International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

2017 IJIEMR. Personal use of this material is permitted. Permission from IJIEMR must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works. No Reprint should be done to this paper, all copy right is authenticated to Paper Authors

IJIEMR Transactions, online available on 24 May 2017. Link :
http://www.ijiemr.org/downloads.php?vol=Volume-6&issue=ISSUE-3

Title: New Approach For Automated Detection Of Driver Fatigue And Security System For Vehcle.

Volume 06, Issue 03, Pages: 292 – 299.

Paper Authors

RAJESH MALLIPUDI, LAKSHMI NARAYANA JANJANAM, V G PRASAD NARAHARISETTI.

Department of ECE, Sasi Institute of Technology & Engineering, Tadepalligudem, AP.

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

NEW APPROACH FOR AUTOMATED DETECTION OF DRIVER FATIGUE AND SECURITY SYSTEM FOR VEHCLE

RAJESH MALLIPUDI[1], LAKSHMI NARAYANA JANJANAM[2], V G PRASAD NARAHARISETTI[3]

[1]M.Tech Student, Department of ECE, SITE, Tadepalligudem, AP.

[2]Assistant Professor, Department of ECE, SITE, Tadepalligudem, AP.

[3]Associate Professor & HEAD of Department of ECE, SITE, Tadepalligudem, AP.

Abstract— Accidents in general arise because of driver carelessness. The main intention is to provide attention and safeguard mechanism for the driving force. Important cause of an accident is because of drowsiness, alcohol consumption and irregular pulse rate of driving individual. Additionally to this theft detection, security procedure and man or woman level identification is set. In this paper alcohol detection and coronary heart rate monitoring system, person stage identification process, eye blink that is drowsiness level, theft detection and mobile free auto reply procedure is used to restrict an accident. Password authentication, calls divert system, pulse stage and eye blink checking mechanism is processed. Each process is used to rectify the carelessness of the motive force and instant intimation technique is developed through use of GSM science. Then output is seen by the hardware module is got.

Index Terms—Temperature Sensor, Eye Blink Sensor, Alcohol sensor, Password Authentication, Fire & Smoke Sensor, Speed Checker, GPS, GSM, ZIG-BEE Modules, Body Temperature, Pulse & Heart Beat Rate Sensor.

I INTRODUCTION

Street accidents and collisions occur in general. Each hour, forty individuals beneath the age of 25 die in avenue accidents. Many of the metropolis accidents are as a result of carelessness of driver however external town accidents occur because of drunken using most effective. Because of wellbeing situation accident may occur, that is if there is a much less pulse degree then character may just result in unconscious stage. Loss of individual is most of the time because of heart attack, drunken riding best so this will also be decreased through utilizing distinctive tactics. Alcohol detection process, heart expense monitoring system, Human level identification approaches are used to diminish the extent of an accident. Aside from this because of driver vigilance within a fraction of 2nd accident could occur. Most of the accidents arise, if individual attends a mobile phone call while driving. To avoid this crisis many technique had been used. For coronary heart rate heartbeats are probably expressed as beats per minute. Sensor is a

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

gadget that detects alterations or pursuits in portions and provides an output similar to the enter the sign mostly is in optical or electrical signal. Sensors obey specified condition and rules. It's sensitive to the Measured property handiest. It is insensitive to any other property seemingly in its application. An individual eye blink sensor detects alterations within the quantity of infrared radiation. Their variations varies on the temperature and floor characteristics of the objects in entrance of the sensor. The sensor converts the ensuing exchange within the incoming infrared radiation into a transformation in the output voltage, and this triggers the detection.

For counting the eye blink and detecting the drowsiness degree via use of IR sensor. Each year just about Four million folks had been killed because of the wireless patrons. There is a totally effective automated method for early detection of incoming and outgoing name. Detecting the factors akin to alcohol consumption, range pulse level, person and drowsiness degree identification, theft detection and protection methods are dealt within the hybrid driver defence cognizance approach.

II HYBRID METHOD

Commonly Hybrid word is used for combining more number of add-ons in a single method. Likewise there are pulse stage monitoring, drowsiness detection approach are involved. Exceptional method mixed together to provide a recognition for the driving character.

Hybrid driver safety system includes different ways. Vigilance process is nothing but drowsiness detection system. Protection process is head quartered on theft detection process that is identified by using use of the password authentication method.

III VEHICLE MONITORING SYSTEM

In vehicle monitoring system: Drunken driver prevention, human stage detection and coronary heart beat rate system is used. These preventive approaches are most often used for avoiding accident.

If a driving person consumes any alcohol or drug this made the individual to end up an unconscious stage due to this accident occurs. Accidents occur as a result of lack of wellness stipulations or without the potential of the owner that is because of much less oxygen stage throughout the car is lowered then person die. Three approaches namely drunken driver prevention, human stage Detection and heart expense measurement approaches are used. These three approaches are ordinarily used to avert the accident.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

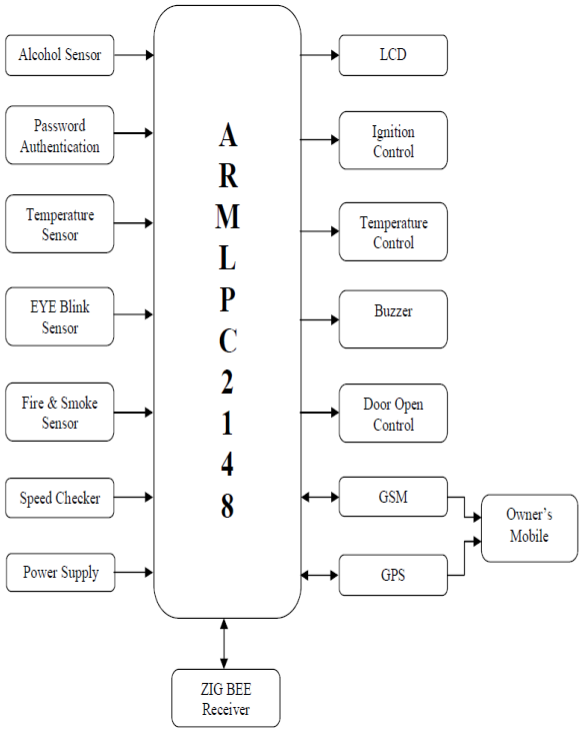

Fig: 1 Vehicle monitoring System

This figure Hybrid safeguard and protection procedure for vehicles it uses unique sensors akin to alcohol sensor, eye blink sensor and fire sensor.

These approaches are regularly used to experience the signal and these signals are controlled by means of the controller. ARM controller LPC 2148 is programmed situated on alcohol, human degree detection and pulse expense monitoring.

Further more to this there is a system driver vigilance level is detected and if the character is in irregular condition then for driver part alarm is given then for the theft detection approach theft is recognized by use of the password matching system. For security system password system is used. Then accident happens as a result of attending mobile call to restrict this system call diverting manner is used. These forms of methods are used in the hybrid driver defence and safety procedure.

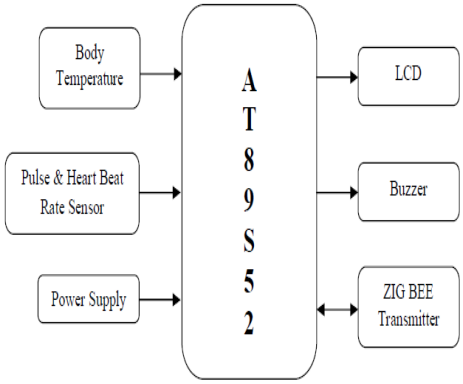

Fig: 2 Driver monitoring system

Every sign from the sensor is obtained by way of the controller then evaluating with the different inputs then output is received. Alcohol sensor instructs the driver to blow air into the sensor unit and checks the alcohol content material reward in the driver breath. Heart rate sensor is used for measuring the pulse expense. If pulse stage is excessive even if so if driver drives the vehicle then the approach will practice brakes routinely to slow down and halt the vehicle[7].

By means of use of fire sensor when man or woman is within carbon-di-oxide level is determined and there is an automated anti locking procedure for window opening system. For eye blink sensor IR sensor is used to sense the signal. If Eye Blink range is less then automatic intimation is given. Theft detection and protection process are reward within the hybrid model. This hardware module is laced in automobile aspect and intimation is passed via use of GSM technology.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

A. Alcohol Detection Method

Alcohol Detection procedure is used to measure the alcohol content material reward in our body. If alcohol content material is excessive, then there is a discount in respiration degree, due to this accident may just arise. The amount of alcohol in blood is referred to as blood alcohol level. Alcohol stage is measured by way of use of the gasoline detecting sensor.

Fig 3: Alcohol Sensor

There is an alcohol sensor, which is used to observe the alcohol level and their values are sent to controller. If the worth is better than the threshold value then ignition process is just not but began there may be an alcohol testing feature which instructs the motive force to blow air into the sensor unit and then it checks the alcohol content material present in the driver breath. If the value has crossed a detailed restrict the automobile ignition will probably be locked which prevents a drunken driver from establishing the vehicle.

Alcohol Detection method used to discover the alcohol content, on this alcohol sensor unit is used to examine the breath of a man or woman whether the alcohol consumed or no longer. Here the analog sign is modified to the digital type then the signal is given to the ARM circuit for the reason that controller consumes best the digital kind. The ARM is programmed with specific threshold voltage. The low medium and the excessive threshold level of an alcohol condition are programmed into the ARM circuit, if higher then alarm acquired at the auto aspect. If the alcohol consumption is less, then it is confirmed.

If the motive force consumes more alcohol thereby the condition is not convinced. Consequently vigour provides insufficient to the controller and the relay swap. As a consequence the ignition system isn't linked and the DC motor became too OFF situation. Alarm sound is ON. Alcohol consumed through the driver is measured. From this alcohol consumption of driver is checked as a result the crash or accident is evaded and for unique tiers of enter values the output is obtained.

B. Heart Beat Rate Sensor Method

Coronary heart beat rate sensor procedure is a straight forward gadget that receives a sample of signal in type of pulse rate and calculates the pulse signal as beats per minute. Quite often human heart expense is about 70 beats per minute for adult males and seventy five beats for adult women. More often than not there are exclusive varieties of situation for heart rate. If the heart beat sign is of average stipulations is called as bradycardia and whether it is in abnormal situation then it's often called tachycardia.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

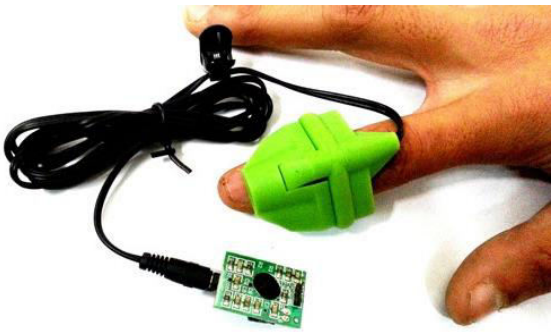

Fig 4: Heart Beat Rate Sensor

This figure Heart rate sensing process is used to measure the heart beat rate. The average and irregular of the heartbeat degree organized. If the heart beat level is in abnormal situation then the amplified signal is fed to the controller. The Controller receives the amplified sign and if irregular then the heart beat rate is high. Then the car slowed and stopped headquartered on the conditioned programmed to the controller.

If ignition is started or in ON situation then the heartbeat rate is calculated for every 20 seconds as programmed to the controller. Typical pulse rate variety is of seventy two beats per minute. If the calculated rate is greater or slash than the threshold rate, then it is known as abnormal situation. On this case car is stopped and intimation is sended by means of use of GSM.

If pulse rate is in typical then the vehicle is moved without any restriction. Because of this checking procedure accidents may also be lowered. Typically if the worth of pulse rate is irregular it suggests that the using man or woman may be very serious condition then understanding is sended to local sanatorium or spouse and children, this protects the human life. Heart beat sensing process used for the measuring heart beat the first the pulse rate is measured by way of the sensor established on the input and output sign the variant is determined.

If variety of the pulse is excessive then situation is checked if larger than the edge value then by way of use of relay switches the car is slowed and stopped, then in an emergency information is send to the predefined number via the GSM science.

C. Human Level Identification Method

On this case if anyone inside the vehicle human level identification system is used to determine quantity of person within the vehicle and then intimation is send to the owner of car. The predominant use of human level identification procedure is to identify the individual inside the car. Passive infrared sensor is used this detects the human stage. If automobile is not in use if so window of the vehicle is in closed in such hindrance if any person is within the car without the abilities of the owner then the individual throughout the automobile will lose their oxygen level, right here the carbon-di-oxide level is improved because of this man or woman could die. Fire sensor contains two constituents. One is heating circuit having time control perform where there's an excessive and the low voltage.

Then 2D is the sign output circuit. Eye Blink sensor is a pyro electric gadget which is used to observe the person by way of use of infrared sensor. Relay switch works situated on the input sign. If the worth of input sign is in abnormal then change is opened situation. Restrict switch is used to denote gate is in lock or opened.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

If there is a man or woman within in this cased limit change is used to open the window.

IV DETECTING METHOD

Detection methods comprise two approaches. A technique is Eye blink sensor method, next is theft detection system. These two approaches are used to avoid accident and protect the vehicle.

A. Eye Blink sensor

Driver fatigue attributable to sleep deprivation or sleep issues is a principal element in the growing quantity of accidents on modern roads. Lots of the accident occurs due to drowsiness. This drowsiness degree is detected through use of eye blink sensor. IR sensor is used realize the blink of an eye fixed. On this IR transmitter is used to transmit the infrared rays in eye. The IR receiver is used to receive the reflected infrared rays of the eye. If the attention is closed manner the output of IR receiver is excessive otherwise the IR receiver output is low. This to know the attention is closing or opening position. The signal is given to IR transmitter every time the sign is high, the IR transmitter LED is conducting it passes the IR rays to the receiver. The IR receiver is attached with comparator which is developed with LM358 operational amplifier.

Fig5: Eye Blink Sensor

There's an inverting and non-inverting enter terminal where headquartered on the reference signal and input signal the output is obtained. From above figure Eye blink detection sensor is used to establish the blink of person at the same time driving and their variety is when compared. The compared output is supply to the ARM controller and if their value is better than the blink value. If the value is high then alarm sound is produced. Counting of a watch blink is calculated. For each 20sec eye blink is counted and if the depend of eye blink is less than the blink rate then alarm sound is produced and instantly intimation is ship to owner of the vehicle. For each and every power deliver is given and their outputs are viewed in module.

B. Theft Detection system

The automobile anti-theft method contains specific layers similar to password detection and the matching method .Theft occurs established on which the doorways are opened. As soon as the vehicle is turned ON then with the mechanical keys together with correct key quantity door is opened. Vehicles theft is identified by use of the password procedure.

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

If the password is matched then best the vehicle is began and then intimation is ship to the proprietor of the vehicle. Keypad change is used for authentication process. If Password matched - intimation is ship to owner, ignition is started. The password is given to the ARM controller from the keypad swap the password is given. If the password is matched then the intimation is send to the proprietor hence the vehicle is began. If password just isn't matched then car is just not began then intimation is send to the owner. For that reason theft of the vehicle is identified and for that reason security procedure is provided.

V FLOW CHART

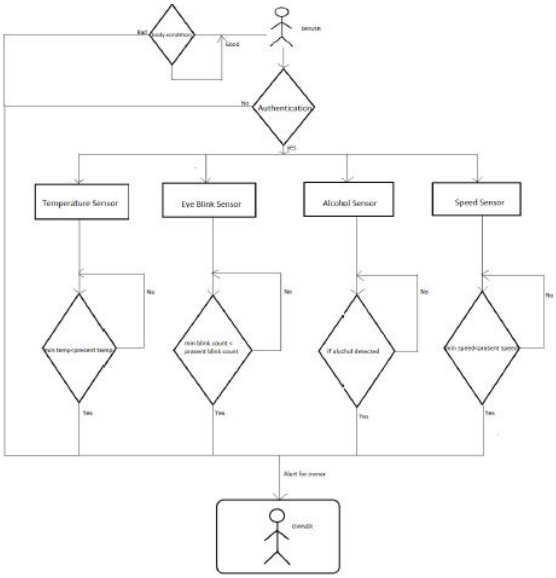

Fig 6: Flowchart Representation

VI RESULTS

Hardware module for driver authentication and accident avoidance procedure was finished and output was acquired. Determine the Hardware module for hybrid driver defence system is got with three approaches particularly alcohol detection, heart rate monitoring approach, individual degree identification approach, and eye blink sensor and theft identification. Established on alcohol consumption specific values are ranged with the inputs corresponding to traditional and abnormal stipulations.

If the alcohol consumed by way of the character is above threshold value then it is said to be irregular situation. For alcohol detection process, if the consumption of alcohol value is above irregular then ignition method shouldn't be yet began by using use of DC motor and thus alarm is got and intimation is send to the owner of vehicle.

Then for individual degree identification, passive infrared sensor that is used to verify whether or not any individual is within the car and then mechanically intimation is send to the owner. For the alcohol detection and heart rate monitoring approach the output graph is received in hardware module. Output considered in mobile cell by means of GSM technology.

VII CONCLUSION

The offered work is used to avert the accident through use of heart rate monitoring process, alcohol detection and man or woman stage identification. Procedure additionally, to this three approach there's detection procedure such as eye blink sensor, theft detection, security approach is used. Cellular handheld process and face recognition tactics can be utilized for future application.

VIII REFERENCES

[1] Alexander M. Chan, Nandakumar Selvaraj, Nima Ferdosi, and Ravi Narasimhan,(2014)'Wireless patch sensor for remote monitoring of Heart Rate Respiration, Activity and Falls.

[2] AartsL.and Schagen, (2005) Driving Speed and the risk of roadcrashes',AccidentAnalysis and Prevention.

[3] Byon Y, Shalaby A. and Abdulhai B, 2006'Travel time collectionandtraffic monitoring via GPS technologies.

[4] Chin Teng Lin, 2014'Wireless and Wearable EEG System for Evaluating Driver Vigilance', IEEE Transactions on biomedical circuits and systems, Vol.15,No.8,pp.230-255.

[5] Chuan L. and Hong,'Method of Freeway Incident Detection Using wireless Positioning', in proceedings ofthe IEEE International Conference on Automation andLogistics.

[6] Chi Zhang, Hong Wang and RongrongFu,'Automated Detection of Driver Fatigue Based on Entropy and Complexity Measures',IEEE Transaction on intelligent transportation systems.

[7] Dai, JinTeng, XiaoleBai, ZhaohuiShen(2010),'Mobile PhonebasedDrunk Driving DetectionPervasiveComputingTechnologiesforHealthcare',InternationalIEEE Conference

[8] ElviR,Christensen and Amundsen,2004,'Speed and road accidents An evaluation of the Power Model', Institute of Transport Economics, Oslo.

[9] KhaledHossain M. and Sayed Samial,2013,'Detection of Car Pre-Crash with Human, Avoidance System & Localizing through GSM',International Journal of Scientific and Research Publications.