

Android Application to Detect and Provide Post Accident Services

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ABSTRACT

Now days, road accidents widely happens due to lots of problems like, rush driving, pothole, drunk driving etc. The existing system has lots of issues and problem is that it is totally hardware based application with high cost. So we have proposed a new system that uses smartphone sensing of vehicle dynamics to detect the accident. The given system design can facilitate many traffic safety applications for victims. We have developed an android application that use embedded sensors i.e., accelerometer and gyroscope, to capture differences in centripetal acceleration due to vehicle dynamics. Once any car accident happens then our application will activate and generate alert. If no any respond to the application then it will find nearest hospital and police station using KNN algorithm and then it will automatically send the notification to the nearest police station, nearest hospital and parent. We have also enhanced this project based on IoT Concept using RFID technique to detect the vehicle number plate information for verifying complaint to the police station for further process.

Keywords: Accident, Smartphone, Accelerometer, Gyroscope, RFID, Hospital, Police Station.

I. INTRODUCTION

Now day's road safety as an important area for research. Action programmed has received a great deal of scientific attention in recent years. Progress has been made on several different fronts but in one area there would appear to be a serious lack of interest or, at the very least, a paucity of published information and informed debate.. In the case of road safety it can be argued that solutions which build on the acceptance of life motor car as a major and immutable technology will reinforce that position and generate a primary paradox: solutions designed to reduce a major negative effect of motorized transport contribute to the perpetuation of the circumstances which lead to road traffic accidents.

Traffic accidents are a major public issue worldwide. The huge number deaths are result of road traffic accident that uncovers the story of global crisis of road safety. Road accidents are the second major leading cause of death for people aged between of 5 and 29 and third major cause for people aged between 30 and 44.

A. Problem Statement:

Whenever an accident happens then nearby people call the ambulance. The problem with this system is that the victims has to be depend on the mercy of nearby people. So to remove all these cons we are developing a system with minimum human interaction for rescue operation of victims. When victim meets with an accident system detect the

accident with the help of output values from sensors. System will send notifications to the nearby hospital, police station, users and relatives.

II. LITERATURE SURVEY

[1] Nagarjuna R Vatti, PrasannaLakshmi Vatti, Rambabu Vatti, Chandrashekhar Garde, "Smart Road Accident Detection and communication System", in this paper, the authors made an attempt to develop a car accident detection and communication system which will inform the relatives, nearest hospitals and police along with the location of the accident.

[2] Naji Taaib Said Al Wadhahi, Shaik Mazhar Hussain, Kamaluddin Mohammad Yosof; Shaik Ashfaq Hussain, Ajay Vikram Singh, "Accidents Detection and Prevention System to reduce Traffic Hazards using IR Sensors", The detection phase is carried out using IR sensors that could detect and alert the people by sending SMS using GSM module that contains predefined numbers and accident location using GPS module. Second Phase, Accident prevention is carried out using IR sensors by warning the driver about the neighbouring vehicles when the distance between them is beyond the threshold value.

[3] Usman Khalil, Adnan Nasir, S.M. Khan, T. Javid, S.A. Raza, A. Siddiqui, "Automatic Road Accident Detection using Ultrasonic Sensor", Accident detection using ultrasonic sensor provides the facility to detect an accident not only in various street situations but also it might perform well under various natural conditions like rains.

III. PROPOSED SYSTEM

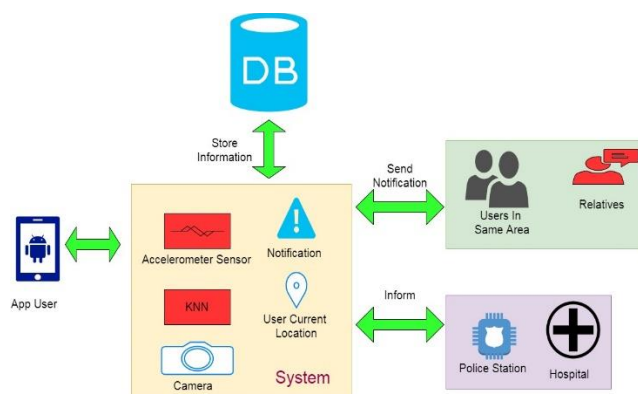


Fig 1. System architecture

A. Module Description:

- 1)**User:** In this module user register into the system. All information of user stored into database. User places the mobile in car.
- 2)**Accident detection:** In this module accident is detected with the help of accelerometer sensor. After detection of accident, system will give an alert to user and will wait for the response if user doesn't response to system then system will conclude that a critical accident has been occurred.
- 3)**Take photo:** After detection of accident application takes photo from front camera.
- 4)**Inform Nearest Hospital and police station:** If user does not responses to the system then application will search for nearest police and hospital with help of KNN algorithm. After searching system will send notification to police station ,hospital and relatives. We are user current location of user to find nearest hospital and police station.
- 5)**Inform to relatives and other user:** After detecting accident system will inform to the nearest users . System will also send message to the relatives mobile number which is stored while registration.

B. Objective:

- Automatically inform to nearest police station and hospital.
- Required time is reduced.
- Reduction of paper work.
- Detect the Vehicle information.
- Detect vehicle information using RFID tag based on IoT.

C. Algorithm:

K-nearest neighbours KNN algorithm:

1. Parameter K = number of nearest neighbours.
2. Find the distance between the query-instance and all other the training samples.
3. Sort the distance and determine nearest neighbours based on the K-th minimum distance.
4. Gather the category y of the nearest neighbours.
5. Use simple majority of the category of nearest neighbours as the prediction value of the query instance.

III. CONCLUSION

Finally we conclude our proposed results show that the minimizing the overall cost of the project with better output. total time required to perform all the tasks, including the delivery of an SMS with the accident details, followed by providing the nearby police station and hospital details, also vehicle details from sensors and sending them an alert message of the user accident with exact location of user, is taking short time period.

IV. ACKNOWLEDGEMENT

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