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Project Synopsis (2024-25) - Sem VII

Agati - A Personalized Women's Safety and Empowerment App

Mentor: **Mrs. Pallavi Saindane** , Computer Engineering

Group Member 1

Dhruv Aswani

2021.dhruv.aswani@ves.ac.in

Group Member 2

Aman Sande

2021.aman.sande@ves.ac.in

Group Member 3

Praful Pradhan

2021.praful.pradhan@ves.ac.in

Group Member 4

Rajveer Tolani

2021.rajveer.tolani@ves.ac.in

Abstract

In our country, many women have different ideas on startups but don't have accurate knowledge about how to begin or from where to begin. So this app apart from women safety focuses on women inclusivity i.e. their (skill development, career development etc).

In today's world, people using smartphones have increased rapidly and hence, a smart phone can be used efficiently for private security or various other protection purposes. The dangerous incidents that outraged the entire other protection purposes. The heinous incidents that outraged the entire nation have woken us to go for safety issues. So we have created an app so that women can feel safe when they go outside. The feature of this application is to send the message to the registered contacts continuously, i.e. sharing the message to the registered contacts continuously and sharing the live location. Continuous location tracking information helps to seek out the location, tracking information helps to find the location of the victim and can be rescued safely.

Introduction

In today's rapidly evolving digital era, ensuring the safety and safety of women has become a paramount concern. Women face various challenges and threats to their safety, be it while traveling, commuting, or even within their own communities. To address these concerns and empower women with a sense of confidence and protection, the **Agati** has been developed.

The primary goal of the app is to create a secure and trustworthy environment for women by leveraging the capabilities of modern technology. Through real-time tracking, distress alerts, and community engagement, the **Agati** strives to empower women with the means to respond swiftly to potentially threatening situations and seek assistance when needed.

In recent years, there has been a growing recognition of the vital role women play in driving economic growth and fostering innovation. Women entrepreneurs have demonstrated exceptional skills and talents, making significant contributions to various industries. However, they often face unique challenges, including limited access to resources, networking opportunities, and mentorship. To address these obstacles and promote women's entrepreneurial spirit, the Women Inclusivity App has been developed.

The **Agati** is a transformative mobile application specifically designed to support, inspire, and empower women in their entrepreneurial endeavors. It serves as a comprehensive platform that offers a wealth of resources, networking opportunities, and valuable insights tailored to meet the specific needs of aspiring and established women entrepreneurs.

Problem Statement

The proposed system promotes gender equality by providing resources, support, and awareness on various issues. The proposed app will focus on women empowerment through women inclusivity and women safety.. Our app will act as a platform for women where they can learn many skills from different trainers. Also experienced entrepreneurs can guide women with their video sessions or by offline sessions. There are many women in our country who want to work in their own start up or work in a job but for various reasons all of them are not able to do so. One of the big reasons is safety. So for that our app has many safety features as well mentioned below.

Proposed Solution

Proposed system supports various features of women empowerment which includes:

- **Emergency SOS:**
  - **System Goal:** Ensure user safety in critical situations.
  - **Feature:** A quick way to alert authorities or emergency contacts during unsafe situations.
- **Location Sharing:**
  - **System Goal:** Enhance user safety through real-time monitoring.
  - **Feature:** Real-time location sharing with trusted contacts for added security.
- **Ease of Access to Resources:**
  - **System Goal:** Provide essential information and support.
  - **Feature:** Access to information on legal rights, self-defense, and support services.
- **Education and Training:**
  - **System Goal:** Empower women through knowledge and skill development.
  - **Feature:** Modules on self-confidence, financial literacy, career development, and health awareness, along with notifications about empowerment workshops and seminars.
- **Social Networking Platform:**
  - **System Goal:** Facilitate connections and professional guidance.
  - **Feature:** Video conferencing for users to communicate with professional entrepreneurs and receive one-on-one guidance.
- **Mentorship Matching:**
  - **System Goal:** Support personalized career growth.
  - **Feature:** Utilize machine learning (ML) to match users with mentors based on career goals, skills, and interests. Events of mentors having similar interests with users are recommended events from both mentors.
- **Synchronous and Asynchronous Communication:**

    - **System Goal:** Ensure flexible and effective communication.
    - **Feature:** Allow mentors and users to communicate both synchronously and asynchronously.
- **AI-Powered Personal Assistant:**
    - **System Goal:** Enhance user experience with tailored advice and assistance.
    - **Feature:** A chatbot that provides tailored advice based on user interactions and preferences, helping users navigate the app and answer questions about various features.
- **Event Integration:**
    - **System Goal:** Facilitate easy event management and information access.
    - **Feature:** Allow users to register new events through the platform and obtain event details from different platforms like LinkedIn.
- **Event Recommendations:**
    - **System Goal:** Increase user engagement with relevant events.
    - **Feature:** Use machine learning algorithms to analyze user interests, past activities, and engagement to recommend relevant events, workshops, and seminars.
- **Event Sorting and Recommendations:**
    - **System Goal:** Provide personalized event suggestions.
    - **Feature:** Rank and display events based on their composite scores, offering personalized recommendations using collaborative and content-based filtering algorithms, while allowing users to filter and sort by preferences.
- **Multi-Channel Notifications:**
    - **System Goal:** Ensure timely and effective communication.
    - **Feature:**
        - **SMS:** Send event reminders and updates directly to users' mobile phones.
        - **WhatsApp:** Use WhatsApp for personalized event notifications and reminders, leveraging its interactive features.
        - **Email:** Dispatch detailed event reminders and updates through email, including summaries and access links.
- **Fetching Schemes from Government Websites:**
    - **System Goal:** Provide up-to-date information on government support.
    - **Feature:** Use web scraping to dynamically fetch and display relevant schemes from government websites.

Methodology

Step 1: Define Objectives and Requirements

We will start by identifying the core objectives of the Agati , focusing on women empowerment and safety. We will gather detailed requirements by understanding the specific needs of our target users, such as event recommendations based on interests, an AI-powered chatbot for support, and a feature for displaying recent schemes related to women. This step ensures we have a clear vision and scope for the app development.

Step 2: Choose the Technology Stack

We will select appropriate technologies for both the frontend and backend. We will use React Native for developing a cross-platform mobile app, ensuring it works seamlessly on both iOS and Android. We will choose Node.js with Express for the backend to handle server-side logic and APIs. We will opt for MongoDB as the database to store user data, event details, and scraped information. Additionally, we will use Python for machine learning models and web scraping tasks, leveraging libraries like Scikit-Learn, TensorFlow, Beautiful Soup, and Scrapy.

Step 3: Set Up Development Environments

We will establish development environments for frontend, backend, and database. We will set up a React Native environment for mobile app development, ensuring we have all necessary tools and dependencies. For the backend, we will configure a Node.js environment with Express, and we will set up MongoDB for data storage. This foundational setup prepares us for smooth development and integration.

Step 4: Implement User Authentication and Profiles

We will develop user authentication to manage registrations and logins securely, using JSON Web Tokens (JWT) for session management. We will create user profiles where users can update their interests and personal information. This personalization is crucial for tailoring event recommendations and chatbot interactions based on user preferences.

Step 5: Develop the Event Recommendation System

We will collect and preprocess data on various events related to women empowerment. We will use this data to train a recommendation model (e.g., collaborative filtering or content-based filtering) that suggests events based on user interests and past interactions. We will integrate this machine learning model into our backend, making recommendations accessible through a dedicated API.

Step 6: Build the AI-Powered Chatbot

We will identify key use cases for the chatbot, such as answering FAQs, providing safety tips, and recommending resources. We will use platforms like Dialogflow or Rasa to design and train the chatbot with relevant intents and responses. We will integrate the chatbot into our mobile app, ensuring it can handle user queries effectively and provide valuable assistance.

Step 7: Implement Web Scraping for Recent Schemes

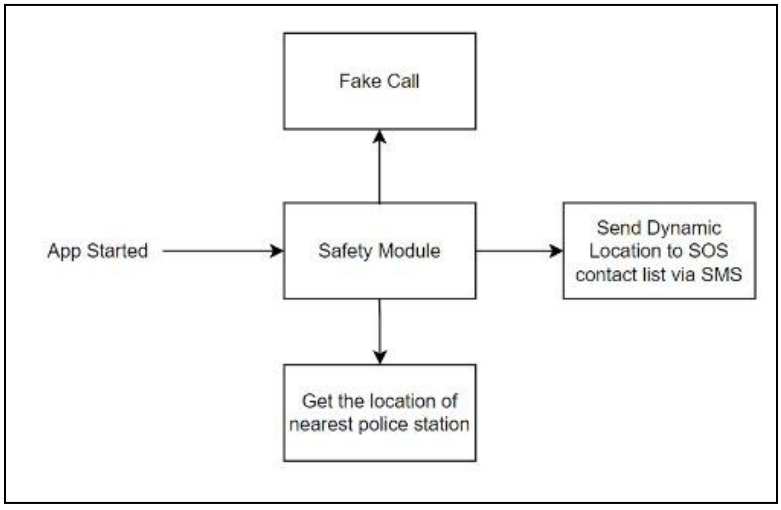
We will identify reliable sources for information on recent schemes related to women empowerment. We will develop web scraping scripts using Beautiful Soup or Scrapy to extract relevant data from these sources. We will store the scraped data in MongoDB and set up a cron job to periodically update the information, ensuring users always have access to the latest schemes.

Step 8: Integrate, Test, and Deploy

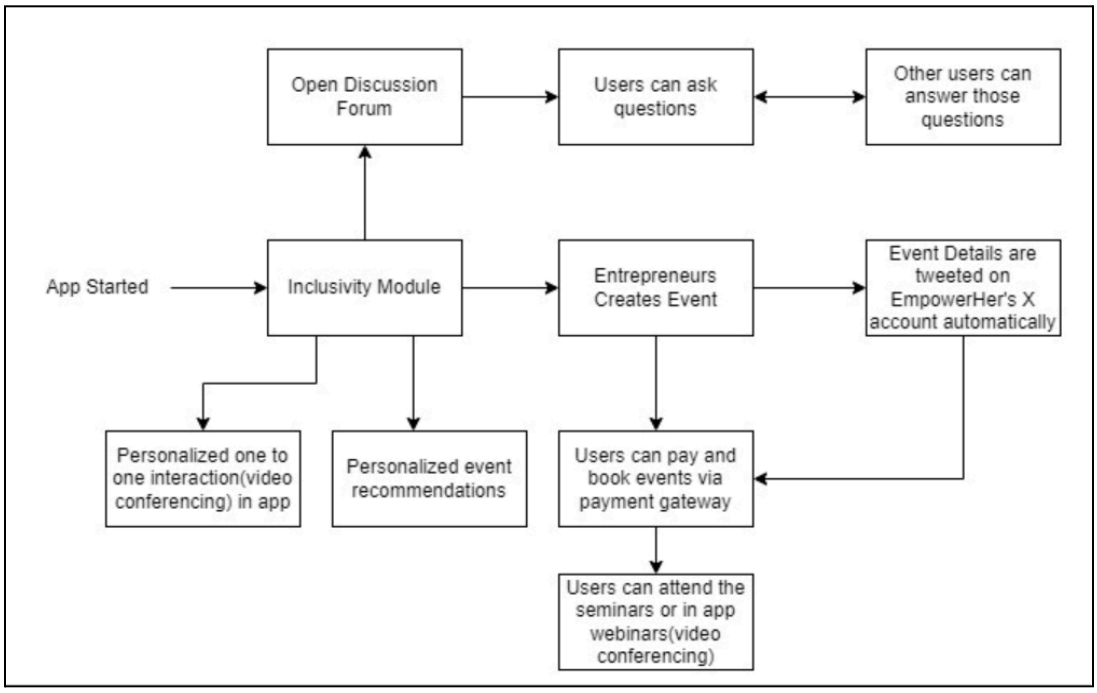
We will integrate all components, developing RESTful APIs to connect the frontend with the backend, ML models, and chatbot. We will conduct thorough testing, including unit tests for individual components and integration tests to ensure seamless functionality. We will perform user testing to gather feedback and make necessary improvements. Finally, we will deploy the backend on platforms like AWS or Heroku, and publish the mobile app on Google Play Store and Apple App Store. We will set up monitoring and maintenance processes to ensure the app remains reliable and up-to-date.

Block Diagram

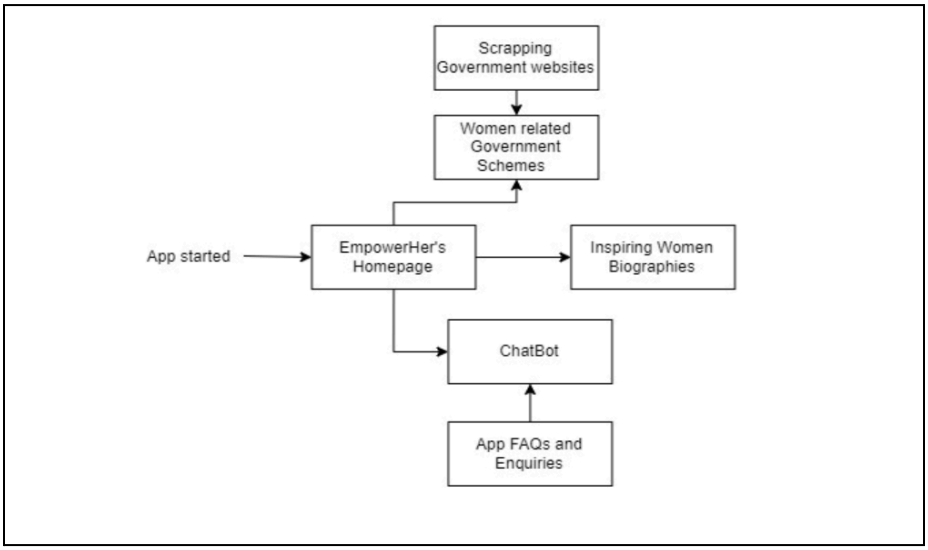
1. Safety Module



2. Entrepreneur Module



3. Information Module



Hardware , Software and tools Requirements

Hardware:

- A computer (PC or Mac) with sufficient processing power and memory

- A smartphone or tablet for testing (both Android and iOS if applicable)

- Reliable internet connection

Software:

- Integrated Development Environment (IDE) such as Android Studio for Android or Xcode for iOS

- Git for version control

- SDKs (Software Development Kits) for the chosen platform

Tools:

- Programming languages: Java, Kotlin, Python.

- Emulators/simulators for testing

- Debugging tools

- Design tools (e.g., Adobe XD, Sketch, Figma) for UI/UX design

Proposed Evaluation Measures

Evaluation measures for women safety and women Inclusivity apps can help assess their effectiveness and impact. Here are some key evaluation measures for each category:

Women safety :

1. Fake Call

Objective: To provide users with a quick and effective way to simulate an incoming call for safety reasons.

- User Testing: Conduct user testing sessions to ensure the fake call feature is easy to access and use.

Success Criteria: 95% of users should be able to trigger the fake call within 3 seconds.

- Reliability: Measure the reliability of the fake call feature under different scenarios (e.g., locked screen, low battery).

Success Criteria: The fake call should work 99% of the time regardless of phone state.

2. SOS Contact List

Objective: To allow users to add and manage emergency contacts efficiently.

- User Interface: Evaluate the ease of adding, editing, and deleting contacts.

Success Criteria: 90% of users should be able to add/edit/delete contacts without any assistance.

- Functionality: Ensure that contacts are correctly saved and accessible when needed.

Success Criteria: 99% accuracy in saving and retrieving contacts.

3. Live Location Tracking

Objective: To enable users to send their live location to SOS contacts every 15 minutes.

- Frequency and Accuracy: Check if the location is being sent every 15 minutes accurately.

  Success Criteria: 95% of location updates should be sent at the correct interval with an accuracy margin of +/- 1 minute.

- User Notifications: Verify that users receive notifications when their location is shared.

  Success Criteria: 98% of notifications should be correctly received by users.

4. Nearest Police Station

Objective: To provide users with the location of the nearest police station dynamically.

- Data Accuracy: Assess the accuracy of the location data for police stations.

  Success Criteria: 95% of the time, the app should display the nearest police station within a 500-meter radius.

- Update Frequency: Evaluate how frequently the location data is updated to ensure current information.

Success Criteria: Location data should be updated in real-time or with a minimal delay (less than 1 minute).

5. Geolocation Accuracy

Objective: To ensure accurate tracking of the user's location in case of emergencies.

- Location Precision: Measure the precision of the geolocation services used by the app.

  Success Criteria: 90% of the time, the app should provide the user's location with an accuracy of within 10 meters.

- Environment Adaptability: Test geolocation accuracy in different environments (urban, rural, indoors).

  Success Criteria: The app should maintain an accuracy of within 20 meters in varied environments.

Women Inclusivity :

1. Events Hosting

Objective: To enable entrepreneurs to host events and allow users to book and pay for seats through the app.

- Ease of Event Creation: Evaluate the simplicity for entrepreneurs to create and manage events.

Success Criteria: 90% of entrepreneurs should be able to create an event without any assistance.

- Booking Process: Assess the user experience for booking seats and making payments.

Success Criteria: 95% of users should be able to book seats and complete payment smoothly without encountering any issues.

- Payment Gateway Reliability: Measure the success rate of transactions through the payment gateway.

Success Criteria: 99.5% of transactions should be processed successfully without errors.

2. Discussion Forum

Objective: To facilitate user discussions on various topics within the app.

- User Engagement: Track the level of user participation and engagement in the forums.

  Success Criteria: At least 70% of users should participate in discussions within a month of joining.

- Moderation Effectiveness: Evaluate the effectiveness of content moderation to ensure discussions remain respectful and on-topic.

  Success Criteria: 95% of users should report a positive experience with minimal incidents of inappropriate content.

3. Video Conferencing

Objective: To enable users to connect one-on-one with entrepreneurs or join webinars through the app.

- Connection Quality: Assess the quality and stability of video and audio during conferencing.

  Success Criteria: 90% of video calls should have clear audio and video with minimal disruptions.

- Ease of Use: Evaluate the user experience in setting up and joining video calls.

  Success Criteria: 95% of users should be able to join a call without encountering technical difficulties.

4. Events Recommendation

Objective: To suggest events to users based on their interests and event registration history.

- Recommendation Accuracy: Measure the relevance of recommended events to user interests.

  Success Criteria: 80% of users should find the recommended events relevant and interesting.

- User Engagement: Track the rate at which users register for recommended events.

  Success Criteria: At least 30% of recommended events should result in user registrations.

5. Information about Latest Schemes

Objective: To provide users with dynamic information about the latest government schemes related to startups and loans.

- Data Accuracy: Ensure the accuracy of information retrieved from official government websites.

  Success Criteria: 99% of the time, the information provided should be accurate and up-to-date.

- Update Frequency: Measure how frequently the app updates information from web crawls.

  Success Criteria: The app should update information at least daily or as frequently as new data becomes available.

Conclusion

In conclusion, the development of women safety and women Inclusivity apps represents a significant stride towards empowering and uplifting women in various spheres. These apps have the potential to create a positive impact on society by addressing critical issues and providing valuable resources.

For women safety apps, the ability to swiftly respond to emergencies, accurately track locations, and connect users with essential services is paramount. By incorporating personalized features and continuously improving based on user feedback, these apps can enhance the overall sense of safety and confidence for women.

In the realm of women Inclusivity, these apps serve as catalysts for fostering economic independence and professional growth. Through skill development, networking opportunities, and easy access to vital resources, women entrepreneurs can flourish and contribute to the business landscape. Sharing success stories further inspires others to embark on their entrepreneurial journeys.

It is imperative that both types of apps are developed with a user-centric approach, ensuring intuitive interfaces, user-friendly features, and culturally sensitive designs. Regular evaluations and enhancements are essential to align with evolving needs and technology advancements.Ultimately, the success of these apps hinges on their ability to instill empowerment, enable positive change, and create a more inclusive and equitable society. As we continue to leverage technology for the betterment of women's safety and Inclusivity, we move closer to a future where women can thrive with confidence and autonomy.

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