Unsafe Driving Detetction And Prevention Model Using Internet-Of-Things(IoT)

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Abstract- In the modern arena, [5] the main reason for accidents motor vehicular is due to unsafe driving. In the paper, Novel based IOT (Internet of Things) module is proposed to protect the people from unnecessary deaths caused by road accidents due to unsafe driving. The system makes use of the Internet of things (IOT) device as Raspberry Pi 3 models B as a core. It mainly includes touch sensor, alcohol concentration detection sensor, and facial recognition. Different types of safeguarding techniques used are GPS module, auto-triggering of alarm and automatic ignition off etc. [1] A program will be installed on the pc ,it will compute the acceleration supported detector readings, and compares them with typical unsafe driving patterns extracted from real driving tests.When any proof of perilous driving is available, the system will consequently send caution the driver by sending message, subsequently setting off an alert which will cause programmed start off before the mishap really occurs.[3]

Keyword-LED,MQ3,RaspberryPi.

I. INTRODUCTION

Presently a-days significant issue looked by the world is an unnatural passing because of risky driving and languor. As the overall utilization of cars is expanding, the endeavors to dispose of alcoholic driving conduct on roadways are as yet progressing to improve street traffic wellbeing with insignificant social and natural effect [2]. The fundamental point of the paper is to lessen the street mishaps in the, particularly in India, as per the vehicle examine wing (INDIA) overview, mishaps have been expanded by 2.5% from 2014 to 2015.From these examination street mishaps happen around 1,374 passings occur each day in India .Among the accessible information, 54.1% of people were killed between the ages of 15-34 years. As indicated by World Health Organization (WHO) report, 70% of complete street human passings were caused affected by dangerous driving and tiredness. Programmed liquor recognition, counteractive action and approach is firmly identified with the web of things worldview. Web of things is only working parallel with the equipment and programming of the framework. Utilizing of IOT represents some extraordinary outcomes. The framework helps the driver utilizing camera for sluggish driving location framework and for recognizable proof of hazardous driving circumstance.

II. AIM AND OBJECTIVE

a) Aim

The Aim of the project is to avoid the road accidents because of drunk driver and drowsy driver.

b) Objective

The objective of the project is to ensure the safety system. For enhancing the safety, Drunk Driver ,Eye Blinking of the driver and estimating the driver status and control the the car accordingly.

III. LITERATURE SURVEY

In 2011, Wang Dong, Cheng Quan Cheng, Li Kai and Fang Bao-hua went for the genuine marvel of alcoholic driving in present day society, a MCU electronic circuit board is utilized in the framework. With alcohol sensor MQ303A, the alcohol focus is identified. Through ADC0809, the recognition flag is changed over to computerized flag, which is taken care of straightforwardly by MCU. As per the advanced flag, the vehicle is controlled naturally, can't be driving after driver drinking, therefore evade the event of alcoholic driving. In 2016, Suparna Sahabiswas and Sourav Saha arranged an IoT based generally display with the intend to defend alcoholic and tired drivers especially in obscurity. It incorporates examination of liquor focus, eye squinting rate and furthermore the rate at the car is then shaped to show to and recognize

a bibulous or sleepy state; in this way embraced defensive measures. Such measures incorporate speed decrease, setting off a caution, advising the traffic control, actuation of auto-pilot and so forth. In 2010, Jiangpeng Dai and Jin Teng proposed a system to perceive and caution the vehicles related to alcoholic driving. A program presented on mobile phone registers reviving subject to sensor readings, and differences them and normal driving models isolated from certified driving. On the off chance that there ought to emerge an event of any accident it would send the messages to the associates reliably about the territory of the disaster happened till the restorative guide accomplishes the driver. have depicted an assistance structure which feasibly foresees rest related incidents. The expert gave a multilayered help twofold control plot which can help in reducing rest related disasters. The assistance structure associates with driver to choose driver's state in a multilayered way. They used driving test framework which was outfitted with assistance structure for inquiring about the practicality of finding tiredness of driver and keeping up a key separation from incidents as a result of way flight. Different evaluations like theoretical, physiological, social and vehicular were used in the model. Among various direct estimates the most accurate and effective is head advancement measure. Aleksander, Oge and Borko. Proposed a driver availability area system depending upon depletion acknowledgment at the given minute. Picture dealing with figurings were used to perceive the circumstance of eyes. They gained clear signs by watching eye gleam rate using camera which depict the availability measurement of a driver. Proposed a calculation to screen eye squint which utilizes eye include focuses to decide the condition of driver's eyes and initiate a caution if the driver is languid. This strategy gives right outcomes when the camera utilized is of high goals. They proposed a calculation which is less mind boggling than the Flares et al calculation and gives same exactness.

IV. EXISTING SYSTEM

The current framework comprises a cell phone set in vehicle and with accelerometer and introduction sensor. A program introduced on the cell phone processes increasing speeds dependent on sensor readings, and contrasts them and normal alcoholic driving examples removed from genuine driving tests. When any proof of alcoholic driving is available, the cell phone will consequently caution the driver or call the police for help a long time before mishap really occurs.

a) LIMITATIONS ON EXISTING SYSTEM:

Each framework is liable to specific impediments, the MQ3 based framework

for distinguishing liquor content in blood also is liable to disappointment and framework crash –

- By the won't be sufficient for the sensor to trigger the activity.
- If the driver covers the sensor module by something like a tissue or a bit of fabric it won't work as wanted as the contribution to the sensor gets blocked and empowers the beginning of the vehicle.
- If the windows of the vehicle are open, at that point too the sensor won't most likely recognize whether the driver is flushed or not and whenever alcoholic whether the dimension is over as far as possible or not. Additionally, the open windows cause clamor (unsettling influences) to the sensor bringing about the deficient working (mistake in the perusing) of the sensor.
- If the vents of the sensor get obstructed because of some residue/soil or different materials, this will also result in the framework not having the capacity to perform proficiently.

V. COMPARATIVE STUDY

PAPER TITLE	AUTHOR NAME	PROBLEM	SOLUTION	FUTURE WORK
Real Time and Non-intrusive Driver Fatigue Monitoring	Z. Zhu and Q. Ji	A person under the Fatigue doesn't have control over his actions as it impacts synchronized coordination of brain and body, as a result, he/she violates the traffic rules which can prove to be fatal.	The system should takes action based on the Fatigue content.	In future work the system would take necessary actions.

Mobile phone based drunk driving detection.	J. Dai, J. Teng, X. Bai, Z. Shen, and D. Xuan.	Cause of vehicular accidents due to alcohol consumption when driving.	Reduced number of accidents: The system help reduce the number of accidents due to alcohol consumption during driving. (often the reason cited for fatality is delayed medical care)	The future work comprises of use of embedded GPS which in turn will alert the registered mobile number so that action will get initiated and the victim get immediate medical attention.
Novel drunken driving detection and prevention models using Internet of things	Koneti sandeep, Ponnam Ravikumar , Sura Ranjith.	Increasing number of accidents due to alcohol consumption while driving.	The system proposes a novel method to combine a number of factors and personalize for testing people	Better sensors and processors will be used in next generation

VI. PROBLEM STATEMENT

Presently multi day's street mishap is a noteworthy issue everywhere throughout the world. Subsequent to assessing the writing review in the past area obviously the more number of mishaps was mostly a result of dangerous driving, which is in charge of around 33% of all street mishaps. Consistently individuals are harmed or slaughtered out and about on the grounds that another driver was driving dangerous for example tiredness and alcoholic driving impedes individuals capacity to decide separate, response time, judgment and vision .drowsiness and alcohol consumption in drivers.A system which consists of sensors will be developed, which is suitable for detecting drowsiness driver and drunk driver. The decoded radio frequency signal is sent to the controller in the vehicle unit to start /stop the vehicle. If there is no control signal of BAC(below the threshold limit) from alcohol sensor then the vehicle will ready to go, otherwise if it detects the BAC (above the threshold limit) the vehicle will get started..

VII. PROPOSED SYSTEM

The proposed framework comprises of open source 5 megapixel computerized camera for catching ongoing pictures of vehicle driver. For further handling on that picture, it is expected to send the picture to Raspberry-pi framework board. The Raspberry-pi framework is stacked with Raspbian OS and Python bundles for Open CV (Computer Vision). Hear highlights are utilized to compute required piece of the eye (student and iris). Further, Hough change is utilized for edge location of understudy and iris. Student and Iris territory is determined and afterward it contrasts and limit esteem. On the off chance that it surpasses the limit esteem, at that point driver laziness condition is distinguished and caution demonstrated by bell. Signal is legitimately associated with Raspberry-pi framework board.

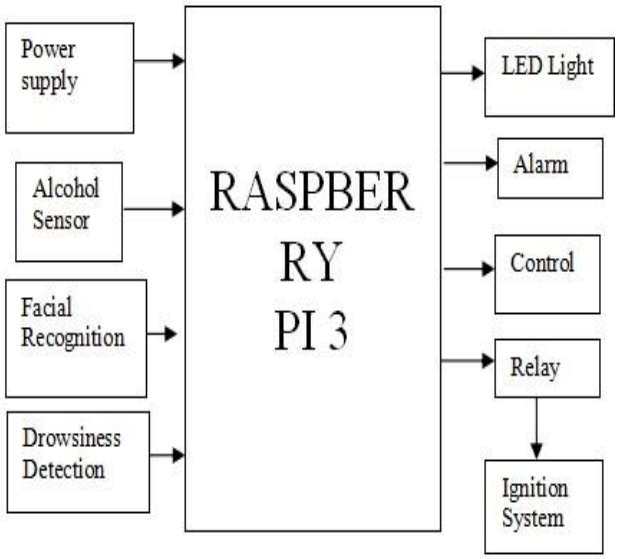

Fig.7.1. proposed system Block diagram

So as to distinguish the alcoholic state of vehicle driver, a liquor gas sensor MQ-3 is utilized. The MQ-3 gas sensor is high delicate to liquor focus and high protection from smoke, fuel and vapor. It computes the blood liquor content (BAC) from breath liquor content (BrAC) and on the off chance that it crosses the edge esteem, at that point alert shows

VIII. ALGORITHM

Step 1: START.
Step 2: Turn on the power supply for the project.
Step 3: Initialize the Sensors, Raspberry Pi, and Camera.
Step 4: Touch the Sensor do C=C+1.
Step 5: If sensor is not touch do the calibration.
Step 6: Do real time monitoring daemon.
Step 7: Check both longitudinal processing and lateral processing.
Step 8: Do multiple round pattern matching with the historical info catch.
Step 9: If pattern condition is satisfied give the alert otherwise go to Step 6.

Step 10: Now check for the following conditions/steps.
Step 11: If alcohol sensor detection gives output do C=C+1,if not go to next condition/step.
Step 12: If face detection is done do C=C+1,if not go to the next condition/step.
Step 13: Drowsiness detection is done if found do C=C+1 otherwise go to next condition/step.
Step 14: Now some of all the detection conditions.
Step 15: If total detection condition C>=2 then raise the alarm and turn off the car ignition.
Step 16: If total detected condition C>=2 is not satisfied then carry on and go to step 4.
Step 17: STOP.

IX. MATHEMATICAL MODEL

The adjustment technique starts to work when the framework identifies the vehicle begins to move.then the primary liquor recognition process is begin .

1) A clear equation used to ascertain your blood liquor content (BAC). Liquor content in a range of breath is calculated as miligram/Liter . A 1% blood liquor content is 10g/L or 10,000mg/L. Since this dimension would very likely be lethal, we should range this down from "dead" to "tanked". A 0.1% BAC is 1000mg/L.There is a standard change from breath liquor substance to BAC that is utilized by business breathalyzers. Breath and blood liquor content contrast by a factor of 2100; that is, for each mg of liquor in the breath, there are 2100mg of liquor in the blood. Thus, an individual with BAC of 0.1% has 1000mg/L of liquor in their blood and 1000/2100 = 0.4762mg liquor in their breath. Along these lines, our last equation for figuring BAC from the liquor estimated in the breath is:% BAC = breath mg/L * 0.21

2) The Viola Jones structure crafted by Viola and Jones [11] can be viewed as one of the primary powerful constant face indicators that is as yet being utilized practically speaking. Three primary thoughts are behind the accomplishment of this locator: the essential picture, the Adaboost and the attentional cascade structure. The integral image is an algorithm for a quick and efficient calculation for the sum of intensity values in a rectangular subset of an image. The integral image is defined as: $(x, y) = \sum (x',y')\ x'\leq xy'\leq y$ where $i(x, y)$ is the intensity of the gray scale image at pixel (x, y). Using the integral image as illustrated, the sum of the intensity pixels of any rectangular area ABCD can be calculated with only four array references as: $\sum i(x, y)\ (x,y)\in ABCD = ii(D) + ii(A) - ii(B) - ii(C)$ (2.2) Viola and Jones used this concept for rapid computation of a huge number of Haar like features which are simply defined as the difference between the sum of the intensities in the dark and light shaded regions of simple rectangular patterns.

X. SYSTEM ARCHITECTURE

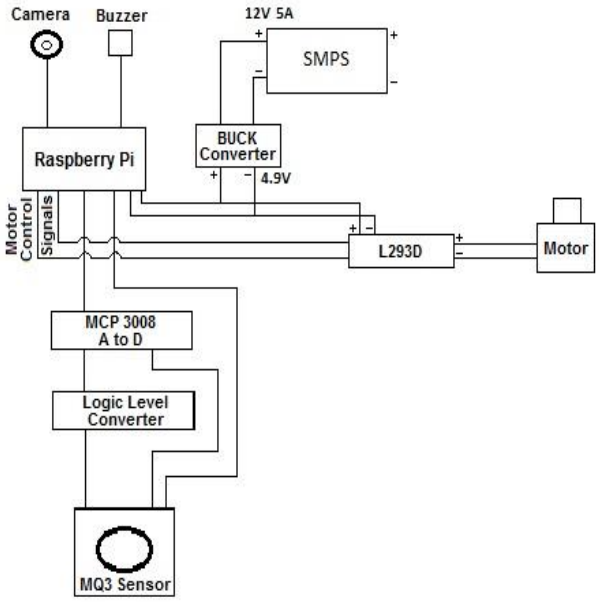

Fig. 10.1.System Architecture

In the system , it mainly consist of two partition namely as software part and hardware part. software part include paython technology for interfacing of various hardware component like LED light, microcontroller ,sensor etc. whereas in hardware part include component used such as MQ-3 sensor, LED light ,motor. In this system, detection of alcohol two condition are checked. The first condition is ,if driver has drunk, he wish to start vehicle at that time at trying to the starting car sensing of alcohol will be done at which speed be 0. If alcohol is detected then signal is passed to raspberry pi and car ignition will be stop immediately . so this prevent driver from being drive a vehicle. In the second part, when the car is in running state then camera start to capture the video ,if driver is found to be in drowsy state, the system will slow down the speed of the engine and come into stable state after a certain duration. Simultaneously, the buzzer will be activated.

XI. ADVANATGES

- Safe driving: There are many accidents in which the driver often loses his precious life under the affection of alcohol.
- Prevents traffic chaos: A person under the affection of alcohol doesn't have control over his actions as it impacts synchronized coordination of brain and body, as a result, he/she violates the traffic rules which can prove to be fatal. The proposed system takes action based on the alcohol content.
- Compact size: Only the MQ-3 alcohol sensor has to be placed above of the steering wheel and the rest of the components are hidden in the dashboard. The MQ3 sensor occupy less than 4 inches space.

- Reduced number of accidents: The main aim of this system is to reduce the number of accidents due to alcohol consumption during driving.

Apt complementing device for cops: Every vehicle cannot be checked by
the cops manually. The device can automate the process (alerts can be made to reach the local police station), thus freeing the cops to task more important tasks such as investigation of robbery and other crimes in the society.

XII. CONCLUSION

Unsafe driving accidents are one of the major problems now a days . This paper provides much advanced facility in now a day's life as it can easily have implemented in vehicles with multi stage testing such a way that we can avoid accidents caused by unsafe driving. Thus, by this we can reduce the alcohol and drowsiness related road accidents and hence these kind of detectors has great importance in the future which we are going to implement with IOT. Through this project we present hardware programming of IOT device to facilitate as alcohol and drowsiness detector and preventive device.

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