"Identification of Crime and Accidental Area using IoT"

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Abstract - Human life is extremely important than anything else, timely help is more important than lending a helping hand. Mainly the tourist has no more information about new place where the go for trip or enjoying their holidays. In such cases many unwanted things happen with them just like any crime or accident. The also beware of accident prone zones in traveling area. So, I have proposed and designed the project in such a way that it saves human life during emergency state of accidents and crime. Today road accidents and crime are increasing abruptly and it is one of the major causes for the death of people. Mostly, it is found that road accident happening are more frequent at certain specific locations i.e. black spot. The analysis of these black spot can help in identifying certain road accident factor that makes a road accident to occur frequently in that location. In this project we apply statistics analysis and data mining algorithms on the Fatal Accident dataset as an attempt to address this problem. Association rule mining is one of the popular data mining techniques that identify the causes of accident of road accident. In this project, admin can add to police. After that police can login on system and view accident and crime spot apply algorithm on that spot and decide danger level of that spot. Level "A", Level "B", Level "C" of accident and crime location. AnDM Algorithm takes accident level count as a factor to cluster the locations. Then we will use association rule mining to identify these locations using geofencing. The rules show different factors associated with road accidents at different locations. For all this we will provide accident data that are issue from Nasik city commissioner office. Safety driving suggestions will be making based on accident data, association rules, classification model, and clusters obtained. The main motto of the project using GPS integration it shows accident/crime location spots on map and send voice notification on nearby black spot.

Keywords – Sensors, Traffic Accidents and Crime, LCD Display, Ultrasonic Sensor, Buzzer, GPS, Arduino, Switch.

Introduction

The normally humans are face the accident and crime in new location mostly because they are not aware about new roads and accident/crime prone zones. Hence, Every-minute, on average, at least one person face to problem of vehicle accident and any other type of crime. It is approximated that the loss to the tourist life along with the huge damage in property adds up to 1-3 percent of the world's gross domestic product. With the motto of reducing injury and loss of property, pre-crash sensing is becoming an area of active research among automotive manufacturers, suppliers and universities. Various national and international projects to investigate new technologies for improving safety and accident prevention have been successfully launched over the past several years. Vehicle accident statistics disclose that the main threats a driver is facing are the delay in the emergency facilities. Prevention of a complete accident is unavoidable but at least repercussions can be reduced to a large extent. The main proposal of the system is to make a considerable effort to provide the emergency facilities to the victims in the shortest time possible. In various large organizations the illegal use of vehicle by the drivers results in financial as well as time loss of the organization. Apart from these purposes, the system has a wide number of applications and thus it can be used for tracking of accident/crime spots during travelling.

The system incorporates on board system which has GPS and GSM modems connected with it. The entire system is Web Application. In this web application Admin can add the police section in which police add that spots on which continuously accident or crime held. Those spots are shows by level wise like Level "A", Level "B", Level "C". The signal is further compared with the standard values which in-turn confirms the accident of the car, unnecessary shock or trash or vibration produced by machines, the tilt of the car with respect to the earth's axis can be measured with the acceleration level. Global positioning system (GPS) is used for locating the coordinates of the accident spot and Global system for system is used for informing the exact vehicular location to the nearby emergency services, the relatives concerned as well as the police stations. The GPS show the nearest black spots and gives the longitude and the latitude values using geofencing which helps in determining the location of accident and crime. GSM modem provides a two way communication by using a sensors and such module works in a quite efficient manner on LCD display in car. The main aim of this project is to have an intelligent security system which provides situational awareness and agile safety.
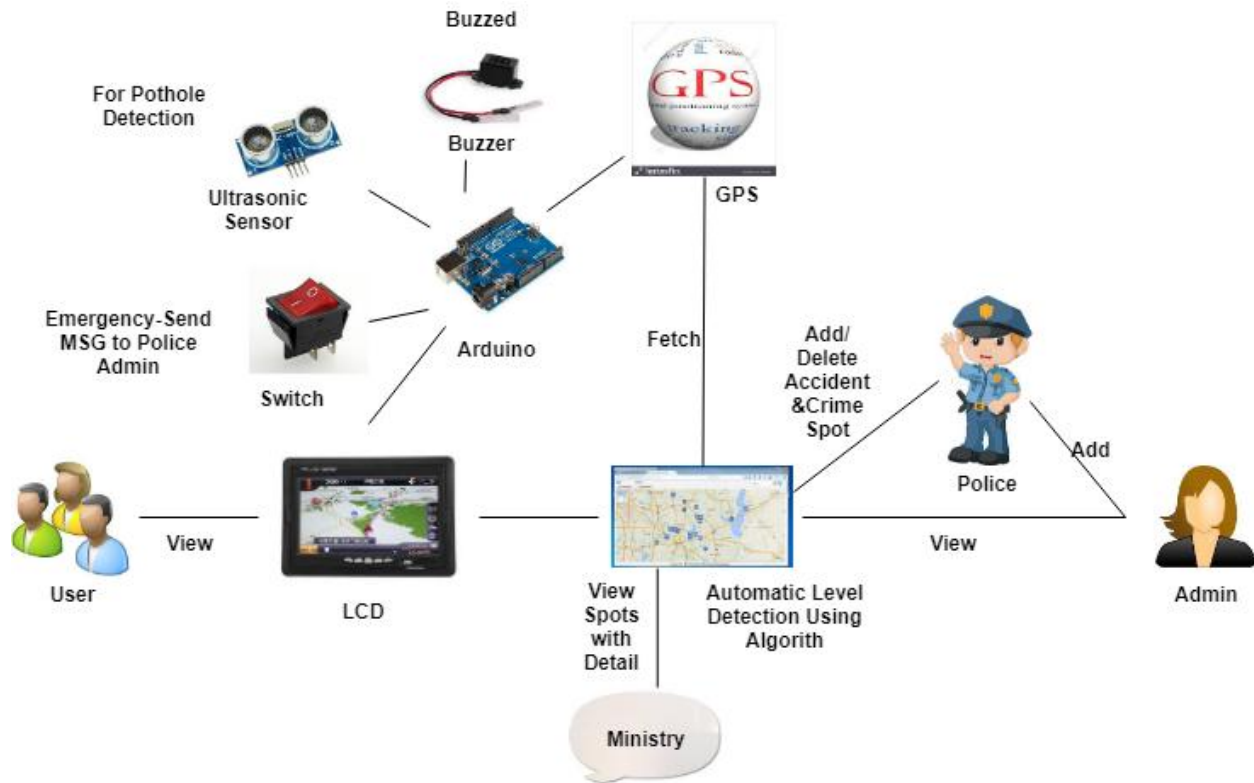
Block Diagram

Fig: System Architecture

Literature Survey

Today road accidents and crime are increasing abruptly and it is one of the major causes for the death of tourist. The time between the accident/crime and when the ambulance and any other help reach that location of accident/crime plays an important role in saving their lives. Accident and crime are leading cause of death that is the number of tourist face problem of any type of crime than the number of tourist people killed in all our wars. In this application if our accident/crime happens then the people can click photos and post them on the app so that the photos will be shared further by application to the nearby hospital so that the people would get the treatment. But here we have to depend on other people and it is a little time consuming one. Hence, to provide efficient help to our tourist is necessary. That's why we introduce new application which gives the tourist traveller a voice message from our application because of that the tourist people keep safely take their ways of travel.

[1] "Analysis Of Road Traffic And Fatal Accident Detection Using Data Mining" IEEE Computer Society, June,2017. In this paper they stated that result obtain from association rule of Apriori Algorithm More relationship between accident factors and accident severity were investigated while applying Apriori algorithm.

[2] "Data Mining Approach to Characterize accident location" Open Access At Springler.com February 2016 This paper sachinkumar emphasize on interpretation of outcome using divide accident location into k-group.

[3] "Data Mining Approach to Characterize road Accident in India" IEEE Paper Publication January,2015Aushijain use Kmean clustering to group the similar object off the heterogeneous data.

[4] "A review on road accident in traffic system using data mining techniques" international journal of science and research (IJSR)- January 2016. Maninder Singh stated that decision tree which predicts cause of accident and accident prone.

[5] "An overview Of Data Mining In Road Traffic And Accident Analysis" Journal Of Computer Application February 2009 , K.jayasudha emphasize on attempting to prevent specific damaging scenario such as vehicle rear end collision and lane division using data mining approach area.

[6] "Improvement of e-clat algorithm based on supporting frequent item set mining" September,2014 journal of computer vol.9 Xiaomei and Hong Wang studied that relevant terms and review several principles. They summarize drawback in traditional éclat algorithm.

Project Scope:

The following future enhancement can be made into proposed system by devising software algorithms, hardware implantations and interfacing sensors

1. Google map integration system
2. Police Department
3. Show accident/crime spot on map
4. Send voice notification on nearby accident/crime spot

Existing System:

In existing system there is automatic detection of accidents using smartphones. Smartphone is used which not only detects the accidents but after detecting, send this information to the concerned department on its own as well. Using smartphones in place of automatic collision notification system has many advantages like we can carry it easily and it can provide accident detection notification system in every type of vehicle like a bicycle or a motor bike. Furthermore, as every smartphone is associated with its owner so it is easy to identify the victim. The sensors in a smartphone identify GPS location, speed and acoustic signature of the vehicle during an accident and send this information with the help of a built-in cellular connection to the central server which further sends this information to the emergency department. But the disadvantage of this system is it requires network continuously also to carry android phone is mandatory.

Conclusion

The purpose of this paper is to decrease the number of accidents and crime in roads. This is done by sending the MSG on LCD screen and seen black spot on map which indicate the rate of accident and crime according to police description like decided danger level of that spot. The black spot is detected by the help of Google maps which is inbuilt in their mobile. By this we can save thousands of lives in the roads. In this project smart system has been implemented for the system which uses concept. This project includes police departmental crime and accidental information which is use to add various dangerous spots on map that detects various type of accidents, crime to avoid it, monitoring the accident over the highways or nearby areas using map. Using wireless communication voice message will be sent to user of application or tourist. Thus here by we conclude that the proposed system remove all the drawbacks of existing system and enhanced with the GPS system. So it makes the highway and nearby roads system very smart thus we named it as "Identification of Crime and Accident Area using System.

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