# Forestalling the Distraction Accidents by Using Cellular System

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*Abstract: Talking on cell phones while driving is as fatal as driving our car after drinking which can lead to various disastrous major miss happenings. Do you know that using a mobile phone while driving can affect the cognitive functions of persons, distract his or her visual concentration and also the speed of processing information. It has been also proved that use of cell phones while driving puts a driver at a significantly higher risk of collision by distracting their mind. It matters whether the person makes use of hands free or hand-held phones, which has no escape to it. This deadly combo has significantly increased the risk of accidents in range numbers. The theme of this project is to make the driver to attend only the emergency calls. Initially driver should enable call forward to system number. When a call is made to driver, the caller will receive a message intimating that he is in driving. If once again he calls the driver then it is understood that it is emergency. So the driver will get an intimation regarding the emergency call through LCD display. If he wants to make a call, he must stop the car. Unless the system will recognize in such a way that the driver is speaking in mobile phone while driving. It automatically reduce the car fuel supply by variable Solenoid so that the driver will have time to park the car. Thus the system prevents accidents due to phone calls.*

*Keywords:* GSM  Module, Mobile Phone Sniffer ,DC Motor, Solenoid valve, Flow sensor, RPM Sensor
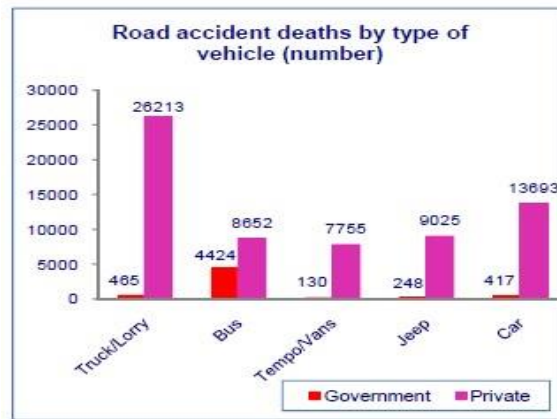
## I.  INTRODUCTION

Every year nearly 1.4 million people have been killed because of they are wireless customers and their over-bearing cell phones. While in India, an estimated 1.35 lakes person died due to road accident in 2010, which is approximately 10% of road accidentfatalities worldwide as shown in fig.1and these figures are the highest in the world. Still no research has been carried out to find the number of drivers using cell phone involved in road accident and very limited efforts has been carried out to prevent accident due to cell phone usage.

In existing systems as vehicle manufacturers continue to increase their emphasis on safety with advanced driver-assistance systems (ADASs), we propose a device that is not only already in abundance but portable enough as well to be one of the most effective multipurpose devices that are able to analyze and advise on safety conditions.

Today Mobile smart phones are equipped with numerous sensors that can help to aid in safety enhancements for drivers on the road. We use the three-axis accelerometer of an Android-based smart phone to record and analyze various driver behaviors and external road conditions that could potentially be hazardous to the health of the driver, and the automobile. The use of these data can educate a potentially dangerous driver on how to safely and efficiently operate a vehicle and With real-time analysis and auditory alerts of these factors it can increase a driver's overall awareness to maximize safety.

## II.PROPOSED APPROACH

With the aim of preventing these accidents, we proposed to develop a highly efficient automatic system for early detection of incoming and outgoing call, with the help of an antenna along with mobile detection unit above the driver seat.

This unit shown in fig:3 is capable of distinguishing whether the cell phone used either by the driver or by the passenger; if the driver uses of cell phone is detected, a safety application named Cell phone Accident Preventer will be automatically load on the driver's cell phone which helps in eliminating the risk of accidents from being occurred and at the same time ensuring that the user does not miss any emergency call.

It shows how the sniffer system shown in fig:4 will help in preventing accidents and to what extent this system will help in reducing the Indian economic loss incurred unnecessarily due to road accident fatalities.
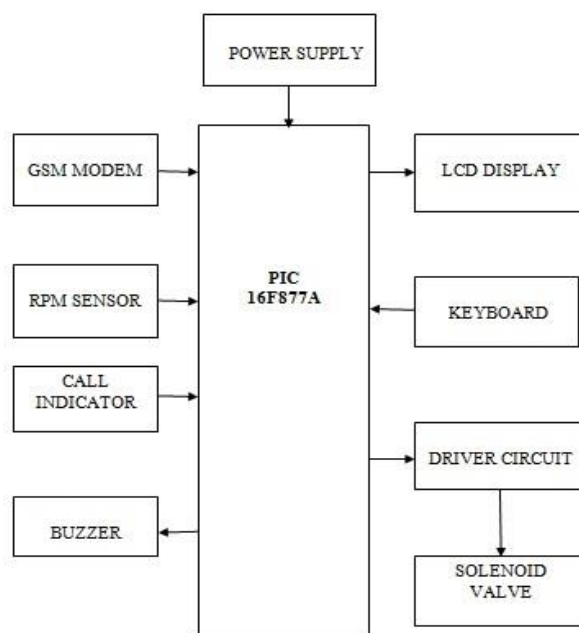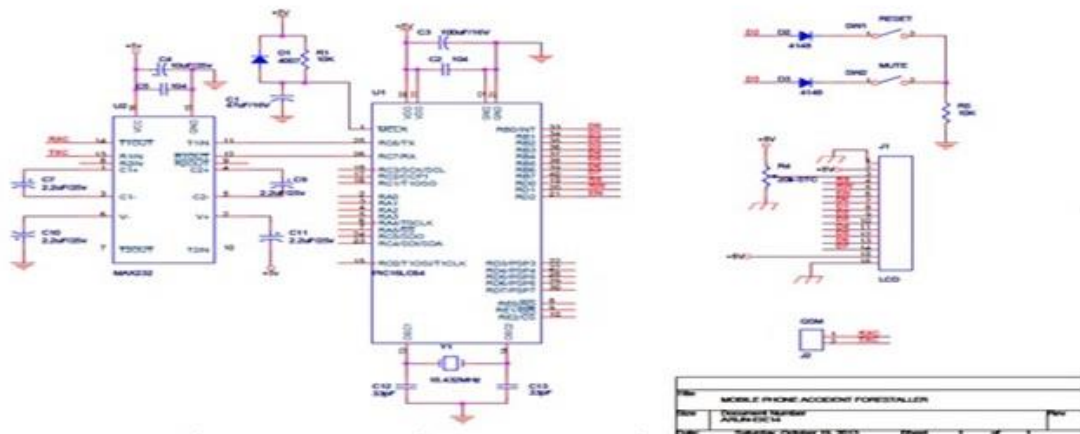


**Fig: 2 Block Diagram**
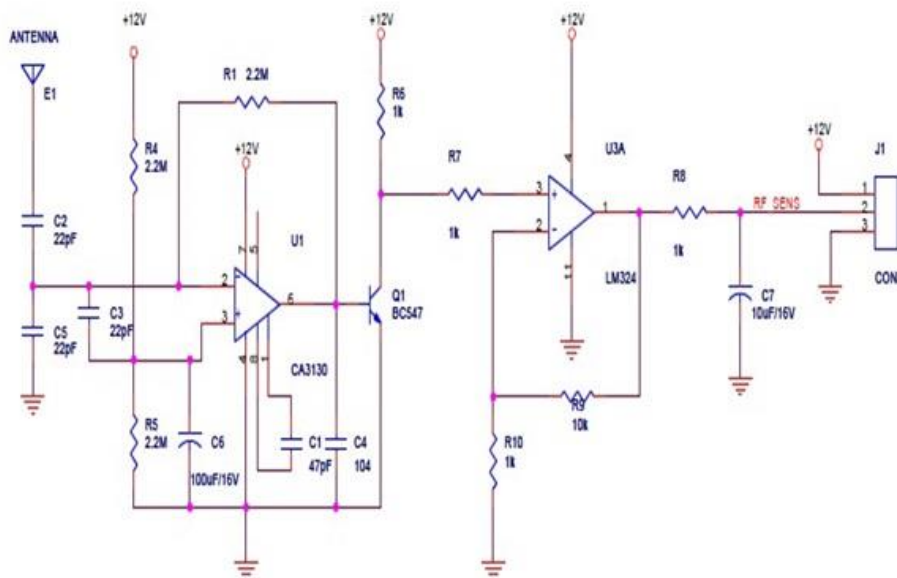
Fig: 3 Master Board Circuit



Fig: 4  Mobile Phone Sniffer Circuit Diagram

### III. COMMUNICATION DEVICES
**a)MAX232**

The MAX232 is an integrated circuit that converts signals from an RS-232 serial port to signals suitable for use in TTL compatible digital logic circuits and it is a dual driver/receiver and typically converts the RX, TX, CTS and RTS signals. This drivers provide RS-232 voltage level outputs (approx. $\pm$ 7.5 V) from a single $+$ 5 V supply via on-chip charge pumps and external capacitors which makes it useful for implementing RS-232 in devices that otherwise do not need any voltages outside the 0 V to $+$ 5 V range, as power supply design does not need to be made more complicated just for driving the RS-232 in this case.The receivers reduce RS-232 inputs (which may be as high as $\pm$ 25 V), to standard 5 V TTL levels. These receivers have a typical threshold of 1.3 V with a typical hysteresis of 0.5 V. The MAX232A is backwards compatible with the original MAX232 but may operate at higher baud rates and can use smaller external capacitors – 0.1 µF in place of the 1.0 µFcapacitors used with the original device.

### b) GSM MODULE:

A GSM modem is a specialized type of modem which accepts a SIM card and operates over a subscription to a mobile operator like a mobile phone. A GSM modem exposes an interface that allows applications such as message to send and receive messages over the modem interfacing part.

Fig : 5 GSM module
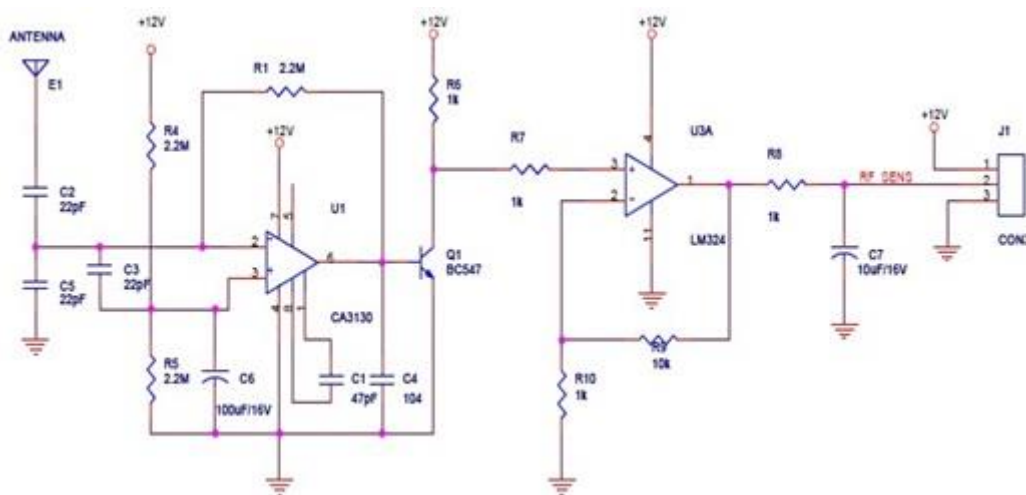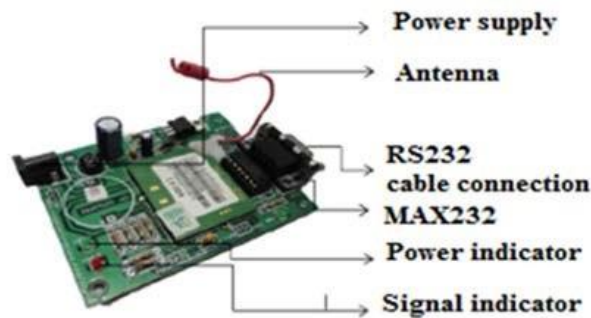




The mobile operator charges for this message sending and receiving as if it was performed directly on a mobile phone. To perform these tasks, a

GSM modem must support an "extended AT command set" for sending/receiving SMS, as defined in the ETSI GSM 07.05 version and 3GPP TS 27.005 specifications. The interfacing between the GSM and the Microcontroller and the developed module is shown in the fig: 5..

## IV. SOFTWARE ANALYSIS
### A) ABOUT SOFTWARE

The main purpose of using the microcontroller in our project is because highperformance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. By combining a versatile 8-bit CPU a with in-system programmable Flash on a monolithic chip, the Microchip16F877A is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

The programs of the microcontroller have been written in Embedded C language and were compiled using MPLAB, a compiler used for microcontroller programming. The communication between PC and the microcontroller was established MAX 232 standard and those programs were also done in C language. The following programs are used at various stages for the mentioned functions Serial communication. The various special function registers of the microcontroller are set such that they can send and receive data from the PC which uses the serial library to communicate with the ports.

### b ) SUPPORT FOR ALL 16F VARIANTS

The PIC Family is one of the fastest growing Microcontroller Architectures. More than 400 device variants from various silicon vendors are today available. New extended PIC Devices, like the Philips 80C51MX architecture are dedicated for large application with several Mbytes code and data space. For optimum support of these different PIC variants, MPLAB provides the several

development tools that are listed in the table below. A new output file format (OMF2) allows direct support of up to 16MB code and data space. The CX51 compiler is a variant of the PIC compiler that is design for the new PIC 18F architecture.

### c) PROTEUS

Proteus VSM is used to bridge the gap between schematic and PCB for embedded design, offering system level simulation of microcontroller based designs inside the schematic package itself.
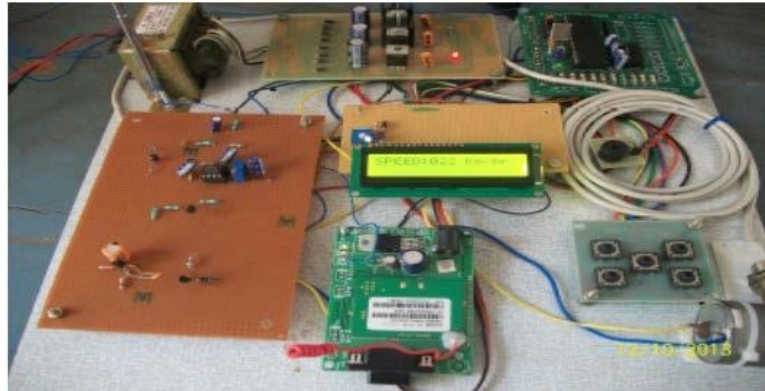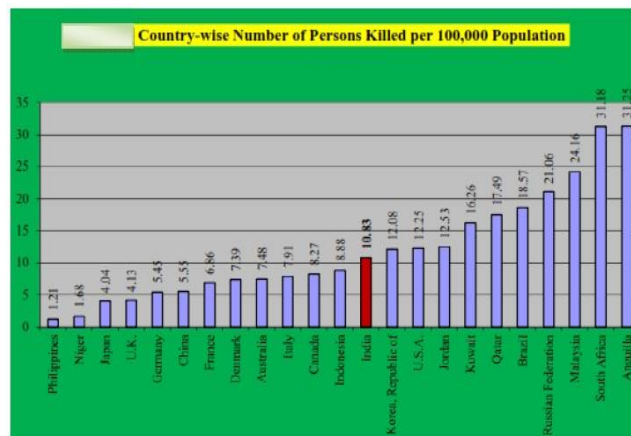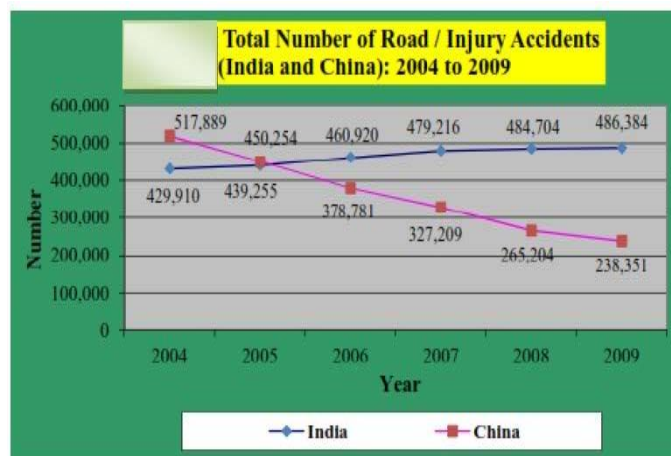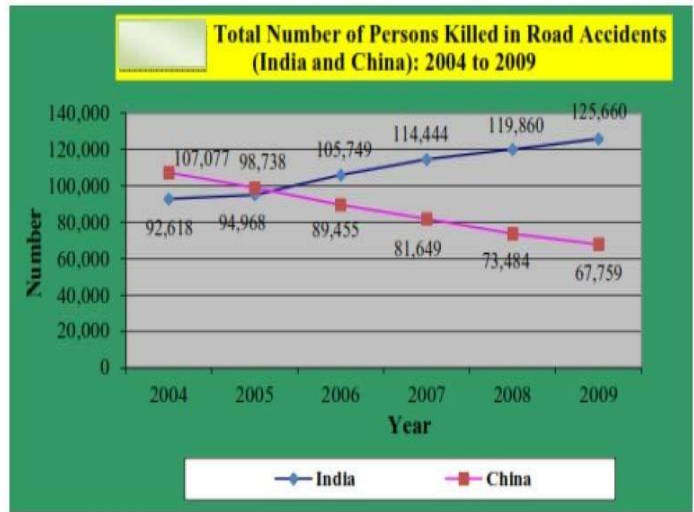


Fig : 6 Prototype V.EXPERIMENTAL RESULTS a) Accidental Injury Rate (per lakh of population) in India



b)Comparitive status of road accidents in India and China

c)Accidents and Deaths per 10000 vehicle
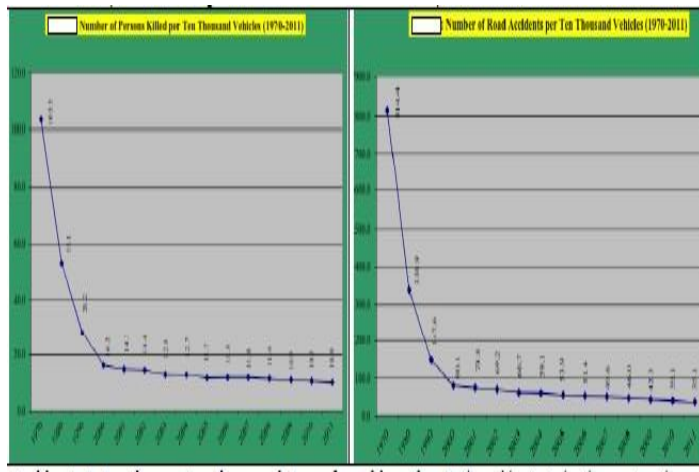


d)Accidents and Deaths per 10000 Kms or Road

Length
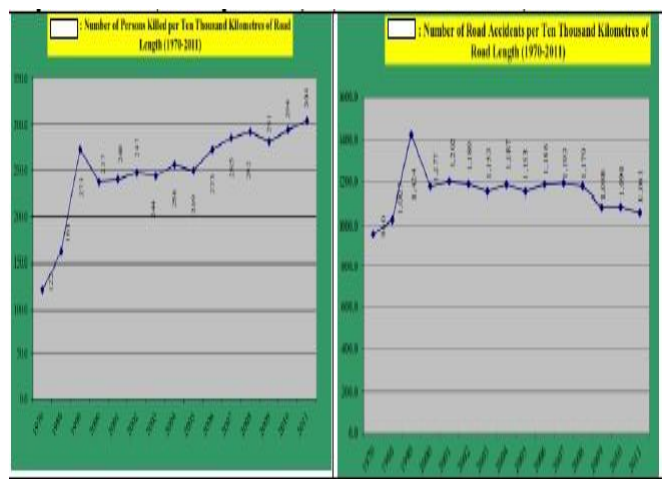
## VI. CONCLUSION

To prevent the occurrence of accident due to mobile phone use by drivers an attempt has been made to provide a low-cost, non-invasive; small-size system. Sensing circuit is used to detect the driver's use of mobile phone, possessing the ability to block the mobile communication only in the driver seating area while providing an option for the driver to attend an emergency call if he stops a vehicle at a safe.

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