Topic: Women’s Security App

Software requirements Specification

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1. Introduction:

1.1 Purpose:

The purpose of this document is to specify the requirements for the development of a Women's Security App, which aims to address the safety concerns of women by providing them with a tool to enhance their security and seek assistance in times of distress. By clearly defining the functional and non-functional requirements, this document serves as a guideline for the development team to ensure the successful implementation of the app.

1.2 Scope:

The Women's Security App is envisioned as a comprehensive solution to empower women and improve their safety in various situations. The scope of the app includes the following key features:

Emergency SOS button: Users can quickly send alert messages to their friends and family using the emergency SOS button.
Location Tracking: The app will allow real-time tracking of the user's location, using GPS.

Emergency Phone Numbers: User can use police emergency phone numbers to place call in need of help.

1.3 Definitions, Acronyms, and Abbreviations:

SOS: “Save our souls”-Slogan.
App: Short for Application, refers to the Women's Security App.
GPS: Global Positioning System.
SRS: Software Requirements Specification.
UI: User Interface.

1.4 References:

Websites:
https://www.researchgate.net
https://www.ijraset.com
https://ieeexplore.ieee.org
https://eprajournals.com

1.5 Overview:

The further sections of this SRS document provide a brief description about the integrated features , functional and non functional requirements of the project. Section 3 gives detailed information about the interfaces and the whole functionality of the app. Section 4 is for supporting information.

2. Overall Description:

The Women's Security App is a standalone mobile application designed to enhance the safety and security of women. It provides features such as emergency alerts, location tracking, Helpline numbers. The app is

compatible with Android platforms. Design and implementation constraints include privacy regulations compliance and user interface simplicity. Dependencies include access to device sensors and external services like emergency response systems and location data providers. The app will be distributed for free through official app stores.

3. Specific Requirements:

3.1 Functionality

3.1.1 User Authentication:

- The app shall include a login page for users to access personalized features and settings.
- Users shall be required to authenticate themselves with a username and password to access the app's functionalities.

3.1.2 Edit the SOS Message

- Users shall have the option to customize the SMS message content before sending alerts to predefined family members or contacts.
- The app shall allow users to edit and save multiple predefined distress messages for different emergency scenarios.

3.1.3 SMS alerts

- The app shall provide an option for users to designate guardians or trusted contacts who will receive SMS alerts during emergencies.
- Users shall be able to add, remove, and manage guardian contacts within the app's settings.

3.1.4 GPS Tracking

- The app shall offer GPS-based location tracking functionality to monitor the user's real-time location. This will be sent along with the SMS alert.
- Users shall have the ability to enable or disable GPS tracking manually or automatically when triggering distress alerts.

3.1.5 Nearby Police Station Detection

- The app shall include a feature to detect nearby police stations based on the user's current location.
- Users shall be provided with information such as address, contact numbers, and distance to the nearest police stations.

3.1.6 Instruction Module

- The app shall include an instruction module providing guidance on using its features effectively.
- Users shall have access to instructional content covering topics such as emergency procedures, app functionalities, and safety tips.

3.1.7 Emergency Police Helpline Numbers

- The app shall provide a directory of emergency police helpline numbers for immediate assistance.
- Users shall have quick access to emergency police helpline numbers within the app interface, categorized by location and type of emergency.

By incorporating these additional features, the Women's Security App enhances its usability and effectiveness in providing safety and security assistance to users.

3.2 Usability:

3.2.1 Graphical User Interface

- The app shall feature a clean and intuitive graphical user interface (GUI) with easy-to-navigate menus, buttons, and icons.
- Visual elements shall adhere to modern design principles, including clear typography, appropriate colour schemes, and intuitive layout.
- The GUI shall be responsive and optimized for various screen sizes and resolutions, ensuring consistent user experience across different devices.

3.2.2 Accessibility Features:

- **Clear and Simple Language:** Use of clear and simple language throughout the app, making it easier for users who speak English as a second language to understand.
- **Consistent Layout and Design:** Maintaining a consistent layout and design across all app screens, making it easier for users to navigate and understand the app's interface.
- **Error Prevention and Confirmation:** To Implement features that prevent users from making errors whenever possible, and provide clear confirmation prompts before executing irreversible actions.
- **Emergency Alerts:** To Implement robust emergency alert features that are accessible and easy to activate, ensuring users can quickly seek assistance in potentially dangerous situations regardless of their abilities.
- **Location Awareness:** To utilize Google Maps to provide real-time location awareness, allowing users to quickly pinpoint their location and nearby points of interest, such as police stations, hospitals, or safe zones.

3.3 Reliability & Availability

3.3.1 Back-end Internal Computers

3.3.1.1 Description

This section outlines the requirements concerning the reliability and availability of the back-end internal computers, including servers, databases, and associated infrastructure, supporting the women's security app.

3.3.1.2 Requirements

1. **System Uptime:**
    - The back-end infrastructure shall maintain a minimum uptime of 99.9% on a monthly basis.
2. **Data Backup:**
    - Automated backups of critical data shall be performed daily to prevent data loss in case of system failure.
3. **Redundancy:**
    - Redundant power supply units and network connections shall be implemented to minimize downtime due to hardware or connectivity failures.

4. **Monitoring and Alerts:**
    - Continuous monitoring of system performance, including CPU usage, memory utilization, and network traffic, shall be implemented.
    - Automated alerts shall be generated and sent to the system administrators in case of anomalies or potential issues.

3.3.2 Internet Service Provider (ISP)

3.3.2.1 Description

This section outlines the requirements related to the reliability and availability of the internet service provider (ISP) supporting the women's security app.

3.3.2.2 Requirements

1. **Internet Connectivity:**
    - The ISP shall provide reliable and high-speed internet connectivity to ensure seamless access to the women's security app for users.
2. **Service Level Agreement (SLA):**
    - The ISP shall adhere to a service level agreement (SLA) guaranteeing a minimum uptime percentage, as agreed upon by the service provider and the app development team.
3. **Redundancy and Failover:**
    - The ISP shall implement redundancy and failover mechanisms to minimize service disruptions in case of network outages or infrastructure failures.
4. **Bandwidth Scalability:**
    - The ISP shall offer scalable bandwidth options to accommodate potential increases in user traffic or data transfer requirements.
5. **Technical Support:**
    - The ISP shall provide timely technical support and assistance to address any connectivity issues or service interruptions promptly.

3.4 Performance

3.4.1 Response Time

- User interface responds within 2-3 seconds.
- Emergency alerts sent within 10-15 seconds.

- Location updates displayed within 10-20 seconds.

3.4.2 Scalability

- Supports 100-200 simultaneous users without performance decline.
- Utilizes load balancing for optimal performance during peak times.

3.4.3 Resource Utilization

- Memory usage capped at 100 MB on mobile devices.
- CPU utilization below 30% during peak periods.
- Optimizes network bandwidth for efficient data transfer.

3.5 Security

3.5.1 Data Transfer

- Encrypts all data transmission using industry-standard encryption.
- Utilizes secure communication protocols like HTTPS.
- Implements mechanisms to ensure data integrity during transmission.

3.5.2 Data Storage

- Encrypts user data at rest to prevent unauthorized access.
- Implements role-based access control for data access.
- Conducts regular audits to identify and address security vulnerabilities.

3.6 Supportability

3.6.1 Configuration Management Tool

- Utilizes version control system (e.g., Git) for tracking changes.
- Implements automated deployment tools (e.g., Ansible) for efficient deployment.
- Ensures comprehensive tracking and documentation of configuration changes.
- Provides rollback mechanism for reverting to previous configurations.

3.6.2 Logging and Monitoring

- Implements logging mechanisms to record application events and errors.
- Utilizes monitoring tools to track system performance and availability.
- Enables real-time alerts for critical events or anomalies.
- Supports centralized log management for easy troubleshooting and analysis.

3.7 Design Constraints

3.7.1 Standard Development Tools

- Developed using Android Studio for Android app development.
- Utilizes Java language for Android application development.
- Source code managed using Git, hosted on platforms like GitHub.

3.7.2 Web-Based Product

- Primarily an Android mobile application.
- Designed and optimized for use on Android devices.
- Utilizes Android Studio for development and testing.
- No web-based version available; focuses solely on Android platform.

3.9 On-line User Documentation and Help System Requirements

A comprehensive user guide instruction module is provided covering app features, functionalities, and usage instructions.

3.1.1 User Interface:

- Design of intuitive and accessible user interfaces.
- Ensure responsiveness across different devices

3.1.2 Hardware Interfaces

- Utilizes device features like GPS

3.10.3 Software Interfaces

- Integration with API
- Use of JAVA Language , Windows Operating System and My SQL Database.

3.10.4 Communications Interfaces

- Support network protocols for data transmission.
- Implement push notification functionality.

3.11 Licensing Requirements:

There are no Licensing requirements as this is a basic College Level App Project. This app is open to use for everyone.

4.1 Functional Requirements:

1. **Emergency Alert Feature:** Users can trigger an emergency alert to designated contacts.
2. **Location Tracking:** The app tracks the user's location in real-time.
3. **Safety Tips:** Provides safety tips and resources for women's security.
4. **Contact List:** Allows users to maintain a list of emergency contacts.
5. **SOS Button:** Includes a prominent SOS button for quick access to emergency features.

4.2 Non-Functional Requirements:

1. **Performance:** Respond to user interactions within 10 seconds.
2. **Security:** Encrypts user data in transit and at rest.
3. **Reliability:** Achieve a minimum uptime of 99.9%.
4. **Usability:** Complies with accessibility standards and maintains consistent UI design.
5. **Compatibility:** Works on major mobile platforms and browsers.
6. **Scalability:** Scales to accommodate increasing user traffic and data volume.
7. **Privacy:** Complies with data privacy regulations and communicates data handling practices clearly.