IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319 5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 5, Issue 4, April 2016

Real-Time Vehicle Cabinet Monitoring and Alarming System Using Switch Case and Step Sequence Algorithm

Makarand Sonawane[1], Rahul Mandwale[2], Ganesh Jadhav[3], Vikas Sanap[4], Prof.J.Y.Kapadnis[5]

Department of Computer Engineering, PVG CoE, Nashik, Maharashtra, India[1, 2,3,4,5]

Abstract: Millions of people worldwide do it. Many say "What's the harm, they got home safely and no one was hurt?" Just because they made it home safely that does not mean that they're making a right decision. When putting those keys in the ignition and driving away after drinking people are not only putting their life at risk but they are risking the lives of all those they come across while driving. In this paper we are presenting the solution to avoid drink and drive situation by using the embedded system for early detection smoke and alcohol in driver's breath, and providing mechanism to report the driving under the intoxication.

Keywords: cabinet monitoring, step sequence.

I. INTRODUCTION

In past few decades progress of automobile production is increased and vehicles became necessary part of individual's life. So the phenomena of drink and drive has ever increased in recent years and continuous to pose challenges to the government and traffic authorities disturbing lives of citizens, making roads unsafe and dangerous.

Alcohol affects you in a way that changes your judgement, depth perception as well as vital motor skills required to drive safely. It's easy to think you are driving normally when truly you are not. When the police take notice you could be hit with a DUI/DWI.

This is the best case scenario. Getting into an accident your life could be lost as well as any others who too are involved in this accident. According to 2009 drunk driving statistics there were 10,839 traffic fatalities in alcohol-impaired-driving crashes. This is those whose lives were lost not the total number of alcohol related accidents, or the number of individuals arrested for drinking and driving.

The purpose of this research is to help people avoid driving under the influence of alcohol and smoke. Safety plays a major role in today's world and it is necessary that good safety systems are to be implemented in vehicles. This work modifies the existing safety model installed in vehicles.

II. EXISTING SYSTEM

A camera is mounted on the instrument cluster facing the driver to monitor the driver's face. The system is calibrated to monitor the driver's state of consciousness through the blinking of the eyes. When the system detects signs of drowsiness, a voice and message alert is triggered via the navigation system.

Drawback:
Camera's base systems cannot be reliable all the time. Especially in low light situation.

III. PROPOSED SYSTEM

Design Embedded System for Monitoring and prediction of driver's physical situation. The main work is designing microcontroller based alcohol, smoke and speed detection and alerting system. The driver's physical situation were sensed and displayed to the nearest centralise security unit.

If driver's alcohol level exceed the normal level of threshold value then immediately an alert message (SMS) is sent to the authorized person through the GSM and location is also track through GPS.

IV. ARCHITECTURAL DESIGN

As shown in figure no 1.The architecture is divided in three segments, in first segment MQ-2(for smoke), MQ303A (for Alcohol) are used to sense the intoxicated contents in drivers breath, and RPM mechanism to monitor the speed fluctuation in car.

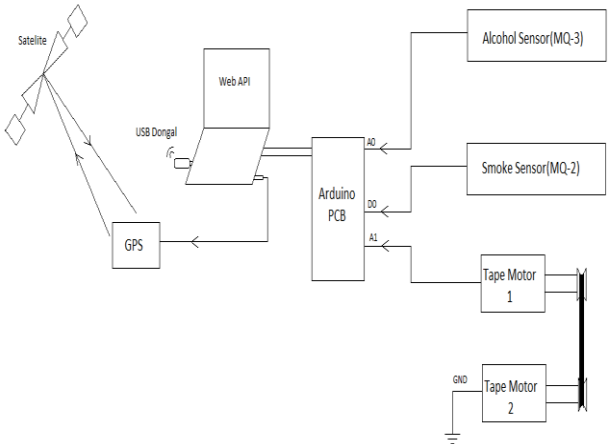

Fig.1 Overall architectural design.

The driver's physical situation is sensed with the MQ-2(for smoke), MQ303A (for Alcohol) RPM (speed) sensors and respectively and sent to the PIC microcontroller. The sensed analogue signals are converted to digital through ADC (inbuilt in case of PIC).

IJARCCE

ISSN (Online) 2278-1021
ISSN (Print) 2319 5940

International Journal of Advanced Research in Computer and Communication Engineering
Vol. 5, Issue 4, April 2016

MQ-2 sensor

MQ-2 gas sensor is SnO2, which with lower conductivity in clean air. When the target combustible gas exist, the sensor's conductivity is higher along with the gas concentration rising.

Fig.2 MQ-2 sensor.

MQ-2 gas sensor has high sensitivity to LPG, Propane and Hydrogen, also could be used to Methane and other combustible steam, it is with low cost and suitable for different application.

MQ-3 sensor

A hi-sensitivity alcohol odour sensor is built into the transmission shift knob, which is able to detect the presence of alcohol in the perspiration of the driver's palm as he or she attempts to start driving.

Fig.3 MQ-3 sensor.

When the alcohol-level detected is above the pre-determined threshold, the system automatically locks the transmission, immobilizing the car. A "drunk driving" voice alert is also issued via the car navigation system.

Step sequence algorithm:

1. Start
2. Detect the parameter R, MQ2, AND MQ3.
3. Feed these parameters to the Transistor Driver Card to convert analogue to digital format. MQ2= SMOKE, MQ3= Alcohol;
4. If parameter > threshold value.
   Go to step 5)
   Else go to step 2)
5. Accelerometer input is given to the Microcontroller which is used as an interface to the Processor's USB Port.
   R=RPM.
6. The GPS Modem continuously take the current Latitude and Longitude of the vehicle from The Satellite and provide it to the Processor.
   X=longitude;
   y=latitude;
7. Then the internet is used to send an online message to the corresponding authorities which contains the co-ordinates of the vehicle.
8. If the parameter does not exceeds the limit
   If (parameter <= threshold value);
   Go to Step 2).
9. Exit.

V. CONCLUSION

we developed nonintrusive prototype computer vision system for real-time monitoring of a driver's vigilance This system tries to look at the emerging technologies and determine the best approaches in trying to prevent the number one cause of fatal vehicle crashes.New system will be based on "IOT" It will consist of web based monitoring system for GPS. The system will monitor the driver and if driver alcohol level exceed than the normal level of threshold value then alert message (SMS) is sent to the authorized person through the GSM and location is also track using GPS.

REFERENCES

[1]. Ralph OyiniMbouna, Seong G. Kong, Senior Member, IEEE,(2013),Visual Analysis of Eye State and Head Pose for Driver Alertnes Monitoring, (IEEE),pp.1462-1469,vol.14,USA

[2]. S. Vitabile, A. De Paola, F. Sorbello, J Ambient Intell Human Comput, "A real-time non-intrusive FPGA-based Drowsiness system" Springer, pp.251-262, University of Palermo, Italy 2011

[3]. Road safety information, rospa, "driver fatigue and road accidents"www.rospa.com, 2011

[4]. ArunSahayadhas,KennethSundaraj,"Detecting Driver Drowsiness Based on Sensors A Review",pp.16937-16953, ISSN 1424-8220,Malaysia 2012
http://djhurij4nde4r.cloudfront.net/images/images/000/005/917/full size/eskandarian.png?1386903510

[5]. Anirbandasgupta,anjithgeorge,"A Vision Based System For Monitoring The Loss Of Attention in Automotive Drivers",(IEEETransaction),vol.14,no.4 2013