

•Android phone and sensor system.

The Android phone use to display all the data the android phone will have application which helps driver to authenticate himself and view details of the vehicle.

I. Speed sensor: The speed sensor will track speed of vehicle and ensures it does not exceed a particular limit. If exceed a particular limit will raise or some kind of notification will be given to the driver to reduce speed.

II. Fuel Level Sensor: The fuel level sensor makes sure that the fuel level is maintained and the level is not under a particular level this sensor makes sure the driver fills in amount of fuel as said by owner.

III. Seat Belt Sensor: The seat belt sensor is based on push button .This sensor makes sure driver is using his seat belt and if not he will be notified to do so.

IV. Alcoholic Sensor: It helps in detecting alcohol concentration level which is highly sensitive and it gives us a fast response in a time breathing. It gives us faster output based on alcoholic concentration which is seen in driver whether he or she has taken it or not.

V. Buzzer Sensor: If this sensor detecting any drowsiness in driver or a lot of alcohol consumption then it will start buzzer with the help of eye scanning sensor.

3. CONCLUSION

This developed system is a prototype vision system for the real-time monitoring of a driver's vigilance. It is based on a hardware system for a real-time acquisition of driver's status and the implementation of software for the real-time monitoring of the driver fatal accidents. The system is fully automatic; it can initialize automatically, and reinitialize whenever it is necessary. The above test was tested using different conditions recorded in real driving conditions with different drivers or users during several hours of exams. This project tells the control about alcohol sensor and eye blink using Eye scanning sensor with notify and buzzer and by android Bluetooth. In each sequence, several physical or mental exhaustion behaviors were tested during the test. The system works accurately at night and yielding an accuracy percentage close to 90-95 %.

4. REFERENCE

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