

# Accident Prevention System Using Eye Blink Sensor

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**Abstract** - This system designs the scene of the accident alarm system based on ARM and GPS. When the accident occurred, the manual and automatic alarm can be realized. Vehicles state and user information as well as alarm locations will be transmitted to the Pre-set of treatment centre; after receiving related alarming information, the treatment centre will display this information on its map. After receiving alarm information, the treatment Centre staffs who are on duty will notice the handler who is the nearest to the scene of the accident in time, in order to reach the scene of accident in the first time, and gain more treatment time for the accident injured, and lower the accident mortality, as well as reduce incidents impacting time on the traffic.

**Key Words:** GPS, GSM, Eye Blink Sensor,

## 1. INTRODUCTION

With the problem of global population aging increasing, lack of medical hardware at the near of accident place, inadequate accident sense system performance and other related issues have become increasingly prominent. This paper presents the design and implementation of scene of the accident alarm system based with wireless network communications based on ARM, GPS and GSM, Pre-set of treatment centre as the information processing terminal for the location display and warns the alarm for the treatment people near by the accident location.

This project consists of wireless communication for communication with the accident sense system and the Pre-set of treatment centre. The main part is the Pre-set of treatment unit, which acts as an Information processing unit. Individual vehicle is equipped with a system called as accident sense system, which consists of GSM and GPS. When the accident occurred, Vehicles state and locations will be transmitted to the Pre-set of treatment centre through wireless communication technologies of GSM through short message format.

### 1.1 GPS

GPS (Global Positioning System) technology is used to find the location of any object or vehicle to monitor a child continuously using satellite signals. Three satellite signals are necessary to locate the receiver in 3D space and fourth satellite is used for time accuracy. GPS will give the information of parameters like longitude, latitude and attitude. With the help of these parameters one can easily

locate the position of any object. In this GPS technology, the communication takes place between GPS transceiver and GPS satellite.

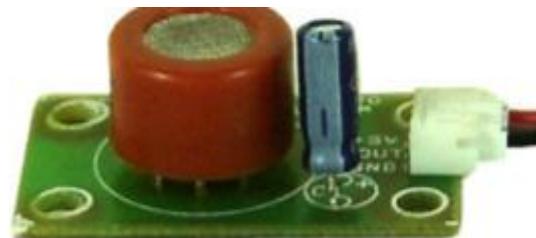
### 1.2 GSM

GSM (Global System for Mobile communications) is the technology that underpins most of the world's mobile phone networks. The GSM platform is a hugely successful wireless technology and an unprecedented story of global achievement and cooperation. GSM has become the world's fastest growing communications technology of all time and the leading global mobile standard, spanning 218 countries. GSM is an open, digital cellular technology used for transmitting mobile voice and data services. GSM operates in the 900MHz and 1.8GHz bands. GSM supports data transfer speeds of up to 9.6 kbps, allowing the transmission of basic data services such as SMS.

## 2. SENSORS

### 2.1 ALCOHOL SENSOR

This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. Sensor provides an analog output based on alcohol concentration.



**Fig-1:** Alcohol Sensor

### 2.2 Obstacle Sensor

Obstacle Detecting Sensor is used to detect objects and obstacles in front of sensor in a narrow angle useful in robotics applications. Sensor keeps transmitting modulated infrared light and when any object comes near, it is detected by the sensor by monitoring the reflected light from the object. It can be used in robots for obstacle avoidance, for automatic doors, for parking aid devices or for security

alarm systems, or contact less tachometer by measuring RPM of rotation objects like fan blades.



**Fig-2:** Obstacle Sensor

### 2.3 Eye Blink Sensor

This Eye Blink sensor is IR based. The Variation Across the eye will vary as per eye blink. If the eye is closed means the output is high otherwise output is low. This to know the eye is closing or opening position. This output is give to logic circuit to indicate the alarm. This can be used for project involves controlling accident due to unconscious through Eye blink.



**Fig-3:** Eye Blink Sensor

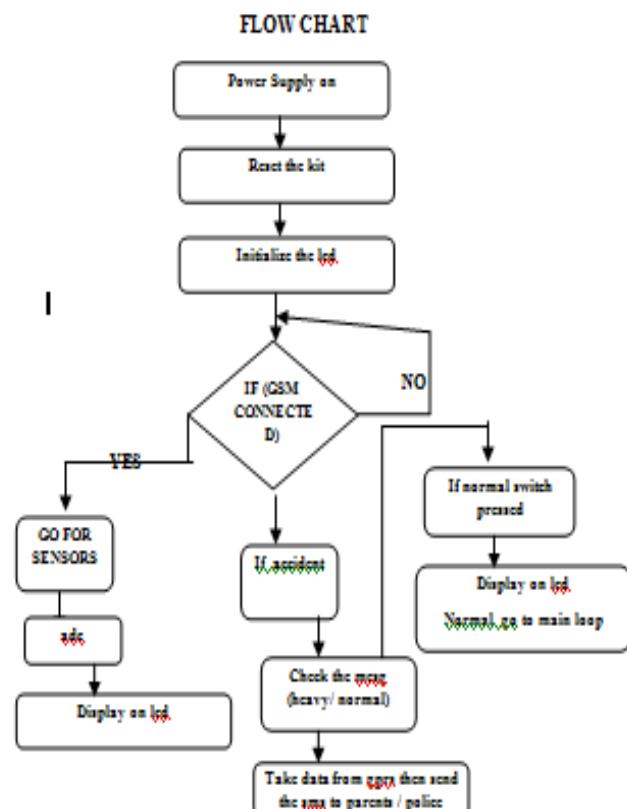
### 2.4 Temperature Sensor

The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. The LM35 thus has an advantage over linear temperature sensors calibrated in ° Kelvin, as the user is not required to subtract a large constant voltage from its output to obtain convenient Centigrade scaling. The LM35 does not require any external calibration or trimming to provide typical accuracies of  $\pm 1/4^\circ\text{C}$  at room temperature and  $\pm 3/4^\circ\text{C}$  over a full  $-55$  to  $+150^\circ\text{C}$  temperature range. Low cost is assured by trimming and calibration at the wafer level. The LM35's low output impedance, linear output, and precise inherent calibration make interfacing to readout or control circuitry especially easy. It can be used with single power supplies, or with plus and minus supplies.



**Fig-4:** Temperature Sensor

## 3. FLOWCHART



### 3.1 SYSTEM OPERATION

Vehicle accidents are most common if the driving is inadequate. These happen on most factors if the driver is drowsy or if he is alcoholic. Driver drowsiness is recognized as an important factor in the vehicle accidents. It was demonstrated that driving performance deteriorates with increased drowsiness with resulting crashes constituting more than 20% of all vehicle accidents. But the life lost once

cannot be re-winded. Advanced technology offers some hope to avoid these up to some extent.

This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. This output is give to logic circuit to indicate the alarm.

### 3. JUSTIFICATION & RESULT

Our project has an active market for people who travel long distances at a time. This system could be beneficial to a range of users from truckers that travel daily to a family that travels a long distance twice a year. This alcohol sensor is suitable for detecting alcohol concentration on your breath, just like your common breathalyzer. It has a high sensitivity and fast response time. It provide alarm, engine will be stop and message with location sent to owner.

Obstacle Detecting Sensor is used to detect objects and obstacles in front of sensor in a narrow angle useful in robotics applications. Instead of alarm we can use Automatic Braking System which will reduce the speed of the car. It provides only alarm.

This Eye Blink sensor is IR based. The Variation Across the eye will vary as per eye blink. If the eye is closed means the output is high otherwise output is low. This to know the eye is closing or opening position. If the driver closes eye for more than 3 seconds, it provide alarm, engine will be stop and message with location sent to owner.

The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. It's operating range -55 to +150°C temperature range. When engine temperature goes to threshold it produces alarm and engine get stopped.

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