Driver Drowsiness and Alcohol Detection System Using Arduino

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ABSTRACT- Drowsiness in driving reasons the primary street injuries. Now a day's drowsiness because of drunken using is growing. If driving force is located to be drowsiness in eyes greater than 5 secs, then the attention blink sensor senses the blink price. If the eyes are found to be closed, then the speed of the auto slows down. In our proposed gadget, at the side of drowsiness, alcohol detection is also detected by way of using alcohol mq3 sensor. If alcohol is detected in driver's breathe, then the car slows down. These sensors are interfaced with Arduino uno.Led glows in case of alcohol detection and buzzer rings in case of drowsiness detection and pace of the automobile varies on detection of each cases.
Keywords-
ArduinoUNO,Eyeblinksensor,MQ3sensor

I. INTRODUCTION

Drowsy using is a prime hassle. No person knows the exact moment while sleep comes over their body. This makes the motive force less able to be aware of thrroad. It impacts the motive force's capability to make appropriate selection. Each near nearly 1,00,000 site visitors crashes can be attributed to drowsy riding, along with greater than 1,500 loss of life and over 70,000 injuries, according to the unsensational dual carriageway traffic protection management. Every other foremost element of accidents are because of intake of alcohol.

The quantity of avenue accidents because of drunken drivers was1,643 in 2018.Consequently in order the lessen the injuries because of drowsiness and alcohol intake can be reduced through the use of the eye blink sensor and alcohol sensor respectively .As a result whilst they are detected the rate of the automobile slows down and forestall which avoids the rash riding. Accidents because of driving force drowsiness can be averted the use of eye blink sensors. The driving force is supposed to put on the attention blink sensor body.

The attention-blink sensor works by way of illuminating the eye and eyelid location with infrared mild, then tracking the modifications inside the meditated light the usage of a phototransistor and differentiator circuit. The exact capability depends greatly on the positioning and aiming of the emitter and detector with admire to the attention. The sensor is hooked up with arduinouno.

Any quantity of alcohol in your bloodstream can effect your driving potential. The effects of alcohol abuse vary significantly, setting you at danger for inflicting an accident or motorway damage. Safe riding calls for the capacity to pay attention, make suitable judgements and fast react to conditions. However, alcohol impacts these capabilities, putting your self and others in danger. The consumption of alcohol can be detected with the aid of using mq3 sensor.Mq3 sensor detects the consumption of alcohol from the breath of the character. This enables in fending off injuries as a result of consumption of alcohol.

II. LITERATURE SURVEY

In recent years, the drowsiness of the driver is detected by means of using photograph processing techniques. If the drivers eyes closed for certain time frame, the motive force is said to be drowsy. As a end result we get information associated with motive force's condition and the speed of the auto is reduced. Rate of demise because of road accidents is increasing day by day. Driving force drowsiness is one of the common reasons for most of automobile accidents.

A drowsy driving detection and avoidance gadget. They applied an picture processing technique to hit upon the attention blink of the driver. If the drivers eyes remain closed a positive time frame, the driving force is stated to be drowsy.

As a end result we get instantaneous data related to the driving force's situation and speed of the vehicle is decreased which reduces the possibilities of street injuries. Inside the training section, the gadget makes use of the enter photo of motive force from actual time digicam and enter photo undergoes several photo processing steps and required feature is extracted from an photograph. Functions are trained and saved in understanding base. Inside the testing section equal above said tactics are accompanied. The end result of trying out and is as compared with coefficients stored in information base the usage of picture classifier (svm) and checked weather driving force eye is opened or no longer.

Iot based hardware, that's superior product related to driver protection on the roads using aggregate of cell computing and digital picture processing and controller. They'll locate driver drowsiness and offers warning in form of alarm. And visitors collision information system will continuously reveal the gap from vehicle which is done through the ultrasonic sensor. If the ultrasonic sensor detects the obstacle then it'll hence warns the driving force. If one way or the other collision takes place it'll detect collision the use of effect sensor and offer emergency help carrier for motive force. The alcohol sends a fee of alcohol contained in the drivers breathe in case of intake and suggests the values in liquid crystal display show and sends message to the registered telephone quantity.In case of excessive degree intake of alcohol, it stops the ignition of the motor of the car. The scanning of motive force's eyes continuously the usage of the eye scanner, in order that every time the auto driving force closes his eyes for a longer length (2 seconds or extra), the scanner generates or turns on the alarm and the alarm starts offevolved ringing loudly. This could wake up the motive force and make him conscious for riding ahead the alarm system can be protected as an utility inside the automobile music machine and the driver may be given the selection of switching on/off the functionality. If the driving force switches off the protection feature the iris/eye scanner will forestall working. But if the protection function is

Switched on by using the driving force the iris scanner will constantly experiment the driving force eyes even as the driving force is driving the car and test whether the driver is attentive or now not. In addition to reading the scenario of risk because of drowsy riding, this alert machine submit alarming the driver will fetch the closest refreshment halt direct him to vacation spot with actual distance and predicted time to attain and also

will announce to motive force through the medium of navigation machine/tune device speakers of the automobile.

This way we are able to create whole solution for protection tool to alert drowsy drivers, hence saving many precious human lives. Deadly road accidents can be without difficulty prevented with the aid of know-how the psychological circumstance of drivers. Majority of avenue accidents occur throughout night riding because of the kingdom of drowsiness. This task provides a watch blink tracking gadget that indicators the driving force at some point of the nation of drowsiness. A ordinary eye blink charge has no effect on the output of the machine. Here we use one gate way raspberry pi, in that gateway webcam is connected, with the assist of webcam while the driving force is going to close his eyes greater than 5secs it'll click the picture of driver and ship to web software.

III.   DESIGN REQUIREMENTS
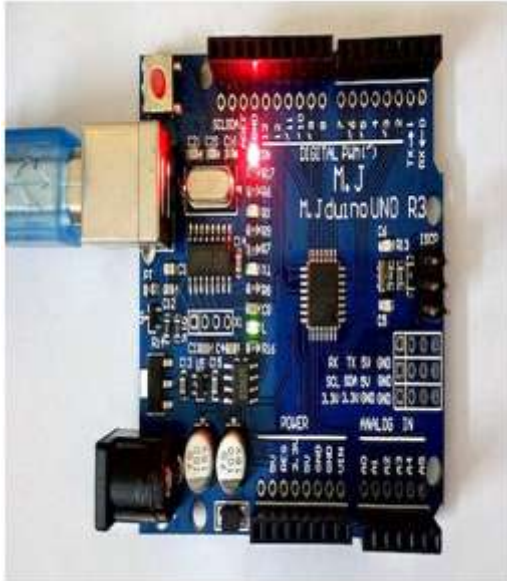### 1.MQ3 Sensor
MQ-3 alcohol sensor can detect the presence of alcohol at concentrations from 0.05mg/l to 10 mg/l.Used for detecting alcohol concentration on your breathe.

2.Aurdino Board
Arduino is an open source computer hardware and software corporation, mission, and consumer community that designs and manufactures single-board microcontrollers. The microcontroller kits are used for constructing digital gadgets and interactive items that can feel and manipulate gadgets inside the bodily global. The assignment's products are allotted as open-source hardware and software, which are licensed under the gnu lesser standard public license (lgpl).Wellknown public license (gpl), permitting

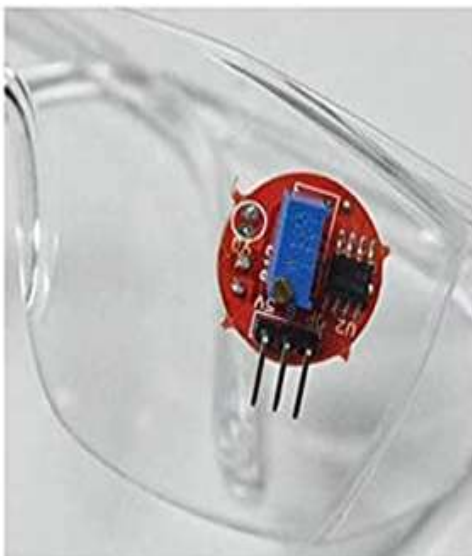the manufacture of arduino boards and software distribution through all.

3.Eyeblink Sensor

The attention-blink sensor works by illuminating the attention and eyelid region with infrared light, then monitoring the changes in the contemplated mild using a phototransistor and differentiator circuit. The precise functionality relies upon greatly at the positioning and aiming of the emitter and detector with appreciate to the attention.

4.DC Motor

A DC motor's pace can be managed over a wide range, using both a variable supply voltage or by converting the strength of contemporary in its subject windings. Small dc motors are used in equipment, toys, and home equipment. The regular motor can perform on direct modern-day but is a lightweight brushed motor used for portable energy gear and home equipment. Larger dc cars are presently utilized in propulsion of electric vehicles, elevator and hoists, and in drives for metal rolling turbines. The advent of power electronics has made alternative of dc vehicles with ac motors possible in many packages**.**

5.L298H Bridge

An H bridge is an electronic circuit that switches the polarity of a voltage applied to a load. These circuits are often used in robotics and other applications to allow DC motors to run forwards or backwards.

Most DC-to-AC converters (power inverters),most AC/AC converters, the DC-to-DC push–pull converter, most motor controllers, and many otherkindsofpower electronicsuseHbridges.In particular, a bipolar stepper motor is almost invariablydrivenbyamotorcontroller containing two H bridges.

6.System Design

7.GPS Sensor

GPS sensors are receivers with antennas that use a satellite-based navigation system with a network of 24 satellites in orbit around the earth to provide position, velocity, and timing information. A GPS receiver in your phone listens for these signals. Once the receiver calculates its distance from four or more GPS satellites, it can figure out where you are.GPS tracker can work when your car is off. NEO-6M GPS Module Pinout ... GND is the ground pin and needs to be connected to the GND pin on the Arduino.

8. Vibration Sensor

Vibration sensors are piezoelectric accelerometers that sense vibration. They are used for measuring fluctuating accelerations or speeds or for normal vibration measurement. A vibration sensor is a device that measures the amount and frequency of vibration in a given system, machine, or piece of equipment. Those measurements can be used to detect imbalances or other issues in the asset and predict future breakdowns. The sensitivity of these sensor normally ranges from 10mV/g to 100mV/g. This sensor is used for accident detection.

IV.   PROPOSED SYSTEM

In our proposed system, drowsiness of the driver is detected by using an eye blink sensor. The eye blink rate is continuously monitored using Arduino. If the eye is closed for more than 5 seconds, then the driver is found to be drowsy. As a result, the buzzer begins to buzz and also the speed of the car slows down (here indicated by a DC engine). In addition, alcohol is detected through the Mq3 sensor. This sensor is interfaced to Arduino. The LED lights up when alcohol is detected and the speed of the DC motor varies with the amount of alcohol on the driver's breath. The system will then alert the user's required member to help the vehicle owner. Using GPS sensor they can track car any time. When family members receive an alert, they can know the vehicle's location using GPS sensor and they can also help the driver. This method is very useful to prevent drunk-driving and accidents. The vibration detector detects an accident. In the worst case scenario, the alert is sent to the driver's solicited members.

We find, follow and examine both the driver face and eyes to gauge by ascertaining separation between eye iris and neck edge. We proposed to keep driver from driving in alcoholic condition and to dispense with further results of genuine street mishap. To screen and keep up strength of driver we watch driver's heart thumps.

Advantages of Proposed System:

1.Our proposed technique can detect the mimicked tired and lethargic states from the ordinary condition of driving on low goals pictures of faces viewed from a slanted survey point.

2. Our framework could help screen transport drivers' consideration levels without the need for additional cameras. This would broaden the capacity and pertinence of existing vision-based strategies for driver fatigue location.

V.   CONCLUSION

The driver drowsiness and alcohol detection system is used to detect the drowsiness of the driver and also detects the alcohol consumption of driver. If there is drowsiness or consumption then the motor of the car slows down and the buzzer rings till the eyes open. The Alcohol values and blink rate will be displayed on the Arduino IDE serial monitor. This proposed system helps in finding drowsiness and alcohol detection using Arduino. This helps to avoid numerous accidents. In case of an accident, this system also detects accidents and sends an alert to the driver members so that they can track the location of the vehicle and try to help them. In this paper, we have proposed and implemented a IOT system which is very useful for preventing accidents. Future scope of this system is to reduce accidents and provide useful emergency solutions as soon as possible. We will seek precise measurements of the sensors and their response time. The system modernizes existing technology in existing vehicles and also improves safety characteristics.

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