S-HER: Smart & Secure Android App for Women

[1]R. Saketh Bhargava, [2]P. Subrahmanya Vikas, [3]Dr. R. Prema

[1]UG Student, [2]UG Student, [3]Assistant Professor
[1]Computer Science and Engineering Department,
[1]SCSVMV University, Kanchipuram, India
[1]sakethrallapally@gmail.com, [2]11219A032@kanchiuniv.ac.in, [3]rprema@kanchiuniv.ac.in

***Abstract*— The safety of women is a most important and crucial issue in present society, and it requires efficient technological solutions to be developed. The safety and security of women are necessary to ensure gender equality, individual welfare, and societal advancement. Women encounter numerous issues and threats in the form of harassment, violence, discrimination, and unequal availability of resources and opportunities. To counter these problems, joint efforts are being undertaken to raise awareness, promote women's rights, and put in place effective strategies for women's safety. This involves education and awareness campaigns that seek to transform attitudes and behaviors in society, promote respectful relationships, and counteract gender stereotypes and prejudices.**

Index Terms— **Emergency Response, Gender Equality, Protection, Security, Women's Safety**.

I. INTRODUCTION

Android app development has transformed how we communicate with technology, and it put a plethora of functionality and service at our finger tips. Android Studio, the official IDE for building Android applications, provides a full suite of tools and features that simplify the application development process. Its user-friendly interface, combined with an enormous set of in-built templates and code responsive apps. Android Studio also offers strong debugging and testing features to ensure the stability and reliability of applications developed. In addition, its integration with the Android Software Development Kit (SDK) allows for easy use of advanced APIs and libraries, which enable developers to realize the maximum potential of the Android platform. Women's safety and security are still essential societal issues.

Women tend to encounter all manner of harassment, violence, and discrimination in public as well as in private. Snippets, allows developers to create visually appealing and ensuring women's safety is not only a question of individual well-being but also a core element of gender equality. Women's safety can be tackled with a complex approach involving awareness campaigns, policy change, education initiatives, and technological solution development. By developing a woman safety application, this project aims to contribute to this ongoing effort. The application will provide women with tools to enhance their personal security, access emergency assistance, and foster a sense of empowerment in navigating their lives.

II. LITERATURE SURVEY

Women's safety is a matter of concern for the entire world, and rising incidents of violence against women have created a greater need for technology-based solutions for personal security. Android apps made specifically for women's safety have proven to be useful tools, leveraging capabilities such as GPS, emergency alerts, and real-time communication to ensure help in unsafe situations. This literature survey explores the development, functionality, and impact of various women safety Android applications. The evolution of women safety apps on Android has come a long way since the early days. The initial apps were mostly centered on emergency alert functions, enabling users to send out distress calls to pre-defined contacts. But with the evolution of technology, developers started adding more features like GPS tracking, location sharing, and wearable device integration, making these apps more effective overall.

[1]. ABHAYA: AN ANDROID APP FOR THE SAFETY OF WOMEN – This app focuses on enhancing women's safety through features like GPS tracking and emergency alerts. It offers a user-friendly interface for quick access to safety features. Drawbacks: It has limited functionality beyond emergency alerts and relies heavily on smartphones, which may exclude users without access to them.

[2]. S-ZONE: A SYSTEM FOR WOMEN SAFETY & SECURITY SYSTEM – This system integrates a mobile app with hardware components such as panic buttons. It includes real-time location tracking and alerts to family members. Drawbacks: The implementation can be costly due to the hardware and is dependent on network availability for proper functionality.

[3]. SHIELD: Personal Safety Application – SHIELD is designed to send emergency messages with location data and includes safety tips and resources.

[4]. Women Safety Android App – This is a straightforward app offering emergency alert features with voice command options for ease of use. Drawbacks: It offers limited features beyond basic alerts and is dependent on battery life and device accessibility, which can be problematic in emergencies.

[5]. Women Safety Mobile App – The app provides safety alerts and emergency contact options, emphasizing user awareness and engagement through educational content. Drawbacks: It may have limited awareness campaigns, affecting its uptake, and it could lack offline functionality in areas with poor connectivity.

III. METHODOLOGY

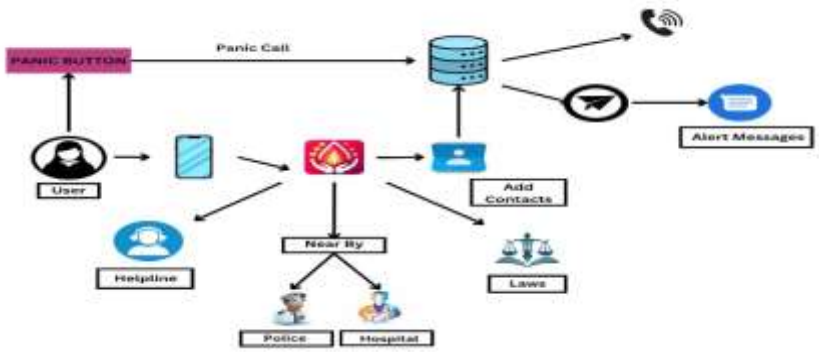
S-HER women safety app is designed with various interconnected modules in order to ensure all-round as well as ease of use during emergency safe guarding of women. The Main Activity Module is the entry point and home screen, which gives access to all the important features, including Contact Management, SMS Alerts, Women's Laws, Self-Defense Videos, and the Panic Button. All

modules are different in purpose: the Laws Activity Module informs users about women's safety laws through a well-readable format, while the Contact Activity Module enables users to control emergency contacts utilizing persistent storage and a dynamic Recycler View.

The Self-Defense Activity Module incorporates a Web View for easy viewing of instructional videos. The Panic Button Activity Module and SMS Activity Module equip users with SMS-based SOS notifications, complemented by location tracking for instant support. Sophisticated features such as the Shake Detection Module offer a simple safety feature by automatically activating the panic button through gestures.

Lastly, the GPS Module provides precise location tracking, allowing for quick responses in case of emergencies. All these modules collectively form a comprehensive system for women's safety, combining sophisticated technology with simplicity.

IV. ARCHITECTURE



V. RESULTS / OUTPUTS

The S-HER Women Safety Application is a complete Android application that aims to improve women's security using an easy-to-use, user-friendly interface and sophisticated functionality. The home screen of the application acts as a home page, providing simple navigation access to the major functionalities of emergency contact management, SOS messages, self-defense tutorial videos, and laws on women's safety. Emergency contacts are dynamically managed by the users using a Recycler View, and data is stored permanently through Shared Preferences. A dedicated panic button and SOS messaging capability allow for immediate distress messages, including GPS location, to be sent to registered contacts with a single tap or shake gesture, taking advantage of Android's SMS Manager and location services.

Fig-i: Start Page

Fig-ii: Home Screen

Fig-iii: Alerts Toggle Screen

Fig-iv: Alert Message in WhatsApp

Fig-v: Alert in Text Message

VI. Conclusion

The development of the S-HER application has addressed the critical need for women's safety in today's society. By leveraging advanced technologies such as Android Studio, Java, and XML, S-HER offers a comprehensive solution to empower women and enhance their personal security and safety. The application incorporates features like a shake detector, panic button, SOS alerts, and location tracking to ensure prompt assistance during emergencies. Additionally, the integration of nearby police stations and hospitals, women safety laws, self-defense videos, and national helpline numbers provides users with valuable resources and information.

The user-friendly interface and seamless functionalities make S-HER accessible and easy to navigate, further enhancing its effectiveness. The successful implementation of the project showcases the potential of technology in promoting women's safety and creating a safer environment. S-HER serves as a significant step forward in safeguarding women and raising awareness about their rights and well-being.

References

[1] Ravi Sekhar Yarrabothula Bramarambika Thota, “ABHAYA: AN ANDROID APP FOR THE SAFETY OF WOMEN,” IEEE, 1 December 2015.

[2] Alisha Maruti Gawade, Amruta Jadhav and Sachin Shankar Kumbhar, “S-ZONE: A SYSTEM FOR WOMEN SAFETY & SECURITY SYSTEM,” Journal of Information, Knowledge and Research In Electronics And Communication Engineering ISSN: 0975 – 6779| Nov 16 to Oct 17 | Volume – 04, Issue – 02.

[3] Sagar Khan, Harish Shinde, Ankita Zaroo, Rashmi Koushik , F. S. Ghodichor, “SHIELD: Personal Safety Application,” IRJET Volume: 04 Issue: 05 , May -2017.

[4] Piyush Bhanushali, Rahul Mange, Dama Paras, Prof. Chitra Bhole, “Women Safety Android App,” IRJET Journal - Volume 5 Issue4, April 04 , 2018.

[5] N. Ramesh Kannan , S. Sujitha, S. Ganapathy Subramanian, “Women Safety Mobile App,” International Journal on Cybernetics & Informatics (IJCI) Vol. 10, No.1/2, May 2021.

[6] Sen, Trisha, Arpita Dutta, Shubham Singh, and Vaegae Nveen Kumar. "ProTecht–Implementation of an IoT based 3–Way Women Safety Device." In 2019 3rd International conference on Electronics, Communication and Aerospace Technology (ICECA), pp. 1377-1384. IEEE, 2019.

[7] Tejonidhi, M. R., Chaithra KS Aishwarya, M. K. Dayana, and H. Nagamma. "IoT based smart security gadget for women’s safety." In 2019 1st international conference on advances in information technology (ICAIT) 2019.