© 2015 IJIRT | Volume 1 Issue 12 | ISSN: 2349-6002

Intellectual means of transport for Accident avoidance with Multitask organization

Drakshayini.R.N[1], Basavaraj. G. K[2]
[1]*PG student of ECE Dept., BTL institute of technology.*
[2]*Professor of ECE Dept., BTL institute of technology.*

.

***Abstract*-Technological approaches for detecting and monitoring fatigue levels of driver fatigue continue to emerge and many are now in the development, validation testing, or early implementation stages. Previous studies have reviewed available fatigue detection and prediction technologies and methodologies. As the name indicates this paper is about advanced technologies in cars for making it more intelligent and interactive for avoiding accidents on roads. By using ARM7 this system becomes more efficient, reliable & effective. There are very less number of systems implemented on human behaviour detection in or with cars. In this paper, we describe a real-time online safety prototype that controls the vehicle speed under driver fatigue. The purpose of such a model is to advance a system to detect fatigue symptoms in drivers and control the speed of vehicle to avoid accidents. The main components of the system consist of number of real time sensors like gas, temperature sensor and a software interface with GPS and Google Maps APIs for location.**

***Index Terms*- GPS Receiver, ARM, Sensors**

I. INTRODUCTION

Each year, car enthusiasts salivate at the prospect of seeing what bleeding-edge designs automakers will unveil on the car show circuit. Those same enthusiasts are often disappointed when the amazing concepts still haven't made it to the auto dealer's showroom floor several years later. But before any new car model can ever go on sale to the public, it must first undergo a battery of testing to make sure it'll be safe, reliable and reasonably in tune with the demands of the motoring public. The government demands some of this testing, while other major components of it are devised by the car companies themselves in an effort to ensure they meet specific standards for performance, fuel economy, comfort and other measures, but those which don't are axed.

Driving while either intoxicated or drunk is dangerous and drivers with high blood alcohol content or concentration (BAC) are at greatly increased risk of car accidents, highway injuries and vehicular deaths. Every single injury and death caused by drunk driving is totally preventable. At present drunken drivers have increased enormously and so is the deaths due to drunken drivers. The main reason for driving drunk is that the police are not able to check each and every car and even if they catch any one the police can be easily bribed. So there is a need for an effective system to check drunken drivers.

II. METHODOLOGY

The prototype model of intellectual means of transport for accident avoidance with multitask organization using ARM7 working will be made in the following steps:

- complete design of the total set up will be strained in form of a block diagram.
- The sensors will first sense the excess in gas or temperature and give its output to the microcontroller.
- The GPS detects the latitude and longitudinal location of an automobile.
- The latitude and longitude location of an automobile is sent as message via GSM.
- It also displays all the information on LCD to intimate driver.
- If in case, an accident has occurred the position is detected and a message has been sent to the already saved number.

III. BLOCK DIAGRAM

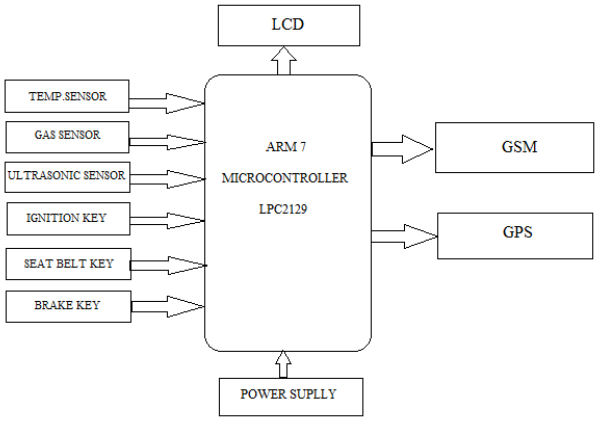


Fig 1. Block diagram of system.

IV. SCHEMATIC DIAGRAM

The main object of the project is to prevent accident by taking all the necessary safety measures and to save lives.

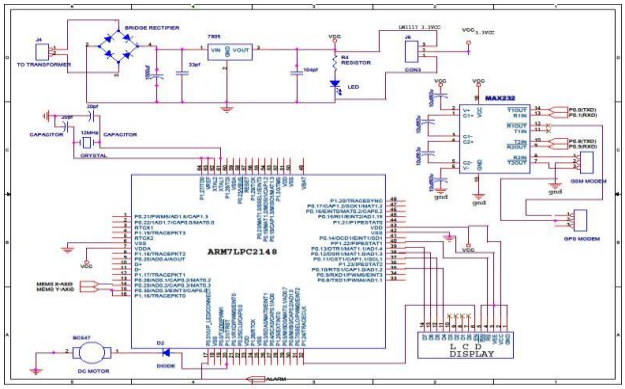


Fig 2. Schematic Diagram

V. WORKING OF THE SYSTEM

Hardware Description

The heart of system is MICROCONTROLLER this will access the data. In our project we will use 'ARM' controller. To measure temperature of car there will be a temperature sensor. To convert the output of sensor into electrical form we will use signal conditioning (transducer). As controller operates only on digital data, so this analog data is to be converted into digital form by using ADC. But ADC is inbuilt in ARM processor. So the output of the signal conditioner circuit is directly connected to ARM processor. Similarly LPG gas sensor is connected to ARM using signal conditioner circuit. The temperature meter indicates the temperature of engine body. It also indicates the overheating of the vehicle by announcing frequent beeps. For distance & speed measurement purpose we are going to use RPM counter. Nowadays the vehicles have a mechanical speedometer. The speedometers we have made use the digital technique. This displays the speed of vehicle in km/hr. The disc rotates through the optical assembly having infrared LED and phototransistor. The total assembly gives the digital pulses from which we can derive the RPM and speed of the vehicle. The LPG gas leakage detector is used to detect the gas leakage and indicate it with the help of buzzer to driver that there is gas leakage. If the driver is found to have alcohol in the breath, it warns and then turns the ignition off and hence possibility of accident is avoided. Also we have designed an eye blink sensor which continuously monitors the number of times the eye blinks, if the eye blinks count decreases that means the driver is sleepy, in that case a buzzer is operated. If accident happened by using impact sensors we are able to found out on which side the impact occurred. After collecting all information which is stored in internal memory, microcontroller sends this data to base or surveillance unit via SMS using GSM modem.

Software Description

The software selection is the backbone of the entire project. Software development includes programs written for the interfacing of the Microcontroller with LCD display, keyboard, ADC, Auto-dialing circuit and the mobile interface. The codes written for the Microcontroller are best explained with the help of the flow charts included in this chapter. Having had a look at the software and hardware Fundamentals of the system, the next step is to understand the software programming incorporated in the microcontroller to achieve the given task. While performing its calculations and control, the microcontroller need to be human friendly both in terms of data input and display.

2. The software has been written in structured manner in which all the subroutines are linked to a single main program. Each subroutine is further divided into sub-sub routine as per the requirement. When complete PCB with assembling is finished it comes to software where both assembly and c language is used. Arm controller is programmed for performing various operations. Whole coding is divided into different modules. The main code consists of initialization of all ports. Then in sub modules LCD initialization, ADC initialization, writing into the memory and reading the memory is done.

VI. ALGORITHM AND WORKFLOW OF THE SYSTEM

A. Algorithm

1) Power on

2) Initialize the parameter from different sections of an automobile

3) Feed the composed information to the ADC

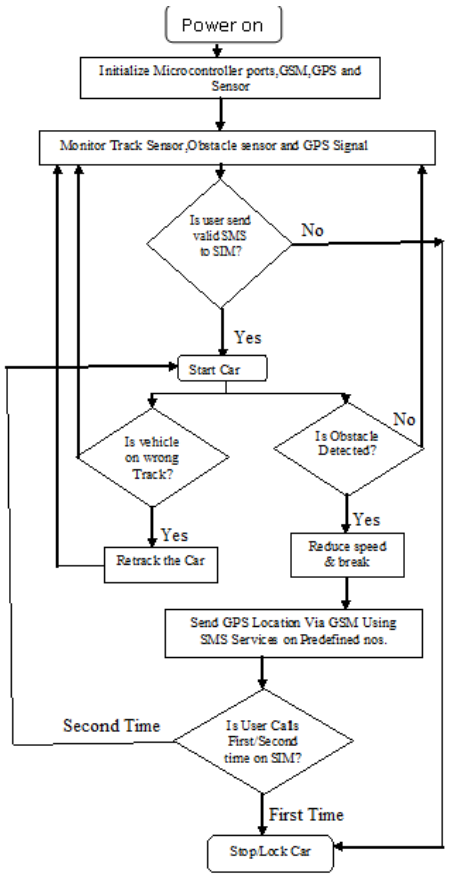
4) Then ARM process the data

5) If processed parameters go beyond their limit then ARM 7 sends command to set alert system

6) Send the GPS data over GSM

7) If the parameter does not exceeds the limit it will continued.
8) Stop/lock car

B. Flowchart



VII. APPLICATIONS

1. In military application where the monitoring of the soldier is important.
2. It can be operated at nuclear power plants where continuous monitoring is necessary.
3. Very much useful in automobiles.
4. For the cabins of security guards.
5. Portable navigation.
6. Geographic surveying.
7. Sports and recreation.

VIII. ADVANTAGES

- Ultra low power consumption
- Easy and fast to install
- Superior urban canyon performance
- Low cost with high performance

IX. RESULTS

The system's results are illustrated in this section. The GSM will send the message on mobile by sending exact location of vehicle.

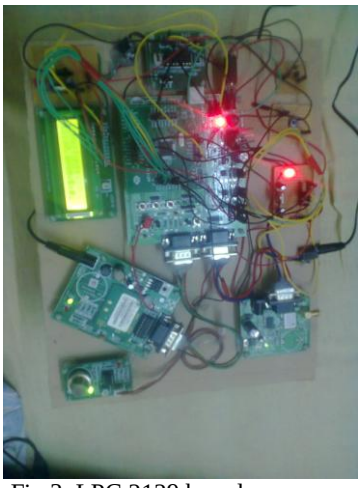


Fig 3. LPC 2129 board.

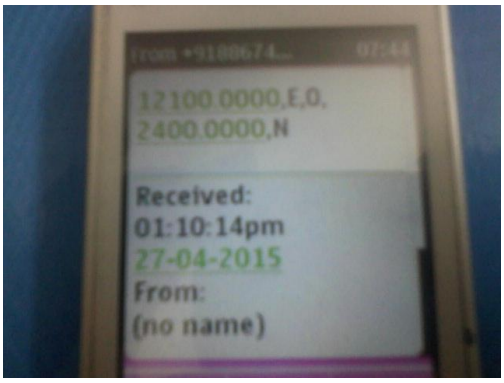


Fig 4. Vehicle location

X.CONCLUSION

It is due to the driver's fatigue, traffic accidents keep with a yearly increasing of a high rate. This paper shows the new fatigue detection algorithms & techniques using eye blink, alcohol, impact, gas, etc. sensors. In this technique the fatigue will be detected immediately and regular traps the events driver and third party. Through this paper, we propose an intelligent car system for accident prevention and making the world a much better and safe place to live.

XI. FUTURE ENHANCEMENT

We can use the video based monitoring, digital video camera is mounted in front part of car. The captured video is transmitted via Bluetooth to the trailing car .driver of the trailing car will take wise action. Eye blink detector in combination with Bluetooth technology can alert nearby cars and alert can be given to the driver via fake call.

REFRENCES

[1] Zhang Jimmie, Li Wending, SA Cao, Wang Deming. The control system remote Control automatic pruning machine [J].Beijing Forestry University, 2007.7:33-36

[2] Shan Changing. The design of ultrasonic obstacle avoidance system based on S3C2410 [J].Computer and digital engineering, 2009.2:55-57.

[3] Yang Bo, Zhang Xinggan. The design of passive infrared alarm System based on PIC SCM [J]. Electronic measurement technology, 2008, 1:53-57

[4] Chen Haiming. The remote wireless monitoring system based on ARM and GPRS [J]. Computer and network, 2007:183-184.Clear the dates of GPG8 Set the GPG8 in high level Clear the dates of GPG8ENDInitiate the GPB81013

[5] Liu binfan, "Development of monorail and its application in forestry in china," Forestry engineering, 2008, 124(1):25-27.

[6] Chen Xingu, "Development on ARM9 system-on-chip embedded sensor node for Urban intelligent transportation system," IEEE International Symposium on Industrial Electronics, 2006, 4:3270-3275.

[7] 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.

[8] Li bo, "Intelligent transportation system based on ARM, "Proceedings of the World Congress on Intelligent Control and Automation (WCICA), 2008:7054-7059 [5] Microchip PIC 16F877A, Datasheet

[9] Muhammad Ali Mazidi, Rollin D. Mackinlay, PIC Microcontroller and Embedded systems Using Assembly and c, Danny Causey; Pearson International Edition

BIOGRAPHY

Author 1: Drakshayini.R.N. is persuing her M.Tech under digital communication and networking (DCN) branch in BTL institute of technology, Bangalore. And completed B.E (ECE) in jnana vikas institute of technology under visvesvaraya technological university (VTU), karnataka. Areas of interest are embedded system and digital communication.

Author 2: Mr. Basavaraj G. Kudamble received the B.E.degree in Electronics and Communication Engineering from the REC Bhalki,Gulbarga University Gulbarga, India, in 2000. M.Tech in VLSI Design and Embedded system from BMSCE, Bangalore, VTU Belgaum, India, in 2007.Currently pursuing Ph. D in VTU, Belgaum .His research interest includes Real Time systems , Embedded system, Intelligent Transport System.