# Advanced women security app: We'RSafe

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**ABSTRACT**

The phrase "Violence against women" is a technical term used to collectively refer to acts that are primarily or exclusively committed against women to harm them. Woman security is a critical issue and it is much needed for every individual to act over such issue to safeguard them. When safety and security is concerned, a smart phone can become a powerful tool to prevent violence against women. Keeping this in mind, an android app has been developed which is dedicated to provide relief to the person in trouble. By clicking on a button (provided on the app) alert message is sent to the user's already saved contacts. The application shares the user's location with the registered contacts in the form of message. The application has other key features like "Alarming neighbors by loud noise", "Autodialing", "Finding location of nearby police station and hospitals" etc. The work is developed in Java Development Kit using Android Studio. Thus, the app acts like a sentinel following behind the person till the user feels she is safe.

**Keywords:** Android App, Alert Message, Harassment, Smartphone, Women Security.

## 1. INTRODUCTION

Swami Vivekananda stated that, "The best thermometer to the progress of a nation is its treatment of its women." Violence against women is a significant public health problem, as well as a fundamental violation of women's human rights.

The phrase "Violence against women" is a technical term used to collectively refer to violent acts that are primarily or exclusively committed against women. Similar to a hate crime, which it is sometimes considered, this type of violence targets a specific group with the victim's gender as a primary motive. The United Nations General Assembly defines "violence against women" as any act of gender-based violence that results in, or is likely to result in, physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." [1]

According to the reports of WHO, NCRB-social-government organization 35%Women all over the world are facing a lot of unethical physical harassment in public places such as railway-bus stands, foot paths etc. [2]

4 years ago on the night of December 16, 2012 the brutal gang rape of a paramedical student by six men on a moving bus in the national capital shook the nation for the sheer brutality and torture inflicted on the hapless girl. Thousands of youngsters protested on the streets of Delhi demanding justice for her. She finally succumbed to her injuries on December 29, 2012. [3]

The family members and colleagues of TCS software engineer Esther Anuhaya found her body with the help of a Vijayawada police team. Her parents spent the entire Thursday looking for her in Bhandup (East) as her last call signal on January 5th was from Bhandupeshwar Kund in Kanjurmarg, which falls under Bhandup (East) jurisdiction. The family had been trying to trace her where about by showing the locals her photographs. Locals said that the spot where her body was found is a hangout for criminals. The body of Anuhaya has been procured by Vijayawada police. [4]

Gender-based violence kills and disables as many women, aged 15-44, as cancer, malaria, traffic accidents and war combined. [4]

Hence there should be a system to protect them in such times. So, after studying some journals[5] [6] [7] [8] based on women security system and keeping in mind that, a smartphone is one technology which almost every women carries all the time, a app has been developed ( still in developing stage) to help women in such emergency situation. An 'app' is a small, specialised software program, easily downloadable and installed onto mobile devices such as Smartphone's or tablet computers. [9] The use of 'apps' has been popularised by Google's 'Play Store'. [9]

This paper describes a security application called 'We'RSafe' which will work as a helping hand for women at emergency situations. On pressing a button an alert message will be send to the user's registered contacts along with the user's current location. The application has other key features

like "Alarming neighbors by loud noise", "Autodialing", "Finding location of nearby police station and hospitals" etc. The work is developed in Java Development Kit using Android Studio. [10]

This paper is organized as follows. Section 2 describes why Android Operating System is used for this app as the developing platform. The features of 'We'RSafe' are described in section 3. Section 4 presents the experimental setup needed to develop an android application. The section 5 shows the workflow of the app followed by the working of the application described in section 6. And Finally, Section 7 concludes the paper with a scope of future modifications.

## 2. ANDROID OS: IDEAL PLATFORM FOR MOBILE APP DEVELOPMENT

Android is a mobile operating system developed by the Open Handset Alliance, led by Google, and other companies. Android is an open source and Linux-based Operating System for mobile devices. Android is designed primarily for touch screen mobile devices such as Smartphone and tablets. [11] Android's user interface is mainly based on direct manipulation, using touch gestures that loosely correspond to real-world actions, such as swiping, tapping and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input. In addition to touch screen devices, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with a specialized user interface. Variants of Android are also used on notebooks, game consoles, digital cameras, and other electronics. [12]

Android offers a unified approach to application development for mobile devices which means developers need only develop for Android, and their applications should be able to run on different devices powered by Android. The source code for Android is available under free and open source software licenses.

The few reasons which make android an ideal platform development is: Open source, Larger developer and community reach, Increased marketing, Inter App Integration, Reduce cost of development, Higher success ratio and Rich development environment.

Figure 1 shows the global mobile OS market share, in terms of sales to end users, from 2009 to 2016. In the third quarter of 2015, 84.7 percent of all smart phones sold to end users were phones with the Android operating system.
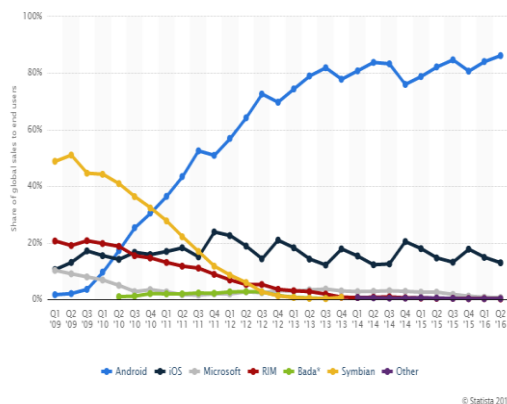


**Figure 1.** The global mobile OS market share, in terms of sales to end users, from 2009 to 2016

## 3. FEATURES OF 'We'RSafe' APP

In this section, the key features of the 'We'RSafe' App are listed below, which provides an overview of the system as well as explains why it is different from others.

### 3.1 Sign-in and maintain

(1) The first time users have to register to the app by entering the basic details of the user like Name, Phone no, Email-id, etc in the Signup Page.
(2) A one-time verification code will be send to the user's email-account. Then, the user will have to enter the verification code in order to complete the registration process. Then, a message will be send to the user's mobile number for completing the registration successfully. The user now can access the main features of the app.
(3) User will be able to manage their Emergency Contacts using the Add Emergency Contacts option.

### 3.2 At emergency situations

(1) There is an Alarm Button. On pressing the alarm button, a police siren (a shrill and loud noise) will be activated which will get the attention of nearby.
(2) There is an Emergency Call Button. On pressing that button an emergency number will be autodialed.
(3) There is a Panic Button. On pressing that button once, an alert message will be send to the emergency contacts along with his/her current location. In case, the user does not have an internet connection then only alert message will be send.
(4) There is an Available Hospitals and Police Stations Button. On pressing that button, there will be two modes available, like offline mode and online mode.
    i.    The user can use the offline mode in case if the user does not have an internet connection. On pressing this mode, it provides information about nearby police stations and hospitals according to the fixed area-wise.
    ii.    The user can use the online mode in case, if the user has an internet connection. On pressing this mode, it provides information about nearby police stations and hospitals according to the user's current location.

### 3.3 Record and share story

(1) There is a Recording Button. It will record (Video) what's happening at the crime scene. Then the recording will be sent to the recipient's mail. If the user does not have the internet connection, then the recordings will be saved hidden in the device which can be used later.
(2) There is a De-Stress Button. If the user feels that he/she is safe now then he/she can press this button. On pressing de-stress button, automatically a message ("I am safe now.") will be send to the user's emergency contacts.
(3) There is a Post/Share Story button. This is another interesting option where the users can share their stories in social media. If the user has witnessed any crime incident or he/she has been a victim, then also he/she can share his/her incident.
(4) Tips Feed is another unique feature of our app. Here, the user will get updates on the crime scene in India and

safety tips.

## 4. EXPERIMENTAL SETUP

The experiments were performed using an Intel(R) Core(TM) i5 4210U CPU @1.70 GHz processor with 4GB RAM, 2GB of available disk space (minimum) and 1GB space for Android SDK. The operating system is Windows 7 or above (32-bit or 64-bit) and the screen resolution must be 1280 x 800 (minimum). The software requirements are Java Development Kit 8 or higher and Android Studio 2.1.

## 5. WORKFLOW-DIAGRAM

In this section, the workflow diagram of the We'RSafe App is displayed, which describes the main features of the App and explains how each section is related with others as shown in Figure 2.
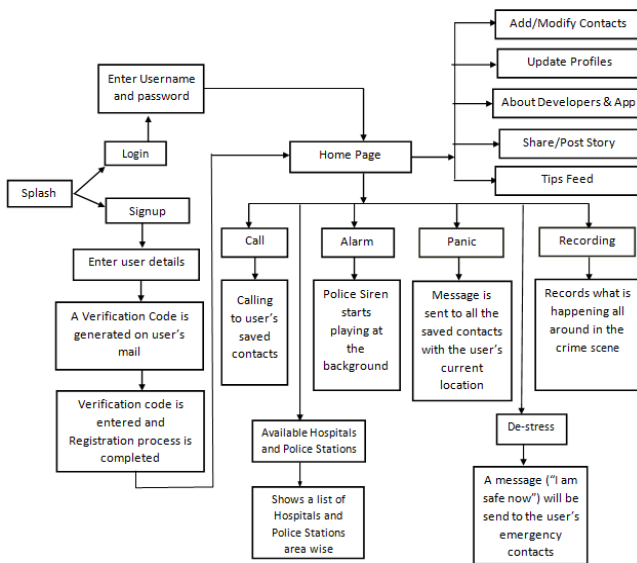


**Figure 2.** Work flow diagram of the We'RSafe app

## 6. RESULT AND DISCUSSION

In this section, few output pages from the developed 'We'RSafe' app, has been shown along with its main features.

(1) First Page is Splash, a screen which is used to display the logo of the app, which appears for few seconds before loading the components. The same logo is displayed as icon on your mobile screen which is shown in Figure 3.

(2) The Sign-in Page has two options: Login and Signup button as shown in Figure 4. Login button is used for already registered user to access our app while Signup button is used for new first time user for creating an account in our app and accessing our app.

(3) The Signup page is a screen asking new users to enter their details like username, password, phone number, e-mail id, etc. as displayed in Figure 5. Once he/she is a registered user, only login page will appear if he/she is logged out from the app.
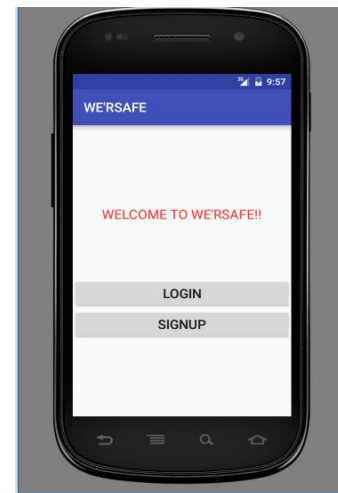


**Figure 3.** Logo of the app



**Figure 4.** Sign-in page of the app



**Figure 5.** Sign up page of the app

(4) The Main Page is a screen which displays the main features of our app like call, recording, alarm, etc. as shown in Figure 6.

(5) As soon as the user clicks the Emergency Call button, an emergency contact number, saved by the user, will be

autodialed. The screenshot of calling someone during emergency situations is shown in Figure 7.
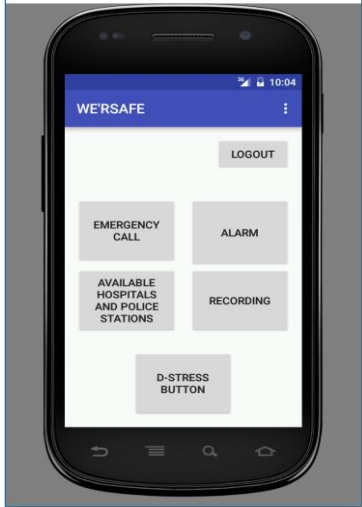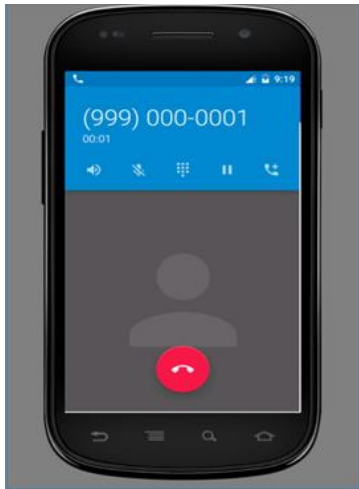


**Figure 6.** Main page of the app



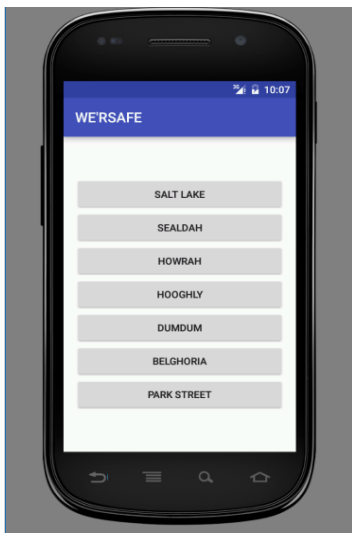**Figure 7.** Calling an emergency contact number



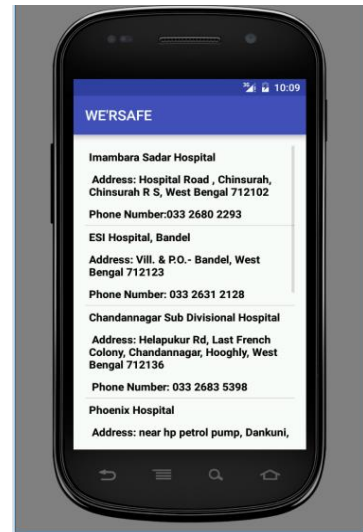**Figure 8.** A list of areas is shown



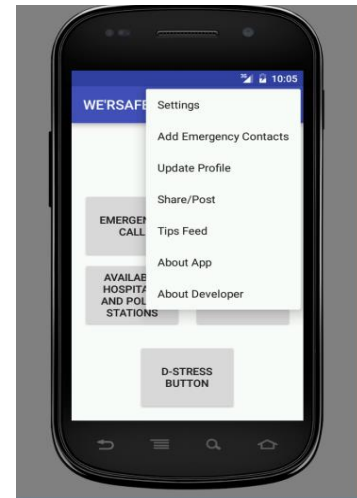**Figure 9.** Available hospitals and police stations in Hooghly



**Figure 10.** Available options of the app



**Figure 11.** Add/modify contacts of the app

(6) As soon as the user clicks on the "Available Hospitals and Police Stations" button, a list of various areas is displayed in offline mode as shown in Figure 8. On

clicking one of the areas like Hooghly, a list of available nearby hospitals and police stations are displayed separately as shown in Figure 9.

(7) There are several options available in the menu like update profile, add/modify contacts, tips feed, etc as shown in Figure 10. The "Add/Modify Contacts" Option is a screen asking for name and contact number where the user can view, add, modify, delete, etc. as shown in Figure 11.

## 7. CONCLUSIONS

It can be concluded that our WE'RSAFE App provides a safe and secure environment to the women in the society, and allows them to work till late nights. Anyone before doing any crime against the women will be deterred and it help reducing the crime rate against the women. This application will act like a weapon for women that will ensure the safety and security which works on the Smartphone with the android operating system.

With further research and innovation, our project can be implemented on a small wearable device like watch, pendent, wristband which will be build using GPS and GSM modules. On triggering this system the GPS data will acquired by the GPS module and will encoded into a valid Google maps link and send through text messages to enlisted family, friends.

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