

Real Time Protection System for Four Wheeler

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Abstract— The rapid development of electronics provides secured environment to the human in present day of life. Using this development in the branch of electronics is designed to reduce the risk involved in accidents due to drunken driving which will reduce the rate of deaths. Instead of having the single application in a system it is better to have multiple applications such that the user can run the vehicle safely and can avoid the accident. Here in this paper we are using a combination of different technologies such as GPS, GSM technology. The main reason for driving drunk is that the police are not able to check each and every car. So we need an effective system which checks whether the driving person has drunken or not. Vehicle will be automatically off when the system senses alcohol. The car is embedded with all the above technologies.

Keywords—GSM, GPS, Vibration Sensor(MEMS), alcohol sensor(MQ3), DC motor, LCD, ARM Controller.

I. INTRODUCTION

According to the statistics provided by the Road Safety department, department of Road Transport and roadways, there are 4.90 lakh accidents in the year 2010; 1,64,911 were killed and 9,74,265 were injured. Accidents due to drunken driving are quite common on Indian roads and the same is also on the rise with the rapid urbanization and growth of motor vehicles. In India, over 80,000 persons die in the road accidents annually, over 1.50 million are injured seriously and about 5,93,351 disabled permanently. India holds the dubious distinction of registering the highest number of road accidents due to alcohol consumption and by human errors in the world.

By using this system if the vehicle met with an accident automatically the information will be transmitted to the nearest control room/medical rescue team by using an advanced GSM device which better suits for faster communication. We cannot detect where the accident has occurred and hence no information related to it, leading to the death of an individual. The research now days on for tracking the position of the vehicle even in dark clumsy areas where there is no network for receiving the signals. GPS is used for tracking the position of the vehicle, GSM is used for sending the message and the ARM controller is used for saving the mobile number in the EEPROM and sends the message to it when an accident has been detected. Hence with this project implementation we can detect the position of the vehicle where the accident has occurred. so

that we can provide the first aid as early as possible.

II. METHODOLOGY

The basic model of the vehicle accident tracking and messaging using GSM and GPS modules using ARM7 working will be made in the following steps:

- Final layout of the set up is shown below in form of a block diagram.
- The alcohol sensor initially sense the alcohol from the driver's breathing and the accident alert sensor will sense the occurrence of an accident and give its output to the microcontroller.
- The GPS detects the co-ordinates and gives position of a vehicle.
- With the help of co-ordinates, position of the vehicle is sent as message through the GSM.
- The phone number is saved in the memory.
- Whenever an accident has occurred the position is detected and a message has been sent to the pre-saved number.

GSM – Global System for Mobile Communication:

GSM is used as a media which is used to control and monitor the transformer load from anywhere by sending a message. It has its own unique character. Thereby, here GSM is used to supervise and control the DC motor by sending a message

through GSM modem. Hence the time consumption is reduced by manual operation and transportation. Hence it is considered as high ability of communication through the mobile which will be useful in the automobiles and similar fields which would be controlled from many places. It is also very economic and cost efficient; hence GSM is preferred most for this mode of controlling.

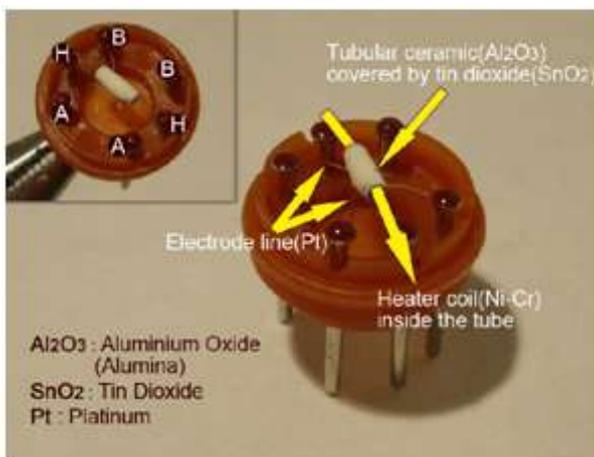
GPS - Global Positioning System:

GPS is useful to track and navigate the vehicle. Tracking systems enable to keep track of the vehicles without disturbing the driver and helps the driver to reach the destination. When an accident occurs anywhere then GPS system tracks the position of the vehicle and sends the information to the particular person through GSM by alerting the person through SMS.

Alcohol Sensor:

Basically, it is an Alumina tube covered by Tin dioxide and in between them there is an Aurum electrode. The alumina tube and the coils are the heating system. If the coil heated up SnO₂ Ceramics will become the semi-conductor so there are more movable electrons, which means that it is ready to make more current flow. Then, when the alcohol molecules in the air meet the electrode that is between alumina and tin dioxide, ethanol burns into C₂H₄O₂ which is acetic acid then more current flows. So the more alcohol molecules there are, the more current we will get. Because of this current variation gives the different readings from the sensor.

Image1: Alcohol sensor



III. BLOCK DIAGRAM

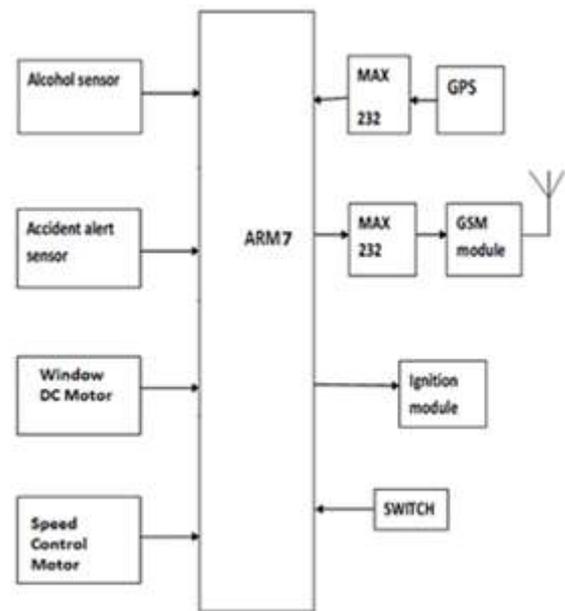
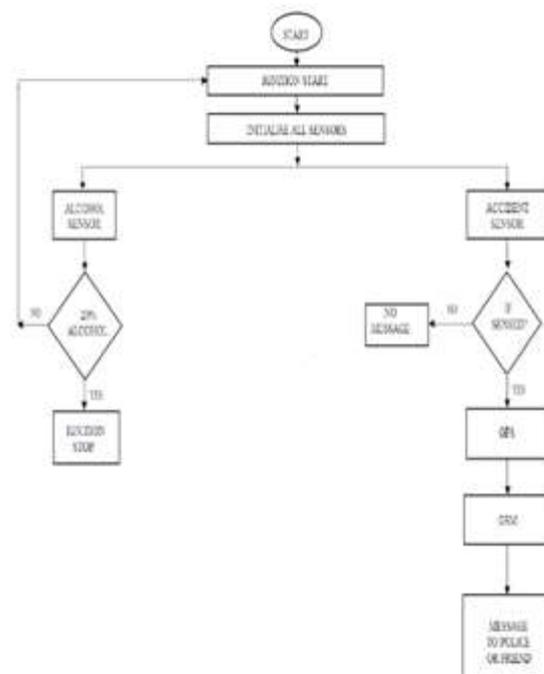


Figure 1. Block diagram of the system

IV. FLOW CHART:



V. ADVANTAGES

- We can secure driver as well as vehicle.
- Can prevent the severe damage for vehicle when accident occurred.
- It works faster in all-weather condition.

- Reprogrammable.
- Accident rate due to drunken drive can be reduced.
 - Death rate due to alcohol intake can be reduced.

VI. APPLICATIONS

- We are using this system for four wheeler and driver's security purpose.
- We can also implement this system for two wheelers.
- By using GPS technology we can get accurate location of the vehicle.
- By using this system we surely reduce the accident rate.

VII. CONCLUSION

An effective solution is provided to develop the multi-functional monitoring system which will monitor the various parameters related to vehicle such that the user can avoid the accident and can run vehicle safely .By implementing this system a safe four wheeler journey is possible which will reduce accidents due to drunken driving. In case of accident it would send the messages to friend continuously about the location of the accident happened till the first aid reaches the location. When the vehicle is in Out of coverage area then the GSM & GPS module will not work properly. If sensitivity of alcohol sensor is not calibrated properly then sensor fails to detect alcohol.

VIII. RESULT



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