

# Accident reporting system android Application using accelerometer and GPS

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## ABSTRACT

In our project we propose the Accident finding android application using the **GPS** and **accelerometer** sensor. This works when the vibration level of a mobile phone reach maximum level then the camera will automatically turn on and takes the picture of the users location. Then the location and the picture send to the emergency contacts. In the application we are using new version of android application which Uses less memory and power management which can always monitor the sensors and can detect the accidents based on the vibrations using accelerometer. Then automatically invoke the camera and take pictures and send it to all the emergency contacts. For the detection of accidents, only measurable information from the outside should be used as features, and the selected features mainly determine the detection performance. Schleichriemen suggested the use of the variance of the lateral position within a constant window size as a feature. To decrease the number of false alarms that frequently occur when using previous methods, we reduced the number of false alarms.

## I. INTRODUCTION

Android is the emerging technology in the modern world. The number of accidents also increases now. If we can predict the accident then we can save many lives. Our motivation is to create a android application which can detect the accident that was happened or not. Thus the users can be safe and if any cause done the users family will be alerted.

Consolidated approaches for monitoring accident involve the adoption of costly and sophisticated hardware equipment's such as ultrasonic or specific accelerometers with data acquisition systems. These approaches incur a high installation and maintenance cost and require large manual effort, which can induce error while deploying or collecting the data. Another alternative is to use sensing technologies to gain this information to solve the problem of accident monitoring. These days, smartphones are widely utilized. The greater part of them are equipped with various sorts of sensors like camera, accelerometer, GPS, gyroscope, microphones, etc. Thus, smartphone based accident monitoring is one of such helpful applications to monitor the accidents.

## II. RELATED WORK

In previous work, focus on highway scenarios, where possible behaviors consist of a change in acceleration and lane change maneuvers. And present a novel approach for the recognition of lane change intentions of traffic participants. This approach used an extension of the Naïve Bayesian approach and results in a generative model. It builds on the relations to the directly surrounding vehicles and to the static traffic environment. We obtain the conditional probabilities of all relevant features using Gaussian mixtures with a flexible number of components. We systematically reduce the number of features by selecting the most powerful ones.

### III. PROPOSED SYSTEM

In proposed system we are introducing about accident reporting module which is based on sensors (**Accelerometer and GPS**) built in smartphones. In this we are creating an Android application that allows real-time and automatic collection and analysis of accelerometer and GPS data in order to get the vibration levels. The accelerometer works in the concept of **Piezoelectric effect**. In our project we propose the Accident finding android application using the **GPS** and **accelerometer** sensor. This works when the vibration level of a mobile phone reach maximum level then the camera will automatically turn on and takes the picture of the users location. Then the location and the picture send to the emergency contacts. In the application we are using new version of android application which Uses less memory and power management which can always monitor the sensors and can detect the accidents based on the vibrations using accelerometer. Then automatically invoke the camera and take pictures and send it to all the emergency contacts.

The modules are as follows:

- User Interface Design
- Identifying the location
- Sending message
- Automatic picture capturing and sending

#### MODULE DESCRIPTION

##### User Interface Design

The user interface design is to be designed for providing the user-friendly interface. In the user Interface module, for the first time, the user has to give the details such as name, Email ID and mobile number of their friends. In the settings of the app, the user has to specify the threshold values. If they are alone they might set their threshold value to the lowest level. When the user is in danger, they should shake their mobile. Because of the lowest threshold level, the shaking capacity of the mobile also be lesser and the app starts to work automatically. If the user is in very safe situation, then the threshold value might set to highest level

- Persons name
- Email id
- Age
- Blood group
- Emergency contact details

##### Identifying the location

The **Global Positioning System (GPS)** is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites. The GPS in our smartphones always in ON position only. When the mobile shakes, the app is switched ON and it prompts the GPS to track the user's location. The location of the user should be automatically identified by the GPS. The Latitude and Longitude values are calculated and it calculates the exact position of the user. The identified location is saved in the server. The app also finds the user's friends location through GPS.

## Sending message

In this module, based on the user's location the GPS calculates their latitude and longitude values. This app finds the user's friends contact and through GPS calculates the friend's location. All the values are stored in the server. The app compares the friends and the user's Latitude and Longitude values. If the values reached nearer or same or less equal, the GPS finds the location of the user's friends. In this app finds their friends location, which is nearer to the user using GPS. Then it sends the user's location as message alert to their friends who are nearer to the user.

## Automatic picture capturing and sending

In this module, the camera device in the user's mobile gets automatically switched on and captures the location as images. The captured image is then sent to the contacts who are nearer to the user as Email. Through this email, we can identify the victim.

## SYSTEM ARCHITECTURE

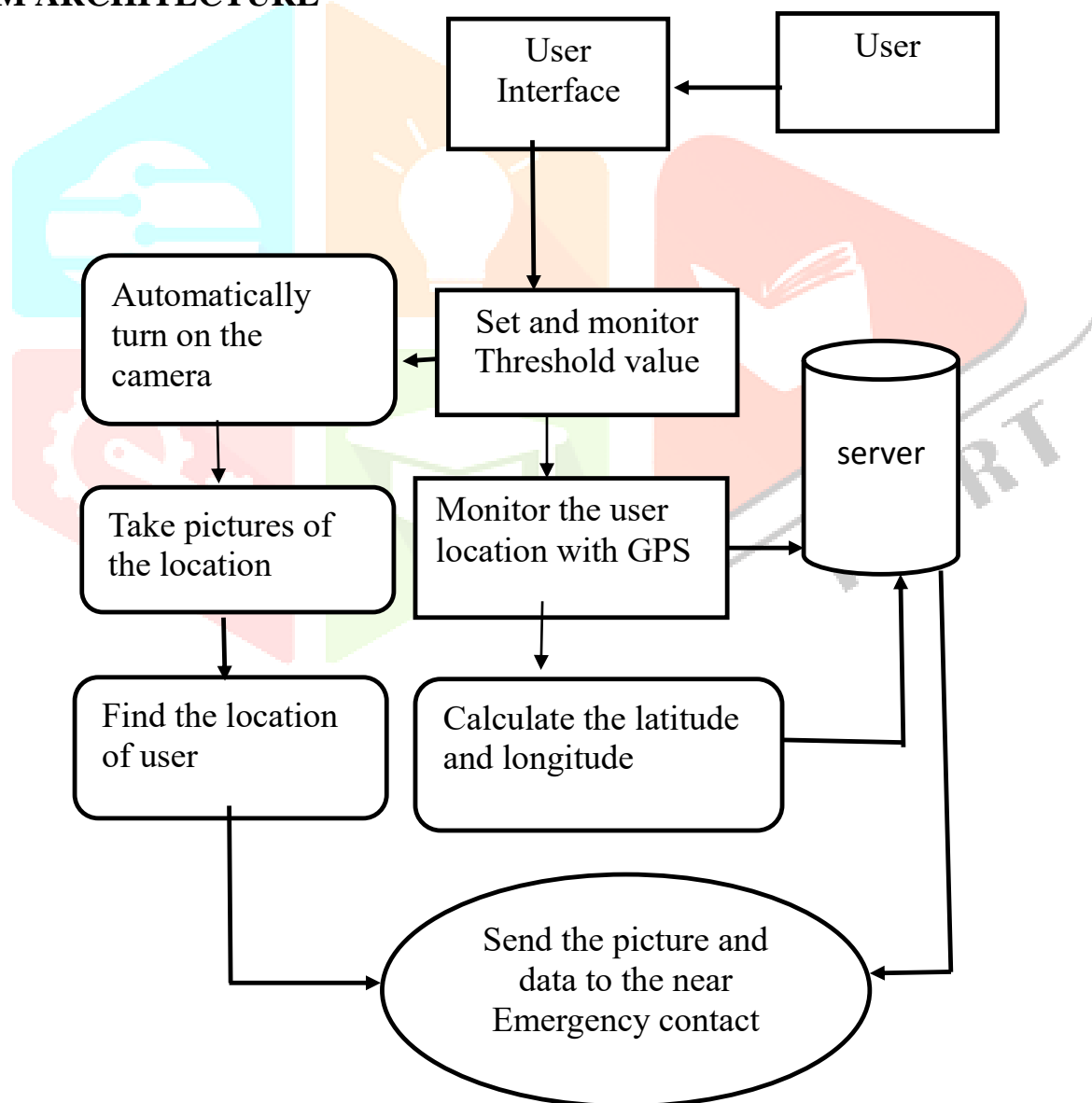


Figure System Architecture

#### IV. CONCLUSION AND FUTURE WORK

We have proposed a novel frame work for reporting of accidents with low number of false alarms. The user can have more number of options to be saved. Our project uses the sensors which are the inbuilt sensors of the any android phone. Which reduces the cost of the project. There is no need for the external sensors thus the installation and the maintenance cost will be reduced. The user can provide the threshold value. Thus he/she can reduce the number of false alarms. The user can set the emergency contacts, so the contacts which are stored will only alerted. The use of accelerometer makes the system work properly, it detects the vibration which was produced during the accident. Thus our project made with cost effective and high performance ratio.

The android application takes only photos when the amount of vibrations generated in the android mobile. Thus the emergency contacts cant surly predict that the accident caused or not. Thus in future implementation we can add new module such that the readings like heartbeat, body temperature, and blood flow which are taken from the smart watch. We can make the application work even from the urban areas by generating signal module or by accessing the emergency signal network.

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