Smart Vehicle Locking System

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Abstract: Nowadays many accidents are occur due to drunk and drive all over the world .To secure the valuable lives of the people, we have done this project. In this project we have used an alcohol detecting and eye blinking sensors in vehicle which senses and detects alcohol gases and driver sleepiness to stop the vehicle. In this process microcontroller is connected with GSM and GPS modules. GPS module gets the position of vehicle with longitude and latitude via GSM. It sends the messages to the relative person of the driver until he reaches home safely.

Keywords: MQ-3alchocolsensor,Eyeblinksensor,GPS(global positioning system),GSM(global system for mobile communication),Ultrasonic sensor.

I. INTRODUCTION

The main purpose of doing the project is “Drunk and Drive Detection”. Now a days, many accidents are occurring because of the driver consuming booze or the person who is driving the vehicle. Drunken driving is a most reason for occurring accidents in almost all countries in all over the world. The National Crime Records Bureau have taken the report it shows drunk driving accident have a higher fatality rate than other accident. Thus, as many as 42% of victims of drunk driving accident ended up dead. It is the higher rate than the percentage of death in accident caused by “over speeding”(30%),”reckless driving”(33%),and “weather condition”(36%) .In Tamilnadu, south India has the highest rate of road accident. Every year the no of death will increase by road accident. So to prevent the accident and secure the life of person is our main objective. This system is fitted inside the vehicle. Alcohol Detector in Car system is designed to detect driver consuming booze or not and safety the people inside the car.

Integrated approach of using concurrent engineering practices for developing the methods of ruggedisation for GPS Vehicle Tracking System is adopted.[6] Development and deployment of GPS /GSM based vehicle tracking and alert system which is to track their vehicle in real time and provides an alert system for reporting on accidents occurrences[3]. Numbers of vehicles are significant increase every year and many cases of vehicle theft and missing thus internet of things (IoT) is a technology can be used to overcome the issues[5].The current generation smartphones are provide robust sensor suites including accelerometers, GPS, microphones, and cameras. These sensors allow smartphones to be used for various sensing tasks such as activity monitoring, personal health, and environment monitoring. Smartphones also provide a powerful communication platform as they are generally equipped with Wi-Fi, Bluetooth, and a 3/4G data connection. Smartphones are extremely portable and have powerful processing and storage capabilities. In addition, many physiological sensors come equipped with Bluetooth. They can be connected to a smartphone wirelessly and used to extend its sensing capabilities. This paper describes to prevent the accident by booze consumption drivers and drowsy drivers.

Our objective is to create a

- a safer environment with decreased risk of accidents, injuries and fatalities;
- prevent accident
- secure the life of person

II. PROPOSED METHODOLOGY

In this section, we propose a safety prevention method of alcohol detector in an effort to reduce accident based on handling the vehicle under the influence alcohol. This project is developed by integrating the alcohol sensor with the Arduino controller. The alcohol sensor used in this project is MQ-3 which is used to detect the alcohol content in human breath. The main purpose behind this work is “Drunk driver detection”. Thus Drunken drivers is a major reason for occurring accident in almost all over the world. So Alcohol Detector in vehicle is designed for the safety of the human’s in road side travel.

In our proposed method, an automated system to detect alcohol consumption of driver with an alert. The person consuming alcohol it affects the mental state. A person consuming booze during the travel is likely to hurt himself as well as the chance to happen accident. So we are using a microcontroller based circuit that consists of alcohol sensor interfaced with it. Also we have a GSM module and GPS module. The 12v power supply is given to the entire system.

The alcohol sensor is constantly running to check if driver is drunk or not. The alcohol sensor is used to sense the alcohol level and outputs a voltage according to the alcohol sensed. The microcontroller interfaced to it reads the alcohol value. Once it enters above the permissible range the ultrasonic sensor immediately check the adjacent vehicle distance. If any vehicle are not present means the microcontroller to stop the iginition flow to the vehicle engine, the vehicle will stop automatically otherwise any vehicle are present means doesn't immediately stop the vehicle only reduce the speed of the vehicle. Also we are using GPS and GSM in the system. The location of the vehicle is determined by using GPS and the message will send to the relative person via GSM. It then automatically sends an SMS message through GSM modem to the authorized number informing about the situation. Also we use the eyeblink sensor to detect the drowsiness of the driver. If the person is closed the eye means immediately the analog values of eyeclosing time is given to the input of the Arduino and it is immediately check the adjacent vehicle distance by using ultrasonic sensor. If any adjacent vehicle not present means immediately stop the vehicle. Otherwise any adjacent vehicle present only reduce the speed of the vehicle.

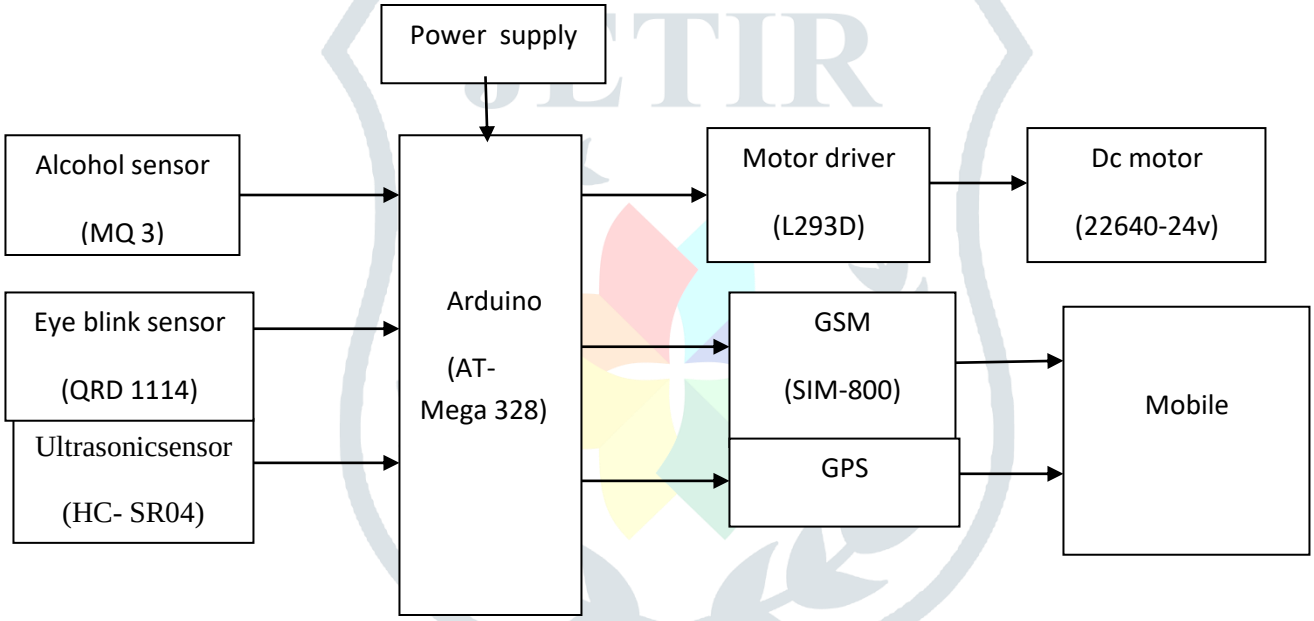

FIGURE: PROPOSED BLOCK DIAGRAM

III. HARDWARE SPECIFICATION

ARDUINO Controller

Arduino is a microcontroller or it can be called as tool for making computers that can sense and control more of the physical and real world than your desktop computer. It is a physical computing platform containg a simple microcontroller board, and a development environment for writing software programs in the Arduino board can be used to develop interactive objects, taking inputs from a various switches or sensors, and controlling a variety of lights, motors, and other physical outputs. Arduino projects have the tendency to standalone, or they can be helped by the software section running on your computer. The boards can be assembled by hand or purchased preassembled from the market, it is available very easily. The arduino IDE is the software platform which can be downloaded for free. The Arduino programming language is an implementation of Wiring and defining the devices used in our circuit, a similar physical computing platform, which is based on the Processing multimedia programming environment.

Alcohol sensor

MQ-3 ALCOHOL GAS SENSOR is used in the module. It contains a semiconductor sensor which is used to detect the presence of alcohol gases at concentrations from 0.05 mg/L to 10 mg/L in the air. The SnO2 material is used in this sensor, whose conductivity is lower in the clean air. If the concentration of alcohol gases increases it increase the conductivity of SnO2. It have high sensitivity to alcohol. This module provides outputs in the form of both analog and digital. The MQ3 alcohol gas sensor can be easily interfaced with Microcontrollers, Arduino Boards, Raspberry Pi etc.

This alcohol sensor is used for detecting alcohol concentration on human breath, it acts just like common breathalyzer. It has a high sensitivity and fast response time to alcohol. This Sensor provides an analog resistive output based on alcohol concentration. The drive circuit is designed in very simple, all it needs is one resistor. ADC(analog to digital converter) is used in our system. It requires the 0-3.3V power.

Eye Blink Sensor:

Eye blink sensor is a IR based. The variation across the eye will vary as per eye blink. If the eye is closed means the output is high otherwise the output is low by knowing the eye is closing or opening position. This sensor is used for controlling accident due to unconscious through eye blink.

Global system for mobile communication(GSM):

It is abbreviated as global system for mobile communication (GSM).In 1970 GSM idea was developed at Bell Laboratories . It is widely used mobile communication system in all over the world. GSM is an open and digital cellular technology used for transmitting mobile voice and data services operates at the various frequency like 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands.

Time division multiple access (TDMA) technique is used to developed a GSM system as a digital system for communication purpose.64 kbps to 120 Mbps of data rate can be carried by digital system.

DC Motor:

The DC motor is an electromechanical device. It converts electrical power into mechanical power. It does not contain any brush. They divide full rotation into an expansive number of steps. The position of the motor can be controlled accurately without using any feedback mechanism, as long as the motor sized in very careful manner to the application. Stepper motors are same as the switched reluctance motors.

Global Positioning System (GPS):

The GPS16X-HVS, factory-made by Garmin International, consists of a receiver ANd an integrated antenna. It receives signals from orbiting Global Positioning System (GPS) satellites and then uses the signals to calculate position and velocity. The GPS16X-HVS additionally provides a extremelycorrect one-pulse-per-second (PPS) output for precise temporal order measurements.

IV. CONCLUSION

Our system efficiently checks the accidents occurs or not and drunken driving. By implementing this system in vehicle, a safe journey is possible which would decrease the accidents and also reduce the accident rate due to drunken driving. This system consists of accident prevention technology which would reduce the accident of the vehicle in crowd areas. We can describe that this is a safety features for vehicle because if alcohol detected it will stop automatically. In case of alcohol detected it would send the messages to the relative person continuously via GSM. Our system also helps to know the location of the vehicle for rescuing in the case of theft incidents.

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