

**Tribhuvan University**

**Faculty of Humanities and Social Sciences**

**WOMEN SAFETY ALERT SYSTEM**

A PROJECT REPORT

**Submitted to**

**Department of Computer Application Patan Multiple Campus Patan Dhoka, Lalitpur**

***In partial fulfillment of the requirements for the Bachelors in Computer Application***

**Submitted by**

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**Tribhuvan University**

**Faculty of Humanities and Social Sciences Patan Multiple Campus**

Patan Dhoka, Lalitpur

Bachelor in Computer Applications (BCA)

**SUPERVISOR’S RECOMMENDATION**

I hereby recommend that this project prepared under my supervision by **Ghanashyam Dhungana** entitled “**Women Safety Alert System”** in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application is recommended for that final evaluation.

Ramesh Singh Saud Project Supervisor BCA Department Patan Multiple Campus



**Tribhuvan University**

**Faculty of Humanities and Social Sciences Patan Multiple Campus**

Patan Dhoka, Lalitpur

Bachelor in Computer Applications (BCA)

**LETTER OF APPROVAL**

This is certify that this project prepared by **Ghanashyam Dhungana** entitled “**Women Safety Alert System”** in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

Ramesh Singh Saud Supervisor

BCA Department Patan Multiple Campus

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# ABSTRACT

Human security has become a major issue as the number of crimes over women and girls increasing day-by-day. This paper suggests a new view to use technology to protect women. We use an android based smartphone with a unified feature that alerts and provides location-based Information. This Document based on “Women Safety Alert Using Haversine formula algorithm” that provides message and call with an emergency button Trigger. Whenever victim is in Trouble they only have to press the Button. After that, a message alert is sent to Contact list and a notification or Message to the number and give a message “I am in Danger”. The project is developing in Android which Graphical User Interface provides the level of reliability, availability, and compatibility. All these make Android an appropriate language for this project because the Android language is based on JAVA language.

**Keywords: Women security, Smartphone, Registered contacts, Database, GPS, GSM**

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Yours sincerely, Ghanashyam Dhungana

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# LIST OF ABBREVIATIONS

|  |  |
| --- | --- |
| CRUD | Create, Read, Update and Delete |
| FM | Frequency Modulation, |
| GPS | Global Positioning System |
| GSM | Global System for Mobile |
| IDE | Integrated Development Environment |
| NCRB | National Crime Records Bureau |
| OTP | One Time Password |
| SCIWARS | Spy Camera Identification and Women Attack Rescue System |
| SIM | Subscriber identity module |
| SMS | Short Message Service. |
| SOS | Save Our Souls |
| UI | User Interface |
| URL | Uniform Resource Locator |

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# CHAPTER: 1 INTRODUCTION

## Introduction

Women’s safety has become extremely important issue and top priority on the modern day due to the increase in the number of crimes against women like harassment, mistreat, misbehave, violence, domestic abuse, rape and so on. Nowadays, women are keeping pace with men in life, unfortunately at cost of being subjected to abuse, harassment, and violence in public and even at their own houses. They cannot step out of their houses at any time, and cannot even go for work in peace and there are lots of women who work at night shifts in corporate and they feel unsafe while returning home as they travel late at night , there is lack of safety. Crimes against women have been increasing continuously during the past few years. So it seems necessary to take a step against the crime.

Women Safety Alert System is an application that is developed to help the women from harassment, mistreat, abuse, misbehave, violence and so on. In today’s world, people are using smart phones a lot and hence, we are making use of smart phone for the security purpose. The greater part of the human nowadays carries their smartphone with them, so these applications can be very helpful for them.

So, whenever any user feels unsafe or feels that they may be in a dangerous situation, the person can call and send a message to the nearby contacts or police station only by clicking the alert button then the nearby contact receives the message from the person with his/her geo location and they can provide help to the users. The unique feature of this application is to send message to the contacts which has been registered. After the button clicked on the device, the application can continuously track the location of user who is in danger.

## Problem Statement

In current time, women faced different problems like robbery, rape, domestic violence, harassment, abuse etc. and they suffer from unusual activities which can occur anytime and anywhere. Due to these activities women are facing difficulties working or step their home. Women are not safe and secure these days and nights, In order to provide help and security

while being attacked or in difficult situation this application is going to develop which helps to send message and location of users to the nearby contacts.

## Objectives

The main objectives of Women Safety Alert System are as below:

* + - To develop mobile application to implement Women Safety Alert.
    - To develop a system especially for women to protect themselves from physical harassments.

## Scope and Limitation

### Scope

This system can be used by any women and this system will help them to send notification and message to the people who are close to them in dangerous situation like harassment, rape, robbery and so on. As the mechanical changes or new condition from user to improve the usefulness of item may requires new form to present. In spite of the fact that the System is finished and working skillfully, new modules which improve the system usefulness can be added with no significant changes to the whole system. Among the different parts few are recognized, which couldn't be remembered for the last augmentation because of time requirements. In future, the development innovation makes the system progressively powerful and dependable. As the new modules give the usefulness which upgrades the security and accommodating in future when any issue begins in voyaging or any sort of circumstances. As the innovation transforms, it is conceivable to update the system and can be versatile to desired condition.

* + - * Any further changes can be effectively flexible, in the brightness of the fact that it depends on an object-arranged plan.
      * Based on future security issues, security can be improved utilizing rising advancements.

### Limitations

There are some criteria that may not be fulfilled by this application implemented. Some of such limitations of this project are mentioned below:

* + - * There is no features of sending video, image, etc. by the users.
      * No OTP feature.
      * There is no report generation of victims.

## Development Methodology

For the development of this system, Objected oriented approach is used that includes object and class diagram, state and sequence diagram, activity diagram, refinement of classes and object, component diagram and deployment diagram.

## Report Organization

Chapter 1 deals with the introduction of the system with its objectives and limitations along with the reason why the system is made.

Chapter 2 summarizes the work that has been carried out in the field of data mining and also describes the features about some existing applications related to the Women Safety Alert system.

Chapter 3 focuses on the different requirement of the system, which describes about the functional, non-functional, feasibility analysis, Object Modelling: Object and Class Diagram, Dynamic Modelling: State and Sequential Diagram, Process Modelling: Activity Diagram design of the system with Component Diagram, and Deployment Diagram, Refinement of Classes and Object, and the implementations of Algorithm with its details.

Chapter 4 emphasizes tools used in system development, implementing details and result of test performed.

Chapter 5 highlights brief summary of lesson learnt, outcome and conclusion of the whole project and explain what have been done and what further improvements could be done.

**CHAPTER: 2**

**BACKGROUND STUDY AND LITERATURE REVIEW**

## Background Study

Women are being less secure and safe these days and nights. People facing more number of circumstances like harassing, kidnapping, rape, abuse, etc. The cases of kidnapping the children increased day by day. Due to these activities people are facing difficulties working or step their home. The prime review in each human's mind, taking into account the ever- rising increment of issues on ladies provocation in late past, is just about her wellbeing and secure. At the point when such event occurs with ladies' they won't feel shaky or powerless on the off chance that they have a gadget with them. With the assistance of these gadgets ladies can remain out with no fright whenever. Ladies and youngster’s well-being is an issue of our general public. The tally of the injured individual is expanding step by step. Ladies have given contribute towards improvement of country. Every day ladies are being harassing cases are expanding step by step. From this we must be concern about the secure of ladies by welfare methods. for example, different portable applications have been attempted and executed, however the need of the time is that they need is a gadget that can be conveyed wherever no problem at all. The plan to build up a keen gadget for ladies is that it's totally agreeable and simple to use as contrasted and as of now existing ladies secure arrangements, for example, a different article of clothing, massive belts and portable applications that are simply extremely theoretical and out of date. In the event that a lady is exposed to assault by an enemy, at that point a switch must be clicked by her, manually.

## Literature Review

There are many similar applications that has been developed or in developing process available in web where some are free and many need to be procured. Similar applications are found in Google play store, apple store, Microsoft store and some are third parties’ application or system also.

In today’s world, people using smart phones individuals have expanded quickly. Thus, an advanced mobile phone can be utilized productively for individual secure or different other declaration purposes. The offensive event that insulted the whole country has produce us

to go for the wellbeing issues as a result a large group of new applications have been created to give secure system to human by means of their smart phone . This can be this app can be activated this app by a single click, whenever need arises. A single snap on this application recognizes the area of spot through GPS and communicates something specific involving this area URL to the enlisted contacts and furthermore approach the principal enrolled contact to help the one in perilous circumstances. The interesting element of this application is to send the message to the enrolled contacts eternally for like mechanism until the "stop" button in the application is clicked. Continuous location tracking data by means of SMS assists with finding the location area of the victim quickly and can be rescued safely. [1]

For the very first time in Nepal, an app has been created for the safety and welfare of female. Considering the increment in women violence, Women Nepal has initiated the development of Rakshya App. Women Nepal is an organization dedicated to working for the welfare of Nepali women. “Rakshya” app was developed by Techrodians Offshore Base. Rakshya, a woman at first has to save a message by typing a text such as “I am in danger” or “Help me” along with her cell phone number and her number of her relatives/friends below that message. When in danger, she has to press the power switch button two times, and the message is sent to the numbers which are saved in the app previously with the location where the corresponding female is located. Thus, help can be easily provided to the woman. Due to this app, a female is capable of self-protection. Rakshya app can be downloaded from the website rakshya.org. [2]

The android application to give secure at two unique circumstances as follows. The First module gives secure to Women at Emergency Situations propose a Save Our Souls (SOS) application to gives the secure on a solitary snap of SOS button for the human going around evening time or alone. No compelling reason to open the screen, rather by simply squeezing the force button it legitimately triggers the application to run at the foundation, to send the crisis message remembering the area for the type of scope and longitude to the enrolled contacts. The following module proposes an android based home secure system that gives secure of house effects and Senior Citizen in the client nonattendance. Since the secure of senior resident is constantly a worry with expanding number of theft episodes. This application educates the client about an endeavor regarding interruption movement at home through a message and a criticism SMS triggers an alert in the house. The base necessity is

the android portable, an equipment circuit inserted with a switch furthermore, GSM modem that are associated with the entryway. At the point when an interloper attempts to open the entryway, the switch triggers a hinder for the microcontroller to enact the GSM modem to send notice SMS to the store enlisted number in the modem. At the collectors end the application spring up the menu habitually for client consideration. In the event that the client neglects to recognize in the characterized time interim, at that point the programmed positive affirmation message get send to the remote GSM modem which thus interfere with the microcontroller. [3]

This project presents a ready system for problem recognition utilizing regular industrially accessible electronic gadgets to both identify the problem and ready specialists. Information from the accelerometer is assessed with a few edges based calculations and position information to decide a Problem. The edge is versatile dependent on client gave parameters, for example, build, weight, and level of action. The calculation adjusts to one of kind developments that a telephone encounters rather than comparable systems which expect clients to mount accelerometers to their chest or trunk. On the off chance that a Problem is suspected a notice is raised requiring the client's reaction. In the event that the client doesn't react, the system cautions pre-determined social contacts with an educational message by means of SMS. In the event that a contact reacts the system submits a marked warning, consequently interfaces, and empowers the speakerphone. In the event that a social contact affirms a Problem, a suitable crisis administration is cautioned. Our system gives a feasible, financially understanding answer for Problem location utilizing a basic graphical interface while not overpowering the client with awkward sensors. Problem is exceptionally incredible programming particularly produced for the wellbeing of young ladies, at whatever point someone is in a tough situation they don't need to sit and discover contacts or discover approaches to send short message administration, or message the close to ones. They probably won't have such a lot of time. All that they need to do is shake the advanced cell over the limit esteem, vivaciously. Quickly a message alert is sent to the individual's mother, father and whoever they wish to, if their watchmen additionally have an advanced cell. Despite the fact that in the event that it is in quiet mode. At the point when a message called ALERT is gotten it naturally changes its profile to general, and gives a voice warning Your Son/Daughter is in trouble PLZ HELPS… . PLZ HELP…. PLZ HELP…Over and again AS A RING TONE until they tune in and stop it. [4]

Women security device called as “Suraksha” which is anything but difficult to work the device. Proposed of this system is if anyone will be in circumstance device can be started through-voice order, Press a switch key, and shock (for example at the point when the device is threw with power, a power sensor used to initiate the gadget). In a circumstance it will send the message including moment area to the police, through the transmitter module and enrolled numbers by means of a GSM module. At present, the work is under cycle to implant it in gems, versatile, or different transporters like belt and etc. It can assume a significant function in the propose ventures where all the police headquarters are associated and share the criminal records, wrongdoing examining cases, etc. [5]

SCIWARS app (Spy Camera Identification and Women Attack Rescue System) has proposed of two modules. At the first module is about smart alarms system which function is to infrared rays which is originated from consistently vision hidden cameras put in changing rooms hotels room and etc. and furthermore educated the client about the dangerous spot through message. Presently it's the user's duty whether to enlist a complaint or not by sending the notice with the area to legal authorities, for example, Police. The second module will get initiated by squeezing any key continually which will give assistance to the casualty from a physic assault in an unsafe circumstance. It sends the emergency message containing an area to enroll contacts. It likewise records the voice and catches the pictures of the encompassing for 45 seconds. This data additionally put away in a mystery area of portable for future bits of proof. [6]

Vehicle tracking system is used to track the vehicles which is dependent on GPS. This system will have a button held under the seat of vehicle seat utilizing GSM. With the expanding financial development pace of a nation, numerous organizations are building up their arrangement in the close-by the district of the urban communities. System will also help or efficient on security of ladies workers inside private transportation is the organizations' duty. [7]

According to the data collected by Women’s Rehabilitation Center (WOREC) from July 2018 to June 2019, there were 1319 cases of violence against women. Out of this, the cases of domestic violence accounts to 66.72 percent (880), social violence 11.98 percent (158), rape 10.84 percent (143) and sexual violence 4.7 percent (62).According to the Social- government associations 35% of Women everywhere on over the world are challenging a great deal of unreliable physical harassment openly places, for example, railroad transport

stands, pathways, etc. Proposed of report is to create a new model for concern of women security in the society. In this report Sharma have gone through different women security app and its systems. He (author) has checked on different existing system on women security. The authors have felt a requirement for cutting edge ladies security systems to give wellbeing measures in broad daylight puts just as voyaging alone through open vehicles (school transports, organization vehicles, etc.). [8]

According to the data revealed by Nepal Police, cases of violence against women (VAW) in the country have increased significantly in the last decade. A total of 17,790 women and girls were raped in the last ten years and it has been found that the cases of rape have been increasing every year by 20 per cent. According to Nepal Police, 144 cases of rape and 687 cases of attempt to rape were registered in the last fiscal year. Likewise, 1,221 women and girls were raped from March 2020 to August 2020. The data shows that on average, seven women or girls are raped daily in Nepal.

Similarly, according to WOREC Nepal, last year 143 rapes and 18 attempts to rape were registered while 178 rape cases and 40 attempts to rape were reported in the first five months of the ongoing year.

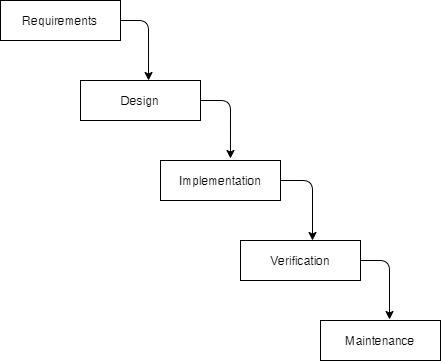
All these reports portray the scary picture of violation of women's rights. The stakeholders and activists have been voicing that physical, mental, and sexual torture and gender-based discrimination, inequality, and injustice were the reason behind the increase in VAW cases. “As domestic and sexual violence prevails significantly in our country, the lockdown made the situation even worse," said psychologist Kanchan Raut, "Various hotlines are in operation in Nepal to prevent any kind of violence and injustice against women." [9]

**CHAPTER: 3**

**SYSTEM ANALYSIS AND DESIGN**

## System Analysis

This system is designed with the series of processes starting with requirement analysis, design, implementation, testing and maintenance. During requirement analysis, all the functional and non-functional requirement are analyzed and system is developed according to the requirement then designing of the system is carried out. After the design process, coding and development part is started then after integrating the system there is testing of the system. If the testing is positive then system is implemented otherwise some maintenance is done and system come in operation.



#### Figure 3.1: Waterfall Methodology for Women Safety Alert System

### Requirement Analysis

The requirements are to be collected before starting projects’ development life cycle. To design and develop system, functional as well as non-functional requirement of the system has been studied.

* + - 1. **Functional Requirement**

Different functional requirement of the system have been identified and are listed as below:

**For Admin:**

* + - * + The system should allow admin to register and login to the system.
        + The system should allow admin to manage information of users.
        + The system should notify admin about information of the Police, Family, and Friends of users.
        + The system should allow admin to view alert message and location of the users.

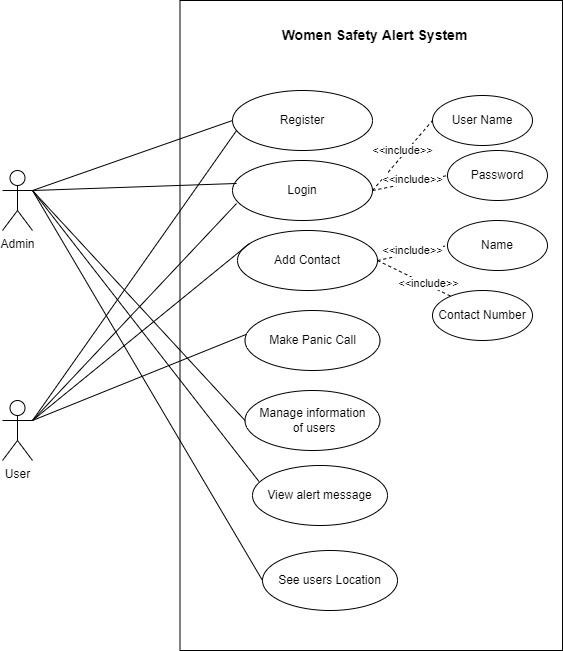
**For User:**

* + - * + The system should allow user to register.
        + The system should allow user to add contacts of police station and close ones.
        + The system should allow user to call and send emergency notifications.
        + The system should notify user about information of the Police, Family, and Friends.

**USECASE DIAGRAM**

In Women Safety Alert System, the use case diagram consists of a user and admin where user is allowed to create an account. Users are allowed to add contact of family, friends and police. Users can make a panic call and send message through tapping the button on screen. They are also allowed to view alert messages made by other users whom they have added on the system. The alert message consists of location, latitude and longitude of the user who is in danger.

Likewise, admin is allowed to register and login to the system. Admin is allowed to manage information of the users, police station and family and friends of users and also they can view the message and location of the users.



#### Figure 3. 2: Use Case Diagram of Women Safety Alert System

* + - 1. **Non- Functional Requirement**

Different non-functional requirement have been studied and identified and are listed as below:

* + - * + **Security**: -The system is secure from outside attacks as authorized user and User are allowed to access the data. They can log into the system and have access to the Women Safety alert system but access to have various subsystems is protected by the user login screen that requires a username and password. This system uses at least 8-character passwords for security. Different validation process is used.
        + **Performance**: - The performance of the system is fast and accurate as in this system database is normalized so it provide fast operations.

### Feasibility Analysis

The feasibility study concluded that the project is able to be implemented successfully as it was carefully planned.

* + - 1. **Technical Feasibility Study**

The system is technically feasible as the requirement for the development of the system is easily accessible. The necessary hardware and software required for the development and implementation of the system is available. The basic programming language which is suitable for project is available and the libraries required for project is capable of achieving the result that we are aiming for. All the existing resources can be used for the development and maintenance system.

* + - 1. **Operational Feasibility Study**

The system is easy to operate with the basic knowledge of computer and internet and well trained manpower is not necessary. User can also easily access the system as it is user friendly in many aspects with good User Interface (UI). This system include all the requirements used for Women Safety App and this App is completely operational and can be successfully implemented and administration feel easy to use this App as it is user-friendly.

* + - 1. **Economic Feasibility Study**

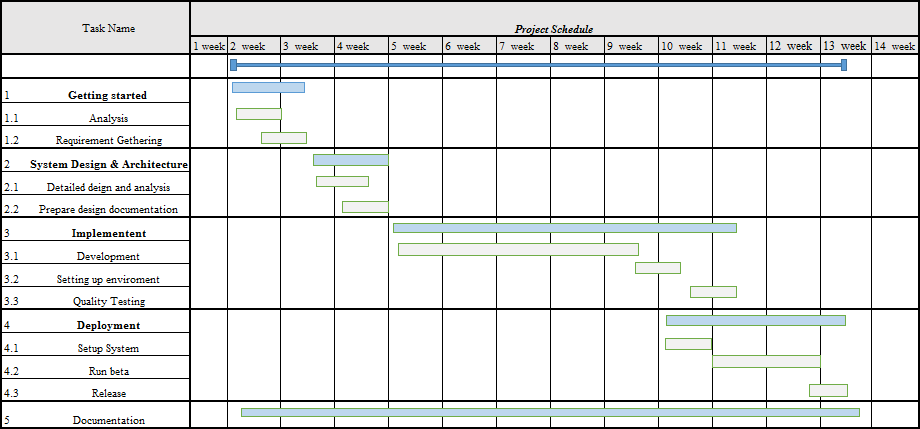
The system is economically feasible and cost effective. As all the tools and resources required are either open sources or free. After the completion of the system organization didn’t need to deploy any new hardware and software as the required software and hardware. The existing resource of the system can be used.

* + - 1. **Schedule Feasibility Study**

The system is completed within scheduled time and do not exceed the scheduled time.

**Table 3.1: Gantt chart Table for Women Safety Alert System**

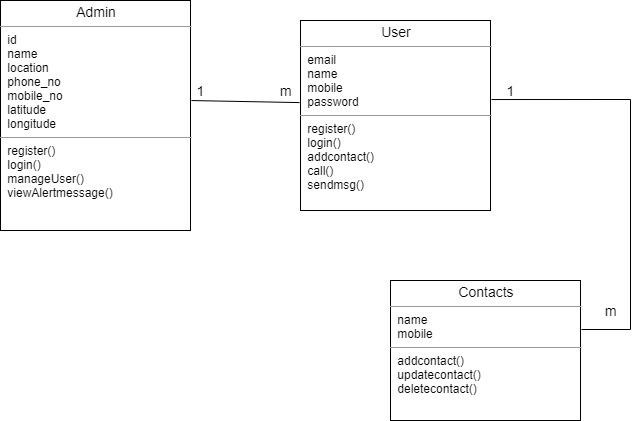
|  |  |
| --- | --- |
| **Task Name** | **Duration** |
| Getting Started | 2 weeks |
| System Design & Architecture | 2 week |
| Implementation | 7 weeks |
| Deployment | 4 weeks |
| Documentation | 12 weeks |



#### Figure 3. 3: Gantt chart for Women Safety Alert System

### Object Modelling: Class Diagram

The figure below is the class diagram for women safety alert system. In women safety alert system. There are three tables each of them has their own fields as user has email, name mobile and password where email, mobile and password are made unique, likewise contact has name and mobile where mobile has made unique and admin has id, name, location, phone number, mobile number, latitude and longitude where phone number and mobile number are made unique. In this system, user add contacts of their family, friends and police station and so on and admin manage the information of the users.



#### Figure 3.4: Class Diagram of Women Safety Alert System

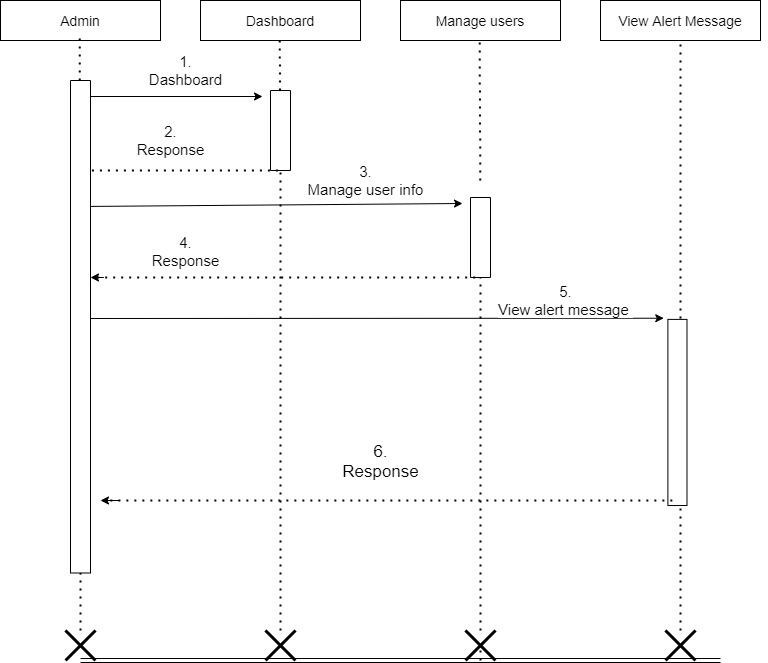
### Dynamic Modelling: State and Sequence Diagram

The sequence diagram used in this system helps to understand the existing and the requirements of the new features and applications.

**Sequence Diagram**

**For Admin**

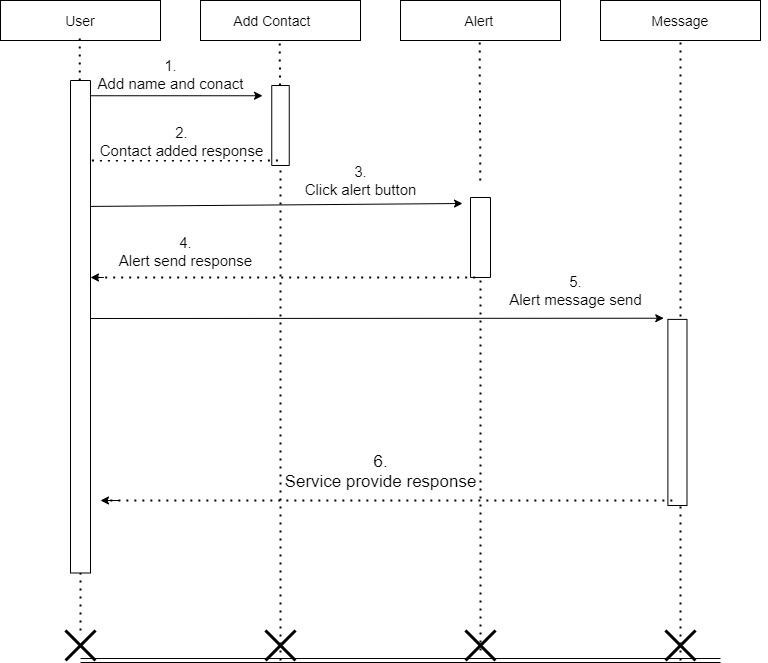
The admin needs to register with all their details then they need to login to the system after login, they redirect to dashboard page. They can manage information of the users, view the user’s message and their location.



**Figure 3.5: Sequence Diagram for Admin of Women Safety Alert System**

**For Users**

The user needs to register with all their details then they need to login to the system after login they have to add emergency contact of nearby person. And whenever they have problem, they need to press alert button and emergency message will send to the contacts with their live location and they get help on time.

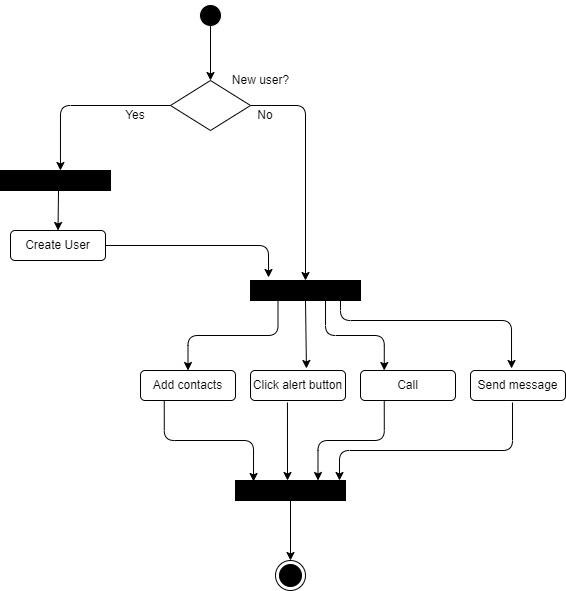


**Figure 3.6: Sequence Diagram for Users of Women Safety Alert System**

* + 1. **Process Modelling: Activity Diagram Activity Diagram**

Activity diagram consists of the workflow of the system. The activity of the system begins

from creating a user and verifying a new user or not. After verifying that the user can add contacts, click on alert button and notify police station and close ones and send alert messages to them through sms.



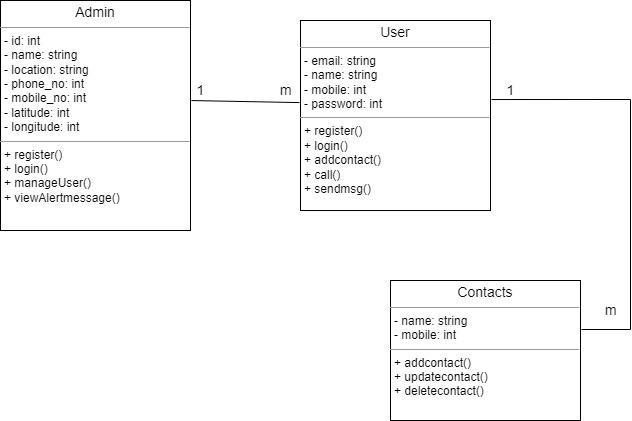
**Figure 3.7: Activity Diagram for Women Safety Alert System**

## System Design

To realize the different functional requirement of the system in graphical form, different design diagram of the system has been prepared which are as follows:

### Refinement of classes and object

The figure below is the refinement of class diagram for women safety alert system. In women safety alert system, there are three tables each of them has their own field as user has email, name mobile and password likewise contact has name and mobile and admin has id, name, location, phone number, mobile number, latitude and longitude. In this system, user register, login, add contacts of their family, friends and police station, make call and send message to them likewise admin register, login, manage the information of the users and view alert message. In this figure the minus (-) sign indicates private and plus (+) sign indicates public access.



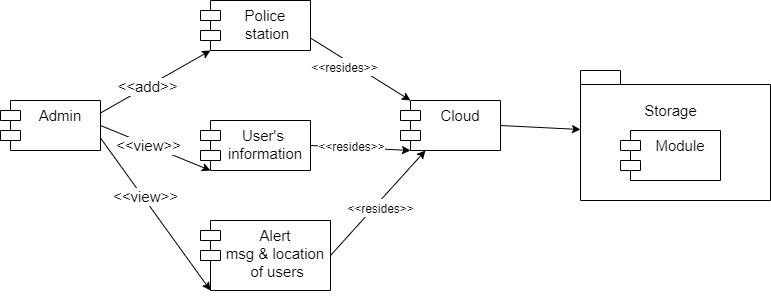
**Figure 3.8: Refinement of Classes and Object Diagram for Women Safety Alert System**

### Component Diagram

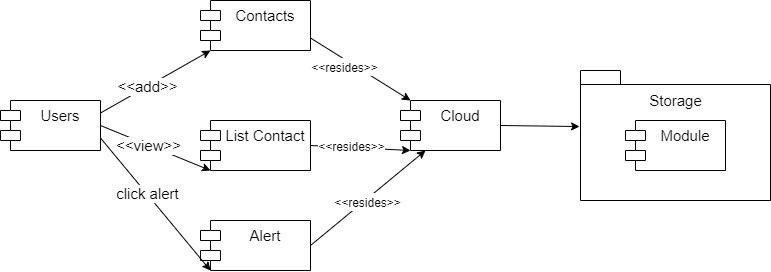
To visualize the physical components of the system and their dependency relationship, component diagram has been prepared.

Here admin can add the police station and view the information of the users. It can view the alert message and the location send by the users. Likewise, user can add contacts of their close ones which are stored in the database named contacts and can view list of contact and can send the message by clicking alert button.

**For Admin**



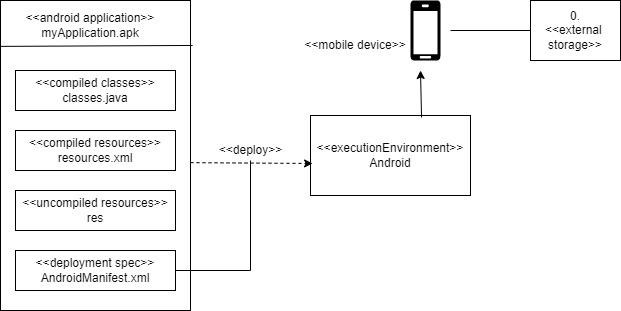
**For Users**



**Figure 3.9: Component Diagram for Women Safety Alert System**

### Deployment Diagram

The deployment diagram has been made to show the execution architecture of the system which includes nodes such as hardware and software components, and the middleware for the system execution.



**Figure 3.10: Deployment Diagram for Women Safety Alert System**

## Algorithm Details

**Haversine Formula**

The Haversine formula is the formula that calculates the shortest distance between two points using their latitudes and longitudes measured along the surface.

In this system, the Haversine formula is used to fetch the nearest police station. As in this system, whenever the user witnessing difficult situation, they make call to the nearest police station by simply clicking the button on app, system start to search the nearby police station via GPS using Haversine formula that calculate the distance between police station and user and after finding the nearby police station it proceeds to fetch the shortest path between police station and user and after finding the nearby police station it proceeds to fetch the shortest path.

The Haversine formula is frequently used for this purpose, as it gives us a way to relate latitudes and longitudes to great circle distances.

The weakness of this algorithm, it cannot know the obstacles that exist into the nearest point. This algorithm only calculates the distance based on a straight line. However, it is helpful for people to find the nearest point from their position. It is best if the method is combined with a database that records the location state of a place so that the search will be optimal.

The Haversine formula can result in an error of up to 0.5 and it can be explained that every 1 time calculation between Google distance and Haversine formula produces an accuracy rate of **98%**, meaning that the results of calculations using Haversine formula are almost close to the exact calculation using Google's default distance from Google.

In this system, Haversine formula is used to calculate the shortest distance between users and police station or contacts of users.

The Haversine can be expressed in trigonometric function as: Haversine(θ) = sin²(θ/2).

The Haversine of the central angle (which is d/r) is calculated by the following formula:

𝑑

𝐻𝑎𝑣𝑒𝑟𝑠𝑖𝑛 (𝑟) = ℎ𝑎𝑣𝑒𝑟𝑠𝑖(∅1 − ∅2) + cos(∅1)cos(∅2)ℎ𝑎𝑣𝑒𝑟𝑠𝑖𝑛(⋋1−⋋2)

Where,

r = radius,

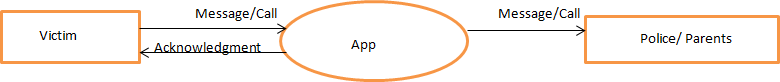
d = distance between two user and police station,

(∅1)= latitude of user,

(∅2) = latitude of police station,

(⋋1) = longitude of user and

(⋋2) = longitude of police station respectively.



**Figure 3.11: Algorithm Working Process Diagram for women safety alert system**

# CHAPTER: 4 IMPLEMENTATION AND TESTING

## Implementation

### Tools Used (CASE tools, Programming language, Database platforms)

Following are the tools and framework used for the accomplishment of this project:

* + - * **Android studio**

Android Studio is an official IDE (Integrated Development Environment) for Android application development that is used to create an app for the Android Platform. It is based on the IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools.

* + - * **Java**

In Women Safety Alert System, java programming language is used for back end development of the project.

* + - * **SQLite**

SQLite is use for storing all the information required to the database in women safety alert system. It is used for performing CRUD operation such as create, delete and update data from the database as requested by the user.

* + - * **MS Office**

This is used for writing and editing the documentation of women safety alert system

* + - * **Draw.io**

This is used to generate diagrams for system analysis and design of women safety alert system. Diagrams were created using this tool in order to save time since all components are available with drag and drop functions.

### Implementation Details of Modules

Modules of this system are described as below:

**User Module**

* + - * **User add/edit/delete category**

In this module, User can add, list, update and delete the categories in this existing system. The User start the action add by clicking on add category item button, User can add contact and contact name. The user can perform list action by clicking on the list categories. The page displays all the list of contact and contact name from the database. Likewise user perform edit and delete action by clicking edit and delete items button. And the user then chooses the category they want to edit and delete by clicking on edit and delete items.

* + - * **User Contact View List**

User can view all the list of contact. It includes all the details of the contact like name, contact number, email and password.

**Admin Module**

In admin module, admin can first register into the system by entering all the details required for registration and then they can log into the system by entering their username and password. After login success, they can go to dashboard page where they can view alert message and location of users and also manage the information of the users, police station and contacts of users.

**Login Module**

In login module, we have implemented user login and admin login. User can enter into the system using their valid email and password likewise admin can also login to the system using their valid username and password.

**Register Module**

In register module, we have implemented the User modules and admin modules where user can register into the system by entering all the details such as name, contact, email and password required to register. And then can log in to system with their valid email and password. Likewise, admin can register into system by entering all the details required for registration.

**Contact Module**

User can add contact details of police station and their close ones. It includes all the details of the contact like name, contact number and after adding they can list the contact and also edit delete the contact details.

**Alert Module**

In this module, user click on the alert button in case of emergency situation then call and alert message with their location is sent through sms to the nearest police station and police station can receive and view the message as well as live location of users.

**Call Module**

In this module, user facing dangerous situation click the alert button and after clicking call be gone to police station and they will receive their call.

* String dial = "tel:" + number;
* startActivity(new Intent(Intent.*ACTION\_CALL*, Uri.*parse*(Call)));

**Message Module**

In this module, user facing dangerous situation click the alert button and after clicking button alert message will be send to police station and closed ones through the sms and they will receive their message.

* SmsManager smsManager = SmsManager.*getDefault*();
* SmsManager.sendTextMessage(Call, scAddress:null, message, Statement:null, deliveryIntent:null);

## Testing

System testing is done by giving different training and testing datasets. This test is done to evaluate whether the system is providing accurate summary or not. During the phase of the development of the system, our system is tested time and again. The series of testing conducted are as follow:

### Test Cases for Unit Testing

In unit testing, we designed the entire system in modularized pattern and each module is tested. Until we get the accurate output from the individual module, we work on the same module. The input forms is tested so that they do not accept invalid input.

**User Registration**

**Table 4. 2: Test case for User Registration of Women Safety Alert System.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.  No | Test Name | Input | Expected  Output | Actual  Output | Test  Result |
| 1. | Enter Invalid name, Email, Mobile no, password and click register  button | Name = Ghanashyam Dhungana Email = Ghanashyam Mobile\_no = 98432311396 Password =ghanashyam | Enter address | Registrati on Failed | Pass |
| 2. | Enter valid name, Email, Mobile no, password and click register  button | Name = Ghanashyam Dhungana Email = [dhunganaghanashyam@gmail.com](mailto:dhunganaghanashyam@gmail.com) Mobile\_no = 9843231139 Password =ghanashyam | Registrati on successful | Registrati on Success | Pass |

**User Login**

**Table 4. 3 : Test case for User Login of Women Safety Alert System.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.  No | Test Name | Input | Expected Output | Actual Output | Test Result |
| 1. | Enter Invalid Gmail and Password and click  login button | Gmail:dhunganaghanashyamgm ail.com  Password: dhunganaghanashyamgmail.com | Login Failed and  Login Failed!!! Massage is shown | Login Failed | Pass |
| 3. | Enter valid Gmail and password and click login  button | Gmail: [dhunganaghanashyam@gmail.co](mailto:dhunganaghanashyam@gmail.co) m  Password: 9843231139 | Login Successful And redirect to  dashboard | Redirect to Dashboard | Pass |

### Test Cases for System Testing

In system testing, whole system is tested as below:

**Test Plan**

**Table 4.4: Test case for Test Plan of Women Safety Alert System.**

|  |  |
| --- | --- |
| S.N. | Test Plan |
| 1 | To check if registration module works properly. |
| 2 | To check if login module works properly. |
| 3 | To check if add contact module works properly. |
| 4 | To check if alert module works properly. |

**Contact**

**Table 4.5: Test case for Contact of Women Safety Alert System.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.No. | Test Name | Input | Expected  Output | Actual  Output | Test  Result |
| 1. | Enter valid contact name and contact number and click save  button | Contact\_name: Ram Shah Contact\_no: 9847896578 | Contact added success | Contact added success | Pass |
| 2. | Enter invalid contact name and contact number | Contact\_name: Ram Shah Contact\_no: 984789657 | Contact\_no must be 10 digits | Contact added failed | Pass |

**Alert Message**

**Table 4.6: Test case for Alert Message of Women Safety Alert System.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.  No | Test Name | Input | Expected Output | Actual Output | Test Result |
| 1. | Alert Message | Click Alert Button | Alert message sent | Alert message sent | Pass |

**CHAPTER: 5**

**CONCLUSION AND FUTURE RECOMMENDATIONS**

## Lesson Learnt / Outcome

Every project makes us to learn and gain the knowledge in different aspects. In the following project, I have learned lots of problem-solving skills and learn things like finding the solution on our own, proper use of guidelines, communication and writing skills and management of team.

* + - **Problem Solving Skills**

From this project, I have learned lots of problem-solving skills and also learned to recognize different errors occur in this system and solve it.

* + - **Writing Skills**

I have learned how to prepare proposal and documentation related with project and also learned to use different case tools for use case diagram, schema diagram, data flow diagram, Activity diagram, component diagram, Object and class diagram and Deployment Diagram and so on.

* + - **Time Manage**

The most important lesson learnt was management of time according to the complexity of the system components i.e. know which components to prioritize.

## Conclusion

This project mostly focuses on providing security to users which include location-based services. Human security is a critical and social issue in today’s world. The crime (abuse, robbery, sexual assault, rape, domestic violence) against the women can be now brought to an end with the help of real system implementation of the proposed model. This app is user- friendly for humans. Whenever humans are in danger position he/she uses this app and alert their contacts by sending their location to nearby person. By simple touch, it sends the location to their contact and an alert message “need your help” to saved contact.

So, this system will be able to provide services to women during abuse, robbery, sexual assault, rape, domestic violence by sending alert call and message with the exact location of the users to the nearest police station and close ones. The users can install this app in

their smart phones and be able to call and send message by clicking on alert button. This system will be able to manage all the call and alert message and also all the details of the users and police station.

## Future Recommendations

In the future this app will be helpful for all humans. The future plans for this app are as follows:

* + - Features of sending video, image, etc. by the users can be added in the future.
    - OTP feature can be added.
    - Report of victim can be generated.

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# APPENDICES: SYSTEM SCREENSHOTS

