WS-APP Women's Safety System Based on Android Application

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Abstract: *Women ensured stability, progress and the long-term development of nations throughout history. If women are subjected to violence and harassment, they are cannot really be incorporated into society. With increasing heinous incidents involving women and children, advanced the system is needed to serve the purpose of getting help as soon as possible How is it possible. Currently has the use of smart phones grew rapidly, making it possible to use a smartphone effectively for security or other protective purposes. All recent cruel incidents have made us think about where to go security issues. Crimes against women can be minimized with the help of our "WS-APP" app. It's an android app for women safety although men can also use in an emergency. It can be activated by voice command or SOS key. A location alert message will be sent on user-defined numbers every five minutes until the system is off. Many cases remain mysterious because lack of evidence. So we kept the audio recording option preserve evidence. Continuous location tracking, display victim safe zone, offline mode is one of the most useful properties of this system.*

Keywords: Women Security, Android Application, Voice Command, Location Tracking, Offline, Safe Zone

I. INTRODUCTION

While the government has taken many steps, crime rate against women does not minimize [3]. Grows daily at a shocking rate. Eve teasing, harassing, harassment, rape, domestic violence, kidnapping it becomes part of everyday life. The safety of many women applications were submitted to deal with this extraordinary event situation [1]. Here we present the Android app ensures the safety of women and minimizes the danger thereby identification of the position of the person at risk.

The main function of the application is that first the user must make sure the app is on when it exits. Whenever any unfortunate event happens, he has to press SOS or he can shout to give a voice command to launch the main application functions. After starting the main function will be send an emergency message with the current location of the victim registered contacts. And also calls on helpline number. At the same time, the sound will start record. The app can do live streaming so registered contacts can see the current location of the victim time from time. We also kept the system offline. After the application is being worked on, the user must shut it down to stop it functionality.

Industry 4.0 and the Internet of Things (IoT) are two of them the hottest passwords in real technology. Industry seeks to promote communication between humans and technology. It aims for a more developed world as well as a safer and a simpler system for everyday life and that's what our work is for purpose successfully. Our work is related to intelligence computing and security system, we hope to succeed any input on this.

The remainder of the paper is organized as follows. Section II presents related work. In section III proposed the methodology of the system and the system are introduced the design is illustrated using diagrams. Section IV provides briefly the results and uniqueness of our system. Finally, Section V presents a comparison table with some existing ones systems and section VI concludes this article and future work.

II. RELATED WORK

It is a very unfortunate finding that there has been a shocking increase in crimes against women [5]. In the first six months of 2019, 731 rapes were reported in Bangladesh, which shows how important it is to do something now to reduce it. We have acquired knowledge related to this purpose and studied many articles related to this project.

There is an app called "Raksha-women safety alert". This Raksha app was created for the safety of women so that a

woman will always feel safe. It sends warning messages with placement on specified contacts [6].

Here is another app called "I Go Safely" [7]. This app sends a 30-second audio and video clip to registered contacts along with an emergency message. The app is activated if the user shakes the phone or drops the phone. But if someone accidentally shakes the phone, it will start working, which can cause unnecessary problems. Another application is similar called "Shake to alert" [8].

Another example of an application called "Safety pin". The app has some features like emergency contact numbers, GPS tracking. In times of danger, the app will pin safe areas along with their safety scores. It allows users to identify areas that are potentially dangerous helping others [4].

"Abhaya" is another security android app women. Identifies the location of a place using GPS and sends a message containing this to registered contacts location URL and also calls the first registered contact to help in dangerous situations. This app a unique feature is to send a message continuously registered contacts every five minutes until "stop" click the button in the app. Continuous SMS Location tracking helps to locate the victim quickly and save safely [9].

After studying some papers including applications above, we have come to the fact that even though they exist various applications that serve the same purpose as ours, they lack some functions. For example, some send Location URL but cannot display safe locations; some can live broadcast but no recording can be made to be preserved evidence etc. These facts led to the consideration of creating a new one an app that has all these features together guarantee a safer life.

III. PROPOSED SYSTEM

Our system is designed to be unique from other existing applications by integrating all the features that these applications offer. The user must initialize the application by registering. User can login using registered email and password. The user has to manually enter three contact numbers. They will be registered in the Firebase database. Every time the user uses this application, he needs launch the application by turning on/off the button. Then the application it will start working until the user turns it off. Whenever the user presses the SOS button or shouts in voice the app command will start standby and will send an alert message containing the username location to registered contacts. The location will be sent in every 5 minutes to contacts so that if a person change their place, they can know about it and reach ask for help. There is also a live broadcast system. When a user travels from one place to another, registered contacts can track his/her positions using Geofire.

There is a sound recording system. After getting the system starts recording the SOS command surroundings for the first 5 minutes for the user to use it later as evidence. With the safe zone option, the user can see closer police station via map. Except in an emergency contacts, there is another option called emergency number which is the country's helpline number. Whenever the application receives an SOS command, it calls it number which is toll free. The user must help place this line number manually because we are planning this app worldwide use.

Sometimes the user may run out of money and cannot use it data to use all functions in an emergency situation. Knowledge that we have planned an offline mode where the app can send an alert message but no location, can call the helpline number and make a sound record. This feature was added to minimize danger, so that in any situation the user can get help. Although the app cannot send location with this function, but the user's family may know her path and may ask for help or at least may know that he is in danger.

We used android studio 3.3.2 and java jdk 11.0 to create our "WS-APP" app. To use all features, the app does not require any external hardware. And it can be used with any GPS-enabled Android phone.

Use case model and flowchart below is a proposed system to facilitate this understand all the working methodology of our system.
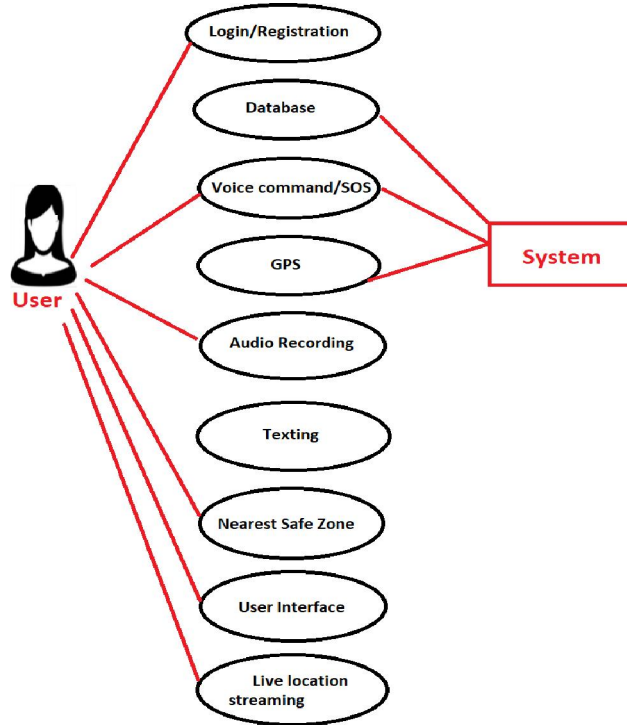
3.1 Use Case Model of the Proposed System

Fig 1: Use-Case Model

Figure 1 presents a use case model of our system "WS-APP" where the user has access to login / Registration page, previously saved audio recording files, user interface, map and can give voice commands/SOS. The system can use database, GPS, recordings, can send texts and can receive voice/SOS commands.
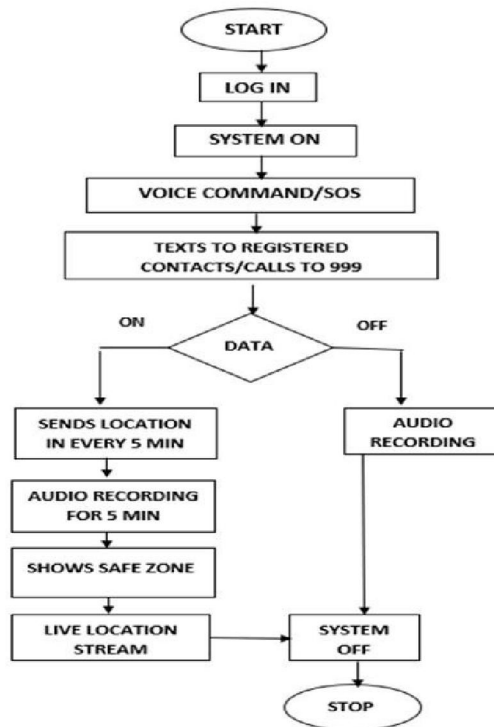
3.2 Flow Diagram of the System

Figure 2: Flow diagram of the system

Figure 2 presents the flow diagram of the system. After logging in, the system needs to be turned on, then it will start working in background. After receiving the command, the system will start working as above methods.

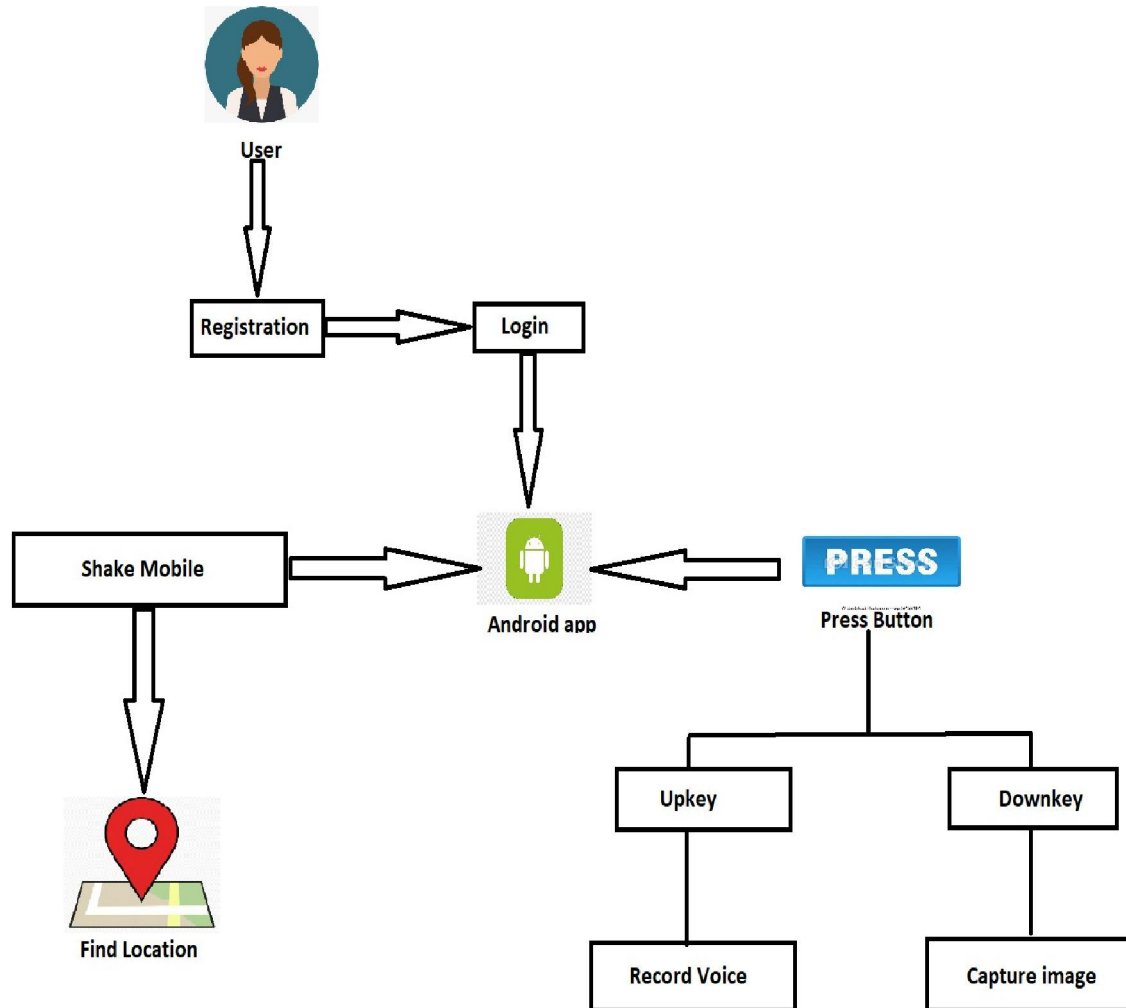## IV. ARCHITECTURE DIAGRAM

Fig 3: System Architecture

Figure 3 Represents the Architecture of the system. User(women's) install the WS-APP and register the app then Login the application and give some permission like camera, location, etc. for an application then user take advantages of this application.

V. CONCLUSION & FUTURE WORK

This paper proposes a new security model for women aims to provide a very safe environment. Many unhappy the incidents occurred in the case of women. Problems can come from anywhere. This article analyzes the key needs intelligent security system with technological requirements and system building challenges. From the forecast like that an incident is not possible, so we can minimize it mobile app will be very useful. Not only will it help women, but also children, because they can work with the voice command that the child can easily control. And men can also use it when they face great difficulties and need help. Not only in sexual problems, it can be used when someone faces an accident, kidnapping or public assault. Whenever someone is in danger, our system will do it to help reduce risk and make the world a better place safer place.

We will work to make it more secure in the future so that we can reduce crime at the lowest level possible. We plan to implement two unique features in this app that are new to security application. This is hidden camera and microphone detection. Because it is also a safety issue for women. The user can check for hidden camera or microphone in place.

There are two ways to find the hidden one camera using our mobile app. One of them is to search magnetic activity and another is to detect invisible white light. We will use a magnetic sensor smartphone hardware (magnetometer) a infrared sensor (IR) in the camera for detecting hidden Camera. User can move their phone suspicious area, if a strong field is detected, the user can be sure of the hidden device that is secreted inside wall or object. Another way is light detection reflected from the lens that can be captured phone camera.

Another feature we want to implement in the future is designation of risk locations. If any user faces any bad situation at any location, they can mark that location as danger zone. The next user can then be notified our system if they approach this zone. We hope these features will make it more useful and reliable.

VI. ACKNOWLEDGMENT

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BIOGRAPHY

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