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SURAKSHA: Women Safety Application

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Abstract — Women's safety is a crucial concern in our country and requires attention and action. The widespread use of smartphones can be leveraged to address this issue. To this end, we have developed an application called "SURAKSHA: Women Safety Application." In case of an emergency, the user can trigger the application through their smartphone to ensure their security quickly and easily. The application features various functionalities to help the user deal with critical or dangerous situations effectively.

Keywords — Safety and Security, Fast and Simple, Trigger, Siren, Live Location, Emergency Contacts, Helpline, Smartphones, etc.

INTRODUCTION

The safety of women is an important topic of discussion today. While urbanization has provided women with equal opportunities to showcase their talents, crime rates have risen, making it unsafe for women both inside and outside their homes. Women travellers from other countries are apprehensive about visiting India due to safety concerns. However, this fear should not prevent them from leading a social life. We have developed an application to assist women in such situations and make their daily lives safer, as independence is necessary in today's world.

Smartphones have improved communication and task efficiency, and their usage in women's safety must be considered. A smart application can help combat harassment, rape, and acid attacks. Women's safety devices should be simple, easy to carry, and integrate several functionalities. Many works on the topic have been published to date. To gain an in-depth understanding of the issues, we have referred to various research papers, including WOMEN SAFETY APPLICATION USING FLUTTER FRAMEWORK, ANDROID APP FOR WOMEN SECURITY SYSTEM, NAARI: AN INTELLIGENT ANDROID APP FOR WOMEN SAFETY, S-ZONE: A SYSTEM FOR WOMEN SAFETY & SECURITY SYSTEM, SHIELD: PERSONAL SAFETY APPLICATION, ANDROID APP FOR WOMEN SAFETY, and ABHAYA: AN ANDROID APP FOR THE SAFETY OF WOMEN.

Methodology/Experimental

Our project's main objective is to provide women with a highly reliable safety system. The proposed system is based on advanced sensors and GPS and aims to develop a low-cost solution consisting of GPS-tracking-based women's safety applications. The system aims to track the target person's current location, extract their longitude and latitude, and provide the user with a siren feature to reach out to nearby people for help. The application only requires access to the internet.

Discussions

PRODUCT FUNCTIONS -

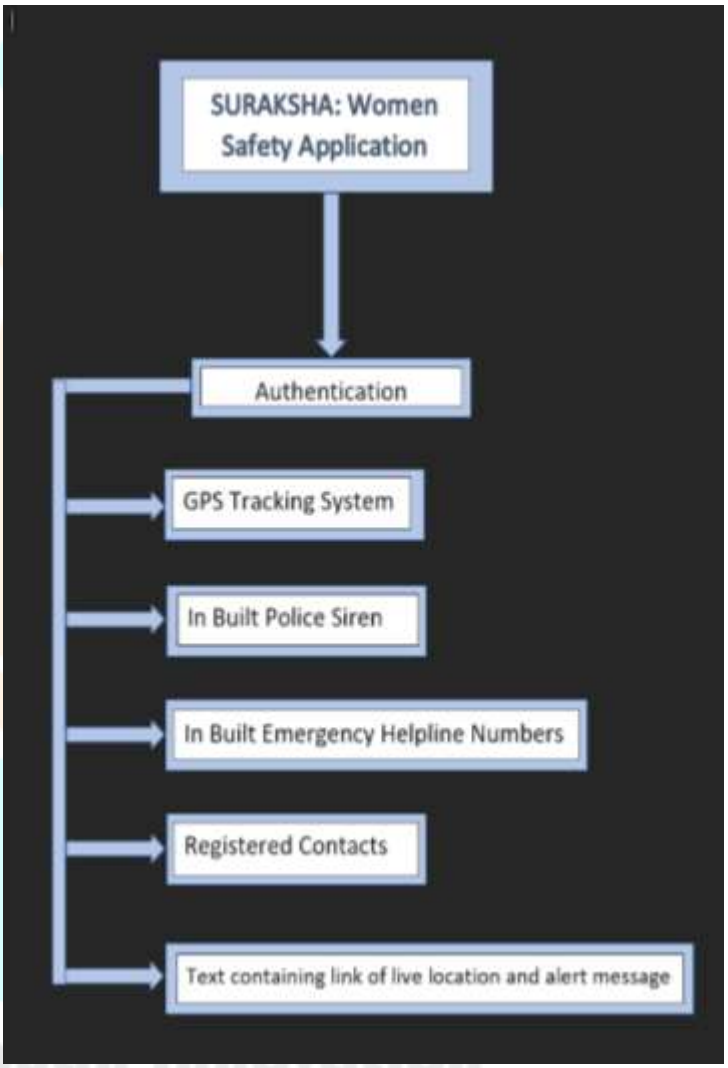
Police Siren: It provides a safety alarm for users who need assistance in case someone is following or stalking them. It includes a default police siren that can be changed if required, but the police siren is set as the default option.

Track Me: The user can view their exact dynamic location through this feature. In dangerous situations, the user can open the application and click on the "send GPS location" option, which will send a text to the emergency and registered contacts. The message will contain the exact location and an alert message such as "Help Me! I am in Danger. Help Me!". The user can choose to send the text to registered contacts, and it will automatically redirect to Google Maps, where they can view the victim's exact location and direction.

Emergency Helpline Number: The application comes pre-loaded with default emergency helpline numbers for safety purposes. Numbers include police (100), medical (108), assistance to women in distress (1090), women's safety number (112), safety during any kind of violence (181), Women's Power helpline (1090), and many more. After selecting the option, a message containing a link to the user's live location and an alert message will be sent to the respective number.

4. Register Contacts: Another feature of our application is that the user can register three contacts of her own. On selecting a contact a message consisting of a link to a live location and an alert message will be sent to the respective one. This registered contact may be of her family, friend, relative or anyone.

5. Emergency Distress Signal (SOS): To send an emergency distress signal (SOS), the user can activate a feature in the application that allows them to generate the signal. To do so, they must enable gesture recognition and shake their phone. Once activated, a distress signal will appear on the phone with a default timer of 10 seconds before being sent to the emergency contacts that the user has previously added during authentication. The application will send a message and the user's exact location to the contacts via a push notification. The intensity of the shaking gesture determines the speed of sending a number of messages since a single text may be ignored but a sequence of continuous text gets attention sooner.



I. Procedure

The procedure follows as generating an idea, then planning for the execution, and then working on it the final step for the same is testing the application. In order to identify errors in a program, it is tested with a set of predetermined test cases, and the output of the program is evaluated to ensure that it is functioning as expected. Testing is crucial to detect any issues

in a program. Once individual programs have been tested, the system as a whole undergoes testing as well. During this testing phase, the software is used in an experimental manner to ensure that it runs correctly and adheres to its specifications. The program is executed to identify any syntax or logical errors, which are then corrected. Further testing is then carried out to confirm that the program performs the intended functions correctly.

There are generally four recognized levels of tests:
Unit testing is a type of software testing that involves testing individual software components or modules. This is typically done by the programmer, as it requires detailed knowledge of the internal program design and code. The purpose of unit testing is to ensure that each component or module functions as expected and meets its requirements.

Integration testing, on the other hand, involves testing the combined functionality of integrated modules. This type of testing is typically performed on code modules, individual applications, client and server applications on a network, and other distributed systems. The goal of integration testing is to verify that the integrated modules function correctly together and meet the requirements of the system.

System testing, also known as end-to-end testing, involves testing a completely integrated system to ensure that it meets its requirements. This includes verifying that the program works as expected without destroying or partially corrupting its operating environment, consuming or locking up excessive resources, or causing other processes within that environment to become inoperative.

Acceptance testing is a type of testing performed by users or customers to verify whether the system meets their specified requirements. The goal of acceptance testing is to determine whether to accept the application or not.

In the "SURAKSHA: Women Safety Application," users can generate a distress signal (SOS) for the application. A push notification will be sent to the user's registered emergency contacts with the live location and a message consisting of a link to the live location and an alert message. The application is currently in the testing phase, and additional features such as a video recorder, voice recorder, and daily motivational quotes to boost confidence can be added in the future.

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