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Anti-Collision System While Driver On Dizzy Condition

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***Abstract* - The job of operating public transit vehicles is much stressful one. While many factors contribute to safety on the road, driver health and fitness to drive is an important consideration. The unhealthy conditions and over stress lead to dizziness and dizziness may lead to collision of vehicles which can even take the lifes of many. Sometimes it is impossible to monitor the health conditions of a driver properly and this may cause the reason for an accident. To avoid such conditions we need to develop a proper and continuous monitoring system of the driver health condition and according to the observed conditions we can find any imbalance in health and can prepare an anti-collision system . This paper is the try for proper anti-collision system for this type of conditions. It includes wearable gadget , buzzer , DC motor control and an alert system.**

Keywords: Wearable gadgets, Buzzer, DC motor control , Alert system

I. INTRODUCTION

The invention and development of technology is increasing gradually and it is giving human race a new height in every moment. Last two-decade, human need has been increased drastically in every level of the society hence safety becomes the main concern. Road accident is one of the biggest safety issues.As a human being they always try to be compatible and comfortable with the nature. According to data provided by NHTSA(National Highway Traffic Safety Administration) there were 5,811,000 vehicle crashes reported in 2008 by police across US and 37,261 people killed and 2,346,000 people injured[1]. On the behalf of analyzing data of death, 02 % deaths are occurring because of road accident. Each year nearly 1.3 million people die in road accidents which mean 3,287 deaths a day [1]. Everyone came across with the news of road accidents on highway frequently. Some of them are due to circumstantial error and some of them are due to human error. Because of driver's inability to keenly observe the vehicles vicinity while driving accidents takes place.Many papers and research work is proposed regarding alarm system for safe driving Keeping healthy can be tough for drivers, who typically sit for long hours behind the wheel, deal with poor sleeping conditions, and have a hard time finding nutritious meals on the road. Now, examination of medical records from 49,464 drivers finds evidence that their relatively poor health may put them at risk in more ways than one. 34 percent have signs of at least one of several medical conditions that had previously been linked to poor driving performance, from heart disease, to low back pain, to diabetes [5].Matching drivers' medical and crash histories revealed that drivers with at least three of the flagged conditions were more likely to have been involved in a crash. The investigators found that this was at higher risk for different categories of crashes, including accidents that caused injury, and that could have been avoided. The remaining parts of the paper are arranged as: Section II describes the historical background of the system, and an outline of the system is described in section III. Section IV is conclusion of the paper.

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(a)

(b)

Fig (a) Double decker bus left facing wrong direction after driver felt dizzy veered off path

(b) Accident due to dizziness of driver

A. DIZZINESS

Dizziness is a term used to describe a range of sensations, such as feeling faint, woozy, weak or unsteady. Dizziness that creates the false sense that you or your surroundings are spinning or moving is called vertigo. Dizziness is one of the more common reasons adults visit their doctors. Frequent dizzy spells or constant dizziness can significantly affect your life. But dizziness rarely signals a life-threatening condition. Treatment of dizziness depends on the cause and your symptoms. It's usually effective, but the problem may recur.

B. SYMPTOMS

People experiencing dizziness may describe it as any of a number of sensations, such as:

- A false sense of motion or spinning (vertigo)
- Lightheadedness or feeling faint
- Unsteadiness or a loss of balance
- A feeling of floating, wooziness or heavy-headedness

These feelings may be triggered or worsened by walking, standing up or moving your head. Your dizziness may accompanied by nausea or be so sudden or severe that you need to sit or lie down. The episode may last seconds or days and may recur.

C. CAUSES OF DIZZINESS

Dizziness has many possible causes, including inner ear disturbance, motion sickness and medication effects. Sometimes it's caused by an underlying health condition, such as poor circulation, infection or injury. The way dizziness makes you feel and your triggers provide clues for possible causes. How long the dizziness lasts and any other symptoms you have also help pinpoint the cause. Vertigo is the false sense that your surroundings are spinning or moving. With inner ear disorders, your brain receives signals from the inner ear that aren't consistent with what your eyes and sensory nerves are receiving. Vertigo is what results as your brain works to sort out the confusion.

- Benign paroxysmal positional vertigo Infection. Meniere's disease. Migraine.
- Circulation problems that cause dizziness
- Drop in blood pressure.
- Poor blood circulation. Other causes of dizziness
- Neurological conditions. Medications.
- Low iron levels (anemia). Low blood sugar (hypoglycemia).
- Overheating and dehydration

II.HISTORICAL BACKGROUND

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The IST European Project CarTALK2000 was focusing on new driver assistance systems which are based upon intervehicle communication. The development of co-operative driver assistance systems and the development of a self-organizing ad-hoc-radio network as a communication basis with the aim of preparing a future standard.as my study there is no anti-collision system that helps or monitoring drivers health conditions and responds to their health conditions this system is helpful to fight against similar conditions like accidents due to dizziness on the driver

III.SYSTEM OUTLINE

This paper consists of two major parts. First one is a wearable gadget part which is used to analysis the drivers health condition. Second part of this system is vehicles Anti-collision system it will act as an emergency control of the vehicles.

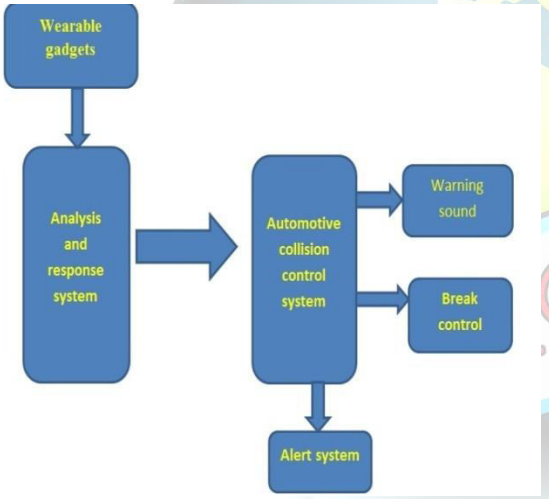

Fig 2 .Block diagram of system

A. WEARABLE GADGETS

Wearable technology (also called wearable gadgets) is a category of technology devices that can be worn by a consumer and often include tracking information related to health and fitness. Other wearable tech gadgets include devices that have small motion sensors to take photos and sync with your mobile devices.

In this system the gadget analyses the health condition of driver continuously. And if dizziness is occurred then send an emergency signal towards collision control system by the response system. Wearable gadgets are of two parts health monitoring system and analysis and response system.

B. MONITORING SYSTEM

Monitoring system is the device that analysis the blood pressure of the driver continuously and the value will passed to the analysis system that analysis all the values.monitoring sensors are mainly the blood pressure sensor circuit and heart rate monitoring.

C. ANALYSIS AND RESPONSE SYSTEM

It is the microcontroller that analysis the monitoring system values and send in case of any emergency by analyzing the value of the in the upper and lower values of general cases normally A normal resting heart rate for adults ranges from 60 to 100 beats a minute (fig 3). An optimal blood pressure level is a reading under 120/80 mmHg.The gadget will send wirelessly towards collision control system.

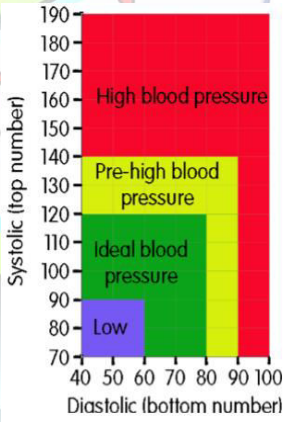

Fig 3. Human Blood Pressure Chart

D. WARNING SYSTEM

Buzzer: Buzzer is used in a system to indicate or to grab the emergency attention occurred. Buzzer act as a panic horn which indicates the need of instant attention as in the condition goes haywire. As distance of detected vehicle is matched with critical distanceabout 200m) buzzer should be turn on.

E. SPEED CONTROL OR BRAKE ASSIST

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DC motor control: DC motors are used to physically drive the application as per the requirement provided in software. The dc motor works on 12v. to drive a dc motor, we need a dc driver called L293D. The dc motor driver is capable of driving two dc motors at a time.

We can also provide the back EMF protection suit by connecting four diode configurations across each dc motor. DC motors power supply is dependent on distance between two vehicles. Motors are also turn off after particular distance.

F. ALERT SYSTEM

With Automatic Vehicle Alert System, an alerting message which contains accident's time and location sent automatically by the particular device embedded in a vehicle to emergency and relief agencies. So, they can rush to theaccident and help the victim in time.

IV. CONCLUSION

Though vehicle safety systems were introduced in early 1960s, an alaraming increase in the ratio of accidents has made autocompanies to emphasize on the system. Driver error is blamed for approximately 85% of fatal road crashes.Reckless driving can include speeding, driving aggressively, following too close, or making unsafe decisions behind the wheel.The healthier the driver he/she will be equipped to remain focused , alert and able to reduce these driver errors or the threat of suffering "a medical episode" In this prespect the proper monitoring of a driver's health is a matter of great importance.

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