A Survey Paper on Go Safe: Android Application for Accident Detection and Notification

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Abstract— With the rapid development of society, there are some side effects including the increasing number of car accidents. On average one out of every three motor vehicle accidents results in some type of injury. Traffic accidents are one of the leading causes of fatalities in most of the countries. As number of vehicle increases mean while the accident also increases. The government has taken number of actions and so many awareness program also contacted even though the accident increases as population increases. The Propose system can detect accident automatically using accelerometer sensors and notify all the nearest app user and emergency points. (Police station, Hospital).

Key words: GPS, Mobile Interaction, Accelerometer Sensor

I. INTRODUCTION

Now a days there are many death because of the Road Accidents. As it was proven by previous researches. The consequences of traffic accidents regarding the injuries of those afftected is strongly depending on the response time of the emergency services. The time that take place between the occurrence of the accident and the arrival of services to the site, and also on the level of informed status of the emergency regarding the number and condition of the injured person. In Accident saving of the person is very important. But lack of services it cannot be possible. For providing that services to the person i.e. Police and Hospital, Mobile phones have been present in our lives for over 20 years during which they have become indespinsable due to the hardware and software characteristics of the smartphone, these devices are suitable to work as terminals for accident reporting system implement the Accidental System Application. Proposed system presents GoSafe application, a lightweight, flexible and power-efficient smartphone based vehicle to infrastructure communication system for improving road safety and enhancing the driving experience. This system uses the GPS to notifies motor vehicle drivers about events that may be encountered while driving, this application will alert user's if there is any accident happen on road. If the Accident happen then application will automatically register FIR to the police station and then Emergency service will be available to the accident place but if there is now accident then user can decline the notification message. So that other vehicle will choose another path/route. User is supposed to run the application when user started driving. Using accelerometer sensor, velocity and speed of that particular vehicle will be calculated.

II. LITERATURE SURVEY

The paper is given overview on the existing eCall solutions for car accident detection. Sensors are utilized for crash sensing, for notification. eCall is an emergency call that can be generated either manually by passenger or automatically via activation of in-vehicle sensors when a serious accident detects. When system activated the in-vehicle eCall system established a 112 voice connection directly to the nearest safety answering point. Even if passenger is not able to speak, a minimum set of data (MSD) is sent to safety point which include location of crash site, the triggering mode, the vehicle identification number, time stamp, and current location .This way of information that is valuable for emergency responder to reaching them as soon as possible[1].

The paper showed one of the most popular smartphone platforms at the moment, and the popularity is even rising. Additionally, it is one of the most open and exible platforms providing software developers easy access to phone hardware and rich software. API. They envision Android-based smartphones as a powerful and widely used participatory sensing platform in near future. The paper they had examine Android smartphones in the context of road surface quality monitoring. They evaluated a set of pothole detection algorithms on Android phones with a sensing application while driving a car in urban environment. The results provide rest insight into hardware differences between various smartphone models and suggestions for further investigation and optimization of the algorithm, sensor choices and signal processing[2].

The paper combine smartphones with existing vehicles through an appropriate interface they are able to move closer to the smart vehicle paradigm, offering the user new functionality and services when driving. In this paper they propose an Android based application that monitors the vehicle through an On Board Diagnostics (OBD-II) interface, being able to detect accidents. They proposed application estimates the G force experienced by the passengers in case of a frontal collision, which is used together with airbag triggers to detect accidents. The application reacts to positive detection by sending details about the accident through either e-mail or SMS to pre-end destinations, immediately followed by an automatic phone call to the emergency services. Experimental results using a real vehicle show that the application is able to react to accident events in less than 3 seconds, a very low time, validating the feasibility of smartphone based solutions for improving safety on the road[3].

The paper gives the information of wireless vehicular networks for cooperative Intelligent Transport Systems (ITS) have raised widespread interest in the last few years, due to their potential applications and services. Cooperative applications with data sensing, acquisition, processing and communication provide an unprecedented potential to improve vehicle and road safety, passengers comfort and efficiency of traffic management and road monitoring. Safety, efficiency and comfort ITS applications exhibit tight latency and throughput requirements, for example safety critical services require guaranteed maximum latency lower than 100ms while most infotainment applications require QoS support and data rates higher than 1 Mbit/s. The mobile units of a vehicular network are the equivalent to nodes in a traditional wireless network, and can

act as the source, destination or router of information. Communication between mobile nodes can be point-to- point, point-to-multipoint or broadcast, depending on the requirements of each application. Besides the adhoc implementation of a network consisting of neighboring vehicles joining up and establishing Vehicle-to-Vehicle (V2V) communication, there is also the possibility of a more traditional wireless network setup, with base stations along the roads in Vehicle-to-Infrastructure (V2I) communication that work as access points and manage the ow of information, as well as portals to external WANs[4].

The paper defines a critical task of dynamically detecting the simultaneous behaviour of driving and texting using smartphone as the sensor.

They serve safety issue has stirred much research and numerous innovations on detecting and preventing driving and texting behaviours so that a number of detection approaches using different sensing or Internet of Things(IoT) devices. They propose, design and implement texive which archive the goal of detecting texting operations during driving utilizing irrregulaties and rich micromovements of user. without relaying on any infrasturectures and additional devices, and no need to bring any modification to vehicles, Texive is able to successfully detect dangerous operations with good sensitivity, specificity and accuracy by leveraging the inertial sensors

integrated in regular smartphones. Texive recognize micro-movements by fusing multiple evidences collected from inertial sensors in smartphones, e.g. detecting weather a usr is entering a vehicle or not, inferring which side of the vehicle he/she entering, determining weather a user is sitting in front or rear seats[5].

The paper shows how smartphones in a wireless mobile sensor network can capture the streams of data provided by their accelerometers, compasses, and GPS sensors to provide a portable black box that detects traffic accidents and records data related to accident events, such as the G-forces (accelerations) experienced by the driver. It also present an architecture for detecting car accidents based on WreckWatch, which is a mobile client/server application we developed to automatically detect car accidents. how sensors built into a smartphone detect a major acceleration event indicative of an accident and utilize the built-in 3G data connection to transmit that information to a central server. That server then processes the information and notices the authorities as well as any emergency contacts[6].

The paper shows how an accident is a deviation from expected behaviour of event that adversely affects the property, living body or persons and the environment. Security in vehicle to vehicle communication or travelling is primary concern for everyone. The work presented in this article documents the designing of an accident detection system. The accident detection system design informs the police control room or any other emergency calling system about the accident. An accelerometer sensor has been used to detect abrupt change in g-forces in the vehicle due to accident. When the range of g- forces comes under the accident severity, then the microcontroller activates the GSM modem to send a pre-stored SMS to a predefined phone number. Also a buzzer is switched on. The product design was tested in various conditions. The test result confirms the stability and reliability of the system[7].

The Goal of the paper is to present the design and implementation of such a system, able to give a set of information from the user, information that is associated with the location information using a GPS Tracking system and creates and accident report. The paper gives the information about implementation of system, able to give a set of information from the user, information that associated with a location using a GPS tracking system and creates an accident report. The system sense the Gps coordinates of the person, display the coordinates on map and computes the shortest root to the accident site. Also, the system is automatic detect the accident when occurs. The paper focuses on mobile part of the system[8].

III. Basic Architecture

Many build-in systems are used to detect and report car accidents. Built-in sensors in the car can be used to detect changes in acceleration, or even to detect weather an airbag was ejected, which is clear indication that a car accident has occurred. These dedicated system due to their design and implementation minimizes false positives, i.e. false accident detections. Unfortunately these systems are expensive and available only on luxuary cars. In System the mobile phone is communicating through GPS to find out the coordinates of the current location of the user able to retrieve the correct location. The user need to register on the application when started driving. If GPS not working properly then system will not Able to detect the accident location.

IV. Proposed System

In this system user need to register to the system, after registration his/her data will be stored in database. When user registers to system his/her location will be recorded by GPS. When user is met with an accident and have injury then system will automatically send message to the Nearest Vehicles and police station then police station will register FIR and send it to the nearest hospital. After receiving message from Police station Hospital will treat that patient. If there is no accident then user need to decline the Alert notification message within the second, so that the further process gets stop.

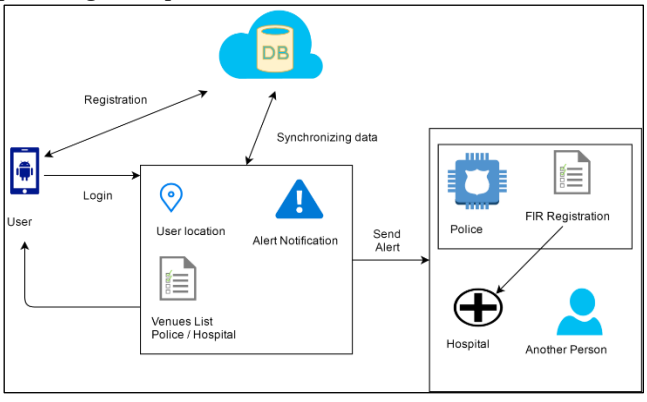

Fig. 1: System Architecture

V. CONCLUSION

It has been realized that the smartphone based car accident detection system is not an easy task to handle. It is really surrounded with many obstacles that prevent the researchers from achieving 100% accurate detection system. One of the main obstacles is determining that the occupant is inside or outside the vehicle while the vehicle is travelling at a low speed. The proposed system minimizes the impact of this obstacle.

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