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WIRLESS BLACK BOX FOR DRIVER SAFETY AND ACIDENT MONITORING

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ABSTRACT

Every system is now automated in order to deal with new problems of the modern world. Automated require less manual process, so that the accuracy, reliability, and flexibility are good. Therefore automated control methods are preferred in all fields. Automated systems are performing better and better, especially in the electronics industry. The major goal of the suggested methods is to prevent accidents caused by unusual driving behaviour. The moment the car starts, if the driver's alcohol consumption is over 30 mg, the ignition will be locked and access will be refused, according to the alcohol sensor. Additionally, moderate alcohol use increases the likelihood that an accident would occur while driving, resulting in the vehicle being stopped and the buzzer blowing. When my vibration sensor reaches its set threshold, which happens in accident, GPS locates the scene and sends an SMS to the appropriate parties. The weather will also be monitored by this technology.

Keywords: Arduino uno, Alcohol sensor, Vibration sensor, DHT11 sensor GSM module Eye blink sensor, GPS, Locking of ignition

I. INTRODUCTION

In today's contemporary era there are an incredible amount of innovative cars available thanks to science. More modern and faster autos are available nowadays. More modern and faster autos are available nowadays. It is necessary to use tools that can continuously monitor the various automotive metrics. The design we have will record all the parameters in the event of an accident and will aid us in preventing such mishaps in the future to the greatest extent possible.

Nowadays drunk driving, driver fatigue, and driver drowsiness are contributing factors in motorcycle. This is due to the fact that the person who did this endangered both their own life and the lives of other drivers. This is due to the high number of auto accidents in the modern world. This

project was created to collect information data for the investigation of motor vehicle accidents, such as engine temperature (before 30 seconds), blood alcohol content, petrol leaks, etc. Using GSM and GPS technology, this will also be used to map the location of the vehicle and notify users of accidents. The specifics of car involved in the collision will be provided to the local rescue squad for prompt assistance. Using GSM and GPS technology, this will also be used to map the location of the vehicle and notify users of accidents. The specifics of the car involved in the collision will be provided to the local rescue squad for prompt assistance.

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The characteristics of this project include the ability to locate the car using a global positioning system, detect gas leaks, measure engine temperature, detect alcohol and store recorded data on a memory device. using GSM technology, the current information about the car can be delivered to the designed mobile

II. LITERATURE SURVEY

T.k. Rana, Swarasree Bhattacharyya, Abhisek Ghosh, Abhisek Ray, and Abhirup Das implemented a location monitoring system to prevent vehicle accidents. Road accidents are getting worse every day. Understanding a driver's psychological state can help prevent accidents. The majority of total accidents typically happen at night and are caused by drowsy driving. To prevent such mishaps, it is possible to monitor the driver's eye blinking, tiredness can be deduced from eye blinking. Additionally, being sleepy will make it harder for driver to focus on any on-road hazards. Additionally, a driver's eye blinks can be used to determine whether or not they are intoxicated. The automatic pre-cautionary system is used to trigger the aforementioned alarm circumstance.

Ifaquaruddin Mohammed, Tariq jamil, and Medhat H. Awadalla describe about development of an Eye blinking detection system for preventing traffic

accidents. If we include contemporary technologies within the automobile, we can dramatically minimise the rising of traffic accidents worldwide. For the safety of all parties involved, it is possible to automatically check the driver's physical condition at regular intervals and take preventative action while the vehicle is in motion both inside and outside of the car. Here a design for an eye blinking detection system is shown, which may periodically check on the driver's health while they are driving and, if necessary, can sound an auditory alarm to notify the driver or start the vehicle's braking system.

IoT enabled intelligent black box for vehicles IoT is a young technology in the communication industry. Through a variety of wireless communication protocols, internet-connected devices are linked to the internet. Machine to machine service is provided for these devices. IoT technology is enabling the development of devices that can operate in real-time environments, such as smart grids and home automation systems. The potential business is required for the expansion and advancement of the technology in order to create the massive platform.

The world health organisation estimates that one million people die from accidents each year. To address the issue, a black box for vehicle is being developed in various nations as a potential solution. Despite numerous initiatives, the issues are continuously becoming worse every

day. Examples include driving while intoxicated, driving too fast and getting too little sleep. Due to the recent increase in work, automation must be improved via IoT with the aid of a low power microcontroller, the cloud will be used to monitor the visual data. This article will be supplying.

The article in this paper adheres to two rules: the first rule is to visualise data by identifying sensors, and the second guideline is to deliver the data to end users in an understandable way. The automation sector advantages vehicle technology through high range and low power. Automobile black box when the vehicle is in active mode the data recording position tracking and collision data are updated continuously. Therefore it is feasible to support the victims from the government or hospitals by quickly the car crash collisions.

According to the Indian Express, there were at least 4,80,662 accidents in India in 2016 that resulted in 1,50,785 fatalities. The data indicates that 1,317 traffic incidents resulted in at least 413 fatalities each day. When the data is broken down further, it shows that throughout the specified time 55 accidents each hour resulted in at least 17 fatalities.

III. PROPOSED SYSTEM

The proposed system includes a vibrational sensor that detects and sends information about them via SMS to nearby emergency responders or any family members. We are also using an eye blinking sensor to continuously check on the driver's physical condition while they are driving. Based on

sensor data the system uses complex algorithms to automatically identify and categorise accidents or catastrophic situations. This makes immediate alerts and emergency responses possible. In case of accidents, the system can provide real-time alerts to tell emergency services or designated contacts giving them precise information on the location and severity of the accident. Emails can be used for verification.

BLOCK DIAGRAM OF WIRELESS BLACK BOX FOR DRIVER SAFETY AND VEHICLE ACCIDENT MONITORING :

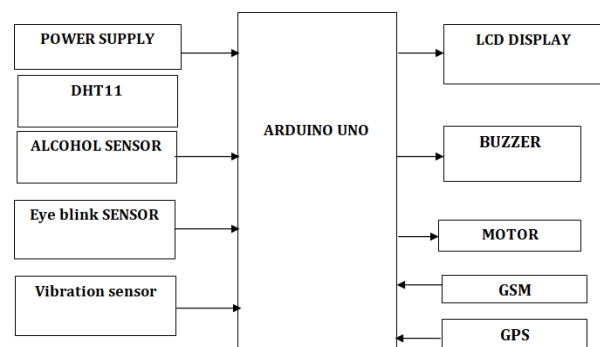


Fig : Block diagram of driver safety and vehicle accident monitoring

The arduino uno and GSM module both receive power at the same time .The alcohol sensor measures alcohol use and transmits data to the arduino when it rises above the threshold value.After then,the GSM receives the information .Users are informed by SMS/message that the driver is drunk by GSM additionally the 16x2 Lcd panel showed it.Eye blink sensor that alerts the driver of their drowsiness by blowing a siren when they became fatigued or sleepy.The lcd indicates whether drowsiness is present.DHT11 sensor that measures temperature and humidity.heavy vehicle vibrations that trigger the vibration sensor cause it to lose concentration at a specific moment which is when it detects accidents.

The arduino is attached to the vibration sensor which gathers data and sends a signal to the GSM.We receive SMS alerts by GSM for the user's mobile device ambulance and family members.This gave the GSM module's contacts information.At that point,we can prompt to administer the injured individuals required medication ,saving their lives from potentially fatal situations.

IV.RESULTS

OUTPUT OF ACCIDENTS

In these project we came to the conclusion that,in order to uprevent serious motorcycle accidents caused by drunk driving and other abnormal condition of the driver in the arduino uno a DHT11 sensor vibration sensor an alcohol sensor and an Eye blink sensor .The GSM module is used to transmit the SMS alertt which is shown on the LCD as well.

Under normal condition



When the driver is drunk



When the driver is sleepy

The vehicle accident is discovered when there are significant vibration as seen by the vibration sensor



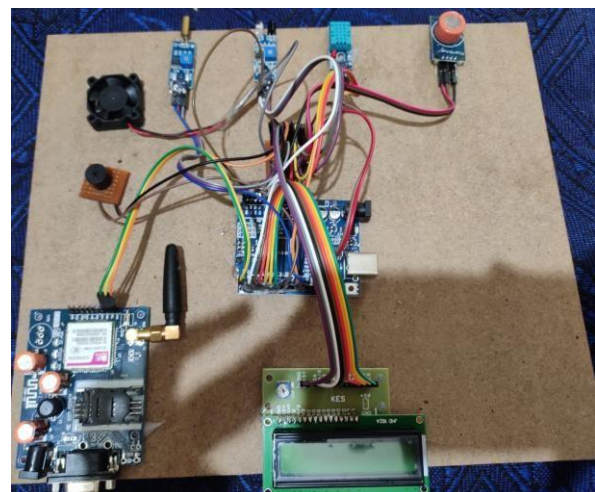
If a drunk driver operates a car the alcohol sensor detects it and provides information to the arduino which is connected to the GSM module and sends an alarm to the user's mobile device or a family member similar to this an SMS alert to the user's mobile phone when an accident happens. There is a link in that message that shows the vehicle's position.

5-4 4:03 PM

Accident detected at:
<https://maps.app.goo.gl/eQZkEQhVAdZtqFbk7>

Accident detected at: (text)
<https://maps.app.goo.gl/eQZkEQhVAdZtqFbk7>

PRTOTYPE OF HARDWARE KIT



CONCLUSION

The increased utilisation of IoT technology is assisting in preventing number problems in the contemporary environment. The intelligent car black box will be particularly

dependable and power efficient in a variety of real-time applications thanks to the help of cloud computing and IoT. By integrating with hardware and a rechargeable battery that will keep the device charged for a longer period of time, the GSM and GPS module can be used in the future to reduce power consumption.

FUTURE SCOPE

Future development and use of wireless black boxes for accident monitoring and driver safety has considerable potential. These gadgets often known as telematics devices or diagnostics systems, can offer useful information on driving habits, vehicle performance and accident-related data. A wireless black box for accident monitoring and driver safety combines cutting-edge hardware elements, data collection, capabilities, accident analysis algorithms and remote monitoring interfaces to improve driver safety, offer insightful information for accident investigations, and enable proactive measures to increase road safety.

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