An Efficient Smart Sensing Based Driving Assistance for Safety and Control System in IoT Environment

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Abstract - The travelling performance in now days be very tedious due to safety and control be need continuously to improve and the study results relating to the safety of car driving have also been continuously reported and demonstrated, it is trying to find a balance point between the development of vehicle speed limit, drunk, smoke monitor and the protection of driver's safety. In the current study and development of various products, no matter it is in the enforcement of vision system to monitor and control safety measure. This presents a new concept of smart sensing and an experimental validation of a real-time driver assistance system involving multiple sensors and actuators monitoring an area around the vehicle and conveying alerts to the driver. The proposed system has drunk smoke prediction and vibrate system, detects the presence of obstacles within the monitored area such as eye blink sensor, accelerometer control, alcohol smoke sensors and IoT alert system and alerts the driver via a combination of tactile, audio, and visual signals with vibrate alerts. It features simple smart sensors installed at the two front corners and the two blind spots of the vehicle make assistance. Our design is inexpensive and flexible, which makes it deployable as an add-on to existing vehicles. In particular, the interconnection of modules is achieved with low cost and high quality. The main objective of this paper is development of a system that can provide prior accident information to the vehicle control unit so that it can enable the vehicle to prevent the happening of accident and record the vehicle's moving status and conditions so that the record will provide the decision basis in the accident investigation if it unfortunately happens the fatal accident.

Keywords: IOT, Smart Sensing, Safety Control, Driving Assistance, Alert System.

I. INTRODUCTION

Vehicle accidents are most common in the driving which happens on most factors if the driver is drowsy or alcoholic. Driver Drowsiness is recognized as an important in the vehicle accidents that was demonstrated that driving performance deteriorates with drowsiness with result in crashes constituting of all vehicle accidents [1]. The accidents are reduced to controlling accident due to Eye blinking with one eye blink sensor is fixed in vehicle using advanced technology [2]. An alarm is fixed to indicate unconscious blinking in this project which involves physiological data for validation of this technology. All Methodologies for analysis of any physiological data that are independent assessment detection algorithm is presented. The major means of a sequential fitting with selection of regression models are then discussed. We can take care of running by less in conscious [3]-[5]. All the vehicles with automatic security system can provide high security to driver and give alarm. Here we incorporate it with a special instruction that is written in image processing. i.e. time greater than the human eye blinking time then consider an event called "blink". We need to perform and testing for only blink event estimation not to find normal eye blinking. This paper presents the design of wireless network communications based on ARM, GPS and GSM, Preset of treatment centre as the information processing people near by the accident location [6]. The majority of car accidents are caused by bad driving: driving and failure to exercise care in passing. Accidents can be attributed e falling asleep, weather (snow, Ice or Rain, Fog); alcohol, drugs & drunk driving, with animals in the road usually deer, horses, cows and dogs etc. In India about 250 people die in road accidents every day. The drivers tend to sleep while driving due to tiredness caused in the vehicle, though developed, to indicate or

prevent Drowsiness/asleep of the driver. He has to take care while driving. Some drivers take strong tea before avoids driving in such situations. This may create delay in reaching to the destination [8].

Sleep physiology and sleep health play very important roles in maintaining the daily lives of individuals. Sleep is an human brain. While sleeping is an activity that must be performed at night, the duration and depth of sleep, sleep quality. High sleep quality leads to more accurate functioning of healthy individuals' brains and a high quality of social factors that disrupt sleep physiology. Respiration disorders while sleeping are a very important disease group that serious threat to the health of people and society, and most individuals are not concerned with snoring during sleep.

However, individuals with Sleep-Disordered Breathing cannot get enough oxygen during nighttime sleep, and vital organs such as the brain and heart are not sufficiently oxygenated [10]. Snoring is a stage that occurs during sleep, usually due to the vibration on inspiration, more rarely on exhalation and sometimes in both phases of respiration. The problem of vehicle accident is part of an endless list of disasters that could occur anywhere anytime. Statistically, they are considered the second leading cause of death. To overcome this problems, and automobile speed control systems to maintain a vehicle safe distance [11]. In this direction the mobiles using the new emerging IOT based technology that is used for designing a more efficient solution.

II. EXISTING SYSTEM

In previous work to construct 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 seat belt sensor, vehicle black box, and an eye blink sensor. This previous method of speed detection, seat belt alarms system and it is placed in vehicles. A speed sensor, seat belt sensor and various sensors which senses various

parameters of the vehicle is connected to a microcontroller which detects when the 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. the composition and function of an advanced controller system of Car Black Box. The system can not only record the main driving data of the cat comprehensively and accurately in real-time, but also reconstruct the accident with data process software, which can help people analyze the accident rapidly and legitimately after a collision.
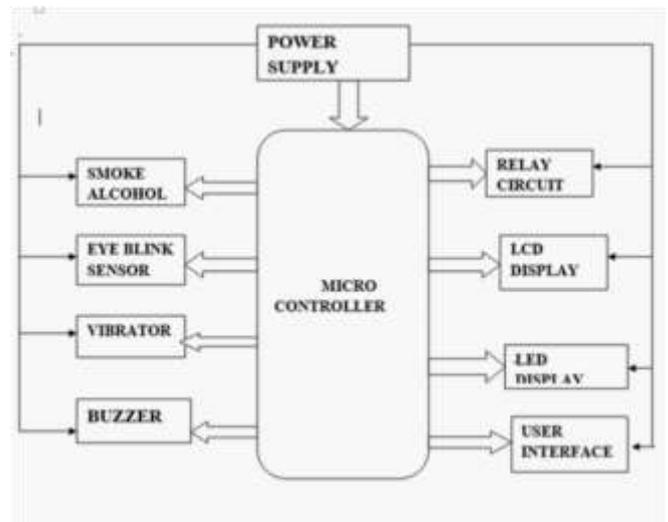

Figure-1: Block Diagram

Disadvantages

- The main problems and development direction of Car Black Box and put forward the necessity of developing Car Black Box with high performance.

- Such statistics are sometimes cited as proof that a third to half of all fatal crashes are caused by "drunk driving" and that none of the crashes that involve alcohol would occur if the alcohol were not present.

- Another problem is that the lack of information about the vehicle position.

- 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.

III. PROPOSED SYSTEM

In this project we are presenting an IOT based system which will help drivers to drive the car safely and efficiently. This system consists of tracking and locating the location of accident using online web service and communicates the co-ordinates via SMS using through by owner or travels agent. Smoke and alcohol sensor detection used detected by 60- 80% of will be stopped .and the by monitoring the eye of a human being, we can determine whether he/she is sleeping or not for car will be stopped. The vibrator has used for wear the seat belt for start the car or not wear the seat belt for reduced speed .the buzzer is indicated by the alarm to display the LCD display. Online web service can be monitored by the car to be display a LED monitor.

Figure-2: Output of Proposed System

Advantages

- The aims of this system at preventing accident before it's occurrence driving the vehicle and other people on roads.
- Involvement of Cloud computing reduces the load on satellite services (GPS and GSM) and are easily implementable. Assists emergency services and quick response teams to take quick action in case of occurrence.
- Enables implementation of effective safety regulations for four-wheel drive on roads at both day and night.
- User friendly interface enable it's easy usage by vehicle drivers.
- A gravity sensor prevents over speeding of vehicles and maintains vehicle stability.
- Fast growth in Smart grid and cloud services makes it effective and easy implementation.

IV. CONCLUSION

Majority of portable devices are aimed at providing unlimited access to internet services for data storage and synchronization with other remote devices. Hence, there is a need of faster data acquisition and quick decision making of embedded computing system for real time applications for making vehicles safe, automatic, responsive and intelligent. Interfacing of simple sensors to various micro-controller platforms enables the ease of regulating the embedded system at sophisticated levels of automation and mediating the sensor information over a smart grid enables large amount of data acquisition for taking accurate decisions over the emergency conditions. Further, the development of smart grids fascinates the overall process of online web services through communication by the owner and monitored to the display. This proposed system of IOT embedded systems interact and respond for variety of applications especially in case of vulnerable drivers can revolutionize the way by monitoring for a quick, safe and effective response the state of their drowsiness for a safer road travel.

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