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Accident Detection Using Android Smartphone

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ABSTRACT: Android phones are broadly used due to its features like GPS, Computational capability, internet connectivity. There are lots of android application which rally round to client in organize to provide solutions to many troubles associated to their day to day years. Traffic blocking and Road accidents are the foremost problems in city areas. Also due to the interruption in realization of the ambulance to the accident position and the traffic congestion in between accident place and hospital increases the chances of the loss of victim. So in order to provide solution for this problem, we develop an android application which detects accident automatically as well as sends notification to nearby urgent situation services like hospital, ambulance, police station along with his personal information. We define one user defined algorithm for accident detection. It uses acceleration values and Speed of car for detecting the accident. At the time of registration, application takes personal information like blood group, age, photographs etc. If an accident trigger occurred, then this information will send to the emergency service centers.

KEYWORDS: Accelerometer, Magnetometer, Gyroscope, GPS, Trilateration

I.INTRODUCTION

In India mobile phones and modified vehicles are increasing with the same development rate. As an evaluation India have that amount of cars only if put them jointly in a separate lane, it will reach from New Delhi to New York. Projection of the present trend of vehicles habit reveal a rather unattractive and indefensible condition both in terms of traffic jamming and protection. For example while the residents of India increased by 17.64 percent over the past ten years, the amount of licensed vehicles improved by 132 percent over the same time According to proprietor information 430,654 people were died in road traffic crash in India in 2010 (NCRB 2010). The condition in India has worsened in latest time. Traffic sufferers improved by about 5.5% per year from 2009 to 2010.

This is attributable partially to an increase in the amount of vehicles on the road, and moderately to the non appearance of a corresponding official procedure to manage the problem. 443 Deaths and 1301 injuries per day due to Traffic Accidents. 367 Deaths per day and 1290 damage per day due to Road Accidents. 73 Deaths per day by Truck/Lorry and 77 deaths by Two-wheeler. Motor car residents has developed at a multipart yearly raise rate (CAGR) of 10 percent 2000-2009, during fueled by a rising tide of motorization. parallel, traffic hazard and introduction have grown-up. During the year 2010, there were around 5 lakh road accidents, which resulted in death of 134,513 citizens and sick-treated more than 5 lakh persons in India.

These records convert into 1 road accident every minute and 1 path accident death each four minutes. The breakdown to the Indian saving due to losses and accident injuries possible at 3% of GDP in 1999- 2000 is mainly ruthless as 53.1% of road accident victims were in the grow up old collection of 25 to 65 years in 2010, with pedestrians, bicyclists and two-wheelers, who include the most rash road users, office for around 40% of all fatalities. Motor vehicle population has grown at a combined yearly growth rate (CAGR) of 10 percent 2000-2009, during fueled by a rising tide of motorization. Concomitantly, traffic danger and skill have grown. During the year 2010, there were around 5 lakh road accidents, which resulted in deaths of 134,513 people and unwell-treated more than 5 lakh people in India.

II.RELATED WORK

In [5], the E-call system explores the possibility of implementing an automatic crash detection and notification service for moveable devices (smartphone). This system uses the cellular network to converse between the moveable tool and the Server Center. The main subject with this system is the E-call scheme uses smartphone built-in

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accelerometer sensor as a break down sensor, and in this case the E-call system subjects to high charge of false positives emerging while the user is outside the vehicle.

In [6], the authors have developed an android application that is used to sense the accident using only the accelerometer sensors in the Android Smartphone. After sensing the accident, application repeatedly generates the environmental information by GPS and sends place information via pre-recorder tone of voice message to 108 ambulance urgent condition response service that is successively in India. The key statement of this application is that the portable phone should not be kept along with the person who is driving the vehicle; it must be docked inside the vehicle and the justification of the accelerometer sensor is performed by slanting the mobile left or right or free fall act.The main matter with system is the smartphone may slant or drop in any instance inside the vehicle accidentally without having a actual accident and thus, the possibility of false positive will be improved and false alarm will be reported

III.PROPOSED ALGORITHM

A. *ALGORITHM STEPS FOR K-MEANS CLUSTERING*

Let $X = \{x_1,x_2,x_3,\ldots\ldots,x_n\}$ be the set of facts point plus $V = \{v_1,v_2,\ldots\ldots,v_c\}$ be the set of centers.

1) Randomly choose '*c*' group center.

2) Determine the detachment flanked by each facts spot and group center.

3) Assign the information tip to the bunch center whose detachment from the bunch center is smallest amount of all the group center.

4) Recalculate the new cluster middle using:

$$v_i = (1/c_i) \sum_{j=1}^{c_i} x_i$$

anywhere, 'c_i' represent the number of data point in i^{th} group.

5) Recalculate the detachment connecting each data position and new obtain cluster centers.

6) If no data position was reassigned then end, or else replicate beginning step 3).

IV.SIMULATION RESULT

The proficient data mining algorithm was researched in this paper, according to the massive data in the database, the competence and the glibness of the data mining should be attached much importance in the research. And up till now at the same time, the precision of mining algorithm should be improved. Combing with the heritable algorithm and K-means clustering algorithm, an better data mining algorithm was proposed. In the new algorithm, the rise factor was taken in advantage, then the occurrence that the smaller classification caused the less optimum solution was avoided, and the defect of the two algorithms are offset. The mining simulation and experimentation was taken based on the different databases with special sizes of data. Simulation result shows that the new algorithm based on the slope factor K-means clustering heritable method can solve the data mining problem for the large data base. The data mining result is much more accurate than the traditional method. Research result shows the improved algorithm has chief prospect in application, and it has good value in the engineering practice.

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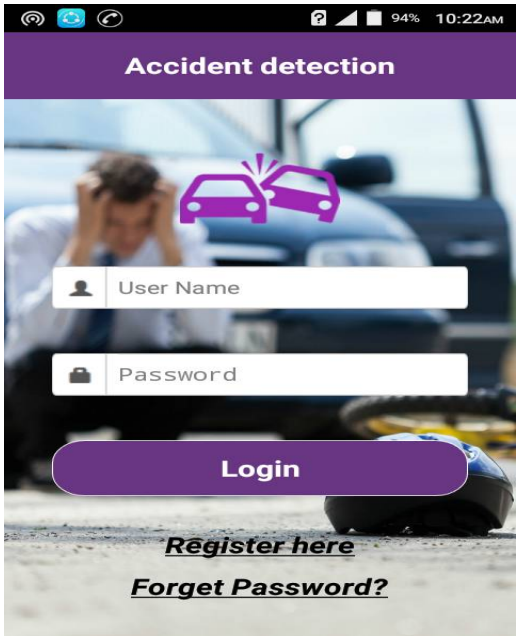
A.*login form*:



B.*Registration Form*:

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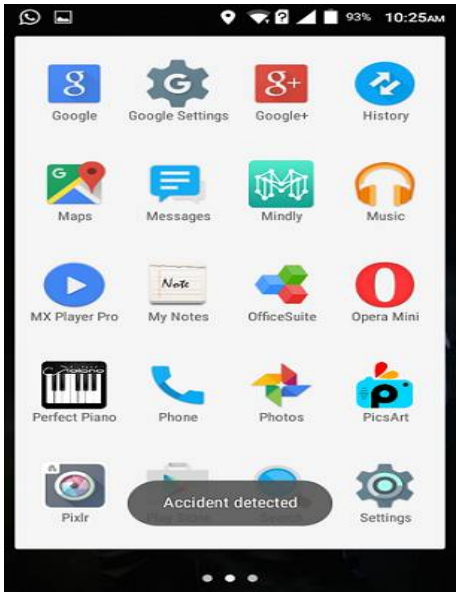
C.*Accident Detection:*



V.CONCLUSION AND FUTURE WORK

Accident detection systems facilitate decrease dead stemming from car accidents by decrease the reaction time of emergency responders. Smart phones and their onboard sensors (such as GPS receivers and accelerometers) are capable platforms for constructing such systems. This project provides three offerings to the learning of using smartphone-based accident detection systems. First, we explain solutions to key issues connected with detecting traffic accidents, such as preventing false positives by utilizing portable environment information and polling onboard sensors to detect huge accelerations. Second, we present the architecture of our prototype smartphone-based accident detection system and empirically analyze its capability to resist false positives as well as its capabilities for accident reconstruction.

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