ISSN: 0975-766X
CODEN: IJPTFI
Available Online through
www.ijptonline.com
Research Article

SIGN BOARD MONITORING AND VEHICLE ACCIDENT DETECTION SYSTEM USING IOT

Dr.K.Ashok Kumar*
School of Computing, Sathyabama Institute of Science & Technology, Chennai.
Email: kumar.kashok@gmail.com

Received on: 18-04-2018 *Accepted on: 22-05-2018*

Abstract:

The Rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and property because of the poor emergency facilities. Our project will provide an optimum solution to this draw back. According to this project when a vehicle meets with an accident immediately Vibration sensor will detect the signal or if a car rolls over, and vibration sensor will detects the signal and sends it to RASPBERRY PI controller. Alcohol detection, eye blink is performed by the RASPBERRY PI Microcontroller sends, it alert mail through the IOT to the parents or a rescue team. So the person can immediately then after conforming the location necessary action will be taken.

If the person meets with a small accident or if there is no serious threat to anyone`s life, then the alert message can be terminated by the driver by a switch provided in order to avoid wasting the valuable time of the medical rescue team. This paper is useful in detecting the accident precisely by means of both vibration sensor and Alcohol detection, eye blink sensor.. As there is a scope for improvement and as a future implementation we can add a wireless webcam for capturing the images which will help in providing driver`s assistance.

Key words: Eye blink sensor, vibration sensor, alcohol sensor, web cam, buzzer, raspberry pi.

1. Introduction

The Rapid growth of technology and infrastructure has made our lives easier. The advent of technology has also increased the traffic hazards and the road accidents take place frequently which causes huge loss of life and

property because of the poor emergency facilities. Our project will provide an optimum solution to this draw back. According to this project when a vehicle meets with an accident immediately Vibration sensor will detect the signal or if a car rolls over, and vibration sensor will detects the signal and sends it to RASPBERRY PI controller. Alcohol detection, eye blink is performed by the RASPBERRY PI Microcontroller sends, it alert mail through the IOT to the parents or a rescue team. So the person can immediately then after conforming the location necessary action will be taken.

If the person meets with a small accident or if there is no serious threat to anyone`s life, then the alert message can be terminated by the driver by a switch provided in order to avoid wasting the valuable time of the medical rescue team. This paper is useful in detecting the accident precisely by means of both vibration sensor and Alcohol detection, eye blink sensor.. As there is a scope for improvement and as a future implementation we can add a wireless webcam for capturing the images which will help in providing driver`s assistance.

2. Related Work

Existing System:

In the running world there is a growing demand for the users to convert the printed documents in to electronic documents for maintaining the security of their data. Hence the basic OCR system was invented to convert the data available on papers in to computer process able documents, So that the documents can be editable and reusable. The existing system/the previous system of OCR on a grid infrastructure is just OCR without grid functionality. That is the existing system deals with the homogeneous character recognition or character recognition of single languages.

Alerts to Driver:

Eye blink sensor used to detect the drowsiness of a driver at first the status of driver will be analyzed by eye blink sensor if eye is closed the output of eye blink sensor is high and so buzzer fixed nearby driver buzzer gives sound . Alcohol sensor used to detect the drunk position of driver at first the status of driver will be analyzed by alcohol sensor if the alcohol percentage in high taken by driver then also buzzer fixed nearby driver it will gives sound and car will automatic stops

Rescue Alert:

In this module, we are observing whether the vehicle is safe or not by monitoring the vehicle with vibration sensor. Whenever we are travelling, there is a chance for accidents to occur. If the vehicle is met with an accident, the vibration sensor will be activated. With the values received from the vibration sensor, the threshold value is calculated. The threshold value is the current value, which is displayed by the serial monitor. The value ranges from 0 % to 100%. The threshold value is split into three classes If the threshold value ranges between 0 and 30%, the accident occurred can be ignored. So, no alert will be given If the threshold value ranges between 30% and 70%, then alert message will send to parents and rescue team

3. Materials & Methods

3.1 Architecture:

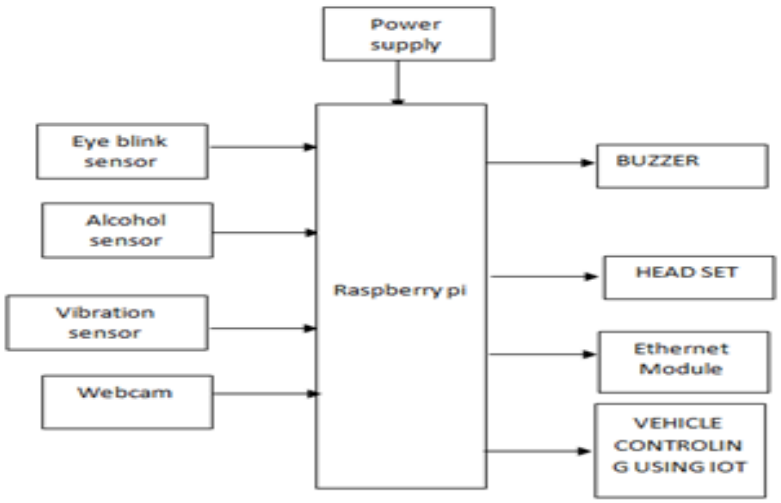

Figure 1. Vehicle Accident Detection System.

3.2 Eye Blink Sensor

It is important in our attempting to locate the flickering of eye, since it is utilized to drive the gadget and to work occasions. So flicker discovery must be done, for which we can profit promptly accessible squint identifiers in showcase (Catalog No. 9008 of Enable gadgets) or we can join it with an exceptional direction written in picture handling that, if there is no student found for the specific time of pre-decided i.e. time more prominent than the human eye flickering time at that point consider an occasion called "squint", for which the arrangement of activities will be taken after. Here, for this situation we have to set time as 1 second or above it, as "squint

occasion" is not the same as "should be expected eye flickering". We have to perform testing for just flicker occasion estimation, and not to discover typical eye squinting.

3.3 Alcohol Sensor

The MQ-3 sensor will detect the liquor content from human breath and gives its incentive to aurdino. The MQ-3 is helpful for recognizing liquor. SnO2 is delicate component which is utilized to detect the liquor.

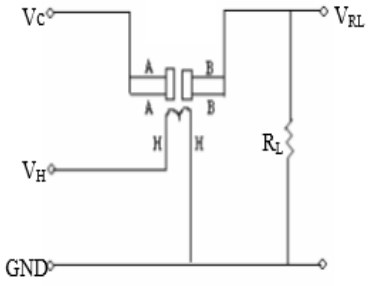

Fig. 2: Alcohol Sensor.

3.4 Buzzer

Ringer is sound flagging gadget, it is utilized as a part of family unit apparatuses and car framework. It comprises of two transistor and ringer ON and OFF is controlled by the match of transistor.

3.5 Raspberry pi

***Fig.3. Raspberry pi kit for* Vehicle Accident Detection System.**

The Raspberry Pi is manufactured in two board configurations through licensed manufacturing deals with Newark element14 (Premier Farnell), RS Components and Egoman. These companies sell the Raspberry Pi online. Egoman produces a version for distribution solely in China and Taiwan, which can be distinguished from other Pis by their red coloring and lack of FCC/CE marks. The hardware is the same across all manufacturers.

The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz processor, Video Core IV GPU, and was originally shipped with 256 megabytes of RAM, later upgraded to 512 MB. It does not include a built-in hard disk or solid-state drive, but uses an SD card for booting and persistent storage.

3.6 Webcam

A webcam is a video camera which feeds its images in real time to a computer or computer network, often via USB, Ethernet or Wi-Fi. Their most popular use is the establishment of video links, permitting computers to act as videophones or videoconference stations.

This common use as a video camera for the World Wide Web gave the webcam its name. Other popular uses include security surveillance and computer vision. Webcams are known for their low manufacturing cost and flexibility, making them the lowest cost form of video telephony.

They have also become a source of security and privacy issues, as some built-in webcams can be remotely activated via spyware.

4. Results and Discussion

This project we are going to explaining about when driver was sleep position drunk position he can't able see the sign board and directions then our project is helpful to reduce the accidents the processor is to capture sign board by web cam and it will sends to raspberry pi in the raspberry pi the image is decoded by using OCR algorithm and it will gives voice to driver about directions and sign boards

The driver was in drowsiness position the eye blink sensor will detected the eyes and gives signal to raspberry pi it will give signal to buzzer then automatically buzzer will gives sound to driver and also give estimation car owner by using Ethernet module

The driver was in drunk the alcohol sensor will detect and gives signal to raspberry pi it will gives signal to buzzer then it automatically buzzer will gives sound to driver and also give estimation car owner by using Ethernet module. The car was met with accident then vibration sensor will detect then it will gives signal to raspberry pi then it will gives estimation to driver and owner of car by using Ethernet module this was done in this module method.

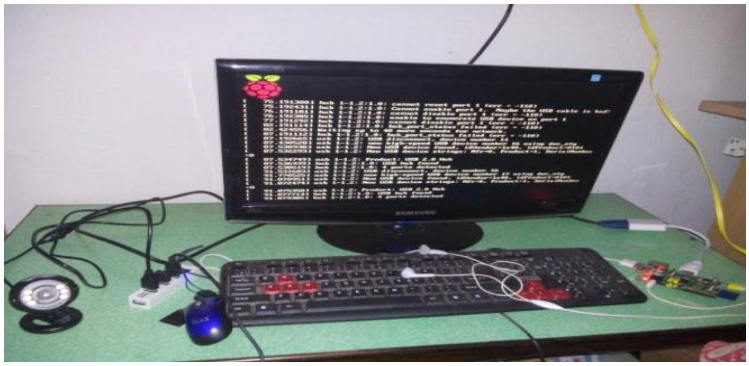

Fig.4. a) working of Vehicle Accident Detection System.

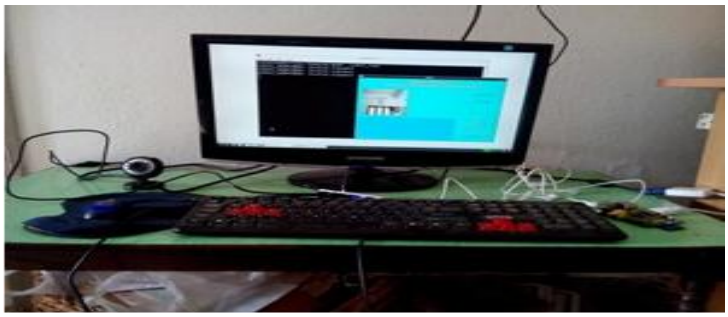

Fig.4. b) working of Vehicle Accident - Detection sensor.

the aim of project is obtain using web cam and it is connected to raspberry pi then it should be connected to battery then web cam will capture image and give voice to driver the real time accident can be detect and message will sends to persons. The aim of this project is obtain using vibration ,eye blink, alcohol sensors are connected to raspberry pi then power supply should be given then buzzer sound can be hear by driver if it not a serious threat then driver will automatically stop the buzzer

5. Conclusion

In this project we have success fully designed sign board monitoring and accident detection system using IOT when accident occur it sends the intimation to owner of a car and also guardian of driver. It is the real fact that implementation of system will increase the some cost of the vehicle but it is better to have some present safety rather than having no percent of safety. The proposed system can be used for estimation of driver condition will intimated to certain guardian of driver

6. References

1. Abid Khan, Ravi Mishra ―GPS – GSM Based Tracking System ‖, International Journal of Engineering Trends and Technology, Volume3, Issue2, Pp: 161-169, 2012.

2. S.P. Bhumkar, V.V. Deotare, R.V.Babar ―Intelligent Car System for Accident Prevention Using RASPBERRY PI-7‖, International Journal of Emerging Technology and Advanced Engineering, Volume 2, Issue 4,Pp: 56-78, 2012.
3. B.G .Nagaraja, Ravi Rayappa, M.Mahesh, Chandrasekhar M Patil, Dr TC Manjunath: "Design and Development of GSM based vehicle theft control system" Advanced Computer Control ICACC "09 International conference.pp148.
4. Xu Li, Wei Shu, Minglu Li, Hong-Yu Huang, Pei-En Luo, and Min You Wu, "Performance Evaluation of Vehicle-Based Mobile Sensor Networks for Traffic Monitoring" IEEE 2009.[5] Young, Kar-Keung D. "Automated navigation and mobile vehicle control using wireless sensor network technology," Proceedings of the IEEE International Conference on Industrial Technology, 2008.
5. Pooja Chandran, Aravind S, Jisha Gopinath And Saranya S S ," Design And Implementation Of Speech Generation System Using Matlab " Publish In International Journal Of Engineering And Innovative Technology (Ijeit) Volume 4, Issue 6, December 2014.
6. DevikaSharma, Ranju Kanwar, "Text To Speech Conversion With Language Translator Under Android Environment" Publish In International Journal Of Emerging Research In Management &Technology Issn: 2278-9359(Volume-4,Issue-6).
7. Siddhant C. Joshi, Dr. A.N.Cheeran "Matlab Based Back-Propagation Neural Network For Automatic Speech Recognition", IJAREEIE (An Iso 3297: 2007 Certified Organization) Vol. 3, Issue 7, July 2014.
8. Siddhant C. Joshi, Dr. A.N.Cheeran, "A Comparative Study of Feature Extraction Techniques for Speech Recognition System" ISSN: 2319- 8753, IJIRSET, Vol. 3, Issue 12, December 2014.
9. K.Ashokkumar et al, 2015, Cloud Based Intelligent Transport System, Procedia Computer Science, Volume 50, 2015, Pages 58-63, https://doi.org/10.1016/j.procs.2015.04.061.

Corresponding Author:

Dr.K.Ashok Kumar*

Email: *kumar.kashok@gmail.com*