



RescueLink Pro: Pioneering Android App for Intuitive Emergency Helpline Services and Assistance

Prof. S. H. Sangale¹, Ishika Mahajan², Shashwati Aware³, Gitanjali Gamane⁴, Dinah Khan⁵

*1 Professor, Department of Computer Technology, K. K. Wagh Polytechnic, Nashik, Maharashtra, India

*2,3,4,5 Student, Department of Computer Technology, K. K. Wagh Polytechnic, Nashik, Maharashtra, India

ABSTRACT: *In this modern era, smartphones have become a constitutive part of our lives. Equipped with numerous features and advanced sensors which can be used to collect data. So why not use smartphones to handle real time emergency situations? This paper proposes the development of an android application which can send distress signal to their trusted contacts. Also providing easy access to emergency helpline services. The application focuses on evidence gathering making it finer than the existing SOS frameworks. The application needs audio, video, location and storage permissions to simultaneously alert the emergency contacts as well as recording audio of the scene which can be used later as evidence as well as the witness of the situation. The application has two types of alerts namely orange and red alert. Orange alert is used in case of uncertain travel situations where the user feels unsafe and want to notify their trusted contacts. Whereas Red alert is used in case of critical emergencies. In this case the user is tracked as well as audio files are being recorded in the background documenting the situation. The primary objective of this project is to enhance individual safety and security by equipping them with a powerful communication tool for use in difficult situations or emergencies.*

Keywords: *SOS, Android Application, SMS, Safety and Security, Women Safety*

I. INTRODUCTION

In today's fast-paced world, the safety and security of young people and civilians have become significant concerns due to the rising crime rates. Despite the rapid technological advancements, our environment remains inherently unsafe. We often require assistance from relevant authorities or trusted individuals. RescueLink Pro emerges as a beacon of reassurance in the face of unforeseen emergencies, offering users a comprehensive set of features designed to empower them to respond swiftly and effectively to varying degrees of urgency. With its intuitive interface and robust functionality, RescueLink Pro aims to provide individuals with the tools they need to navigate emergencies with confidence and peace of mind.

At the core of RescueLink Pro's capabilities are its distinct alert levels: Red Alert and Orange Alert. These alert systems serve as the foundation of the application, enabling users to communicate their distress and location to designated emergency contacts in real time. In an Orange Alert scenario, users can swiftly share their live location with trusted contacts, facilitating quick assistance and coordination. Meanwhile, the Red Alert feature elevates the level of response by not only transmitting the user's location but also streaming real-time audio, providing crucial insights into the user's situation and surroundings. In addition to its alert functionalities, the application includes an alarm feature that triggers the flashing of the device's flashlight and emits a loud ringing tone, serving as a beacon for assistance and increasing the user's visibility in distressing situations. Furthermore, RescueLink Pro enables users to record video footage directly within the application, allowing them to document the unfolding emergency comprehensively. These video recordings are securely stored both on the user's device and on remote servers, ensuring the preservation of crucial evidence for future reference or legal proceedings. Beyond its core functionalities, RescueLink Pro integrates multiple helpline numbers within the application, including police, women's helplines, and other essential services. This centralized resource hub streamlines the process of seeking help, minimizing response times, and maximizing the efficiency of emergency interventions. Prior to utilizing the application, users are required to log in, ensuring secure access to personalized emergency contact information and sensitive features. This authentication mechanism adds an essential layer of security, safeguarding against unauthorized access and preserving the integrity of the user's data and privacy.

II. PROBLEM STATEMENT

In today's fast-paced world, there is a pressing need for an innovative and user-friendly Android app that revolutionizes the way individuals access emergency helpline services and assistance. Existing emergency response systems often suffer from inefficiencies, lack of user-friendliness, and limited functionality. The project "RescueLink Pro" aims to address these issues

by developing a cutting-edge Android app that offers intuitive and efficient emergency helpline services. Its purpose is to provide a reliable and efficient means for users to seek immediate assistance during emergencies or critical situations. The app is designed to empower users to swiftly and effectively alert their designated emergency contacts, authorities, or first responders when they are facing threats to their safety or well-being. This includes but is not limited to situations such as medical emergencies, accidents, natural disasters, or personal security issues.

III. LITERATURE SURVEY:

1. Safety for HER: A systematic approach with coalescence of technology and citizens:

In real-life scenarios, identifying and promptly reporting potential emergencies is vital since emergencies might occur without adequate notification. The SOS app features two input categories: orange and red. In an emergency, a woman can select orange to send video feeds to the ICT (Information and communication technology) control center, which tracks travel and ensures safety. In case of an emergency, one can click the red button to initiate a notification to the "SOS Responder(s) and enrolled emergency contacts." Given the high likelihood that the SOS responder or responders would notice the notification and track the victim using real-time map positioning. The ICT command center could locate the problem by working with Patrol police, SOS responders, and other agencies based on the emergency notification. It's possible that the police command center has GPS live imaging capabilities.

2. Real-time Emergency Reporting and handling System:

Thanks to developments in internet and communication technologies, as well as reasonably priced network services, cell phones are already a common sight in our everyday life. Numerous top-notch and cutting-edge sensors are included in the devices' configuration. The goal of this research project is to develop a system that, in an emergency, enables users to use their cellphones to send an emergency signal to the authorities. It also aims to give an interactive map to the control center that shows the real-time location of the person in trouble. Citizens are kept safe as a result, and law enforcement has a way to handle crimes and crises.

3. Android Application for Emergency Helpline Services:

Technology can help resolve emergencies by providing useful support during the situation. The creation of an Android application to provide instant access to the phone numbers of the emergency hotline services for the relevant emergencies is suggested in this article. The recent rapid advances in technology have made it possible to transmit and acquire relevant information about emergencies more easily than ever before. The user can benefit from the many ways that modern mobile devices equipped with helpful sensors, such as GPS receivers and Wi-Fi, can assist them. In order for this system to function, a digital template of the user must be created and sent with their reliable contacts in case of emergency. This aids in properly preparing the responding team for the required situations. Under such sad circumstances, a system like this will also enable notifications to be issued to your family and friends (trusted contacts).

4. NEMO-SOS- A Future Trends in Smart Accident Alert Application:

The goal of the smartphone SOS alert software NEMO is to improve SOS capabilities. Since the software employs the device's accelerometer and gyroscope to detect accidents and provide alert messages, it was created as a mobile application. We always have our smartphones with us these days, which makes the SOS function useful. They use direct environmental sensing to get data on things like angular change, acceleration, and the strength of the geomagnetic field. We may access these sensors and obtain the raw sensor data by using the Android sensor framework. Our app may use the location APIs provided by Google Play services to retrieve the user's device's most recent location. The SOS alert application is then satisfied by our provision of Emergency SMS alert service. We use the Firebase Cloud to manage user data. We use industry best practices to create an optimized application.

IV. METHODOLOGY

This application is centered around individual security, enabling users to alert their emergency contacts (parents or trusted individuals) in unsafe situations and notify them during emergencies. Users can sign in by entering the required credentials to create their account. Once the account is created, the app requests the necessary permissions. In uncertain situations, the app assists users in reaching their parents or trusted contacts, allowing them to convey information during emergencies. The application operates in two modes: Orange Alert and Red Alert.

Orange Alert: By triggering the orange alert, users can share their location coordinates with emergency contacts using a Google Maps link, especially when traveling or facing undefined situations. The location updates at specified intervals and is sent via SMS to the emergency contacts. In case of low smartphone battery, the app notifies the user and seeks permission to send the location to emergency contacts for safety.

Red Alert: Triggering the red alert sends an alert message, along with the user's current location, to emergency contacts through SMS, updating at specific intervals. Additionally, the app automatically records a 30-second audio clip transmitted to emergency contacts and uploaded to the server if internet connectivity is available. Users can also perform video recording through the camera during emergencies, providing evidence of incidents.

In addition to these features, the application offers flash and alarm facilities to alert surrounding people. Emergency helpline numbers, such as women's helpline, ambulance services, and police station numbers, are provided for direct communication with specialized authorities when needed.

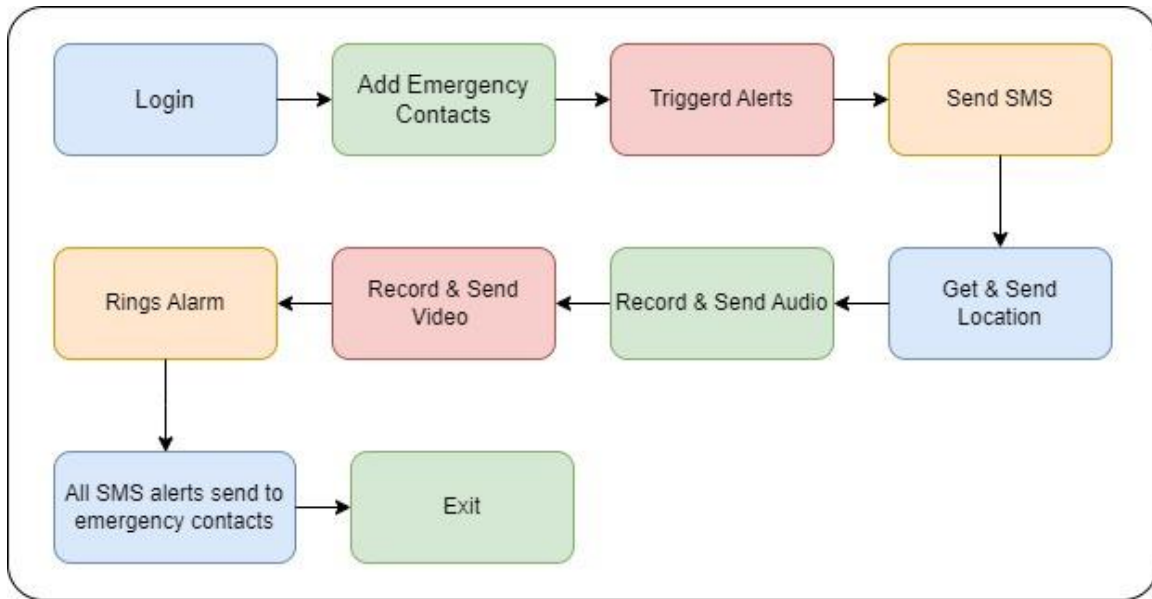


fig 1: block diagram

Features of RescueLink Pro:

- 1. User Account Creation:** Users can easily create an account by entering the required credentials. Once the account setup is complete, the application prompts users to grant the necessary permissions for optimal functionality.
- 2. Emergency Contacts Management:** During uncertain situations, the application serves as a reliable tool for users to quickly reach out to their parents or trusted contacts. Additionally, the app features a comprehensive system for users to store and manage emergency contacts, ensuring swift communication during critical moments.
- 3. Orange Alert:** Activating the Orange Alert allows users to efficiently transmit their real-time location coordinates to emergency contacts. The app provides a Google Maps link, enhancing contacts' visualization of the user's location. Whether the user is traveling or encountering an undefined situation, the app consistently updates and sends location details via SMS to the designated emergency contacts. In scenarios where the smartphone's battery is low, the app notifies the user and seeks permission to share the location for enhanced safety. This feature is particularly useful for situations requiring caution or attention, addressing moderate emergencies effectively.
- 4. Red Alert:** The Red Alert feature instantly sends urgent messages, including the user's current location, to emergency contacts via SMS. The app continuously updates the location at specified intervals. Moreover, the application automatically records a 30-second audio clip, transmitted to emergency contacts and uploaded to the server if an internet connection is available. This feature is designed for critical emergencies or life-threatening situations that demand immediate action. Users can also activate the camera for video recording during emergencies, providing crucial evidence for relevant authorities.
- 5. Flashlight and alarm:** Flash and alarm facilities are provided to promptly alert individuals in the vicinity to potential dangers.
- 6. Emergency Helpline Numbers:** Furthermore, the app offers a convenient compilation of emergency helpline numbers, including women's helpline, ambulance services, and police station contacts. This feature allows users to establish direct communication with relevant authorities when necessary.

Applications:

- 1. Collecting Evidences:** This app provides facility to record audio or video evidence of incidents and uploads to the server while alerting emergency contacts or authorities.
- 2. Personal Safety and Security:** With RescueLink Pro, individuals can quickly alert their emergency contacts in case of any danger or threat to their personal safety.
- 3. Travel Safety:** While traveling in unfamiliar areas, travellers can use RescueLink Pro to inform their emergency contacts and share real-time location updates, and call for help if they encounter any emergencies during their journey.
- 4. Emergency Helpline Directory:** This system includes a directory of emergency helplines and services, providing users with quick access to relevant authorities such as police, medical services, and other emergency contacts.

5. **Workplace Safety:** In workplaces employees can use the system to notify their employers or safety personnel about accidents, injuries, or security threats for quick response to the emergency situation for ensuring workplace safety.

V. CONCLUSION:

In conclusion, RescueLink Pro stands at the forefront of Android applications, offering a pioneering solution for intuitive emergency helpline services and assistance. By seamlessly combining advanced technologies with a user-centric design, the application not only addresses the immediate needs of users in crisis but also focuses on the crucial aspect of evidence gathering. The culmination of features, including continuous audio recording, real-time location updates, and video recording, positions RescueLink Pro as a pivotal tool for individuals navigating emergency situations. The commitment to user safety, efficient communication, and evidence-driven response makes RescueLink Pro a cornerstone in the evolution of contemporary emergency management applications.

REFERENCES

- [1] Logesh Rajendran, Shyam Shankaran R, "Safety for HER: A systematic approach with coalescence of technology and citizens", International Conference on Electronics, Computing and Communication Technologies (CONECCT), 2021.
- [2] Thosani Yash Bhavesh, Nagda Preet Kirti, Panchal Rutvik Rajendra and Dr. Nilakshi Jain, "Real-time Emergency Reporting and Handling System", Proc. IEEE Conf. on Artificial Intelligence and Smart Systems (ICAIS-2021).
- [3] S. Muthamilselvan, Chinmaya Joshi, Ananthajith Tea and Anoushka Dutta, "Android Application For Emergency Helpline Services", Proc. IEEE Conf. on Communication and Electronics Systems (ICCES 2018).
- [4] Saswati, Navin S K, Vasundhara L, Saran V S and Saisudha G, "NEMO-SOS- A Future Trends in Smart Accident Alert Application", International Conference on Power, Energy, Control and Transmission Systems (ICPECTS), 2022.

WEB REFERENCES

- [1] <https://ieeexplore.ieee.org/document/9622587>
- [2] <https://ieeexplore.ieee.org/document/9395754>
- [3] <https://ieeexplore.ieee.org/document/8723988>
- [4] <https://ieeexplore.ieee.org/document/10047341>

