Future Of Emergency Safety Apps

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Abstract

The purpose of the project is to develop an Android app that lets its users send notifications in case of an emergency or a panic situation. The users can send multiple textual content messages with the press of a single button or by shaking the device or when the user is in intense motion with the phone on them. The phone numbers or contacts can be set from within the application. The textual content messages sent, along with the content, also have the last known location of the user. This is very useful in tracking the whereabouts of the person. The user can also call emergency helpline numbers directly from the application if the nature of the scenario demands it by pressing a button. Additionally, the user of the application may allow the app to track their location. If this option is selected, the application fetches the device's location data. This information is very beneficial and can be used in a variety of ways. One such use of the location data is from within the Android app where the user can view a map. It doesn't store the location of the user, therefore it cannot be used for malpractices. Keywords: apps, android, smartphone, safety, Women, GPS, gyroscope, accelerometers.

1 Introduction

According to the National Crime Records Bureau's(NCRB)[1] India registered 31,677 cases of rape in 2021- an average of 86 daily, while nearly 49 cases of crime against women recorded every single hour. "There is a universal truth," said UN Secretary-General Ban Ki-moon. Applies to all countries, cultures and communities. Violence against women is never tolerated, Excusable and never acceptable"[5]. Violence against women is a serious public health problem, Fundamental violation of women's human rights[3]. The safety of our loved ones whether they be friends, family, children,etc., is a major concern to us. Nowadays, smartphones have become an integral part of our lives. Working professionals, senior citizens, young adults and teenagers, mostly have access to smartphones. The purpose of this research is to review existing technologies and develop an Emergency Safety App around gyroscopes and accelerometers which are built-in to the smartphones. The gyroscope captures the movement of the smartphone in a 3 dimensional axis. There are two modes of operation of this application. First, it can be used by launching the application and pressing the Emergency/SOS button which will send an emergency SMS to the contacts registered within the app. Second is when there is an intense

motion detected using the gyroscope, for example, the user is running away from the attacker or the user intentionally shakes the phone. After intense motion is detected an emergency SMS is sent to the registered contacts. The message body will contain a text message(which can be a maximum of 200 words editable by the user) and the current location of the user. The recipients of the message can then contact the authorities for further action. Additionally, the user of the application may allow the app to track their location. After permission is given the application fetches the device's location data. This information is very beneficial and can be used in a variety of ways.

2 Literature Survey

2.1 Human Activity Classification in Smartphones Using Accelerometer and Gyroscope Sensors, 2018

Activity category[4] in smartphones facilitates help to reveal and examine user's bodily sports in day by day existence and has ability programs in fitness care systems. This paper proposes a descriptor-based approach for activity classification using the built-in sensors of smartphones.Accelerometer and gyroscope sensor indicators are obtained to perceive the sports carried out through the user. Furthermore, time and frequency domain signals are obtained using the aggregated signals. In the proposed approach, two descriptors, namely the histogram of the gradient and the centroid signature-based Fourier descriptor, are employed to extract the feature set from these signals. Feature and score level fusion are detected for information fusion.The proposed method is evaluated on publicly to be had statistics sets, namely, the UCI HAR statistics set and the bodily pastime sensor statistics.Our experimental effects display that characteristic stage fusion affords higher overall performance than score level fusion. Furthermore, our approach provides considerable improvement in classifying different activities compared to existing works.The common interest class accuracy accomplished the use of the proposed technique is 97.12 percent, compared to existing work providing 96.33 percent on the UCI HAR data set.

2.2 A mobile application for Women's Safety: WoSApp, 2015

The protection of women [2] is a problem of growing urgency in India and other nations. The primary difficulty in the handling of those cases through the police lies in constraints preventing them from responding quick to calls of distress. These constraints encompass now no longer understanding the place of the crime, and now no longer understanding the crime is taking place at all: on the victim's end, reaching the police veritably and discreetly is a challenge. To useful resource withinside the elimination of those constraints, this paper introduces a cell utility referred to as WoSApp (Women's Safety App) that gives women with a reliable manner

to place an emergency call to the police. The user can without problems and discreetly trigger the calling feature through shaking her phone, or through explicitly interacting with the person interface of the application via a easy press of a SOS button on the screen. A message containing the geographical Co-ordinates of the user, in addition to touch information of a pre-decided on listing of emergency contacts, is without delay sent to the police. This paper describe the software, its development, and its technical implementation. The app proposed in this paper can be activated in two, one by directly accessing the app and pressing the SOS button. Second, by shaking the smartphone. As the application proposed was developed using the Cordova platform, it may face software extension and plugin compatibility issues device to device.

2.3 Abhaya: An Android App for the safety of women, 2015

[9] The paper presents Abhaya, an Android Application for the Safety of Women. The application proposed activates after a single click, after which it identifies the location of a place through GPS and sends a message containing the location URL to the registered contacts, and also calls on the first registered contact. The unique function of this application is to send the message to the registered contacts constantly for each 5 mins till the "stop" button withinside the application is clicked. Here continuous location monitoring records via SMS helps to locate the location of the victim quick and can be rescued safely.

2.4 Smart Device for Ensuring Women Safety Using Android App, 2018

Nowadays, physical abuse[7] is one of the most common and frequent crimes against girls and women (all kinds of women) in India. The number of physical assault cases are high in metro cities, and the number of such incidents are less in developing countries like India, where very good security facilities are provided by the government and education, as compared to developed countries like Latin America. The ratio is high. It is also learned that in 98 percent of physical assault cases, the perpetrators are close relatives of the victim such as neighbors or relatives where bureaucrats cannot do much to control as it is not possible to monitor every household every time. This paper summarizes the current security tools available for women's self-protection in situations like rape and assault, and adds a new approach of using Android Smartphones with GPS for women's safety. By implementing and using our proposed system the safety of not only women but also valuables will be a click away at very affordable cost and comfort. It proposed a solution for Women's safety using VR(Voice recognition). app converts speech into text and sends an emergency message in the form of an email. And the email would contain the message, surrounding images captured via the smartphone camera, and the location of the victim.

2.5 MeToo: An App to Enhancing Women Safety, 2018

A few years back, female harassment[8] was not an issue. Nowadays, violence against women is considered a legitimate human rights issue and a threat to women's well-being. The MeToo campaign started by actor Alyssa Milano to draw the world's attention to female oppression went viral with the hashtag. Harassment is unwanted actions and comments made by strangers. Women are paying to stay safe for fear of harassment as women do not move freely like men. Pakistani women were also included in these. This research will outline the problems of harassment faced by working women and examine the solutions available in the context of Pakistani women. Despite the claims of the app developers, there is no evidence that these apps have the power to reduce incidents. The research will also examine these apps to find out why women still do not feel as safe as the apps claim. Here discusses the daily life issues faced by Women, which includes harassment. It also expresses a need to develop Apps that can overcome issues presented by the applications which were compared and added unto them so that Women's Safety can be guaranteed.

2.6 A Mobile Based Women Safety Application (I Safe Apps), 2015

Many unfortunate incidents [6]are happening in the case of women. someone might be in trouble Women like Disha walking on the road after work, going to super market or many other reasons in which they go alone. People at home are not sure of their safe return. another factor is to die without the woman When they participate in excursions and industrial visits organized by organizations after knowing the reason. It happens Due to assault on woman but not suicide. In 2013 a gangrape incident took place in New Delhi In the case of a 23-year-old woman on a bus at 9:30 p.m. Another incident happened in Mumbai A case of kidnapping and murder of a woman going to her maternal home after the Christmas holidays has come to light. These are some problems that occur in the daily life of women. to overcome such iSafety (Women Safety App) is not only a mobile based application for problems faced by women use but also play an important role with Android software. In which the system that requires user to launch the application and press the SOS button. After the button is pressed the application an SMS message containing the approximate location of the user is sent to the friends and family of the user.

Conclusion

The applications discussed above have their own set of advantages and disadvantages. It is through learning the above applications and research papers that we have come to know the major features required in a Safety App. We attempt to combine most of the features mentioned in the above research and reduce their drawbacks. The above applications are outdated according to current standards as smartphone technology has advanced

immensely in the past few years. Many of the above-mentioned applications may face compatibility issues associated with browsers and plugins.

3 Research Methodologies

3.1 Why do we need safety apps?

Safety has always been a major concern. There have been many attempts to stop assaults from happening, whether they be through legislation or personal precaution. As there have been technological advances in every field due to the integration of IT. We attempt to integrate IT with safety. We developed this application so that everyone holding a smartphone has the tools to defend themselves. Information is key to winning every battle so is the case with safety. This application sends crucial information to the family and friends of the user in emergencies. This crucial information entails the current location of the user along with a way to track their location live. The application proposed is very intuitive to use. There are two simple ways of activating this application. Firstly it can be activated by the press of a single button on the app. Secondly, it can be activated by intensely shaking the phone or when the user is in intense motion with the phone on them.
The illustration below describes the architecture and use-case of the application.

3.2 How the Emergency App Works?

Flowchart

A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.

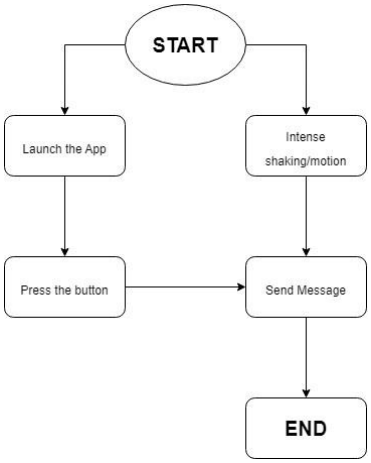

Figure 1: Flowchart

Activity Diagram

Activity diagrams are graphical representations of workflows of step-wise activities and actions with support for choice, iteration and concurrency.

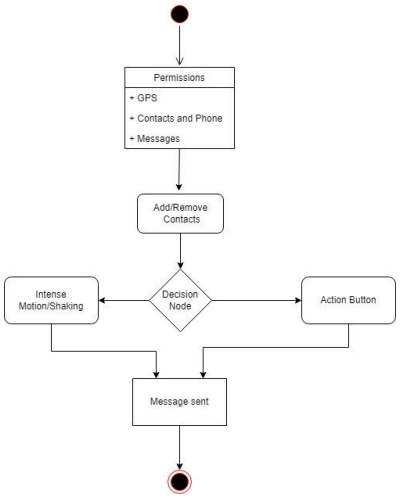

Figure 2: Activity Diagram

4 Questionnaires

- Is the purchase of hardware necessary in case of emergency?
- Does everything happen through a smartphone app in case of an emergency?
- Can the Emergency Response app in Android break through silence mode?
- Will shaking or moving the smartphone help in sending information in case of an emergency?

5 Final Survey Analysis

When people were asked, Is the purchase of hardware necessary in case of emergency?, about 72.7 percent of people are strongly agree to not buy extra anything equipment.

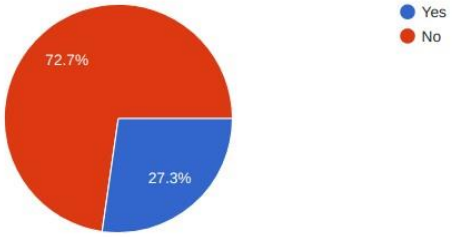

Figure 3: pole for need of hardware component

When we asked, what do you think everything can happen through a smartphone app in case of an emergency? About 83 percent of people are strongly agree and more confident and 27 percent of audience are confused.

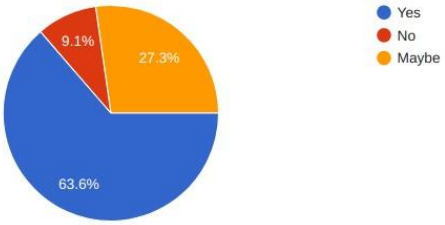

Figure 4: phones in emergency

When we asked about do you know Will shaking or moving the smartphone help in sending information in case of an emergency? around 55 percent of peoples are strongly agree.

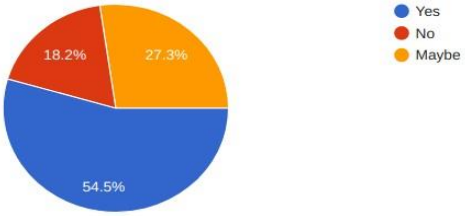

Figure 5: extras for existing

6 Conclusion

In this paper, we have established the need for a safety App. Many of the existing proposals which were made in this area were reviwed. We have come to learn about the advantages and disadvantages of the proposals which were made before. Here have selected and combined the salient features of the above-mentioned applications and developed the app in a widely accepted platform. The proposed application is fast, easy to use and accessible to all. We also discussed the working of the application and illustrated a few diagrams to explain its usage and its pattern of working. The vision behind creating such an application was that every person who holds a smartphone will have the tools to protect themselves no matter when or where they are.

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