

Accident Detection and Notification System Using Android

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Abstract— Now a day it is seen that there are number of vehicle and accident causing due to it is increasing day by day. Many people get injured and some of them even die due to unavailability of emergency facilities. The emergency responders take much long time to reach the spot which some time fail to save the lives. So to reduce this scenario there is need to decrease the time between the accidents occurred and the emergency facility provided to them. With the help of android phone which will detect the accident through collision detection circuit and notification will be sent to the known people using GSM which can be already noted and alert to hospital system and police station with alert message along with the link of map using GPS which will address the exact place of accident.

Keywords- Accident detection, Android, GPS, GSM, Notification.

I. INTRODUCTION

Car accidents are a leading cause of hazards. Automated device of car accident detection can save lives by decreasing the time required for information to reach emergency responders. In conventional vehicular sensor systems for accident detection that use to notify emergency responders immediately by utilizing sensors, such as accelerometers and airbag, to detect car accidents. Sensors attached to the vehicle use a built-in cellular radio to communicate with a monitoring centre that is responsible for dispatching emergency responders in the event of an emergency. Car accident detection is a new application for wireless mobile sensor networks. Recent advance technologies in Smartphone are making it possible to detect car accidents in a more portable and cost effective manner than conventional in-vehicle solutions.

Recent Smartphone's, such as the Samsung Note 3, have significantly increased computational abilities compared to previous devices. For example, the Note 3 has a 1.3 Ghz Quad Core processor and 2 GB of RAM. The pervasiveness of Smartphone's also means that the infrastructure required to establish such a wireless mobile sensor network is already in place and available after installing ready application software. Smartphone manufacturers also have started including a plethora of sensors that enable devices to detect the context in which they are being used. For example, the HTC Dream (also an Android device), possesses a compass, accelerometer and GPS receiver allowing developers to determine the geographic places, finding the movements of the user.

In this paper there is an approach for accident detection and notification system using android which will prove to reduce the death rate. This system detects the accident when occurred and notify through messages to emergency contact and alert at

hospital and police station along with map link to help the victims to save their lives.

A collision detection circuit is used in the car which gets activated when any fluctuation created. The android device which is connected through power cable will receive the generated frequency. There will be an infinite loop which work at android device and respond only when any fluctuation detected. LDR and photodiode are used as a sensor for collision detection. HTTP-are used for transmission of data to web service. Google API and Web services are used for other transmission to Hospital System and Police Station

II. MOTIVATION

Recently some of the Projects have been developed which detects an Accident using Microcontroller devices and Heart Rate measuring device which does not give accurate results hence we are developing a device which will give almost accuracy. This accuracy can be obtained due to the collision detection module which we will attach to the vehicle. Existing Projects depends on lots of hardware devices such as AT89S52 micro controller, GSM modem, GPS Module, Siren, 3X4 key pad, EEPROM and many more. If only one device fails to works then entire projects fails to work which is major disadvantage of the Existing System.

III. LITERATURE SURVEY

In the existing system it seems that some had adopted Android based smart phones to provide all types of in-vehicle services. By reviewing this data and applying new ideas with certain parameters, a high accident detection application can be developed. In [1], the authors describe a system that gathers vehicle data and sends it to a centralized database in case of an accident. In [2], the authors present an automatic emergency alert system for two-wheeled vehicles that includes an accident detector inclination sensor and decision unit and a

system to inform third parties about historic data of speed, acceleration and braking. Hernandez et al. [3] developed a prototype of an on-board unit that allows the driver to communicate with his vehicle, as well as with other available devices (PDAs, cellular, sensor networks, and so on and with the road infrastructure) in order to consume intelligent transport services.

The work by Hampton C. Gabler [4] reports the research effort which search to dramatically reduce Emergency Medical Services response time by developing and testing an Automated Crash Notification System which automatically transmits the location and severity of a crash to EMS personnel. Chen et al. proposed a vehicular Android/OSGi platform that allows diagnosing or managing the system status of a vehicular platform remotely and also to use visual intelligence to continually update their application services based on context awareness without user intervention.

IV. EXISTING SYSTEM

The Existing system is built using the AT89S52 micro controller from Atmel. This micro controller ensures all the functionality of the SMS alert system. It also filters the signals at the inputs. It not only alert the neighbors through its siren, but also immediately sends a caution SMS to any four mobile numbers which are stored. These numbers can be changed at any time by the user using a 3X4 key pad as he prefer. These numbers are stored in EEPROM. This uses regulated 5V, 750mA power supply for its working.7805 which is three terminal voltage regulators that regulate the voltage of system. Full Wave Bridge rectifies the ac output of secondary of 230/12V step down transformer. Due to heavy hardware Dependability this Systems have a huge changes of failures.

V. PROPOSED SYSTEM

The approach in this application is of an android platform which is in demand now and will be same in future. As most of the population have the smart phones containing the android which provide plenty of facilities such as Bluetooth, GPS, Wi-Fi, 3G etc which is fruitful for this project. This project basically contains three modules which independently work on its own to notify about the occurrence of accident.

In this module the approach is developed for an android application for mobile phone in which the user can insert and save the emergency numbers as many he want to whom the caution message should be delivered when any accident occurs. The user application would contain the number insertion activity and the message receiver would get the message regarding occurrence of accident along with the link of map containing details of latitude and longitude through which he can detect the accident location and do help.

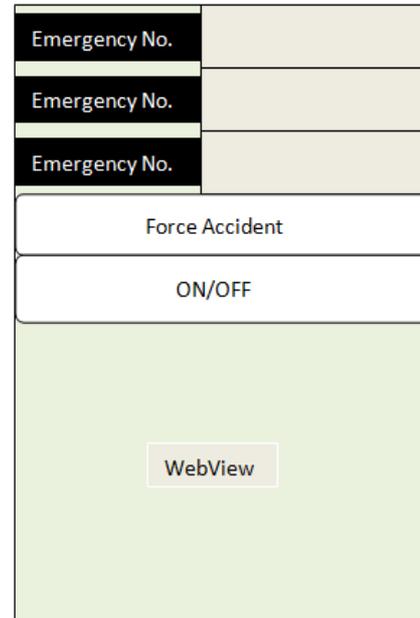


Fig 2. User Activity



Fig 3. Received message

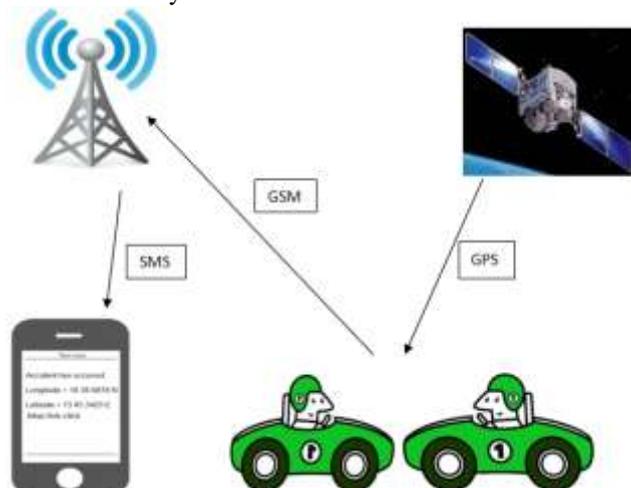


Fig 1. Overview of model

A. Android Application

B. Police Station Application

This is a swing java based desktop application which will receive the notification when any accident occurs. The Police station will get an alert siren if accident detected along with the map link which will contain the exact latitude and longitude details of the location. Police station will also receive the IMEI number along with the victim contact number for cross checking the reality of accident.

C. Hospital system

This is a swing java based desktop application which will receive the notification when any accident occurs. The

Hospital System will get an alert siren if accident detected along with the map link which will contain the exact latitude and longitude details of the location. It will also receive the IMEI number along with the victim contact number for cross checking the reality of accident. With the help of these details the ambulance can be discharged to the accident location and reduce the time to save the victim which needs the emergency treatment.

Our application will use a common android phone which will immediately notify the concerned people about the accident. Our aim is to detect accident in any type of vehicle. Because of the android platform, our system will be available at low cost and even low end vehicle owners can afford to use it. As the application will be released in Android Market the scope will extend to users worldwide.

VI. CONCLUSION

An automatic alarm device for traffic accidents is designed. It can shorten the alarm time greatly and locate the accident place accurately, realizing the automation of accident detection and information transform. Eventually, it will save the rescuers from wasting their time in search of medical facility. The project model system can automatically detect corresponding accident spot and send related information to emergency responders. The approach of this project will significantly prove to rescue the wounded lives and reduce loss of lives and property of the Country and people to reduce road traffic hazards.

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