

Intelligent Vehicle with Multitask Management

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Abstract— The previous report shows accidents are happening due to driver neglect, drink and drive, suddenly change Driver health conditions are the causes of the road accident. So for overcome these type of causality we purposed a vehicle to monitor the activity of driver and also check the health condition of driver. And reduce the road accidents.

Key words: flex sensors, heart beat sensor, sweat sensors, GSM system

I. INTRODUCTION

To reduce road accidents and safety of human we design a system .In this system we are using flex sensor for sensing the drowsiness of the driver. If the driver is tired, due to that he might loosen his hand unknowingly during drowsy state. We are sensing the event and giving buzzer to alert the driver. In spite of the alert if he is still in drowsy state, we will trigger left indicator and park the vehicle (motor moving towards left). The second event is sensing the fatigue nature of the driver using sweat sensor. Apart from this are using 3-axis accelerometer.

3-axis accelerometer for sensing the accident. GSM modem is available to send SMS to the authority.Finally when accidents occurred, the system will automatically send a text message to ambulance service via GSM network. The system also records the data during the time of accident.

A. Overview of existing system

Survey report shows the road accidents records are increasing in dally life because only reasons absence of correct mechanism.

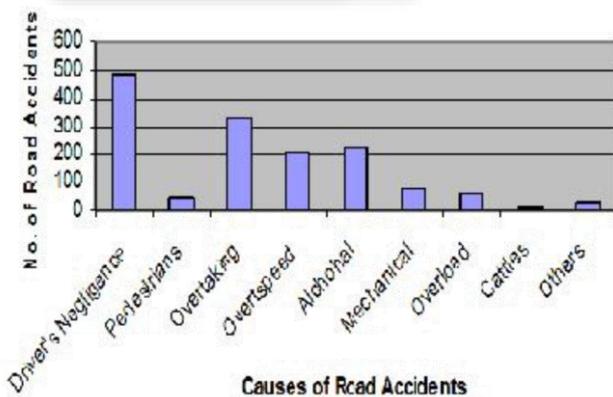
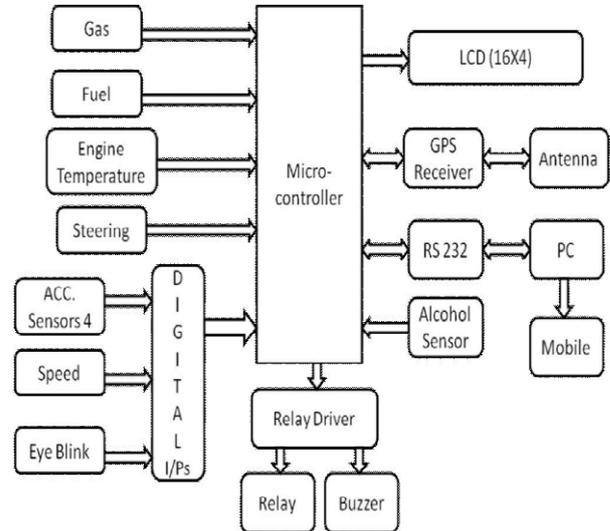


Fig. 1.1: shows the number of road accidents due to Driver negligence and other reasons. But maximum Accidents are happening due to driver negligence.

II. EXISTING SYSTEM DETAILS

A. Existing System Block Diagram



B. ABS (Anti-Locking Braking System):

ABS works with your regular braking system by automatically pumping them. In vehicles not equipped with ABS, the driver has to manually pump the brakes to prevent wheel lockup. In vehicles equipped with ABS, your foot should remain firmly planted on the brake pedal, while ABS pumps the brakes for you so you can concentrate on steering to safety.

C. EBD(Electronic brake-force distribution):

Electronic brake-force distribution (EBD or EBF), Electronic brake-force limitation (EBL) is an automobile brake technology that automatically varies the amount of force applied to each of a vehicle's brakes, based on road conditions, speed, loading, etc. always coupled with anti-lock braking systems.

D. SRS Air Bags (Supplemental Restraint System Air Bags):

An airbag is a vehicle safety device. It is an occupant restraint consisting of a flexible envelope designed to inflate rapidly during an automobile collision, to prevent occupants from striking interior objects such as the steering wheel or a window, the sensors may deploy one or more airbags in an impact zone at variable rates based on the type and severity of impact; the airbag is designed to only inflate in moderate to severe frontal crashes.

E. Parking Sensors:

Parking sensors are proximity sensors for road vehicles which can alert the driver to unseen obstacles during parking man oeuvres.Electromagnetic parking sensors

F. Cruise Control:

Cruise control (sometimes known as speed control or auto cruise) is a system that automatically controls the speed of a motor vehicle. The system takes over the throttle of the car to maintain a steady speed as set by the driver.

III. EXISTING SYSTEM AND ITS DRAWBACK

After doing the observation of number of Accidents we cleared that frequency of crashes is Because of unsafe drivers. Driving under the influence of alcohol or drugs, which is responsible for about one-third of all road accidents. Every year people are injured or killed on the road because another driver was driving under the influence. Defensive drivers never drink nor take drugs and drive. They understand that alcohol and drugs impair your- Ability to determine distances, Reaction time, Judgment and vision None of this above detects Driver or Passenger Miss behaviour.

IV. PROPOSED SYSTEM DIAGRAM

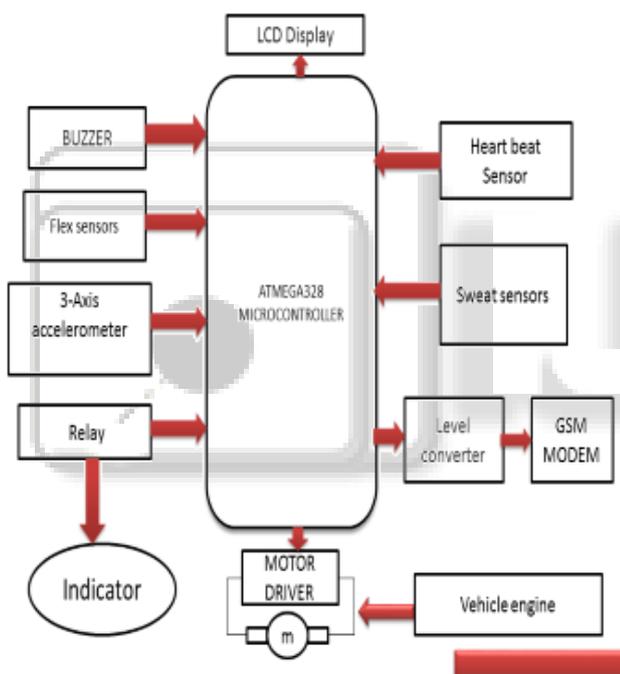


Fig. 5: propose system diagram

A. Flex sensor

In steering wheel we are using flex sensors for monitoring driver activity. Flex sensors are sensor that change in resistance depending on the amount of bend on the sensor. They convert the change in bend to electrical resistance –the more the bend, the more the resistance value. Flex sensors are analog resistors. They work as variable analog voltage divider Inside the flex sensor are carbon resistive elements within a thin flexible substrate. More carbon means less resistance. When the substrate is bent the sensor produces a resistance output relative to the bend radius. The microcontroller monitors the flex sensor rate continuously, if the flex sensor angle more then zero degree in that time it sense driver is in normal condition. When flex sensor angle wil be zero degree in that time microcontroller send

instructions to different command. And vehicle should have reduce the vehicle speed and park the vehicle in left side.

B. Sweat Sensors

It is a type of sensor which monitor driver health condition, it will be detect the sweat, suppose driver health become not good during driving.eg-heart attack. During that time microcontroller send instruction to motor drive to reduce speed of the motor and also park left side the vehicle. And send message to authorized persons.



Fig.: sweat sensors

C. 3-axis accelerometer

3 Axis Acceleration Sensor Board base onADXL3XXfrom Analog devices. It is a first generation 3 axis acceleration sensor. User could get acceleration value of X, Y, and axis. And it is widely used in shock, slope, and movin detection. Output sensitivity could be select by simply set voltaglevel on few pins. The output of MMA7260Q is analog mode, so you need a A/D converter to read the acceleration value.

D. GSM modem

In this system we are using gsm .any type of driver miss behaviour it should activate and send message to authorized numbers, ambulance.

V. IMPLEMENTED PROPOSE SYTEM DESIGN



VI. ADVANTAGES OF PROPOSED SYSTEM

- Provides high level safety to human life
- Suitable for Indian conditions
- Easy retrieval of data for the cause of incidents through black box.
- low cost and less complex system

VII. CONCLUSION

It is due to the driver's fatigue, traffic accidents keep with a yearly increasing of a high rate. This paper shows the new fatigue detection algorithms & techniques using eye blink, alcohol, impact, gas, etc. sensors. In this technique the fatigue will be detected immediately and regular traps the events driver and third party. Through research presented in this paper, we propose an intelligent car system for accident prevention and making the world a much better and safe place to live.

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