# Detecting Accident Using Smartphone And Detecting Vehicle Information Using RFID

[#1]Swapnali Jadhav, [#2]Suvarna Deshmukh, [#3]Pratiksha Nalge, [#4]Sweety Chorage,
[#5]Prof. Simran Khiani

[1]swapnaleejadhav@gmail.com
[2]suvarnadeshmukh1997@gmail.com
[3]pratikshanalge15@gmail.com
[4]sweetychoraghe1998@gmail.com

[#12345]Department of Information Technology
G.H.Raisoni College of Engineering & Management ,Pune, India

## ABSTRACT

**Propose system is based on the smartphone for detecting the driver's car accident .Now a day's smartphone is use to sense different vehicle activities, to monitors drivers activity which is helpful in traffic safety applications. No any emergency alert is providing to the current system. In this paper, accelerometer and gyroscope sensors in smartphones, are used to measure proper acceleration arisen by vehicle dynamics. By using above mentioned sensors we can detect accident arisen or not. Our system is based on low cost infrastructure and better accuracy. In emergency situation we deliver the three different notifications i.e. nearest police station, hospital and parent to notify them.**

**Keywords: Car Accident Detection, accelerometers and gyroscopes, Notification**

## ARTICLE INFO

## I. INTRODUCTION

As we know now a day's road safety as an significant area for research. This programmed has recognized a great deal of scientific courtesy in recent years. Progress has been made on several different faces but in one area there would appear to be a serious lack of attention or, at the very least, a rareness of published information and informed discussion. This area worries that degree to which our thinking and the hence our solutions are locked into a particular view of technology and society and thereby convicted to produce incremental enhancements but no radical modification in the magnitude or structure of the problem itself. In the case of road security it can be argued that solutions which build on the getting of life motor car as a major and absolute technology will support that position and generate a primary contradiction: solutions designed to reduce a major negative effect of mechanical transport contribute to the preservation of the environments which lead to road traffic accidents.

Traffic accidents are a major public issue worldwide. The huge number of injuries and death as a result of road traffic accident discovers the story of global disaster of road safety. Road accidents are the second leading cause of death for people According to statistical projection of traffic mortalities, the two-year comparison of total driver contribution in finite crashes presented three percent growths.

**Problem Statement:**

Current system do not provide the accurate result because of hardware issues. Whenever accident happens, after that the community call to the police station and ambulance. Thus the problem is totally depending on the kindness of nearby people to help the accident victim. There is a big chance if there are no people nearby the accident spot or people who are around but sometimes they are mistreatments the accident so in emergency there is no one to provide the help. The above system is the totally depending on the manual arrangement so its takes more time to deliver the support.

## II. LITERATURE SURVEY

[1]Traffic accidents are a major public problem worldwide. Now day's large number of damages and death as a result of road traffic accident uncovers the story of global crisis of road safety. Second leading cause is road accidents of death for people between the ages of 6 and 30 and third leading cause for people between 29 and 44. According to statistical projection of traffic mortalities, the two-year comparison of total driver participation in mortal crashes presented a three percent increase from 43,840 in 2011 to 45,337 in 2012.Additionally 184,000 young drivers (15 to 20 years

old) were injured in vehicle crashes, in 2012, an increase of two percent from 180,000 in 2011.

[2] In this paper, the most obvious reason for a person's death during accidents is an unavailability of the first aid facility, which is due to the delay in the information of the accident being reached to the ambulance or to the hospital. Thus, in the case of incidents involving vehicular accidents, response time is crucial for the timely delivery of emergency medical services to accident victims and is expected to have an impact on death rate. Moreover, each minute is passed while an injured crash victims do not receive emergency medical care which can make a large difference in their survival rate. For example, analysis shows that decreasing accident response time by 1 minute correlates to a six percent difference in the number of lives saved.

[3] Thus, the reduction time in response would occur with widespread implementation of enhanced traffic technologies that are used to reduce the response time and thus reducing traffic mortalities. now a day's The early experiences with these technologies are concerned with development Advance traffic management system and development automatic car accident detection and notification system built-in vehicles in United States. The ATMS on traffic sensors that are used to monitor the traffic and detect the accidents. These traffic sensors are installed in main highway; some of them are installed under the surface of the road such as loop detectors. [3] However, in this system, finding the traffic sensors in every roads process is unbearable, since the traffic sensors are installed in main highways only, besides, the installation cost of these sensors are high. Apart from that, these traffic sensors are precious by the environment. For example some of traffic sensors are not perform well in the snow environment.

[4] Other systems, the most recent manufactures vehicles automatic accident detection and notification systems are prepared, such as BMW and General Motor (GM), which depend on the vehicle on-board sensors to detect the accident and utilize the built-in radio cellular to notify the emergency responders [4]. However, the fast progress of the technology requires the advancement the software or even some hardware features of the vehicles in order to install the automatic accident detection and notification system, while the installation cost of these system inside the vehicles are exclusive. Also, these systems are not considered as a standard choice for all vehicles in U.S and other countries, these systems are just equipped with specific type of the vehicles in U.S such as BMW and GM.

In [5], Through the second generation on the board-unit interface the authors develop car accident detection and notification system that combines smartphones with vehicles, to achieve smart vehicle modeling, offering the user new emergency services. The android application have developed by an author with the help of this accident detection scenes and sends an SMS to a pre-specified address with applicable data about the accident and an emergency service automatically made emergency call. The only requirement to achieve the goal of this system is that the vehicle supports the OBD-II standard. The OBD-II standard is required since 2001 in U.S and there is also a

European version of this standard, thus this solution is applicable to all vehicles in U.S and European countries and is not available in all vehicles in other countries. Besides that, the maintenance or upgrading process of this system is expensive operation.
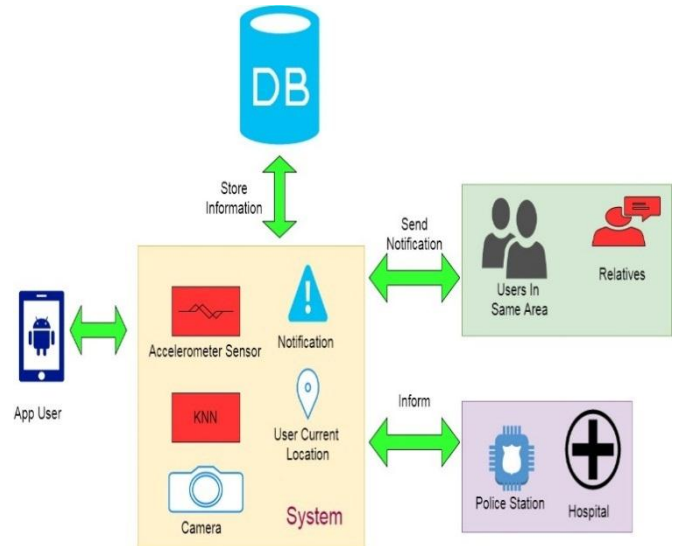
## III. PROPOSED SYSTEM



Fig 1. System architecture

Methodologies to implement the system modules:

1. User
2. Accident detection
3. Take photo
4. Inform Nearest Hospital and police station
5. Inform to relatives and other user:

**Module Description:**

User:
In this module user register into the system. All information of user stored into database. User places the mobile in car.

Accident detection:
In this module accident is detected with the help of accelerometer sensor. After detecting accident, system will generate an alert to user and take the response if user doesn't response to system then system consider as accident.

Take photo:
If accident is happened then system takes photo with the help of camera.

Inform Nearest Hospital and police station:
Nearest location of police and hospital System at the background searching the nearest location of police and hospital. After searching done system request successfully send to that police station. In this model user current location used to find nearest hospital and police station.

Inform to relatives and other user:
After detecting accident system inform to nearest user to avoid the traffic. System also inform to relatives by sending SMS. Relative's mobile number is store at user registration.

*Algorithm:*

**K-nearest neighbors KNN algorithm:**

Proposed algorithm provides the accurate result to the system, this algorithm used for the find out the nearest police station, nearest hospital from the current accident location.

1. Load all police and hospital details to the system S= (police station details, hospital details)

2. Analysis and determine parameter K = number of nearest neighbors from the current.

2. Search and Calculate the distance between the current query instance and all the load training samples of police and hospital.

3. Filtering and sorting the distance and determine nearest neighbors function based on the $K^{th}$ minimum distance

4. Collect all the category y of the nearest neighbors result from the filtering and sorting function.

5. Last we use simple count of the category of nearest neighbors as the prediction value of the query instance.

## IV. MATHEMATICAL MODEL

• Let 'S' be the system
Where
S= {I, O, P}
Where,
   • I = Set of input (information of user and accelerometer data)
   • O = Set of output (detect accident and inform to nearest police station, hospital, user and relatives)
   • P = Set of technical processes
Let 'S' is the system
   S = {…………
   • Identify the input data S1, S2, …. , Sn
   I = {( current location, accident photo, accelerometer data ) }
   • Identify the output applications as O
   O = {detect accident and inform to nearest police station, hospital, user and relatives}
   • Identify the Process as P
   Knn for inform to nearest police station, hospital and other user in same area.

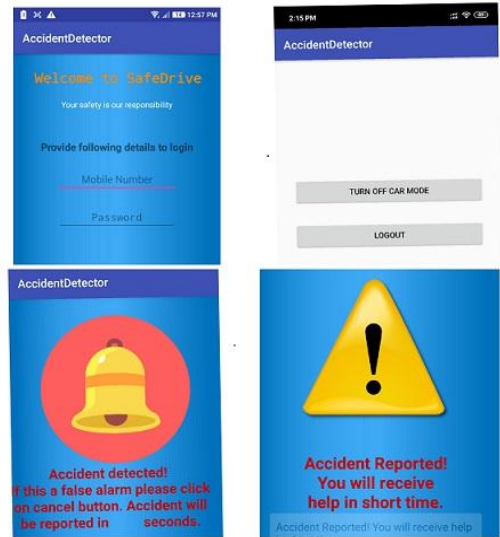## V. RESULT

**Android Application Module:**



Fig 2. Application window
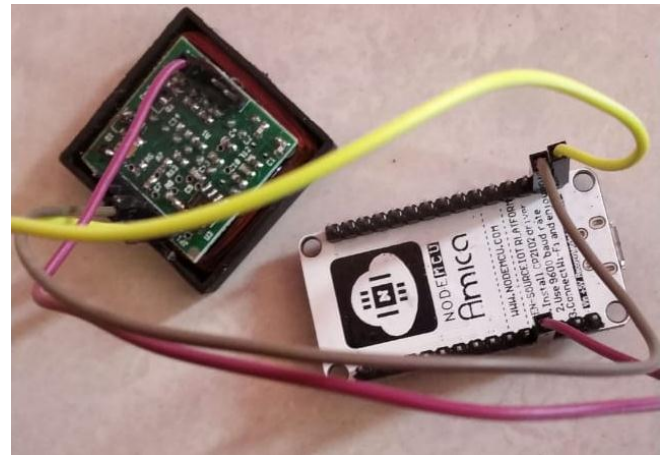
**Hardware Module:**



Fig 3. Hardware setup

## VI. CONCLUSION

The Results of the proposed system have shown that the application developed is able to provide the accurate result and full-fill its purpose within a short time period. In proposed system result shows that the all the tasks, including the delivery of an SMS using the SMS gateway with the accident details, followed by providing the latitude-longitude of the current location, nearby police station and hospital details and sending them an alert message.

## VII. FUTURE SCOPE

In future this module is extended using the health analysis. Once the accident is detected then in that SMS includes the current location and current heart beat rate of the user using the variable sensor.

## REFERENCES

[1] "National Highway Traffic Safety Administration", Dept. of Transportation, "Traffic safety facts 2012: Young Drivers", Washington (DC), April 2014.

[2] Evanco and William M., "The Impact of Rapid Incident Detection on Freeway Accident Fatalities", June 1996.

[3] Peter T. Martin, Joseph P. and Hansen B.," Incident Detection Algorithm Evaluation ", Vol. 1, Issue 1, Part 122 of MPC report, March 2001.

[4] Chris T., White J., Dougherty B. , Albright A. and Schmidt DC.," WreckWatch: Automatic Traffic Accident Detection and Notification with Smartphones ", International Journal of mobile network and application, Springer., Vol. 16, Issue 3, PP. 285-303, March 2011.

[5] Jorge Z., Carlos T. , Juan C. and Pietro M., "Providing Accident Detection in Vehicular Networks through OBD-II Devices and Android-based Smartphones", IEEE, PP. 813-819,October 2011.

[6] Bannister G., Amirfeyz R., Kelley S., Gargan M., " Whiplash injury", International journal of British Editorial Society of Bone and Joint Surgery, Vol.91 , No. 7, PP. 845-850, July 2009.

[7] Sneha R.S. and Gawande A. D., "Crash Notification System for Portable Devices", Vol.2, No-3, PP.33-38, June 2013.

[8] Patel K.H., "Utilizing the Emergence of Android Smartphones for Public Welfare by Providing Advance Accident Detection and Remedy by 108 Ambulances, Vol.2, Issue 9, PP 1340-1342, September – 2013.

[9] Krafft M., Kullgren A., Malm S. and Ydenius A.," Influence Of Crash Severity On Various Whiplash Symptoms: A Study Based On Real-Life Rear-End Crashes With Recorded Crash Pulses", June 2005.