Impact Factor (SJIF): 3.632



International Journal of Advance Research in Engineering, Science & Technology

> e-ISSN: 2393-9877, p-ISSN: 2394-2444 Volume 3, Issue 3, March-2016

# Eye Blink Detector Using IR with GSM

Shubhangi Chougule<sup>1</sup>, Oniza Shaikh<sup>2</sup>, Prof. Rajesh Patil<sup>3</sup>

<sup>1</sup>U.G. student, Electronics & Telecommunication Engineering, Theem College of Engineering, Boisar <sup>2</sup>U.G. student, Electronics & Telecommunication Engineering, Theem College of engineering, Boisar Faculty, Department of Electronics & Telecommunication Engineering, Theem College of Engineering, Boisar

*Abstract* —As the name suggests "Eye Blink Detection using IR with GSM" deals with prevention from road accidents and save the life. At night many accidents are happened due to carelessness and sleepiness of the driver. Our project is about to monitor the driver and acknowledges him if he was sleepy while he is driving a vehicle. It involves embedded system in which computer is completely encapsulated by the system it controls. According to the intensity of accidents on road, this paper introduces design and development of monitoring and alarming system. In this report we try to reduce accidents and aware the drivers by using microcontroller with the help of GSM model.

Keywords- IR sensor, Microcontroller, buzzer, motor, GSM model, etc.

## I. INTRODUCTION

As we are moving towards new generation new things are invented. There is increase in number of automobiles in the market. Because of large number of automobiles the traffic hazards and road accidents are increased. The lack of facilities are available in our country life of people is under high risk. An automatic alarm device for vehicle accidents is introduced in this paper. This system can detect accidents in significantly less time and sends the basic information to the first aid centre within a few seconds covering geographical coordinates, the time and angle in which a vehicle accident had occurred. This device consists of Microcontroller (AT89c51), Eye Blink Sensor, GSM modem, comparator(LM358), Accelerometer(ADXL335), etc. The eye blink sensor checks the moment of eye and calculates the opening and closing timings, then that information is send to the microcontroller if closing time is more. Then microcontroller immediately gives alertness through LCD message.

## 1.1 Problem Definition

Recently there are number of road accidents are increasing due to unconsciousness of driver. The driver loses control of the vehicle when he falls asleep which leads to loss of many leaves.

## 1.2 objectives

The objective of our project is to avoid accidents and keep vehicles secure and also is to design a system which monitors the driver and alert him/her using alarm if was sleepy while he/she driving a vehicle.

# **Disadvantages Existing system**

- No updates were received on request via SMS
- Sensors were easily damaged and were inaccurate

## 1.3 Proposed System

This design is a system which can detect accidents in less time and when accident occurs then that information is immediately send to the microcontroller, microcontroller checks the counts of eye moments and depending upon set time it will check that weather driver is in sleepy if driver is sleepy then immediately alarm will buzz, and the basic information is send to the first aid center or nearby police station.

## II. BLOCK DIAGRAM DESCRIPTION

The block diagram represents the whole blue print of the system. The block diagram mainly consists of following parts:

- Eye blink sensor
- Microcontroller(AT89C51)
- Buzzer
- GSM Modem(sim900)

International Journal of Advance Research in Engineering, Science & Technology (IJAREST) Volume 3, Issue 3, March 2016, e-ISSN: 2393-9877, print-ISSN: 2394-2444



Fig 1: block diagram

## 2.1 Eye Blink detection

This project involves majors and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. Similarly the IR receiver is used to receive the reflected infrared rays in or eye. Eye blink sensor will continuously monitor the moment of eye; it calculates the closing time of an eye. Normally eye blinking time is stored in microcontroller. If the time is more, microcontroller will check if driver is in sleepy condition, if the driver is sleepy automatically alarm will ring to wake up browser.

### 2.2 Microcontroller AT89C51

Microcontroller performs very important role in our project, likely it calculates time of eye. Microcontroller performs functions on its own without any additional requirements for external memory and for additional hardware like I\O ports. Heart of the microcontroller is CPU. Microcontrollers are inexpensive, smaller in size and consume less power. AT89C51 microcontroller is 40 pins, 8 bit microcontroller manufactured by Atmel group.

## 2.3 Buzzer

Buzzer will ring when driver is sleepy and accident has been occurred. We have used a ceramic-based piezoelectric sounder (sonalert) which makes high pitched tone.

#### 2.4 GSM Modem(SIM900)

When accident will occurred that time with the help of GSM Modem SMS will sent to the user defined mobile number or police station. GSM Modem works on the frequencies of 800MHZ, 900MHZ, 1800MHZ and 1900MHZ. SIM900 is easy to use as plug in GSM Modem and very compact in size. Using this modem you will be able to send and receive SMS, and connect to the internet via GSM through simple AT commends.

## III. HARDWARES AND SOFTWARES

In this project we have used a software's as : EAGLE-PCB Designing, Access port: Serial Communication, Keil uV3 compiler- Microcontroller programming, ProgISP- Program Burn.

Similarly hardware's as: AT89C51, GSM 900A Modem, IR Sensor, LM 358 Comparator, 16\*2 LCD, 7805 Voltage Regulator, L293D Motor Driver.

## International Journal of Advance Research in Engineering, Science & Technology (IJAREST) Volume 3, Issue 3, March 2016, e-ISSN: 2393-9877, print-ISSN: 2394-2444

#### CONCLUSION

This project involves accident detection using eye blink detection sensor and alert system through SMS by user defined mobile number. Experimental work has been carried out successfully. The proposed method is verified to be highly beneficial for the automotive industry.

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