CHAPTER 6
CONCLUSION AND FUTURE SCOPE

6.1 CONCLUSION

Mobile phones have immensely become public utility, improving communication in social and commercial interactions. Nonetheless, their role in driver distraction and consequently in road traffic crashes means that some measure of “reining in” their use while driving is required. With the aim of preventing drivers from getting distracted due to use of cell phone which has now become one of the leading causes of the road accidents this research has been carried out.

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 which is capable of differentiating the use of cell phone is either by the driver or the passengers. The small-size hardware system and the Cellphone Accident Preventer (C.A.P.) mobile application along with low range mobile jammer is used to detect the driver’s use of mobile phone, while ignoring the phone used by the fellow passenger in the vehicle and 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 place.

The PIC16F877A microcontroller along with a KST-TX01 transmitter is used to transmit the vehicle number plate information to the
receiver KST-RX806 placed on the signal post. The received data will be displayed on LCD (owned by police) once the driver starts using the phone without stopping the vehicle, and before the activation of mobile jammer unit is detected, so that, traffic police can take legislative action against the driver. Therefore, the implementation of this proposed system would prevent the road accident by reducing the drivers distraction to a large extent i.e., it reduces the risk associated with use of cell phone by 96.28% and it further reduces the accident rate to 28.79% from 30% as per the case study estimation. In addition to this, implementation of complete system also help in reducing the loss of economy due to cell phone accident for about ₹111.38 crores per day i.e., it can save nearly ₹40,653.7 crores per annum from ₹1,36,000 crores rupees spent on road accident fatalities.

6.2 SCOPE FOR FUTURE WORK

As the numbers of drivers using the cell phone have increased, the interests in linking the use of cell phone with road safety also increased. Today using cell phone while driving are not only used for having conversation, it is also used for listening to music, browsing Internet etc., which can pose even greater cause of driver distraction. A survey carried out by State farm insurance company and Harris Interactive/HealthDay of U.S., found 19% and 13% of drivers accessed the Internet on a smart phone while driving respectively. These findings are in agreement with our case study which found 17% of drivers agreed that they use Internet on cell phone while driving.

It is also tried to find out the user who tries to access the Internet by using a cell phone in a vehicle using this system and it is successfully able to identify the driver, but the problem is it fail to identify when the passenger browse the Internet. Since, when the passengers access the Internet, the
voltage obtained by the detection unit is more are less similar to the voltage absorbed when the conversation is made by the driver using the cell phone. The figure 6.1 shows the amount of energy captured by the detection unit. It can be seen from the figure that, amount of voltage captured when driver tries to access Internet is more than 200mV which has been much higher when a call is made from the driver seat, since browsing the Internet will generate more energy or voltage than making phone calls. Once microcontroller detects the voltage which exceeds the threshold then it will restart the cell phone and C.A.P. mobile application get automatically started which listens for any incoming and outgoing call.

![RF Radiation](image)

**Figure 6.1 Energy Absorbed When Driver Using Internet**

When the driver again tries to access the Internet, microcontroller checks for the vehicle in motion and produce a warning message to stop the vehicle in safe place and browse internet, if the driver fails to disconnect the Internet or stop the vehicle within 8 sec. then microcontroller activate the jammer even during these timeframe if driver tries to access the Internet it will send a vehicle number plate information to the LCD attached on the signal post so that police can take legal action against the driver. In this case,
there is no role for C.A.P. application. Though, the detection unit works good to find the driver while browsing Internet, the system fails when one or more passengers access to the internet in a vehicle. For example, the voltage absorbed by the detection circuit when the front seat passenger or rear seat passenger behind driver access to the Internet is almost similar to the voltage absorbed when a call is made from the driver seat. These constraints can be taken up in to consideration to develop future systems in-order to avoid distraction which may be due to use of cell phone while browsing. This research work can be further extended by modifying or adding the circuit for sending SMS automatically to the remote server monitored by police, once the user tries to damage the device attached on the vehicles.

The C.A.P. application which is developed relays on Internet to obtain the latitude and longitude information from the third party provider like loc8.in by sending MCC, MNC, Lac and Cellid. The need of Internet can be overcome by designing a database to accommodate all the latitude and longitude corresponding to the MCC, MNC, Lac and Cellid. Generally, J2ME applications store and manipulate data in nonvolatile memory using RMS (Record Management System). But the problem is that, RMS is not a relational database, so SQL cannot be used. Besides, RMS has limited storage capacity. So, designing a database is a very challenging task particularly for mobile phone. Therefore, the research can be extended to maintain the complete range of latitude and longitude inside the mobile phone database, which in turn helps in reducing the time taken, workload and traffic of the server and more importantly there is no need for either Internet connection or GPS.