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Research Article

Detecting Accident using Smartphone and Detecting Vehicle Information using RFID

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I N F O

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A B S T R A C T

The propose system is based on the Smartphone for detecting the driver's car accident. Nowa day's smart phone is use to sense different vehicle activities, to monitors driver's activity which is helpful in traffic safety applications. No any emergency alert **is** as long as to the present system. In this paper, accelerometer and gyroscope sensors in smart phones, are used to measure proper acceleration arisen by vehicle dynamics. By means of above cited sensor's we can detect accident arisen or not. Our system is founded 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 inform them.

General Terms

Smartphone, Vehicle Activity, Driver Activity.

Keywords: Car Accident Detection, Accelerometers and Gyroscopes, Notification

Introduction

As we know now a day's road safety as a 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.

Literature Survey

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.

In this paper, the further most under standable time for a person's death during accidents is an inaccessibility of the first aid ability, which is owing to the postponement in the information of the accident being reached to the ambulance or to the hospital. Thus, in the situation of incidents connecting vehicular accidents, response time is critical for the timely delivery of emergency medical services to accident victims and is predictable to have an impact on death rate. Also, individually minute is approved though an injured crash victims do not accept emergency medical care which can make a big alteration in their survival rate. For instance, examination shows that lessening accident response time by 1 minute relates to a six percent difference in the number of lives saved.

Over the second generation on the board-unit border the authors grow car accident detection and notification system that combines smartphones with vehicles, to achieve smart automobile modeling, contribution the user novel emergency services. The android submission has industrialized by an author with the assistance of this accident discovery scenes and sends an SMS to a pre-specified address with appropriate data about the accident and an emergency service mechanically made emergency call. The only obligation to achieve the goal of this system is that the vehicle supports the OBD-II standard. The OBD-II standard is obligatory 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.[6]

Proposed System

Methodologies to implement the system modules.

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.[3]

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.[4]

Algorithm

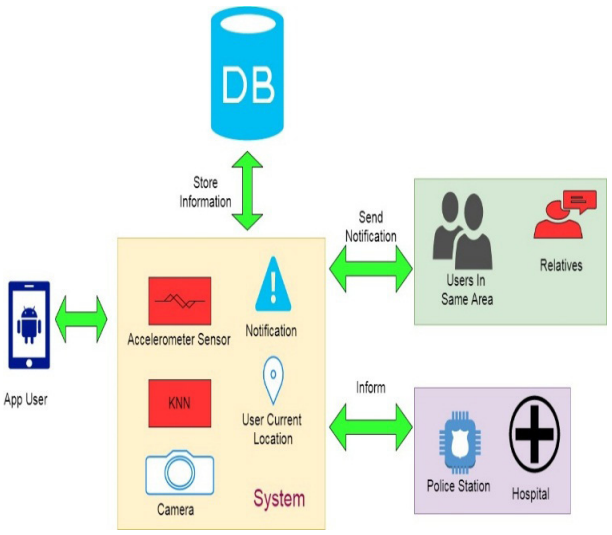
K-nearest neighbors KNN algorithm

- 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.
- Load all police and hospital details to the system S= (police station details, hospital details)
- Analysis and determine parameter K = number of nearest neighbors from the current.[5]
- Search and Calculate the distance between the current query instance and all the load training samples of police and hospital.
- Filtering and sorting the distance and determine nearest neighbors function based on the K^{th} minimum distance
- Collect all the category y of the nearest neighbors result from the filtering and sorting function.
- Last we use simple count of the category of nearest neighbors as the prediction value of the query instance.[6]

System Architecture

Methodologies to implement the system modules:

- User
- Accident detection
- Take photo
- Inform Nearest Hospital and police station
- Inform to relatives and other user:



Mathematical Model

Symbol	Description
S	S be the system
I	Set of input
O	Set of output
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.

Acknowledgment

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