# Android Application for Security of Senior Citizens: Analysis and Implementation

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**Abstract**: — The most pressing issue to far has been how to ensure the safety of senior citizens. Additionally, among older persons, falls, burns, poisoning, and car accidents are the most frequent safety issues. These days, the majority of older citizens carry their smartphone about, thus it is essential to have at least one personal safety app installed.Anyone who has loaded this user-friendly software on their smartphone can access it. Our goal is to make it as quick and easy as possible for you to contact the local aid. In this system, the user must enter three contact numbers; in the event of an emergency, the system will call one of the numbers entered into the system and send an SMS with the user's location once the user moves the phone up and down three times.

**Introduction**

One-fifth of the world's population, including a third of the impoverished and an eighth of the elderly, resides in India. As a result, the world is interested in its approach to delivering social security to the elderly. Senior citizen security is meant to help persons who, for temporary or long-term reasons, are unable to work and support themselves. In more developed countries, social security is a fundamental component of the level of living (MDCs).However, the amount of vulnerability in the Less Developed Countries (LDCs) is significantly greater than the risks typically addressed by the social security systems that are present in the MDCs because of chronic unemployment and acute deprivation that are inherent in the social structures. An important restriction in LDCs is the economic viability providing social security at a comparable level.

On this world, there are about 600 million persons above the age of 60. This number is anticipated to increase fourfold to two billion by the year 2050. a report from Help Age and the United Nations Population Fund (UNFPA) India currently has about 100 million older individuals, and by the year 2050, that figure is projected to rise to 323 million, or 20 percent of the country's whole population. Ages that are close to or have passed the typical human lifespan are considered elderly or old. The accurate definition of old age is impossible because the term has different connotations among social groups.

According to the Maintenance and Welfare of Parents and Senior Citizens Act of 2007, a senior citizen is any Indian citizen who is 60 years of age or older. The biological truth of ageing is essentially outside of our control. However, it is also dependent on how society conceptualises ageing. In the developed world, the passage of time is crucial. In the industrialised world, retirement is generally considered to begin at age 60 or 65, which also marks the start of old age. In contrast, some socially constructed definitions of age are more prevalent in emerging nations, such as the roles that are given to the elderly.

Senior citizens have trouble using modern devices. What if we reduce the number of programmes we install and enlarge the font? But if a smartphone isn't smart enough, what good is having one? Right? Installing apps that are created specifically for elderly users is a better approach.

And that's how Senior Citizen Security, or SCS, operates. At this point, Senior Citizens can access a life-saving piece of technology. The best and safest tool against the corrupt minds that exist in society is these apps, which can provide an unseen defence. This programme gives older citizens an easy and comfortable method to live their lives by offering SOS, Healthcare, Safe Stays, and other functions

## I. LITERATURE SURVEY

### A. An Android App Rapid SoS+

A power full emergency, One touch SOS alert is provided by the programme, but what's more intriguing is that it may dial 9-1-1 on behalf of a loved one and communicate that person's current position and other relevant information to the nearest dispatch centre. So, if necessary, their request can be sent (RapidSOS, n.d.) In addition, it allows users to check in when they reach at their location and use GPS to make sure their family members are safe.

### B. An Android Application for Senior Citizen Emergency

bSafe is a mobile application for Android that offers the user multiple options; specifically, four services are offered: bSafe Alarm, Follow me, Timer Alarm, and Fake call. The first one is designed for sending an SMS that includes the user's location; however, in addition to the location, audio and video data may also be sent. An automatic recording is started when this option is selected, and the recorded information is forwarded to the designated number or

numbers. In this application, the user can create a friend cycle with as many numbers as desired, and these numbers can be changed as often as the user likes. The second choice enables real-time tracking of the user's location on the map. In the third option, the user can specify when he expects to arrive at a particular area. If he does not arrive within the specified time, an SMS message containing his current location will be sent. The final but not least choice offers a face-to-face call.

### C.  Emergency alarm security system

A model built on SySML and a process to ensure the safe and secure design of cyber-physical systems. The Generic Systems Engineering analysis is used to offer a system specification at first, and SySML notation is used to express a safety scenario. Identification of potential assault scenarios is made possible by the combination of these two. To create security structures with communication and encryption restrictions, a qualitative evaluation of the attack scenario probability of occurrence and success is used.

### D.  An Android Security App - SaveME 999

The Royal Malaysian Police (PDRM) and Telekom Malaysia (TM) collaborated on this application, which is available to Malaysian nationals and enables victims to call for assistance by pressing a panic button. If the panic button is pressed, MERS 999 Response Centre (MERS 999 RC) will get the victim's details and the victim's present position. If there is any further information, it can be included with the emergency message and transmitted to MERS 999 RC (thecinnaboy, 2016). With location detection, users can call helplines to obtain information and specifics on local emergencies.

## II.  PROPOSED SYSTEM

The application SCS (Senior Citizen Security) is created utilising the IDE Android Studio and the backend programming language Java. It was created with an API level objective of 26 and a minimum of 17 for the Android operating system. The android smartphone is fully functional and has the application installed.

Senior folks' protection in emergency scenarios is the major focus of this Android application. Senior citizens around the world are therefore the primary end consumers.

The android application's planned architecture is displayed. Activity, service, and broadcast receiver must all be combined properly to ensure that the offered solution operates smoothly. A window is created by an activity to place UI (user interface) elements when the user interacts with it. Multiple activities can be included in an Android application, allowing numerous screens to communicate with one another. In the suggested method, the user requests to start the service that determines current position by sending a request through a view in an activity.

Five main functions make up this end-user application

- ➢ Emergency button with one click
- ➢ Lists of pre-mentioned emergency contacts
- ➢ Nearby safe stay
- ➢ Legal Rights module and
- ➢ Healthcare

## III.  USER INTERFACE

The main interface contains a SOS button, which helps the users to take help in any emergency situations. When a user presses the SOS button, the user's current position, a "Help" text message, and the number of a nearby police station are sent. The police will be able to track both the user's location and real-time location using Google Maps and Google

navigation APIs. The driver will receive the contact information so that he or she can reach a certain place.

The most widely used service for enhancing location awareness with automatic position tracking, geofencing, and activity detection is Google Location Services API.

The first main feature is EMERGECY CONTACTS which enable the user to to add immediate and contacts of the close ones, which will help in single tap call in case of emergency.

The second feature is SAFE STAY NEAR ME.This is a significant tool because it gives users access to information on hospitals, hotels, and dorms near their present location.

The third and most important feature is LEGAL RIGHTS which will serve the user in gaining knowledge regarding their Basic Rights, which will help them in case of conflicts and malpractices on them, and make them feel confident and secured.

The fourth feature is HEALTHCARE which provides the user, all the locations of nearby healthcare centers/hospitals and its detail to contact them in a go.

## IV. ALGORITHM

The algorithm is chosen to give the system the capacity to deal with a variety of emergency situations. To ensure good system performance and to satisfy user requests, we combined the existing FCFS queue (First Come, First Served) scheduling approach with Dijkstra's algorithm. Dijkstra's approach, in contrast, looks for the quickest route between a user-selected source and a destination. In the event of heavy traffic, a different route with a different duration is chosen.

In this application, the Dijkstra algorithm is utilised to assist police and ambulances in locating individuals who require immediate medical attention when available resources are insufficient. The Dijkstra algorithm is used by the Google Maps API to direct a guiding GPS device as we travel to our destination utilising various modes of transportation, providing estimates of traffic conditions and travel times.

The end user, the receiver, and the system administrator are the three key users who operate SCS.

The use case diagram for the programme, which displays the actions and connections made by each system user, is provided below. The figure shows how functionalities are available to the user, receiver, and administrator. The system's operation and interface serve as common connecting points for the three actors.

Fig claims that users have the primary obligation for responding to the alarm as quickly as possible. Additionally, the admin user plays a crucial role in managing all requests and generating alarms.

We are using the Google Map API to obtain real-time data from Firebase, where the coordinates of the user and driver locations are saved. Similar to this, the information entered by users into the in-app basic information form, such as mechanic and hospital details, SOS (Save Our Souls) numbers, and details (text and photographs), is also maintained in the Firebase real-time database and local storage, the user's phone number and the Firebase cloud messaging service.

## V. RESULT AND CONCLUSION

For senior citizens, the app will function as a security tool to safeguard their safety. Any handheld device running the Android operating system can use this application. This programme offers a variety of useful options for communicating with specified contacts and calling nearby police stations while automatically providing the user's precise location. They learn to accept and live with the difficulties of their frail and declining physical condition, as

well as the loss of control at various levels, such as when they fall, from incontinence, and from the stigma of having to deal with an embarrassing situation, in order to cope efficiently.While older persons strive for maximum independence, they also rely on community care. They fortify their resolve in order to overcome their dread of falling.

This app's key benefit is that it combines four distinct functionalities into a single application. The user's location can be determined without an internet connection. Due to its four various features, it will more thoroughly safeguard the safety of Senior Citizens. Thus, this app will endure for a long time and will undoubtedly lower the chance of being a victim to the lowest possible level. Future development of this app could add more features to make it more user-friendly.
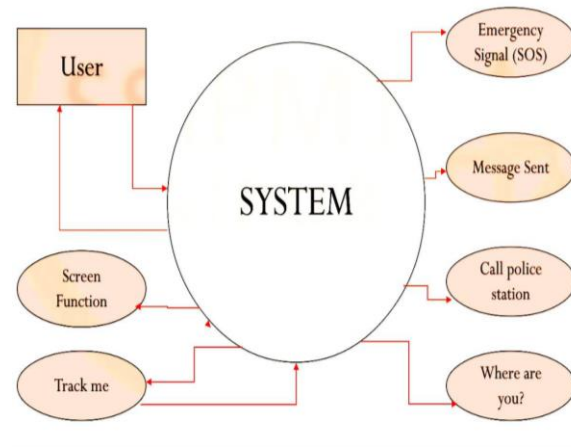


Fig. 1. **Architecture of the Android Application**



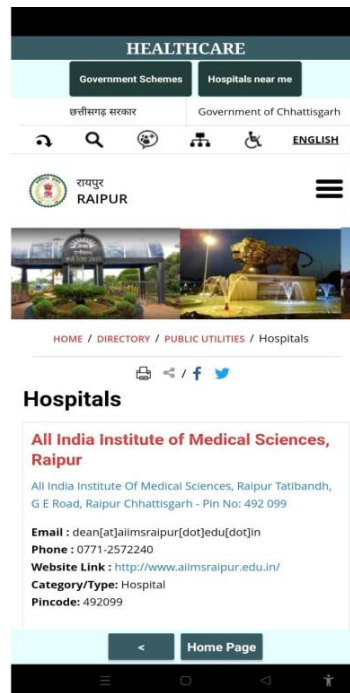Fig. 2. **Snapshot Of Home Page**
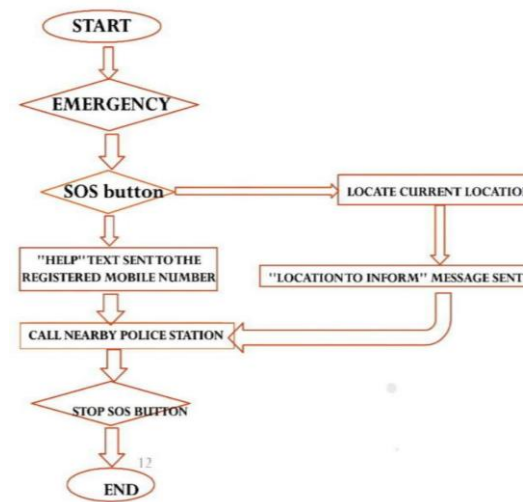
Fig. 3.  **Snapshot Of Working**



Fig. 4.  **Flow Chart**

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