

# Women Warrior – Android Mobile Application for Women Security

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## Abstract

Smart phones have changed the definition of mobile phones by being a powerful communication tool in our day to day life along with varied options for fun, privacy, entertainment and security. As it is an open source and some of the development tools are free, there are plenty of applications, especially related to privacy, entertainment and socializing generated, which inspires people to use it.

In the modern's world, it will be unsafe to travel alone for a person at night especially for women. To provide safety for women a good way to reduce the chances of becoming a victim of violent crime is to identify and call on resources to help you out unsafe situations. Having a safety app on your phone can reduce the reason for the risk situation and add assistance when we need to use it. The main purpose of this app is to provide a safe platform through Android phone as today all person is taking smart phones to travel here and there.

Attacks on women in world are at an all-time high. Even the most secured cities are not safer for woman any more. To help out women in such tough times, the companies have introduced security apps on Smartphone.

The Women warrior is a user friendly App that helps women to get out from trouble. Our intention is to provide user with fastest and simplest way to contact nearest help. This Women warrior application also having videos that women must know about *safety* and first aid hacks. Women warrior will inform the laws made in favor of women. In this paper, proposed system focuses on a security system that is designed solely to serve the purpose of providing security and safety to women while they travel alone and late nights in public transportation.

## Keywords

Women Warrior, Mobile App, Android, Women safety, Emergency, Security.

## Introduction:

Mobile has the capacity to transform lives. It can empower women, make them more connected and provide access to information, services and life-enhancing opportunities like health information, financial services and employment opportunities, often for the first time. Mobile is also the main access point to the internet for most of the world's population, especially in low- and middle-income countries. However, while mobile connectivity is spreading quickly, it is not spreading equally. Women are being left behind as various, interconnected barriers keep them from accessing and using

mobile at the same rate as men. This unequal access to mobile technology threatens to exacerbate the inequalities women already experience. At the same time, there is a paradoxical relationship between mobile technology and women's safety. A 2015 GSMA Connected Women survey found that 68% to 94% of female respondents in 11 low- and middle-income countries reported feeling safer with a mobile phone or that they would feel safer if they owned one.

Among other things, a mobile can provide a way for a woman to contact help if she is in trouble and reassurance when she is out and about. However, research has consistently shown that safety concerns related to mobile are an important barrier to mobile ownership and use, with women perceiving safety as an issue more commonly than men. Safety concerns, and a general perception that mobile or internet access and use pose threats, should not however be used as an excuse for denying women access.<sup>4</sup> Rather, their ability to empower women should be emphasized, including the ways in which mobile ownership and access to services can enhance women's personal safety. [1]

Nowadays, technology is increasingly used by human being in every field. As people move from one place to another, many wireless technologies are available to remain in contact with others, without regard of the location. The increasing popularity of Smart Phones has drawn the attention of almost everybody in today's life. Along with making and receiving calls, users can send and receive messages, access the Internet, digital media, incorporate audio/video recording etc. Smart Phones also contain built-in keyboard, high resolution camera, front side camera for video conferencing, touch screen etc. Different smart phones have different operating systems. A mobile app, short for mobile application or just app is an application which runs on smart phones, tablet or mobile phones. Apps are pre-installed or downloadable pieces of software that can do almost everything. Apps make mobile more like portable computers having multi core processors, gigabytes of memory and a real operating system. Originally mobile apps are made available for informational purposes that include Gmail, calendar, weather information, privacy and especially nowadays security etc. With increase in technology and user demands, developers started to make apps for other purposes like games, banking, video chats, privacy, security etc. [2].

Android is one of the most popular mobile operating systems which are primarily designed for smartphones and tablets. The Android mobile platform is based on the Linux kernel and supports various Java and C / C ++ libraries to extend its basic functions. Due to its openness, Android is growing and spreading over the world. Many software developers can share fundamental Software Development Kits (SDKs), additional

development tools, and extra APIs via the Android developer site. Such an open policy is promoting the spread of Android programming among software developers. In addition, Google Play, an Android app store, is an online communication space for app developers where they can distribute and manage their Android applications. According to, as of February 2017, Google Play features over 2.7 million Android applications including games, movies, music, and books. Such a steep increase in developing Android apps indicates that Android application development could be relatively simplified by using free Android SDKs, tools, and APIs [3].

### **Background and Related work –**

By observing a lot of cases that there has been a shocking increase in crimes against women. 731 rapes reported in first six months of 2019 in Bangladesh which shows how important it is to try to do something immediately to decrease it. With this gained knowledge regarding this purpose and gone through more papers which are associated with this project. There is an app called "Raksha-women safety alert" [4]. This Raksha app have made for women safety so that a woman will always feel secure. It sends alert messages with location to the concerned person. Here is another app named "I Go Safely" [5]. This application sends 30 seconds recording and video clip to the registered contacts alongside emergency message. If the user shakes the phone or will drop the phone. But if anyone shakes the phone by mistakenly it will start processing which can may save problems. Similar to this there is another app named "Shake to Alert" [6]. Another example of an application named "Safety pin". The application has some features like emergency contacts, GPS Tracking. At the time of danger, the app pins the safe areas alongside their security scores to travel. It allows users to spot areas that are potentially unsafe to assist others [7].

In this paper, the authors focused on a recommendation system emergency device app based on mobile application development is proposed for helping user in emergency situation. This app is simple to use when user automatically make a click on the application icon and call declaring an emergency service central if a user activates it. The device automatically transmits its current position, derived from one GPS or another, through a alarm voice. By authors point of view this app will reduce definitely the crime, the damage caused by the crime and helps considerable an economic gain. Technology application system and design or an approach implementation app to prevent security by reported criminals.[8]

In this paper, the author presented an empirical investigation into mobile hybrid apps. The goal of author is to identify and analyse the traits and distinctions of publicly available hybrid mobile apps from end users' perspective. In this study they has been conducted by mining 11,917 free apps and 3,041,315

reviews from the Google Play Store, and analyzing them from the end users' perception perspective. The results of this study build an objective and reproducible snapshot about how hybrid mobile development is performing "in the wild" in real projects, thus establishing a base for future methods and techniques for developing hybrid mobile apps.[9]

The demands of mobile applications for smartphones and tablets have increased tremendously in the recent years [10]–[13]. To serve the demands of diverse users, mobile application developers follow some different development and distribution strategies, ranging from native, to the web, and hybrid applications. However, each of the strategies has their pros and cons. The most common problems reported in literature explicitly associated with native are fragmentation [14].

“Abhaya” is another android application for the security of women. It identifies the situation of the location through GPS and sends a message to the registered contacts that has this location URL and also calls on the important registered contact to help the one in dangerous situations. This application’s unique feature is to send the message continuously to the registered contacts for each five minutes until the “stop” button within the application is clicked. Continuous SMS location tracking helps to seek out the victim’s location quickly and to rescue safely [15]. To use the himmat application at beginning, the user has got to register at the Delhi Police website. After the registration for the acceptable authentication OTP is shipped and verified, which has got to be entered at the time of finishing the app configuration. During a distress situation, if the SOS alert is shipped from the app by the user the app will send the GPS information alongside video/audio data which can be transferred to the Police room following which the police will take action. Bsafe application will make the contact follow through the trail GPS and also set a timed reminder which matches off if you haven’t “checked in”. Studies shows that the women harassment issue mainly focused on some applications with limited features. There are some existing apps like 'Hollaback', 'MoveFree', 'MehfoozAurat' [16], etc. MoveFree contains general database with Names and health related attributes. It also contains police station database with in West Bangal, India. However, it's said that the wearable sensor band has not yet been developed because the model for real time monitoring health data for women. The MehfoozAurat main idea is to issue right. Another application named 'SafetiPin' focused on gives the safe route to travel sourcing, which again doesn't make sure the reliable feedbacks.

The major problem with this application is that criminals may use this application and mislead the women and that cause problem for them. According to Olaley (2019), Short Message Service (SMS) technology is one among the

foremost stable and most regularly used mobile communication technology after phone calls. Most students of tertiary institutions carry mobile phones which is capable of receiving SMS as a way of event notification. In theory, text message is often used either as a one-way communication to transmit the user information like reminder, alert, notification etc, or as a two-way communication that permits the user to send and receive. Using this, it's possible to save lots of resources by e.g., avoiding irrelevant visits and phone calls; the mobile messaging in institutions has been a topic of important research work decades.

In report [17] violence against women is a global public health problem, 35% of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence. The report also details the effects of violence on women's reproductive and mental health. Today the cases of women violence are growing. In these types of cases mobile is play an important role for safety of women. Now android is budding some apps for women security purpose.

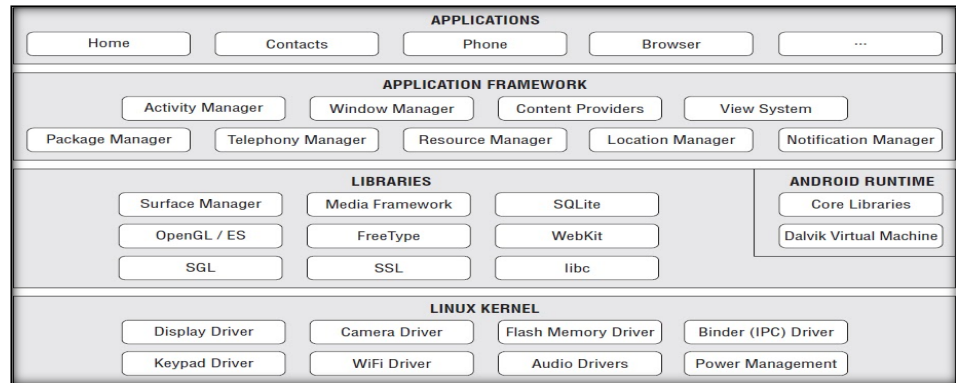
These apps are as follows –

- **FIGHTBACK:** - This app is developed by Mahindra faction. In earlier days, this app was not complimentary,

- MwithU is a woman safety application available in market for woman security. User can also login in MwithU using their Google account and after login in, all they have to do is leave the application running in background and application will make sure that user is safe. If the application detects any abnormal conditions it will send the user a prompt asking them a security question they have entered in the time of registration. And system will send a message to nearest help center with users exact location and will also inform their guardians via sms.[19]
- **WoSApp (Women's Safety App)**, mobile application, provides women with a reliable way to place an emergency call to the police. The user can trigger the calling function by shaking her phone, or by explicitly interacting with the user interface of the application via a simple press of a PANIC button on the screen. A message containing the geographical location of the user, as well as contact details of a pre-selected list of emergency contacts, is immediately sent to the police.[20]

**Tools used for development of application –**

The app is developed for android platform the usage of



customer have to compensate for this app. But after Delhi gang rape this app is on hand at no cost. This app sends a message to your friend or contacts that “user is in trouble” using Email, GPS, SMS and GPRS.

- **Guardly:** - This app is developed basically for women safety intention. This app put a phone call by your name, instantaneous location, and emergency hit to your selected friends.
- **OnWatch:** - This is persona security application. In urgent situation user can alert through this application to his friend. Through this app you can send “Time Based Alert” just like if you are not reached on given time then within one hour it will alert to your family and friends.
- **Street Safe:** - This application is developed on worldwide Women's day. It will call community to help you in any situation. [18]

Android Software Development KIT (SDK) and Android studio and database is handled using SQLite.

**Android**

Android is linux based operating system for mobile devices. It is developed by Google and later the OHA (Open Handset Alliance). The goal of android project is to create a successful real-world product that improves the mobile experience for end users. OHA is a consortium of 84 companies such as google, samsung, AKM, synaptics, KDDI, Garmin, Teleca, Ebay, Intel etc. Android is Open source.

**Android Architecture:**

**Figure 1: Android Architecture**

**Android SDK**

SDK is a collection of equipment which make easiness and assist in app development. It is an integral part of the android software improvement.

**Android Studio**

Android Studio is an official IDE (Integrated Development Environment) for Android Operating System of Google. It is in particular built for Android Development and is based totally on IntelliJ IDEA software. Mostly Java is used however app can also be constructed using C++ and Kotlin. It aims all dimension of display gadgets like android clever phones, Tablets, Smart TVs and Wearable devices. For coding, there is a most featured editor and a layout designer. For the output, an Emulator is given which is additionally recognized as Android Virtual Device (AVD) which looks like actual device.

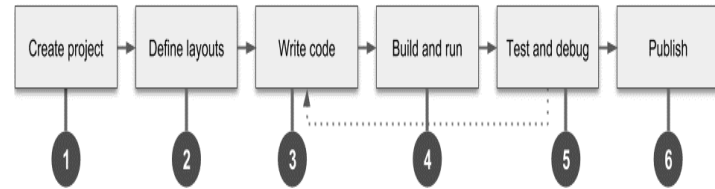
**SQLite**

SQLite is an in-process library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine. The code for SQLite is in the public domain

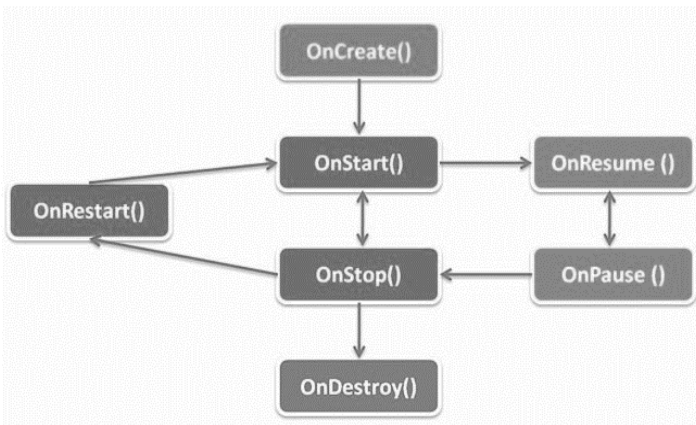
and is thus free for use for any purpose, commercial or private. SQLite is the most widely deployed database in the world with more applications than we can count, including several high-profile.[21]

**Development Process of Android App**

When you are ready to start coding, you use Android Studio to go through the following steps:

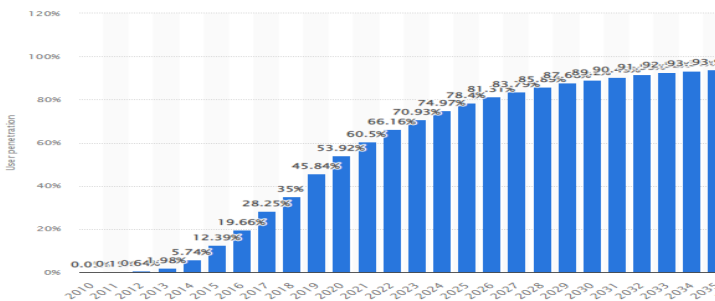


**Figure 2: Development Process of android app**  
Android Activity Lifecycle is controlled by 7 methods of Android App Activity class.



**Figure 3 : Activity Life Cycle**

**Smartphone users in India 2010-2040**



**Figure 4 statista 2022**

Number of smartphone users in India in 2010 to 2020, with estimates until 2040 (in millions ) [23]

**Proposed system-**

This system is configured such a way that it will be unique from other existing app by integrating all the features offered by those. The user needs to start the application by

1. OnCreate: Called when activity is first created.
2. OnStart: Called when activity is becoming visible to the user.
3. OnResume: Called when activity will start interacting with the user.
4. OnPause: Called when activity is not visible to the user.
5. OnStop: Called when activity is no longer visible to the user.
6. OnRestart: Called after your activity is stopped, prior to start.
7. OnDestroy: Called before the activity is destroyed [22]

registering. User can login with the registered email and password. User has to put two contact numbers manually. Every time the user uses this application, user needs to start the app by turning on the on / off button to start the service. Then the app will start processing until the user turns it off. Whenever the user presses the service key or screams with the voice command the app will start its emergency service and will send alert message containing the user's name with the location to the registered contacts.

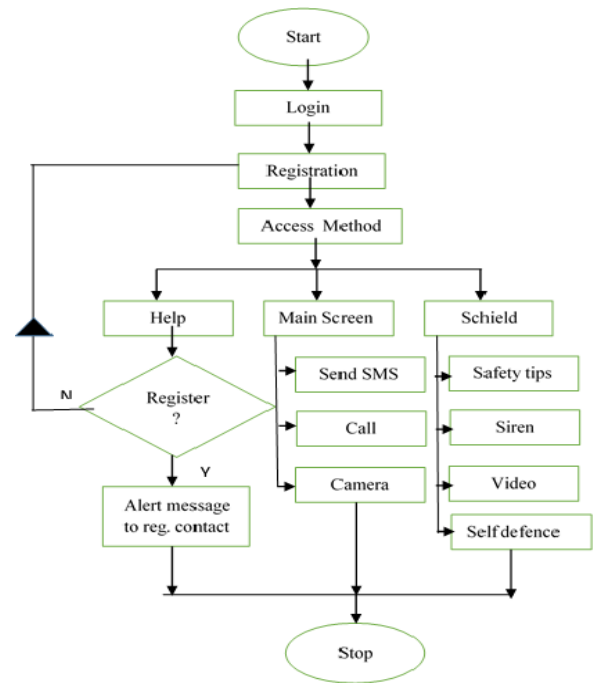
Women Warrior is an Android mobile application which runs on an android platform. As internet connectivity is not available at everywhere, in this app user need not internet connectivity for sending sms,call, clicking picture and for siren. In this system, in case of emergency user can sends SMS and calls on one of the numbers feeded into the system (phone contact) with the location. The phone siren starts ringing. A girls can take picture of person and place with camera by single click. These features for both

everyday safety and real emergencies, making it an ultimate tool for all.

Most of the application which helps women in real time either contain one of the features. For example, alert message sent during emergency, audio recording, live location tracking, only online mode working. Either of the application contains one of the above features not all of them. So that full-fledged application is in demand to protect the women safety. Generally, application contains advanced features which are completely assisted by the government, failure in any of the parts may leads to the problem. Different kinds of accessing methods are not available in the existing system. For example, I go safety app consist of feature sends a 30 seconds audio recording and video clip to the registered contacts along with emergency message.

This feature has been added for minimizing problems anyhow so that in any situation the user can get help. Though the application cannot send location with this feature but user's family may know the route of user and can reach out for help or can at least know that she is in danger. A use case model and a flowchart diagram of the proposed system is given below which will make it easy to understand all the working methodology of the system.

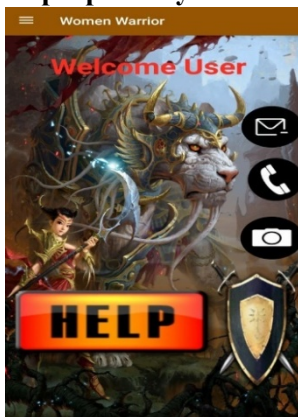
**Flow Chart of the proposed system**



**Figure 5: Flowchart**

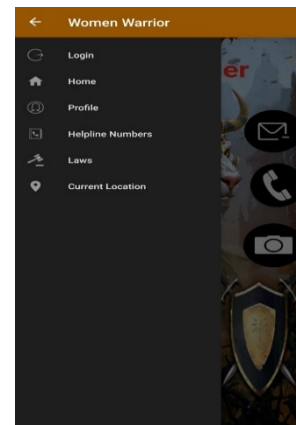
**1. Result and Design Module of Women warrior:**

Initially, when android app is started Home screen has been opened and user can use facilities of this app Fig.6 .



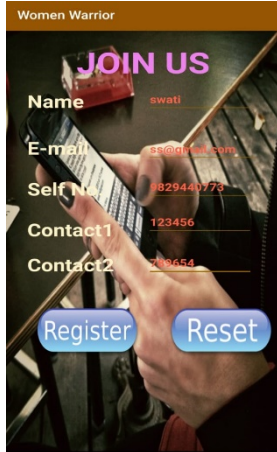
**Figure 6 Home Screen**

Fig. 6, displaying the available options in the apps. Here. menus, schield , help button, sms, call and camera are available. She can select by single touch .By clicking on menus Fig.7 will display. This menu is having six sub menus



**Figure 7 Menu**

.By clicking on "Login" in Fig.7, she can enter her number and press continue, here, system will ask to register ,after pressing "yes", a form Fig.8 will display.



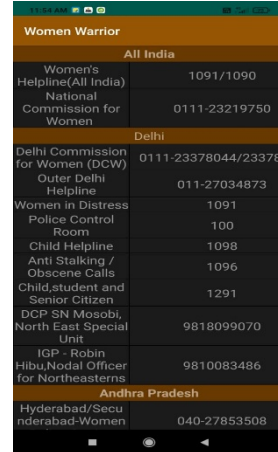
**Figure 9 Registration Form**

Fig.8 will ask for Name, Email, mobile number and two contact numbers to send automatic message when she would be unsafe. From menus in Fig.7 by clicking on "profile" she can update and delete profile when she want to change number. When click on "Helpline numbers", screen navigate to other screen having important numbers as in Fig.9.It is having



**Figure 10: Laws**

By choosing the "shield (image)" on main screen Fig.6, the screen navigates to other screen Fig.13.



**Figure 8 Helpline Numbers**

important numbers state-wise. Time to time we will try to update it. By clicking on "Laws" the screen navigates to the other screen and the screen Fig.10 is having two options they are "Women specific legislation" Fig.11 and "women related legislation" Fig.12. By reading the laws she can understand what the laws in favor of women are.



**Figure 11:Laws**



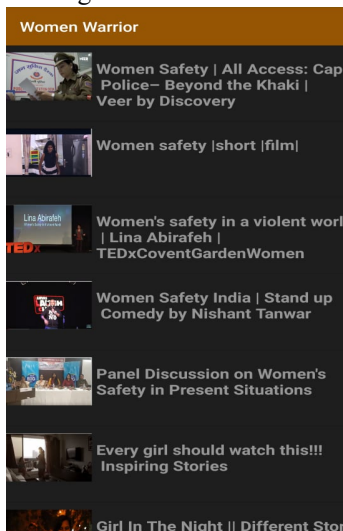
**Figure 12: Different Options**

Fig.12 is having four important buttons which are helpful as first aid safety hacks. By clicking on "safety tips for girls" Fig.13 will be seen where she can get the idea to overcome situation. While



**Figure 13: Safety tips**

clicking on "siren", a siren will ring. After selecting the "video" in Fig.12, the screen will navigate to Fig.14.

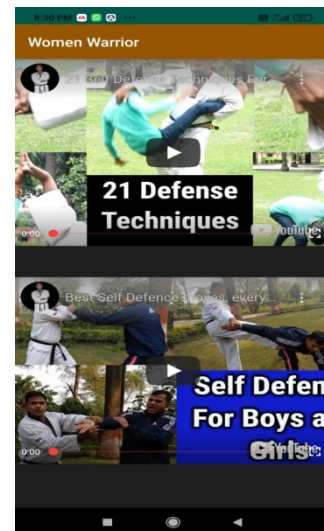


**Figure14: Videos**

By choosing "defense" in Fig.13 the screen will navigate to Fig.56 where she can learn self-defense technique. The sms sending is done by simply touching the option HELP from main screen to the contacts saved at registration time. By choosing "message" from Fig.6, she can send message to anyone saved in phone contact. By clicking on "call" from Fig.6, she can call anyone saved in phone contact. By touching "camera" on Fig.6 she can click picture of person and place.

**Discussion :**

Women's are increasingly moving to cities for work, education and opportunities. It is estimated that by 2030, approximately 700 million women's will live in urban areas. women's have a right to feel safe and be safe where they live and learn. Women's should be able to access vital services in the city and not be restricted by potential safety issues. Smartphones have become necessary for everyone in the modern era. It solves the various problems of people and helps in managing daily tasks. Smartphones have enabled people to come closer to each other



**Figure 12:Self Defense**

and helped them in building stronger relationships. Mobile app development is a constant growing environment, only by adapting innovative and iterative processes; you can make your reach better. With this thought in mind we have created this app. Using this app every women can learn how to come out from tough situation.

**Conclusion and future work—**

This project proposed a new women's safety system that aims to give a very secure environment. Many unwanted incidents took place in the case of women. Problems can come from everywhere. Smart Phones has changed the life of everyone along with features, an App in Smart Phones allows to do almost everything, from playing games, communication, entertainment, business, privacy as well as security. This project analyzes the main point of the intelligent security process with technology and system building findings. Analyzing and

predicting such incident is not possible ,hence to minimize it this project designed mobile application will be very helpful. Not only in harassing related problem, it can be used when someone faces accident or hijacking or public problems Whenever anyone is in any kind of danger, this system will help to decrease the risk and make the world a better and safer place to live. By using this mobile application definitely women can be more secure, safe and protect themselves. These crimes should be brought to an end with the help of our proposed system. As a future work, using facedetection by biometrics, the attacker face could be detected and transmitted for further action. Finally, an auto call facility could also be incorporated, which makes the device as the best one in the domestic market. There are several features of the project that would be quite challenging to be added. Moreover, implementing this application in iOS platform as an iPhone App is one of the important considerations as we have many iPhone users.

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