NIDAR
A Women's Safety App

Shaikh Mohammad Shariq
Final year Student,
Department of I.T,
MHSS College of Engineering,
Mumbai, India.
shariqshaikh77@gmail.com

Shaikh Abrar-ul-haq Adi
Final year Student,
Department of I.T,
MHSS College of Engineering,
Mumbai, India
adishaikh516@gmail.com

Dr. Riyazoddin Siddiqui
Associate Professor,
Department of I.T,
MHSS College of Engineering,
Mumbai, India.
sriyazoddin4@gmail.com

Abstract—**In this paper, the system is a new mobile based application which is basically meant to help women in emergency situations. The application will able to help women by tracking their location and informing the same to the registered volunteers as well as their family members in case of emergency. On the other hand, this application gives a platform for responsible citizens to take care of their surroundings free from happening of some unfortunate incidents. They are provided with an extra functionality which is a chat group based on their locality to decide who can go to patrol and at what time to a particular place which is not much safe for women at evening times. Application also provides other functionalities like capturing and sharing image on social media and locating and contacting nearby help services with the help of GPS on the map.**

Keywords— SOS button, Volunteers, Chat group, Nearby Help Servies, Android, GPS, Firebase Cloud Messaging(FCM), Fake call

I. INTRODUCTION

Today, in the 21st century India, everything has changed from our lifestyle, the gadgets we use, the education system and Medical facilities that we get, the positions that women are holding but the only thing which has not changed is the image and safety of Indian women. Almost every day we come across heart-wrenching news of young girls and women being assaulted in various unimaginable ways. This happens in a local mall, a parking or at school. This has happened with a young girl of 9-10 years, an office going professional or with an 80 years old lady. This can happen with anyone and anytime. "You can tell the condition of a nation by looking at the status of its women" is a thing rightly said by Jawaharlal Nehru. Increasing the safety of women and given them a sense of confidence even in the slightest of a scale will be a contribution towards the development of our society. As the very obvious and natural case, women can't stop going in and around the city but can avoid and prevent such cases of violence and physical abuse by being attentive and careful all the time while commuting. We can hence, widen our aspect regarding spreading awareness for women safety or making the way for women safe. There might be a situation in which you have to travel alone a long distance at an odd hour and perhaps even by public transport and may face some danger. There might also be a situation that women had an accident in the late night and there are no one to help

and to take care of them. In such situations the person will not be able to tell the situation that he/she facing. At such a time, a personal safety app might not only be wise to have easy access to, it might also give you a lot of much needed confidence. The personal safety application requires the name and number of the person who is to be contacted in times of emergency. Users can add multiple people in the emergency contacts list. These are the people who will receive notifications in case of an emergency.

Mobile technology is one of the major advancements in information technology (IT). It facilitates collaboration, interaction, access, discovery, discussion, and sharing of information. Thus, provides freedom and widens the scope of communication by supporting wireless and mobile devices, such as cell phones and Smartphone. A call can be made to and from any location using this technology. In addition to voice communication, mobile technology provides interactive short messaging service (SMS) that can be used to alert a person about a certain event or to announce specific information. An android application ensures the safety of woman. It reduces the risk and helps us in need by identifying the location of person who is in danger. Women Safety Application can show you exact location of the women in help to her relatives, guardian and friends along with the specific location, where you can go and help it. Women Safety Application system offers the added protection of being track by relatives on different time interval and different location. In addition to this, family and parents can easily track and monitor her daughter with women safety application as every girl have mobile phones and rarely put them down. Lots of families and professionals are waking up to the many benefits of a women safety application.

Some of the problems with related work are people can send bogus notifications due to the absence of authentication module. Applications tending to emphasize just on continuous location tracking which serves no purpose of woman safety. Also, the family, friends or relatives will not be monitoring the device 24/7. It also invades the privacy of an adult. An application sending even the emergency contacts to police along with the emergency message instead of notifying those contacts simultaneously.

Challenges include making an analysis on the number of cases regarding women in the recent times to understand the need the need of the application. Helping women stay safe

and increasing confidence in them. To implement Google map API to track location of the user in case of emergency. Allowing users to have multiple contacts in the emergency contacts list. Monitoring users's location and enabling them to share their location with their contacts so that they can be located easily in a distress situation. Registering responsible and authenticated volunteers in the safety movement. Implementing a location-based chatting feature to provide volunteers a way to communicate with each other. Providing a handy and free application to women so that it can give them confidence and they can go out freely.

II.   RELATED WORK

1. LITERATURE REVIEW

Dr. Sridhar M. et al (February 2015) developed [1]
Many unfortunate incidents have been taking place in woman's case. Problems may come from any direction such as women walking on the road after the work, going to super market or many other reasons for which they go alone. People at home are not sure of their return safely. This application allows user to store multiple contacts. These are the contacts that are notified about the user's location in case of emergency. This application also gives first-aid details for few situations. The application helps to access the first-aid details or trigger emergency button as per the users wish.

Bhushan R. Dhobale et al (January 2016) developed [2]
This application will collect user's information for future use and continuous tracking using LBS. When there is a dangerous situation like rape or domestic abuse, the system will get activated. If it is difficult to make a call, to send a message at that time simply press alert button in this situation. This system also uses voice recognition system. The Voice of Victim will get recognize by the system and its current location will be sent to each and every App user in that area. In addition, if the victim will press a button on screen then notification will be send to people in the respective area.

N. Saranya et al (May 2015) developed [3]
The user can add the 5 emergency contact numbers for sending the emergency alert when they at risk This application intends to provide a simple medium to create safety awareness among the working and professional women of young and teen age. Women Safety Application can show you exact location of the women in help to her relatives, guardian and friends along with the specific location, where you can go and help them. This application allows the relatives or friends of the user to continuously track the user.

Devendra T. et al (April 2014) developed [4]
Women Safety Application can be used to find and Help Women in emergency. In recent time its been identified lots of misbehaving activity in urban and rural part of our country. With some statistics citing the occurrence of one rape incident every 20 minutes, it is evident that it has reached epic

proportions. Since mobility growth is been identified in recent 10 years and Smartphone penetration started 5 years ago. This application basically aims at providing a tracking system. This tracking system is categorized as per the connectivity of the device. If the device is offline, then using this application, location of the user can be shared with the help of SMS. Note that the SMS sent for sharing the location is free.

Priyanka Shinde et al (March 2012) developed [5]
Google's Android platform for mobile devices has quickly developed into a serious open source alternative. This application collected speed and location information from the Global Positioning System (GPS) receiver, used the Google Maps Application Programming Interface (API) to determine the location of nearby hospitals, and gives message to hospitals and relatives, if a person need a help.

Dhruv Chand et al (January 2016) developed [6]
The safety of women is a concern of increasing urgency in India and other countries. The primary issue in the handling of these cases by the police lies in constraints preventing them from responding quickly to calls of distress. These constraints include not knowing the location of the crime, and not knowing the crime is occurring at all: at the victim's end, reaching the police assuredly and discreetly is a challenge. To aid in the removal of these constraints, this paper introduces a mobile application called WoSApp (Women's Safety App) that provides women with a reliable way to place an emergency call to the police. The user can easily and discreetly 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. This paper describes the application, its development, and its technical implementation.

N.R. Wankhade et al (March 2014) developed [7]
This paper emphasizes on the development of an application that primarily works to protect women from being cheated in trial rooms (while shopping) or rest rooms by a hidden camera. A hidden spy video camera can be available anywhere. Considering our actions can be recorded without out consent and they could be anything as we are not expecting anyone to peek on us in a private place or an awkward position. Profits are made through exploiting this to others whose actions have been monitored by a hidden camera. Victims' lives are bust through the same technology that should have been used to make people feel secure. So this paper proposes SCIWARS(Spy Camera Identification And Women Attack Rescue System) intelligent alerts system which will help to prevent from being victim of any kind of attack or spy cameras. This system contains two modules, first module will detect Hidden cameras, which are hidden in hotels room, changing rooms. The second module will help victims from attack like physical violence, if victims feels unsecure and

helpless at any time then by pressing any key of her mobile continuously the alert message is send to nearest police control room, family, Ambulance, Friends which are in emergency list that alert message will contains the entire location of that victim's place and images of that location which are taken by camera of her mobile. This will help victims to avoid attack and it also helps to police to reach that place as fast as possible for provide help to victim and save her from attack.

Saleem Pasha et al (May 2016) developed [8]
This paper proposes a bSecure, a personal safety app developed for smart phones of android application. bSecure means be secure or safe from troubler. This application can be activated by clicking thrice the power button of smart phone when the user (sender) feels unsecure. This application communicates the user's current location to the predefined registered user's (receiver) contact number for every 30 seconds in the form of a text message. If a receiver mobile is in silent mode, it automatically changes to general mode and notifies with a message "I'M IN DANGER…" along with the latitude and longitude address of the sender repeatedly. Another feature of this app is to capture the surrounding image (photo) by shaking the mobile of the sender. This captured image will be sent to the predefined Email of the receiver. The registered contact and GPS location are updated and saved in a database.

Premkumar P. et al (March 2015) developed [9]
This paper describes about a one touch alarm system for women's safety using GSM. Here they introduce a device which ensures the protection of women. This helps to identify, protect and call on resources to help the one out of dangerous situations. Anytime you sense danger, all you have to do, is hold on the button of the device. The device consists of a PIC microcontroller, GSM module, GPS modules. The system resembles a normal watch which when activated, tracks the place of the women using GPS (Global Positioning System) and sends emergency messages using GSM (Global System for Mobile communication), to SOS contacts and the police control room.

2. PRODUCT REVIEW

FIGHTBACK:
Fight Back is an India specific application available for all types of mobile phones. It uses GPS, SMS, location maps, GPRS, email and a person's Face book account to inform the loved ones in case somebody is in danger. Five emergency contacts can be added to the list and they are alerted and the location is sent to them, when the panic button is pressed and this is visible to all the users of the web portal. The portal also sends out SOS SMS to the mobile numbers pre-set by the user. When the Facebook message is clicked, it will take the Facebook friend to the web portal Alert Page, and will show the location of the mobile user when the alert was raised,

along with a time stamp. This app is paid and is available for select Android, Blackberry and Nokia smart phones.

Vith U:
When in danger, it really is difficult and plus there is no time to dial an emergency number looking at the word pad. The Vith U App helps a potential victim skip through the number-punching, and directly lets you push the power button twice to instantly send an SOS alert to contacts.

HIMMAT:
This is a free application highly recommended for women in Delhi launched by Delhi Police. User needs to register in app after downloading from store to get registration key(OTP) which needs to be entered to complete configuration of application. As soon as the user of Himmat app raises the SOS alert from the Himmat App, the location information and audio-video is transmitted to Delhi Police control room. Delhi Police can then immediately send the nearest Police help to the victim.

RAKSHA:
Ensuring women's safety. Just at the press of a button your near and dear ones know your location. Your selected contacts can see your location and you can even ask them to show theirs. A distress signal just by pressing a single key sends out a loud buzzer to your near and dear ones. Your parents need not worry all the time now. You as a woman need not worry about security. Even if the Raksha App is switched off and isn't running, pressing the volume key for just three seconds alerts the specific contacts you have chosen beforehand. Your location is sent to them on a map which sends them your exact whereabouts..
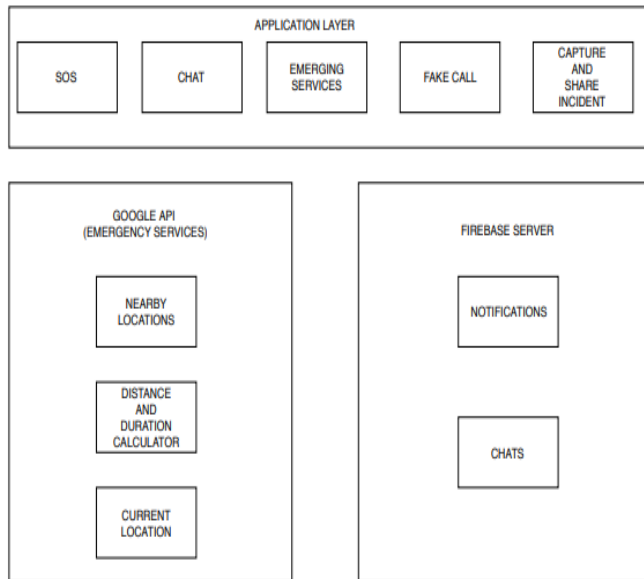
III.   ENHANCED SYSTEM

The system overcomes the limitations or uncovered points which could enhance the efficiency or user-friendly nature/Promptness that a mobile based woman safety application requires. This app will have a user interface more understandable and less complex. Unlike some apps (Safetipin App, which only points the unsafe areas in a locality) concerning the same topic, this app allows the user to inform about their location to their relatives. It takes the email and number of the user so as to have appropriate and authenticated users. The proposed system will have a blend of the various features from different apps already working towards women safety, because the mix of those features will eventually turn out to be a better and efficient solution for the problem, which otherwise, the features in individual apps were lacking in some way or the other.

IV.   NIDAR

NIDAR is an android based mobile application which is concerned with safety of women and providing a platform for the responsible citizens as well as beloved ones to help in case of emergency. The application provides various features which can be used to get help in emergency situations to the

users. NIDAR is trying to overcome the problems of some of the existing systems in a way by providing some extra features that are not only user-friendly but also provides numerous ways to get help in emergency.

APPLICATION LAYER

SOS   CHAT   EMERGING SERVICES   FAKE CALL   CAPTURE AND SHARE INCIDENT

GOOGLE API (EMERGENCY SERVICES)

NEARBY LOCATIONS

DISTANCE AND DURATION CALCULATOR

CURRENT LOCATION

FIREBASE SERVER

NOTIFICATIONS

CHATS

1.   SOS BUTTON

When the user successfully registers and logged in, a big SOS button is seen at the home activity. User just needs to press the button and a SOS message with the user's current location is sent to all the users registered as volunteer. When the SOS button is clicked all the volunteers will receive a notification showing a SOS message. This application's SOS button is different from other application's SOS button because it is sending a notification using FCM instead of sending SMS. Using notifications have several advantages over SMS such as it overcomes restrictions of sending alert message to number of users. For example, SOS button using SMS to send alert might be restricted to 6-7 contacts but SOS button with notifications can send alert to 100 of users at the same time which increases the probability of getting help. Secondly, SMS incur some charges depending on telecom company whereas notifications just require proper internet connection and sending notifications costs no extra charges.

2.   VOLUNTEERS

When the user successfully logs in, there is an option for the user to use the application either as a volunteer or as a user. The difference between both the options is that a volunteer will get all the facilities provided to the user plus an extra button called CHAT is provided at the home activity. This button is only visible to the volunteers and no other user who is not a volunteer will not find this button. In this way, only those who are willing to help will receive notifications so that other users will not get unnecessary alert all the time.

3.   CHAT

When a user registers as a volunteer, they need to provide their location (Ex. Mulund, Dadar, Kurla). After registering, at

the home activity a volunteer can see CHAT button. On clicking the button, the volunteer is redirected to a chat group based on their location. There will be separate chat groups for different locations. For example, separate chat group for Mulund, Kurla, etc. Chats groups are meant for volunteers to discuss about at what time a particular volunteer is free to patrol at the shady areas in their location. This is will ease the entire process as all the volunteers who belong to same location are in the same group which will make easy for them to communicate and decide whom and when to go patrol at a location.
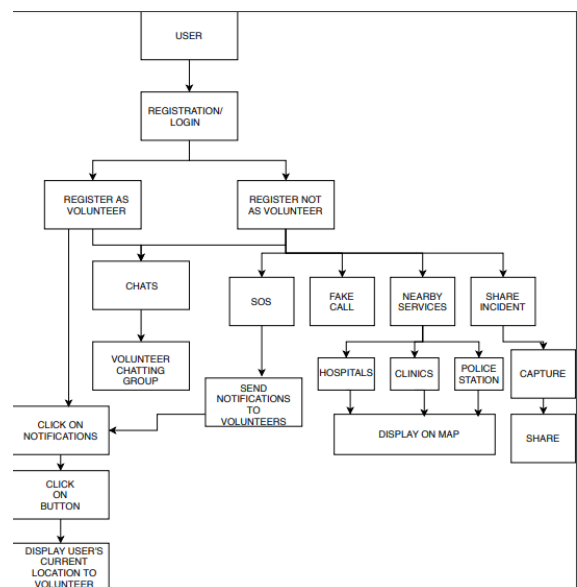
4.   NEARBY SERVICES

This is one of the unique feature provided in our application. This button is used to contact nearby hospitals, clinics, police station in emergency in one click. User just needs to click the button and a map with the user's current location is displayed inside the application. Here the user can see three buttons named as Hospitals, Clinics, Police Station. When the user clicks on any of this button (Ex. Hospitals), all the nearby hospitals will be displayed on the map. When the user clicks on any of the hospitals, all the details will be displayed of that hospital in an info window with a call button. In this way, user can easily locate and contact any of the nearby services of their choosing in a button click.

5.   CAPTURE INCIDENT

When the user clicks on this button, camera is opened inside the application. User can capture the incident and share it on the social media or as multimedia message. The image is shared with current timestamp so that image cannot be re-shared again and again after few months or years.

6.   FAKE CALL

Fake call is a feature that can help you to avoid unwanted and sticky situations. If the user gets uncomfortable vibes in a situation and wants to escape the situation without being vocal about it, then fake call is the ideal feature.

USER

REGISTRATION/ LOGIN

REGISTER AS VOLUNTEER   REGISTER NOT AS VOLUNTEER

CHATS   SOS   FAKE CALL   NEARBY SERVICES   SHARE INCIDENT

VOLUNTEER CHATTING GROUP   SEND NOTIFICATIONS TO VOLUNTEERS   HOSPITALS   CLINICS   POLICE STATION   CAPTURE

CLICK ON NOTIFICATIONS   DISPLAY ON MAP   SHARE

CLICK ON BUTTON

DISPLAY USER'S CURRENT LOCATION TO VOLUNTEER

WHY APPLICATION IS BETTER:

This system allows to send notifications to a large number of people, which may not have been possible with SMS and would have incurred charges for the same.

A feature has been added in this system which deals with the involvement of volunteers. Volunteers are given the option to chat and discuss with other volunteers of the same locality in a chat window belonging to that locality. Volunteers can help in patrolling shady areas as a person is well aware of their locality.

A unique feature that has been added in this system is the nearby services which comes handy for easing the process of finding a centre for medical emergency, in case something unfortunate has already occurred.

Further, the system allows the user to capture the incident and also share the same by giving an option in-app itself. The picture message will consist of a timestamp which will further avoid getting responses or spreading fake news after months.

Fake call is another feature included in this system with a view that precaution is better than cure, that is, if a person feels uncomfortable in a situation and gets the vibes that wrong intentions are developing around her but does not want to alert the suspect then in this case, she can use the fake call secretly and avoid the situation.
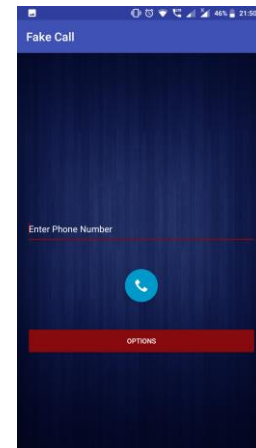

V. ABOUT TECHNOLOGY

GOOGLE MAP API:

After the success of reverse-engineered mashups such as chicagocrime.org and housingmaps.com, Google launched the Google Maps API in June 2005 to allow developers to integrate Google Maps into their websites. It is a free service, and currently does not contain ads, but Google states in their terms of use that they reserve the right to display ads in the future. By using the Google Maps API, it is possible to embed Google Maps site into an external website, on to which site specific data can be overlaid. The Google Maps API is free for commercial use, provided that the site on which it is being used is publicly accessible and does not charge for access and is not generating more than 25,000 map accesses a day. Sites that do not meet these requirements can purchase the Google Maps API for Business.

FIREBASE CLOUD MESSAGING (FCM):

Firebase Cloud Messaging (FCM) is a cross-platform messaging solution that lets you reliably deliver messages at no cost. Using FCM, you can notify a client app that new email or other data is available to sync. You can send notification messages to drive user re-engagement and retention. For use cases such as instant messaging, a message can transfer a payload of up to 4KB to a client app. Firebase Cloud Messaging (FCM) offers a broad range of messaging options and capabilities. The information in this page is intended to help you understand the different types of FCM messages and what you can do with them.

XAMPP SERVER:

XAMPP is a free and open source cross web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP server, MariaDB database, and interpreters for scripts written in PHP and Perl programming languages. It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform,
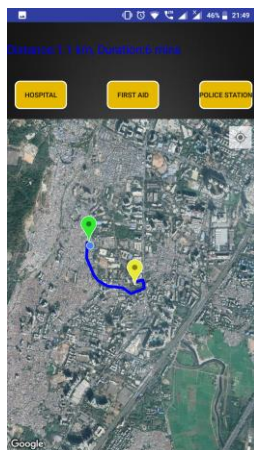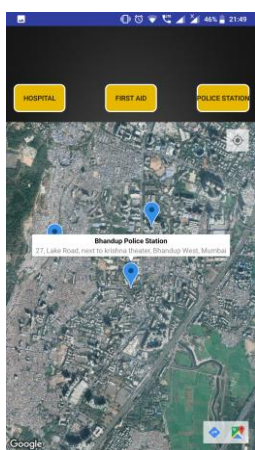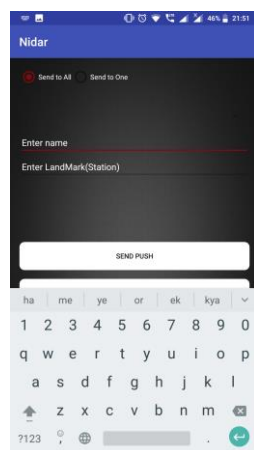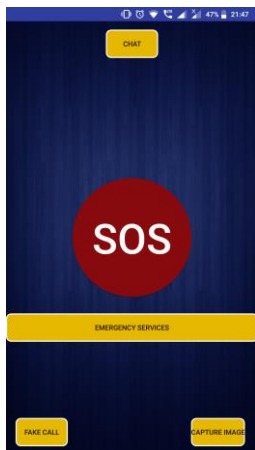
which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

SQLite DATABASE:

SQLite is an open source SQL database that stores data to a text file on a device. Android comes in with built in SQLite database implementation. SQLite supports all the relational database features. In order to access this database, you don't need to establish any kind of connections for it like JDBC, ODBC etc. The Android SQLite Database requires very little memory (around 250kb), which is available on all android devices. Every device has an inbuilt support for SQLite database, which is automatically managed on android right from its creation, execution to querying up process. SQLite is considerably, the lighter version of SQL database, where most of the SQL commands don't run on SQLite database. Once SQLite is in place, it is important to ensure that a feature or command is available in SQLite; only then can it be executed.

VI.　CONCLUSION

As the technology emerges, it is possible to upgrade the system and can be adaptable to desired environment.

Based on the future security issues, security can be improved using emerging technologies. Also, a feature for the nearest volunteers to be shown on a map will be worked on. This is a mobile application for women safety. It will help women to inform their loved ones in uncomfortable situations or to escape dangerous situations. This app offers various services including a chat platform for volunteers to discuss about the unsafe areas in their locality. Further it also allows the user to capture an incident and share it on any platform.

VII.　REFERENCES

[1]　Dr. Sridhar Mandapati, Sravya Pamidi, Sriharitha Ambati, "A Mobile Based Women Safety Application (I Safe App)", IOSR Journal of Computer Engineering (IOSR-JCE), February 2015, pp. 29-34.

[2]　Bhushan R. Dhobale, Sayali S.Thorave, Sagar B.Doke, Prof.Amrut V.Kanade, "A Survey On-Smart Mobile App for Women Safety", International Journal of Innovative Research in Computer and Communication Engineering, January 2016, pp. 382-384.

[3]　N. Saranya, Mr. K. Karthik, "Women Safety Application using Android Mobile", International Journal of Engineering Science and Computing, May 2015, pp. 1317-1319.

[4]　Devendra Thorat, Kalpesh Dhumal, Aniket Sadaphule, Vikas Arade, "A Cost Effective GPS-GPRS Based Women Tracking System and Women Safety Application using Android Mobile", International Journal of Advanced Engineering & Innovative Technology, April 2014, pp. 2-6.

[5]　Priyanka Shinde,Pranita Taware,Snehal Thorat,Tejashree Waghmare, "Emergency Panic Button", International Journal of Surgery Case Reports, March 2012, pp. 2-3.

[6]　Dhruv Chand, Sunil Nayak, Karthik S. Bhatt, Shivani Parikh, Yuvraj Singh, "A mobile Application for Women's Safety: WoSApp", IEEE Xplore, January 2016, pp. 2-4.

[7]　N.R.Wankhade, Dipika Nikam, Kanchan Jadhav, Neha Pathak, "SCIWARS Android App for Women Safety", Int. Journal of Engineering Research and Applications, March 2014, pp. 823-826.

[8]　Saleem Pasha, Kavana J, Mangala Gowri K R, Nischitha K, Surendra Babu K, Rakshitha M S, "bSecure for Women: An Android Application", International Journal of Innovative Research in Computer and Communication Engineering, May 2016, pp. 8373-8380.

[9]　Premkumar.P, CibiChakkaravarthi.R, Keerthana.M, Ravivarma.R, Sharmila.T, "ONE TOUCH ALARM SYSTEM FOR WOMEN'S SAFETY USING GSM", International Journal of Science, Technology & Management, March 2015, pp. 1536-1539.

[10]　https://quotefancy.com/quote/1341812/Jawaharlal-Nehru-You-can-tell-the-condition-of-a-nation-by-looking-at-the-status-of-its