REAL TIME DRIVER MONITORING AND ACCIDENT AVOIDENCE ALERTING SYSTEM

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Abstract – *The Main Objective of this project is to develop a system(accident avoidance) to keep the vehicle as well as the driver safe. Many accidents at High-ways are taking place due to the close running of vehicles. Accidents may be varying in different position and it can be done through sleepiness or third party. As per statistics, In India, every year 1.34 lakh fatalities in road accidents, out of which a vast 70% of them were due to negligence of drivers. Driver Drowsiness is a significant factor in vehicular accidents. To avoid this kind of accidents, the warning (alert) system is to be introduced, which can prevent accidents. If the driver is sleepy/drowsy and can't have any control within the time, then the alarm inside the vehicle will give an alert to him. There may be a case that the vehicle can meet with an accident. In such situation, a braking system will be applied. The Proposed algorithm is developed to minimize the complexity level from existing system in which the prime importance was the efficiency of tracking the eye-blinking of a person. The eye blinks of a person are determined and the resulting output is analyzed to finalize whether the person is sleeping or not. An alert will be given to the driver as an alarm to inform him not to sleep while driving. And also avoid accident by introducing a braking system. In future, this system can be extended to more applications.*

Key Words: **Drowsiness Detection, Feature Extraction, Image Processing, Buzzer sound, Braking System.**

1. INTRODUCTION

Driver Drowsiness is one the main reason for road accidents. Where Drowsiness is referred as the feeling of being sleepy. Now a days mainly during the night the major road accidents were occurred due to the driver drowsiness. Every year 1.34 lakh fatalities are by road accidents, out of which a vast 70% of them were due to drivers negligence. In present survey out of 5 road accidents one accident is due to drowsiness of the driver and it may be approximately 20% of road accidents and it is gradually increasing year by year. This highlights that the total number of road accidents and the deaths are immoderate because of drowsiness of the drivers. Driving a vehicle in throng roads has become an ephialtes because of the road conditions, whether conditions and hurry to reach their destination during a huge traffic. Drowsiness of driver becomes the major reason for road accidents because of their less conscious while driving were, they can't take care of themselves. To provide security and safety to drivers, the vehicle will be abetted with an automated security and safety system that alerts the driver through a buzzer and if necessary, a braking system will be applied. The Objective of this project is done by using Image Processing and IOT to detect the drowsiness of the driver and to avoid the accidents to be occurred.

2. EXSISTING SYSTEM

In Many of the road accidents, most of the accidents are occurs due to drowsiness or due to third party, Due to Drowsiness, the drivers can't able to control himself while they met with an accident. As most of the accidents were going to be alerted by police by checking each driver whether they had drunken or not. This can be applied to those drivers who had drunken while driving but not for those drivers who feels drowsy while driving, Drowsiness may 1. Makes drivers less able to pay attention to the road. 2. It slows reaction time if you have to brake the vehicle or steer suddenly. And we have many applications to detect this but they were less effective.

3. PROPOSED SYSTEM

As Technology usage had increased very much to avoid some of the road accidents that occurs due to drowsiness of the driver, an alert system has proposed. The proposed solution will be start from capturing the driver as a video camera is fixed at opposite side of the driver at top 45^0 angle. And from video a preprocessing steps will be executed to detect the face and to extract features from that and calculate Eye Aspect Ratio(EAR) and then detect the drowsiness of the driver if he feels drowsy then an alert is given to him through buzzer and even driver feels drowsy or meanwhile any obstacle encounters then a braking system will be applied were the vehicle will be halts immediately.
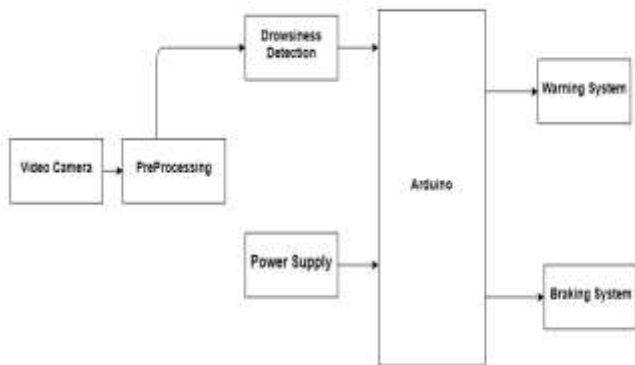
4. IMPLEMENTATION

Fig-1: Block Diagram for Real Time Driver Monitoring and Accident Avoidence Alerting System

Arduino

The Arduino is a microcontroller board based on ATmega328. It has 14 digital input/output pins(of which 6 can be used as PWM outputs), 6 analog inputs, a USB connection and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB to get started.

Fig-2 Arduino UNO

ESP8266

ESP8266 is a low-cost Wi-Fi microchip, with a full TCP/IP stack and microcontroller capability, produced by Espressif Systems in Shanghai, China. It is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor.

Fig-3: ESP8266 Wi-Fi Module

Joystick Module

The Joystick Module uses a biaxial potentiometer to control the X and Y axis by changing the resistance when the joystick is moved. A push button is activated when joystick is pushed down the Z axis.

Fig-3 Joystick Module

L298NDual-H-Bridge

The L298N Dual-H-Bridge motor driver which allows speed and direction control of two DC motors at the same time. The module can drive DC motors that have voltages between 5 and 35V, with a peak current up to 2A.

Fig-4 L298N Dual-H-Bridge

Ultrasonic Sensor

An Ultrasonic Sensor is a sensor that measures the distance to an object using ultrasonic sound waves.

An ultrasonic sensors sends and receives ultrasonic pulses that relay back information about an object's proximity.

This sensors determines the distance to an object by measuring time lapses between the sending and receiving of the ultrasonic waves.

Fig-5 Ultrasonic Sensor

Buzzer

A buzzer or beeper is an audio signaling device for the purpose of alerting.

Fig-6 Buzzer

5. CONCLUSION

Now a days the road accidents were gradually increasing every year. This system will help to detect the drowsiness of the driver using Image processing. This system also helps to alert the driver using alerting system. And this system also helps to avoid accident by applying braking System. By using this system, we can save the driver and can reduce road accidents.

6. REFERENCES

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