WOMEN SAFETY APPLICATION USING FLUTTER

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ABSTRACT

Women's safety and security have grown to be a top priority in a time of fast technological advancement. The "Paavai" concept seeks to increase Women's safety and security have grown to be a top priority in a time of fast technological advancement. By creating a comprehensive women's safety mobile application that gives women the tools and resources they need to improve their personal safety and well-being, the "Paavai" initiative seeks to solve this urgent problem.The Paavai app makes use of the features available on modern mobiles to provide a complex strategy for women's protection. Real-time location tracking, emergency aid, social support, and educational resources are some of its main features. Users can easily allow trusted contacts to track their travels and act quickly in an emergency by sharing their location with them. Users can send alarm signals with their precise position to predefined contacts and neighbouring legal authorities via a covert SOS button in an emergency.

By giving users an online space to communicate with one another, give safety advice, and report problems anonymously, Paavai also promotes a sense of community. The social element increases women's safety while also helping to create a network of people who are committed to fighting for a safer environment for everyone.The Paavai initiative is an example of an intentional attempt to use technology for the safety and empowerment of women. We want to help make the world a safer place for women by building an accessible and user-friendly mobile app that also strengthens a sense of connection and self-assurance. Paavai aims to be a dynamic and essential instrument in the pursuit of women's safety and empowerment through regular enhancement and user feedback.

Keyword: - *Women Safety, Mobile Application, Empowerment, Personal Safety, Location Tracking*

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1. INTRODUCTION

1.1 OVERVIEW

In this era of advancements that have the potential to revolutionize our lives "Paavai" emerges as a symbol of empowerment and hope, for women worldwide. Despite going about their routines women still encounter safety hazards in different parts of the globe. The "Paavai" initiative seeks to redefine womens safety by utilizing state of the art technology to address these challenges.

Derived from the Tamil word for "woman " "Paavai" represents more than an application; it embodies solutions, reassurance and companionship. This innovative software has been thoughtfully developed with the goal of safeguarding, securing and empowering women across the globe.

To empower women in all aspects of their lives "Paavai" offers a range of features. Some noteworthy functionalities include real time location tracking, quick access to emergency support services a connected community for support and assistance as a wide array of educational resources. By integrating these elements "Paavai" aims to provide comprehensive solutions, for any safety concerns faced by women.

One of the main benefits of "Paavai" is realtime location tracking, which allows users to communicate their current location with trusted friends. These features are important for personal safety and the comfort of your friends and family. The app's standalone SOS button can be used to alert designated contacts and the right person in an emergency and ensure a quick response.

"Paavai" increases the sense of community as well as increasing security. Users can communicate with each other, share security tips, and post private events. This relationship creates a network of people who care about their health while promoting the protection of women.

When we release "Paavai" to the public, we want it to be functional, not just an app. A force that supports social development, women's empowerment and women's security. Together we can work together to make the world a safe and better place for women. "Paavai" represents our commitment to achieving this goal.

1.2 MOTIVATION:

The motivation behind a women's safety application project can be summarized in the following bullet points:

- **Addressing a Global Issue:** Women's safety is a pressing global concern, and this project aims to provide a practical solution to enhance it.
- **Empowering Women:** The project seeks to empower women by giving them the tools and knowledge to protect themselves and navigate the world with confidence.
- **Fostering a Safer Society:** By improving women's safety, the project contributes to creating a safer and more inclusive society for everyone.
- **Utilizing Technology:** Harnessing the power of technology to provide accessible and user-friendly safety solutions aligns with the digital age's capabilities.
- **Raising Awareness:** The project serves as a platform to raise awareness about women's safety issues, educating users and the broader community.
- **Community Support:** It aims to build a supportive community of users who can assist each other during critical moments and foster a sense of solidarity.
- **Data-Driven Solutions:** By collecting and analyzing data on incidents and user feedback, the project can continuously improve its safety features and strategies.
- **Equality and Gender Empowerment:** Promoting women's safety is a crucial step towards achieving gender equality and empowering women in all aspects of life.
- **Preventing Harassment and Violence:** The project's core objective is to prevent incidents of harassment and violence against women, creating a safer environment for them.
- **Legal and Ethical Responsibility:** There is a societal and moral responsibility to address the safety concerns faced by women and provide them with effective solutions.
- **Collaboration and Partnerships:** Collaborating with organizations, law enforcement, and communities can lead to a more comprehensive and impactful approach to women's safety.
- **Personal Security:** Ensuring personal security is a fundamental human right, and this project seeks to uphold and protect that right for women.
- **Inspiration for Change:** The project aims to inspire positive societal change by demonstrating that technology can be used for the betterment of individuals and communities.

1.3 SCOPE

- **Comprehensive Safety Features:** Develop an application with a wide range of safety features, including emergency assistance, location tracking, incident reporting, and safety tips, to cater to the diverse safety needs of women.
- **User Community and Support:** Create a supportive user community where women can connect, share experiences, and access resources, fostering a sense of solidarity and empowerment.
- **Educational Resources:** Provide a library of educational resources on safety, self-defense, legal rights, and gender equality to empower users with knowledge and awareness.
- **Privacy and Data Security:** Ensure robust data security and privacy measures to protect user information, building trust and compliance with data protection regulations.
- **Continuous Improvement and Growth:** Plan for ongoing updates, partnerships, and geographical expansion to adapt to evolving safety concerns, technological advancements, and user needs, ensuring the project's sustainability and relevance.

2. OBJECTIVES AND METHODOLOGY

2.1 PROBLEM SATEMENT

Women often face the threat of harassment, violence, and discrimination while navigating public spaces, whether in urban or rural areas. Existing safety measures, including traditional emergency services, do not always cater to the unique vulnerabilities and needs of women. Furthermore, the current landscape of women's safety applications is characterized by limited coverage, issues related to data accuracy and privacy, and challenges in user adoption and usability. Therefore, the problem statement for the women's safety application project is to develop a comprehensive and user-friendly solution that leverages technology to empower women with the tools and resources they need to enhance their personal security, report incidents, access assistance swiftly, and connect with a supportive community, thus addressing the multifaceted safety concerns faced by women today.

2.2 EXISTING SYSTEM

The existing system of women's safety applications comprises a variety of mobile and web-based platforms designed to address the safety concerns of women in different environments. These applications typically offer features such as emergency alerts, real-time location tracking, and the ability to connect with trusted contacts or emergency services in times of distress. Some also provide safety tips, educational resources, and incident reporting functionalities. However, the existing systems face challenges such as incomplete geographic coverage, limitations in the accuracy of location data, concerns about user privacy, and inconsistent user adoption rates. While these applications have made important strides in empowering women with safety tools, there remains a need for improved accessibility, usability, and comprehensive coverage to better serve the diverse needs of women seeking enhanced personal security in various settings.

2.3 PROPOSED SOLUTION

- This system is a flutter-based application which aims to serve a communication between the user and the emergency contact.
- User need to register themselves with their email id to utilize the application feature, if the user already had an account they can use that respective email id to login into the application.
- Now user can add their emergency contacts in the contacts page, they have to add at least one contact to use the SOS feature.
- User can trigger SOS action in the emergency situation by tapping the SOS alert button in the app or by shaking the phone.
- Upon activating SOS the live location of the user fetched and will be sent to the emergency contacts continuously with one minute gap between the messages.
- User can deactivate the SOS action by tapping the stop button in the app or by shaking the mobile again.

2.4 METHODOLOGY PROPOSED

PAAVAI app is a Flutter-based application designed to establish a vital communication link between users and their designated emergency contacts in moments of crisis. To utilize the application's features, users are required to register using their email addresses, and those who already possess accounts can effortlessly log in using their registered email IDs. Once registered, users have the capability to add one or more emergency contacts within the app, with at least one contact being a prerequisite for enabling the SOS functionality. In the event of an emergency, users can swiftly trigger the SOS feature by either tapping the dedicated SOS alert button within the app or by physically shaking their mobile device. Upon activation, the system continuously retrieves and dispatches the user's live location to their designated emergency contacts, ensuring real-time tracking with one-minute intervals between location messages. Deactivating the SOS feature is just as straightforward, accomplished either through the app's stop button or by repeating the shaking motion on the mobile device. This system offers a streamlined, user-centric approach to bolstering personal safety, offering a secure and immediate channel of communication with emergency contacts alongside continuous location sharing for added security and peace of mind.
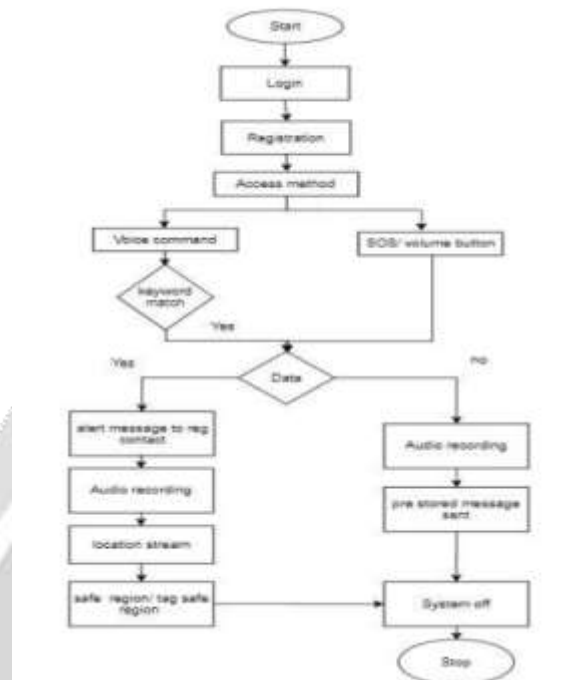
2.5 BLOCK DIAGRAM

Figure 2.5

3. PROPOSED WORK MODULES

3.1 TECHNOLOGY AND SOFTWARE USED
Following technologies are to be implemented in our proposed system are Flutter, Dart, Android studio, Firebase.

- For Front-End development, Flutter widgets are used with dart programming.
- For Back-End development, flutter plugins are used with dart programming.
- Firebase – is used as the Database for authentication.

3.2 IMPLEMENTATION
The user will be able to:
- Share live location to the friends/family continuously with 1 minute time interval.
- Trigger the SOS action by tapping the button/shaking the device.
- Stop the SOS action by tapping the stop button/shaking the device again.
- Add/edit emergency contacts in the contact page.

3.2.1 Register page
The donors/user needs to register themselves. In this the user can register by sign up with google or create the account by a email id by clicking create an account. The user needs to enter the details asked while registering. The password should lie between 8 to15 characters including digits and some special character. Then they need to verify the email by clicking the verification link sent to the registered mail id. Then the user needs to enter the mobile number and need to verify the mobile number by entering the one-time password sent to the registered mobile number.

3.2.2 Login page
The registered users do not need to register themselves and can directly login via user id and password. If the user forgets password, then they can easily reset their password by choosing/clicking forget password

3.2.3 Home page

After login to the page the user will be redirected to the home page were the user can activate the SOS by tapping the SOS button, the user need to add at least one contact to use the SOS feature. Initially the app asks permission for accessing location and messaging system to use this feature, when the user allowed the permission, all set.

3.2.4 Contact page

The user can add, edit or delete the contact in this page. The live location of the user will be continuously shared to the contacts added in this page via messaging app with 1 minute time interval.

3.2.6 Location page

The user can use the map to see where they are and search the places what they want and where they want to go in this page.

3.2.7 Profile Page

In this page the user can see their profile where their basic details like phone number, email id, blood group, age and gender will be displayed.

3.2.8 Settings page

The user can enable/disable the shake alert switch to activate/deactivate the feature that triggers SOS action by shaking the device. The user can enable/disable the voice activated SOS switch to activate/deactivate the feature that triggers SOS action by identifying the voice phrase.

3.2.9 Logout

The user can logout from their account using the logout button in the side menu.

3.2.10 Message alert

When the message alert is triggered, the app can send a predefined message to the emergency contacts. This message usually contains information about the user's location and the fact that they are in distress. The message can be customizable, allowing users to add additional details if necessary.

4. RESULT AND DISCUSSION

4.1 RESULT

The "Paavai" women safety app project's findings are given in accordance with the particular modules and methodology described in preceding chapters. The outcomes include both quantitative and qualitative information, such as user reviews, usability measurements, and security evaluations.

The study's results are given in this section, logically arranged. Tables, graphs, or text can all be used to present the results. Any significant findings should be highlighted and the results should be thoroughly explored.
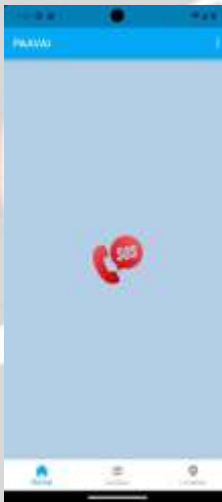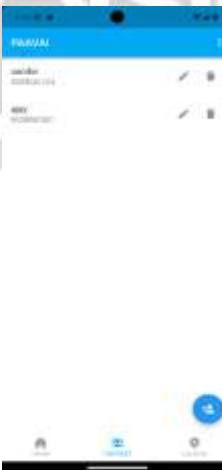
4.1.1 Register page
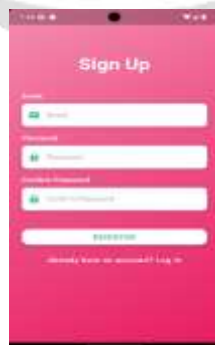
4.1.2 Login page

4.1.3 Home page

4.1.4 Contact page

4.1.7 Setting page

4.1.9 Message alert

4. CONCLUSIONS

We created a system that is effective for personal safety, with a particular emphasis on women's safety. We create a real-time access mechanism that continuously tracks the user. By including unique features in our program, we offer a user-friendly and straightforward interface. We establish a network of connections with your loved ones so that you always have quick access to assistance in dangerous situations. The victim can easily exit the situation and assist the victim thanks to the quick access given by our program. Giving someone self-confidence by giving them access to our system, which enables them to be autonomous without being concerned about potential security problems. Targeting the increase in no. of smart phone users we get scope of our application in market. This application will be available to android users first and then analysing the scope of the project we would extend its use to other platforms too.

6. REFERENCES

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