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AUTOMATED NAVIGATION TECHNOLOGY TO AVOID ROAD ACCIDENTS

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Abstract

Background/objective: In this paper we are providing some basic security system to the vehicles and also it helps to reduce the rate of accident. Methods/Statistical Analysis: This paper deals with intimation to emergency services when accident occurs. To avoid accidents due to cases like drunk and drive and drowsiness, we are providing alcohol sensor and eye blink sensor. Along with these, a GSM is used to send the exact location to emergency number with the help of GPS. Findings: Compared to the existing system, the proposed system works much better due to the use of improved or latest sensor and equipment. A latch that provides protocols from the controller to all sensors at time is also used. The death rate will be reduced with the usage of proposed system when compared to existing system and proposed system occupies less space compared to using different sensors separately. Improvements: This system is improvised when compared to existing system. Eventually rate of death will be decreased by using this design.

Keywords: Alcohol Sensor, Eye Blink System, Global Positioning System (GPS), MEMS, Global System for Mobile communication(GSM).

Introduction:

Nowadays, the populations are high, due to this lot of vehicles been met with accidents. To avoid the accidents We Introduce, The paper AUTOMATED ALERT SYSTEM. This system is helpful to reduce the accidents by using the Alcoholic sensor ss and Eye blinking sensor. Whenever vehicles met with an accident, this system has special feature to inform the message to the required people and emergency services. The major accidents are due to faulty drivers, drink and drive cases and the drowsiness of the drivers. If the eye blink count is less than the average count, it recognizes that the driver is in sleepy mood. It triggers an acknowledgement to the micro controller. The micro controller activates the alert system to turn on or turn off the engine. By using these techniques, this system reduces the rate of accidents. This paper also introduce a system to protect, safety of the vehicle and detecting the stolen vehicles. The specified location of the vehicle through GSM with the usage of C8051F120 micro controller and sensors.

Literature Survey:

Currently the existing system can provide the security and emergency service, after the vehicle met with an accident. It helps and saves the lives of injured persons by giving information to required persons and emergency service by sending exact location. It works with help of GPS , GSM modules. It does not take any precaution

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to avoid the accidents.

Block Diagram:

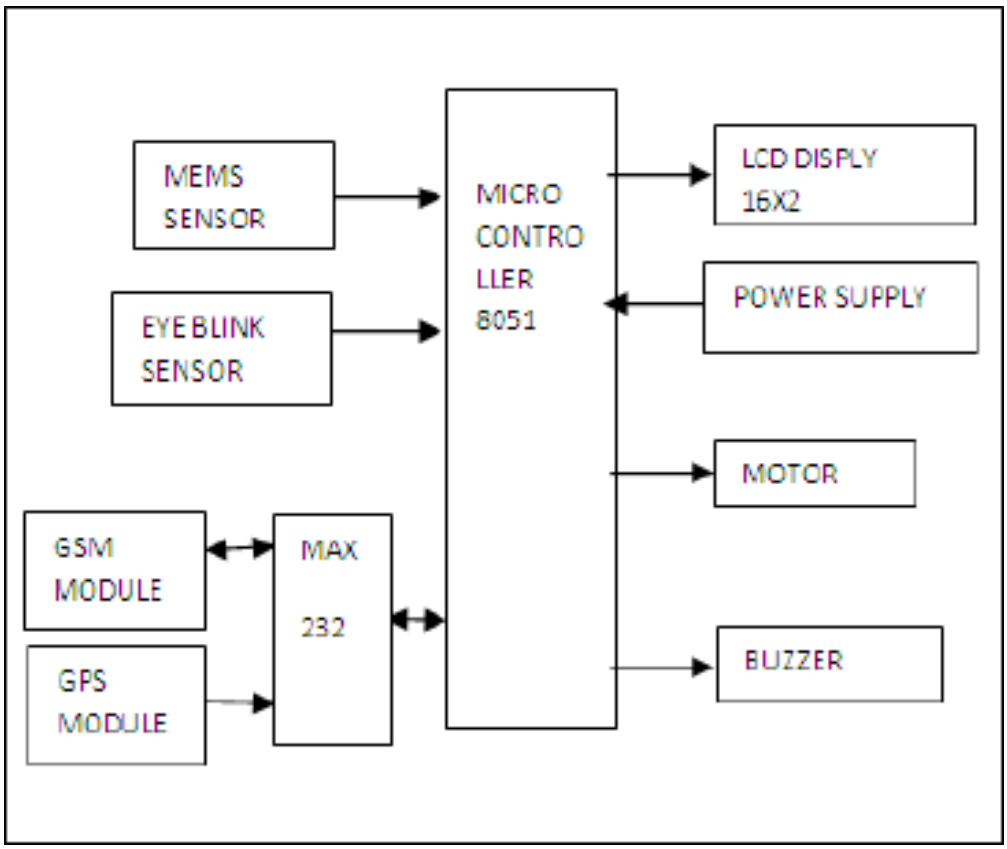

Figure 1 : Block Diagram representation ANT

The system proposed with low cost effective and it uses modern internet speciality for networking. The system consist of General Packet Radio Service(GPRS) along with Linux operating system. This system works on Arduino as a Core ,GPS and GSM modules for Alerting and Detection purpose.

Power Supply:

The power supply used in the system is step down Transformer. It is to convert 230V AC current to 9V AC current and we use a rectifier to rectify AC to DC. After completion of rectification, the resultant DC is filtered by using a filter capacitor. To avail DC voltage of 5V , and a positive regulator is used.

Micro Controller:

Micro controller is the main dominator unit of the whole project. It controls each and every modules which are all interfaced with it and communicates with all the devices. MAX 232 it is a single IC used for communication between micro controller to the serial devices using serial single port. This IC is mainly used to synchronize the data from the micro controller to the GSM module.

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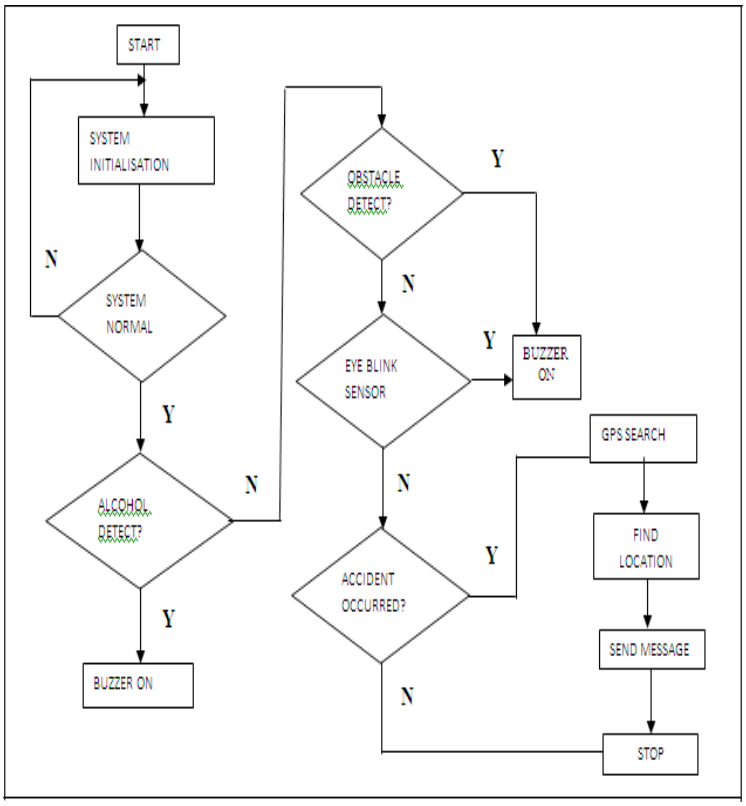

Figure 2 : Functional Diagram

LCD Display:

LCD display is used to display the information and status of the project. The command register store the commands given to the LCD by the user. The data register stores the data to be display on the LCD. The data is the form of ASCII value of the character to be displayed on the LCD.

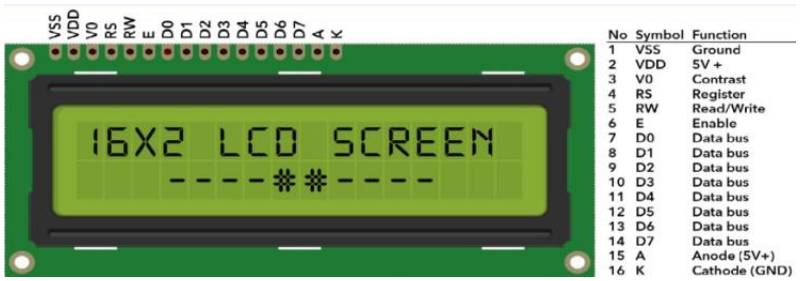

Figure 3: 16x2 LCD Screen

Feature:

- 16x2 LCD display.
- 5x8 dots with cursor
- 1/16 duty cycle.
- +5V power supply.

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Eye blink Sensor:

Eye blink sensor which is used to detect that the drivers eye blinks average count. If the driver is having drowsiness or sleepy mood and the eye blink sensor gives an indication trigger by making the LCD power on. In the LCD display the following image may occurred.

Figure 4 : Activated Eye blink sensor Alcohol Sensor:

Alcohol sensors used to detect the alcohol amount present inside the vehicle. In the system alcohol sensor identify the smell of alcohol. This sensor can activate temperatures ranging from -100C to 500C with a power supply is less than 150 ma to 5V.

Figure 5: Alcohol sensor

Global Positioning System:

Global positioning system(GPS) is a navigational system to detect the Latitude and Longitude of any location on the earth . In this paper GPS module is used to track the location of accident. This gadget gets the coordinates from the satelite for each and every second, with time and date. In our project it plays main role and it is the main source of the latitude and longitude of the vehicle to know the accident occurred location.

Global System For Mobile Communication (GSM):

In this paper the GSM technology is used for communication purpose,in the modern world most of the cellular networks use the GSM technology.we are using RS232 modem,in this modem works at 850 – 1900 MHZ.its connected directly connected to pc serial port. GSM modem its is a wireless network like a dial up modem . Dial up modem only sends and receives data through a fixed telephone line.The GSM module consist of a mobile station and SIM, the commands that are using to provide communication are AT commands,that specifies the GSM technology and are related to SMS service.

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Conclusion:

This paper deals with to minimize the deaths and the severe conditions due to accidents the GPS and GSM technologies are used where immediate action would be take place by the ambulance/police service which might reduces the severity. And also sends the message to related persons with the help of GSM. module. This system will definitely reduces the road accidents that happen at night times in highways by introducing the automatic alerting.

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