International Journal of Research in Engineering, Science and Management
Volume-2, Issue-3, March-2019
www.ijresm.com | ISSN (Online): 2581-5792

Android Based Application for Accident Detection and Locating the Victim

N. Subbu Lakshmi
Assistant Professor, Dept. of Information Tech., Dr. Sivanthi Aditanar College of Engg., Tiruchendur, India

***Abstract*: Every day around the world, a large percentage of people die due to traffic accident injuries and some of them even die due to unavailability of emergency facilities. The emergency responders take much long time to reach the spot and sometimes fail to save the lives. So to reduce this scenario there is a need to decrease the time between the accidents occurred and the emergency facility provided to them. With the help of android phone, we will detect the accident and notification will be sent to the emergency responder along with the current location of the vehicle and also sent the address of the nearest hospital using GPS.**

***Keywords*: Electronic control units, location tracking, emergency responder, GPS, Instant messaging.**

1. Introduction

As of 2014, 54% of the earth's population resides in urban environments, a percentage that is expected to reach 66% by 2050. This increase would amount to about 2.5B people added to urban populations [1]. At the same time, there are now 28 mega-cities (with 10M people) worldwide, accounting for 22% of the world's urban population and projections are for more than 41 mega-cities by 2030. It stands to reason that managing urban areas has become one of the most critical challenges our society faces today. The emerging prototype for a Smart City is one of an urban environment with a new generation of innovative services for transportation, energy distribution, health care, environmental monitoring, business, commerce, emergency response, and social activities. The term "Smart City" is used to capture this overall vision as well as the intellectual content that supports it. From a technological point of view, at the heart of a Smart City is a cyber-physical infrastructure with physical elements (e.g., roads, vehicles, power lines) which are continuously monitored instant messaging is a set of communication technologies used for text -based communication between two or more participants over the Internet. IM allows effective and efficient communication, allowing immediate receipt of acknowledgment or reply. In the company, colleagues can send and reply instant message in real time without face to face, meanwhile the work report can be shared during the instant chat session; the IM can make a virtual conference without get all the related people together in a physical meeting room. Using instant messages for interoffice communication is quicker than phone calls or emails. More than one person can chat at the same time. This is a huge benefit of using an instant messenger. Instead of relying on a conference call or copying others on an email message, everybody can join and have a discussion in real time. Better than email, if you truly want to communicate instantly you need to consider all your options. Sure, an email gets sent instantly but do you really know when if the other person receives it? With an instant message you and send a message and receive a reply within a matter of seconds. Email was the first killer application for the Internet but now instant messaging is coming to cell phones. Instant messaging (IM) is a form of communication over the Internet that offers quick transmission of text-based messages from sender to receiver. The instant messaging provides a means of sending messages to and from global system for communication, because of its ease of use and cost effectiveness it has become one of the popular service in the communication world.

2. Existing system

Conventional in-vehicle accident detection systems rely on sensor networks throughout the car and direct interaction with the vehicle's electronic control units (ECUs). These sensors detect acceleration/deceleration, airbag deployment, and vehicular rollover. Metrics from these sensors aid in generating a detailed accident profile, such as locating where the vehicle was struck, number of times it was hit, severity of the collision, and airbag deployment.

Smartphone-based accident detection applications must provide similar information. Without direct access to ECUs, however, it is harder to collect information about the vehicle. Although many cars have accident/event data recorders (ADRs/EDRs), it is unrealistic to expect drivers to connect their smart phones to these ADRs/EDRs every time they got in the car, which would require a standardized interface (physical and software) to ensure compatibility. Moreover, while many new cars have some form of ADR/EDR, into the background (where the activity is no longer visible, but the instance and its state remains intact). Within the lifecycle call-back methods, you can declare how your activity behaves when the user leaves and re-enters the activity. For example, if you' re building a streaming video player, you might pause the video and terminate the network connection when the user switches to another app. When the user returns, you can reconnect to the network and allow the user to resume the video from the same spot. This class explains important lifecycle call back methods that each Activity instance receives and how you can use them

so your activity does what the user expects and does not consume system resources when your activity doesn't need them. The disadvantages are error rate, Data extraction Need server and Poor quality.

3. Proposed system

In this paper is to develop an anomaly detection and decision support system that utilizes the collected. Since a smartphone-based accident detection application contacts emergency responders and may dispatch police/rescue teams it is essential to identify and suppress false positives. Due to smartphone mobility it is hard to programmatically differentiate between an actual car accident versus a dropped purse or a fall on a hard surface. The inability to accurately identify and ignore false positives could render smartphone-based accident detection applications useless by wasting emergency responder resources responding to incident reports that were not car accidents.

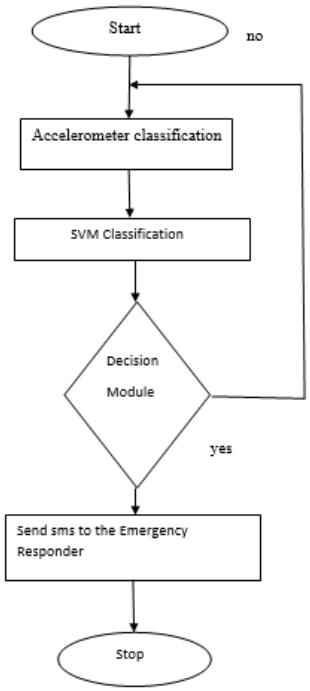

Fig. 1. Flowchart

4. Methodology

A. Device background

Our work reveals to identify not only pot holes but also bumps and rough, uneven, and smooth roads using multiple axes of the accelerometer. We also utilized a single measuring device rather than expensive external sensors placed in numerous places around the vehicle, which ultimately increases infrastructure costs. Our device, which is a mobile smartphone, contains GPS, microphones, and an accelerometer offering flexibility in methodology and user implementation. Encouraging results in identifying numerous road anomalies and sudden driving maneuvers allow for our system to evaluate an entire road's condition and help advise drivers on unsafe characteristics, respectively, both of which are distinguishable factors that can determine safety on the road.

1) Accelerometer sensor is going to sense x, y & z direction value.
2) If the vehicle is moving in normal position, then it will show x & y direction values.
3) If vehicle is out of control, then it will follow x,
4) y & z direction.

B. Location Tracking

The target, receives GPS information which includes coordinates (Longitude, latitude) to trace the next location. GPS is widely used because of its high positioning accuracy, well-constructed network and more accessible. The tracker periodically updates the location of the target on the local screen according to the location information encoded to provide more accuracy. When the user starts location tracking the tracker informs target that it should start transmitting location information in order to launch a tracking g task.

C. Steering rotation tracking

The normal rotating dimensions of the steering is locally defined in the server. If the steering rotation goes beyond the defined dimensions or to an extreme rotation, then a warning signal is processed to the user. This service is made to control the driving behavior of the user and provide a safe drive.

D. False alarm detection

If an irregularity is tracked by the sensor it intimates the server about the circumstances to proceed with further process. Before doing so in order to avoid wrong information delivery, False alarm signal is generated. This signal is given a time interval (ex.25)

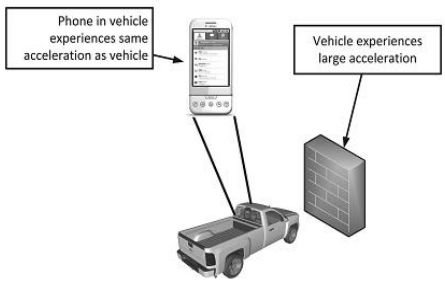

Fig. 2. Alarm detection

1. Device Sensors Provide Acceleration Information.
2. Then client program runs on android based mobile device and send a request to connect with server.
3. Once the client is successfully connected, the server broadcast the list of all other active users to the client.
4. Client can view the list of all active users and can communicate with them.
5. Server creates a separate connection for each client,

for that server creates a separate thread for each client connection. This thread will be responsible to send/receive data to/from the client.

6. When a client sends a message to another client, this message first goes to the server.
7. Then server sends this message to the appropriate receiver.
8. Once the receiver receives the message, can read it.
9. In the same way receiver can reply message to the sender.
10. This application basically uses the concept of socket programming and multithreading. There will be one thread for executing server program and a separate thread to handle each client connection.
11. This approach allows message transfer between android based devices which is implemented and tested between aakash tablets which uses android platform.

5. Conclusion

This system is proposed to avoid road accidents and help the person who needs immediate aid. Our approach is implemented in Smartphone. In future this approach can be implemented in device that is inbuilt in the vehicles. In addition to this, microcontroller kit can be embedded in the engine and instead of sending message to the control room it can be sent to the engine and make the vehicle to stop incase to avoid accident.

References

[1] James Steel and Nelson to, Android Developers Cookbook, Pearson Education, 2011.
[2] Donn Felker with Joshua Dobbs, Android Application Development For Dummies, Wiley Publishing, Inc.
[3] Lucas Jordan and Pieter Greyling, Practical Android Projects, Apress Publication.
[4] Marko Gargenta, Learning Android, O'REILLY Publication.
[5] Reto Meier, Professional Android Application Development, Wiley Publishing Inc.
[6] Frank Ableson, Charlie Collins and Robi Sen, Unlocking Android, Manning Publication Co. World Wide Web
[7] Android Developers, http://developer.android.com/develop/index.html, 4th October, 2013.
[8] How to switch between intents, ttp://www.androidhive.info/2011/08/ 23rd November, 2013.
[9] Android related questions, http://www.stackoverflow.com
[10] Eclipse, Android and Java training and support, http://www.vogella.com/.
[11] Beginning Java forum, http://www.coderanch.com/
[12] http://www.wi-fi.org/files/faq_20101021_Wi-Fi_Direct_FAQ.pdf
[13] http://anrg.usc.edu/ee579_2012/Group09/#wifidirect
[14] http://developer.android.com/guide/topics/connectivity/wifip2p.htmlttp://decsai.ugr.es/cvg/dbimagenes/g512.php