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Accident Detection Based on the Internet of Things

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Abstract - crash and fatigue detection systemInstrument gadgets designed to improve your health on the road. This pane contains settings for device units Including vibration sensor and heart rate sensor Collision detection and eye blink sensor Discrimination of driver drowsiness. track by gps and gsm area to send messages. The main motivation behind this setup is to alert the unfortunate victim's family to the incident, and it can make all the difference in a driver's gradual state of drowsiness or fatigue. The vibration sensor detects the problem and the heart rate sensor checks the heart rate. At the point where the vibration occurs, the heart rate level is high and a breakdown is expected. A message indicating the driver's heart rate and zone is being sent to loved ones is displayed. sparkling eyes The sensor is housed in a portable vial. eye detection When closed, its alarm will start to ring. Take this opportunity the Bell will turn off within 20 seconds. otherwise it's normal. Considered unusual and notified. Details of foreign objects sent to relatives. Keywords - crash detection, fatigue detection, onboard systems, GPS, GSM

1 INTRODUCTION

The life of the general population is at stake, one milliongroup of people who bite dust every year due tostreet car accident. This is a direct consequence of not having emergency facilities in our country.

Drowsy driving is a dangerous combination of driving and driving sluggish or tired. This usually happens if the drivernot getting enough rest, but it can happen due to untreated sleep disorders. Nobody know exactly every minute sleep invades their bodies.Sleeping while driving is undeniably dangerous, but coma affects your ability to drive safely if they don't sleep.

Fatigue is a human psychological state,does not take into account full concentration. It affects human reaction time, due to the fact that wear and tear individuals react much more slowly, unlike individuals who are rested one. The appearance of the main indicator of a possible weakness proves to be dangerous, especially for calls like drivers.

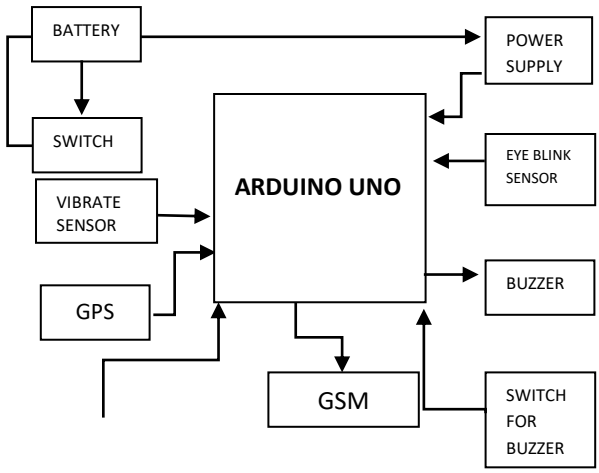
Accidents usually happen late at night and early in the morning.This is the body's characteristic sleep phase. Sleepy also possible during the day too. Older adults are more seasoned required to have a daytime fatigue driving accident .

Driver fatigue leads to reduced vehicle controlIt is one of the main causes of traffic accidents. Driving performance decreases as laziness increases lead to accident setting 20% to 23% of all accident. national road safety .The regulator (NHTSA) has metrics that 100,000 have revealed. The accident was caused by the driver falling asleep annually in the India alone .`

With the growth of population, the use of vehiclesturned out to be a surplus, which spurred increase the risk of traffic accidents and traffic accidents cause enormous deaths due to poor emergency facilities. The not being able to access the correct techniques in the event of an accident recognition along with a reliable search support with a Reporting functionality is serious question under consideration.Figure 1 below clarifies how the framework works in times of crisis. It is assembled using a microcontroller - Arduino Uno. It includes three sensors – vibration sensor, heart rate sensor and blink sensor. battery is used as a vitality provider and accessed through switch. The power supply is used to provide a constant 5V Energy sources. The quality of the vibration sensor and The heart rate sensor is sent to the microcontroller and depending on the quality, the GPS cleared area is sent to GSM. The message is then sent over GSM. Quantity of the blink sensor is sent to the microcontroller and depending on its value the bell will be working. A switch will be utilized to turn off the bell.

PULSE RATE SENSOR

FIG 1. Drowsiness & Accident Detection System



2 EXISTING SYSTEM

In the existing framework, a pair of glasses is used as Detect system drowsiness. It is equipped with a light weightblink sensor. IR based blink sensor. Light The sensor wave will not affect the retina. they arein order to recognize the driver's ignorance .The performance of the blink sensor will be used to app alerts Frame Alerts madeusing JAVA programming.It does not warn the driver when he feels drowsy.

It won't beIntimate family driver/companion outside luckily he felt unconscious or had an accident. The frame will be mounted on a vehicle, before driver's seat. He will constantly pay attention tothe vehicle driver then supervises the person's activity and send voice messages to the driver, train him on safety measures considering each occasion, it goes inside the car. In his case Realizing that he lacks energy, he will be alarmed by a voice messages told him he was tired and he vehicle must be stopped. If there is a chance that he is observed while drunk while driving, GPS directions from car with vehicle details, sent to nearest control room, for the purpose of making an appropriate movement can be done by the police. In this way, the framework has ability to ensure the safety of the driver and his companions and can be easily coordinated with existing in-vehicle healthcare systems. This will also expand road safety in general, revealed any kind of rash directed to the nearest control room. Integrated front and rear identification cameras with an Android application is used. According to the report from the rear camera they will report android sign up. Either way, the survey is a warning through the Android application will not be considered as authoritative. Android apps are system dependent management, invoicing and more. In deep learning, a method has been proposed to recognize the recommendations to stay out of the way accident. The need for deep learning here is that it handles huge amount of information.

Invitation to deep learning much complexity when managing these types information.According to "Recognize Driver Drowsiness", theyusing an eye detection algorithm. It can notis characterized by the calculation will be how much with exceptional precision. And it doesn't specify about how it achieves accuracy. the suitability of This framework needs to be tested.

3 Proposed System

Planned proposal framework with arduinouno microcontroller. Within the framework of the proposal, the documentThe device will be placed near the dashboard of the vehicle.This device will

include an eye blink sensor, vibrationsensor, heart rate sensor, GPS, GSM, buzzer, battery, switch,power supply and switch for bellEye blink sensor distinguishes closed eyes.It is done using infrared light that will gothrough the eyes. Infrared rays are not harmful to the eyes. The ray of light passing through the white bright fringe is the pointhave eyes open. It will be reflected byBlack light is the point of closing the eye. Thisfraction and impression of infrared light expressed inon/off the red LED in the blinking sensor eye.

It will beused to recognize the driver's unconsciousness. Lots ofwhen the eye blink sensor output is low, the signal willto be promulgated. In case the signal is not set tophysically weak, a message will be sent.Vibration sensor SW-420 is used to determinevibrating car. The beat is then determinedUse the heart rate sensor. It is accepted that the vibrationsensor for high power in the event of an accident. Inin this way, to confirm the problem occurs, the beat ischecked. The case of the beat alsohigher than typical value, it is assumed that the accident washappened. The message will be sent as an identified accident.

MODULES

Various modules in drowsiness and accidentdetection system is

• Crash and abnormal pulse detection

• Sleep detection

• Location tracking

• Send Message

MODULE DESCRIPTION

Accident and Irregular Pulse Detection in the project, a vibration sensor will be combined witharduino board. To the point where there is no vibrationdistinguish, the output of the vibration sensor will be 0 (low voltage),generally its efficiency will be 1 (high voltage).At times of high vibration, it can beexpect because an accident happened. To affirm thecircumstance, the beat rhythm of the driver should be checked. Nhiptimfrequency sensor is used to check the rhythm.

Heartbeat sensor is a plug and play pulse sensor for arduinoand arduino compatibles. It tends to be utilized by under studies who need to incorporate live heart/beat rate information into their ventures. Heartbeat sensor adds intensification and noise dropping to the equipment. It is quicker and simpler

to get solid heartbeat readings. Heartbeat sensor works with either a 3V or 5V power supply.

The beat sensor that is interfaced with the arduino and arduino is combined with LCD display rhythm quality. At this time, the beat value is also greater than the normal value, it will be considered an accident happened. At a time when the performance of the vibration sensor is low, Vehicle is in normal condition. However, during this time condition, if span value is less than normal value, the heart is expected to be irregular

SLEEP DETECTION

Blink sensor is used to distinguish the door closing eye. It works by passing through the eye area and eyelids with infrared light, at that time checking for adjustments in the reflected light using a phototransistor and a discriminator circuit. It works with 5V power supply.

Managed DC power interface from 5 volts to blink sensor. The black wire is grounded, the next center wire is yield and the red thread is a sure source. To check if sensor works, just need to connect two wires is 5V and ground wire. Leave the output wire loose. Lots of when eyes are closed, the LED will be off and the output is 0V. Place the eye blink sensor glasses on the face within a distance of 15 mm of the eye and visualize the strabismus LED on each crossed eye. When you open your eyes, the profit will be high. The output is legally provided to the microcontroller to communication applications.

A bell is linked to the arduino. At the time wheneye blink sensor output low, signal will be set to high. In case the driver feels drowsy, henotified by a chime and he can turn off the signal. In case he doesn't pick up the bell, it will consider the driver to feel unconscious and something is seldom, no often, rarely.

LOCATION TRACKING

GPS stands for Global Positioning System. He is used to track latitude and longitude of any area on earth.It correctly determines the UTC (Universal Time combination). The GPS module is used to track the area of accident in this article. Device that receives directions from satellite forever, with time and date. Detect

sort range and longitude only, using $GPGGA strings.The GPS module sends information determined bynext location, and it sends a lot of information in NMEA group. The NMEA Agreement covers many sentences, of which only one sentence is needed. This sentences that begin with $GPGGA and contain instructions, time and other useful data.This GPGGA refers to the Global Positioning System FixData. Facilitate

centralization from the $GPGGA chain by including commas in the string. in case The $GPGGA string is detected, store it in an array, then the point's latitude is after two commas and longitude is after four commas.

RESULT

Once the project is up and running, it's time to have a look at the material.

Whenthe battery switch is on, the whole circuit is powered up and start to work. When the condition is normal, there is no vibration detected in the vibration sensor and the pulse value is displayed in LCD is normal.When the condition is normal, there is no vibrationdetected in the vibration sensor and the pulse value is displayed in LCD is normal. At the time of vibrating yield low sensor, that means the car has no announced.

At the time when the performance of the vibration sensor is observed high, it implies that the vehicle has encountered aAccident. To confirm this, the driver's rhythm is also found and more noticeable value than typical. Candlestick failure is confirmed and displayed on the LCD.At a time when the performance of the vibration sensor is low, it That means there's nothing wrong with the car. Still in know the condition of the driver, his heart rate is checked sometimes. In case his heart rate is incorrect normally, the message "Heart abnormality" will be displayed in LCD SCREEN.The moment the LED is on in the strabismus sensor, itimplies that the eye is open. When the LED is off in the eye sensor blinks, means eyes are closed. along the rows, the message "Featured Live" will be displayed in LCD SCREEN. A bell rings at this condition. In his case physically not set to OFF, it is expected that the condition is something strange.

Messages will be received under all three conditions, for for example, abnormal sleep, irregular heartbeat and accidents identified by a cell phone number provided in the mission. To know state of the driver in each of its three instances Heart rate is also sent. Vehicle area is tracked and sent as google connect instructions.

CONCLUSION

This project will completely avoid accidentsfor the driver's fatigue and to intimidate loved onesdriving in the event of an accident orunusual conditions. The goal of this project is tothe benefits of minimal effort, portability and small size.Basic purpose of accident recordingframework project is to reduce the risk of loss insuch accidents and a framework to warn drivers if anyshould be an exhausting incident

and define an accidenttherefore exposed. This frame can beFully updated for an entire city or country in bulkpopulation like India.

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