UniSafe Project Summary

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UniSafe

Project Summary

Prepared by

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UNISAFE

"Your campus, your safety, your way"

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Group Details

Group name: UniSafe

Project Title : UniSafe

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Problem Statement

University campuses, although promoting academic development and social engagement, create a range of challenges for students that may affect their safety, comfort, and overall health.

Important concerns involve maneuvering through extensive and frequently intricate campuses, locating parking effectively, guaranteeing personal safety, and sustaining uninterrupted communication in crises. Conventional approaches to tackle these issues, including physical maps, campus security hotlines, or bulletin boards, do not offer integration or real-time capabilities.

Aims and Objectives of the Project

The Unisafe app was developed with the following aims and objectives:

- Enhance Campus Safety

Utilize contemporary technology to offer a dependable and proactive method for student safety, incorporating real-time location sharing and emergency communication solutions.

- Improve Parking Efficiency

Employ live data feeds to notify students of open parking spots, consequently minimizing the time spent looking for parking.

- Provide Seamless Campus Navigation

Create an engaging campus map featuring comprehensive building details and navigational tools.

- Promote Eco-Friendly Transport Options for Students

Incorporate carpooling choices to link students for joint travel, promoting a culture of sustainability.

- Offer Users a Personalized Experience

Allow students to personalize their profiles and settings, guaranteeing the app adjusts to their individual preferences and requirements.

Project Description and Functions

Project Description

UniSafe is a comprehensive mobile and web app created to address the safety and logistical requirements of university students. By combining various essential features into a single platform, UniSafe enhances campus life, rendering it safer, simpler, and more accessible. The application is developed with a strong technology stack and follows best practices in security, user experience, and software architecture.

Key Functions and Technical Details

- Live Location Sharing

Functionality: Enables students to share their live GPS location with chosen friends, family, or campus security. This function offers reassurance, particularly while moving around campus after dark or engaging in activities alone.

Technology: Employs GPS and geolocation features by integrating with APIs like Google Maps API or Mapbox. WebSocket connections enable real-time updates to guarantee ongoing location sharing.

Data Security: Location information is secured with advanced encryption standards (e.g., AES-256) and is distributed solely to permitted individuals. Users possess detailed control over who is able to see their location and for what duration.

- Emergency Contacts Panel

Functionality: A special section in the app for users to pre-save emergency contact numbers, such as campus security, medical services, and their own personal emergency contacts. With a single tap, the app either calls the chosen contact or sends a notification.

Technology: Created using Android Studio for Android support, guaranteeing uniform performance on Android.

User Experience: Created for swift access during high-pressure situations, the panel is placed in an accessible spot on the primary interface.

- Real-Time Parking Availability Indicator

Functionality: Shows up-to-date parking availability, reducing time spent looking for parking spaces and easing traffic congestion.

Technology: Integrates with existing campus parking systems via API to fetch real-time data. The data is then processed and visualized using a combination of

RESTful endpoints and a real-time database (e.g., Firebase) for continuous updates.

Benefits: Minimizes traffic congestion and enables students to conserve time. The functionality aims to integrate with IoT-equipped parking sensors that connect with the app's backend.

- Interactive Campus Map

Functionality: Provides an extensive map featuring interactive functions, enabling users to locate buildings, move between sites, and obtain detailed information about services.

Technology: Executed with mapping services such as Google Maps SDK or Mapbox. Custom layers offer extra context, including building titles, department placements, and walking paths. The integration of Augmented Reality (AR) is also contemplated for improved navigation on campus.

Features: Users can look for particular locations, save places, and receive step-by-step directions.

- Carpooling Options

Functionality: Enables students to share rides, encourages sustainable travel, and fosters community relationships. Users can arrange rides, exchange ride information, and connect with others according to their route.

Technology: Employs an algorithm that connects users according to their nearness and route resemblance. Constructed with a database (such as MongoDB or PostgreSQL) to handle user profiles, trip information, and matching preferences. Connects with push notification services to alert users about matches or trip updates.

User Interface: Crafted for ease of use, enabling users to swiftly establish or participate in a carpool with little navigation required.

- Personal Profile

Functionality: Enables users to develop a tailored profile featuring their safety choices, regularly visited places, and emergency contacts. Profiles are utilized to customize the app's functionalities according to personal preferences.

Technology: User information is kept safe through encryption (such as TLS/SSL for data during transmission) and adheres to data protection regulations like GDPR.

Privacy: Users can set their privacy preferences to manage the exposure of their location and actions, guaranteeing that the app honors user consent and confidentiality.

Technical Specifications

- **Development Platform**: The app is developed using React Native or Flutter for cross-platform functionality, ensuring a consistent experience on both iOS and Android.
- **Backend Framework**: Node.js for scalable server-side operations or Django for rapid development and security.

- **Database**: NoSQL (MongoDB) or relational (PostgreSQL) databases, chosen for their ability to handle real-time data updates and user management.
- **Map Integration**: APIs like Google Maps SDK or Mapbox provide detailed mapping services, augmented by custom layers for specific campus details.
- **Security Measures**: Implements end-to-end encryption for all communications and sensitive data, user authentication with OAuth 2.0, and role-based access control for administrative functions.
- **Deployment and Scalability**: Hosted on cloud services such as AWS or Azure for scalability and reliability, using containerization tools like Docker for consistent deployment.

Design and User Experience

User Interface:

The application has a sleek, contemporary look that includes a green hue to represent safety. Icons and buttons are arranged for user convenience, highlighting accessibility features (e.g., color contrasts and text-to-speech capabilities).

(SCREENSHOTS OF APP HERE)

Security and Privacy Considerations

- Data Encryption: Utilizes encryption protocols such as AES-256 for data at rest and TLS for data during transmission.

- User Authority: Privacy configurations enable users to decide who can see their location and shared information.

- Compliance: Conforms to worldwide privacy laws like GDPR, ensuring the protection of user data and rights.

Project Proposal

PROPOSAL FOR UniSafe

1. Executive Summary:

UniSafe is an innovative mobile application designed to enhance the safety and convenience of university students. The app provides a comprehensive suite of features, including live location sharing, emergency contact management, real-time parking availability, a detailed campus map, carpooling options, and personalized profiles. UniSafe aims to streamline campus navigation, improve safety, and facilitate a more connected campus community.

2. Project Overview:

2.1 Purpose and Goals Purpose:

To provide university students with a secure and user-friendly tool for navigating campus, finding parking, and ensuring personal safety. Goals: Enhance campus safety through real-time location sharing and emergency contact features. Improve parking efficiency with real-time availability updates. Facilitate campus navigation with an interactive map and carpooling options. Offer a personalized experience through customizable user profiles.

2.2 Target Audience University students Campus security personnel University administration

3. Features and Functionality:

3.1 Live Location Sharing Description:

Allows users to share their real-time location with trusted friends or family members. Benefits: Provides added security and peace of mind for students.

3.2 Emergency Contacts Panel Description: Enables quick access to pre-saved emergency contacts and campus security. Benefits: Ensures rapid communication during emergencies.

3.3 Real-Time Parking Availability Description: Displays current availability of parking spots on campus. Benefits: Reduces time spent searching for parking and minimizes stress.

3.4 Campus Map Description: Features a detailed interactive map of the campus with building information and navigation. Benefits: Assists users in finding locations quickly and efficiently.

3.5 Carpooling Options Description: Connects students for shared rides to and from campus. Benefits: Promotes sustainable transportation and cost savings.

3.6 Personal Profile Description: Allows users to create and manage a personal profile with saved preferences and valuable information. Benefits: Customizes the app experience to individual needs.

4. Design and User Experience:

4.1 User Interface (UI) Design Principles: Clean, intuitive, and user-friendly interface to ensure ease of use. Visuals: Modern design with university branding elements and clear navigation.

4.2 User Experience (UX) Onboarding: Simple onboarding process to familiarize users with app features. Accessibility: Features designed to be accessible to all users, including those with disabilities.

4.3 Security and Privacy Data Protection: Implement robust encryption and data protection measures. Privacy Controls: Allow users to manage their privacy settings and control who can see their location and information.

5. Technical Specifications:

5.1 Platform Mobile Operating Systems: iOS and Android

5.2 Technology Stack Front-End: React Native or Flutter for cross-platform development Back-End: Node.js or Django for server-side development Database: MongoDB or PostgreSQL for user data and real-time updates Map Integration: Google Maps API or Mapbox for campus mapping and navigation
5.3 Integration Campus Security Systems: Integration with existing campus security systems for emergency alerts. Parking Management Systems: Connect with campus parking management systems for real-time data.

6. Implementation Plan:

6.1 Development Timeline

- Phase 1: Planning and Research (1 month) Conduct user research and define requirements. Develop project plan and timeline.

- Phase 2: Design and Prototyping (2 months) Design UI/UX and create wireframes. Develop prototypes and gather user feedback.
- Phase 3: Development (4 months) Build app features and integrate with necessary systems. Perform testing and quality assurance.
- Phase 4: Launch and Marketing (1 month) Prepare for app launch and execute marketing strategies. Monitor app performance and user feedback.
- Phase 5: Post-Launch Support (Ongoing) Provide ongoing support and updates based on user feedback and evolving needs.

6.2 Budget Development Costs: Include costs for design, development, testing, and deployment. Marketing Costs: Budget for promotional activities and user acquisition. Maintenance Costs: Ongoing expenses for support, updates, and server maintenance.

7. Marketing and Outreach:

7.1 Marketing Strategy Campus Partnerships: Collaborate with university administration and student organizations. Social Media Campaigns: Promote the app through social media platforms and university channels. Campus Events: Host events and demonstrations to introduce the app to students.

7.2 User Engagement Feedback Mechanisms: Implement features for user feedback and suggestions. Incentives: Offer incentives for early adopters and referrals.

8. Evaluation and Success Metrics:

8.1 Key Performance Indicators (KPIs) User Adoption: Number of app downloads and active users. Engagement: Frequency of app usage and feature interactions. Safety Impact: User feedback on safety improvements and incident reports. Parking Efficiency: Reduction in time spent searching for parking.

8.2 Review Process Regular Assessments: Periodic evaluations of app performance and user satisfaction. Updates: Implement improvements based on user feedback and technological advancements.

9. Conclusion:

UniSafe represents a significant advancement in campus safety and convenience. By integrating essential features tailored to the needs of university students, UniSafe aims to provide a comprehensive solution for navigating campus life with enhanced security and efficiency. With a detailed implementation plan and robust marketing strategy, UniSafe is poised to become an indispensable tool for students and campus communities.

Project Charter

Project Title: UniSafe – Comprehensive Campus Safety and Convenience App

Project Sponsor: Varsity College Sandton

Project Manager: Gregory Mbiya

Project Team:

- Jasmin [Role: UI/UX Designer]
- Imaan [Role: UI/UX Designer/Technical Writer]
- Zakariyya [Role: Backend Developer]
- Gregory [Role: Project Manager]
- Kyle [Role: Business Analyst]
- Ryan [Role: Database admin/ Technical Writer]

Project Purpose: The goal of the UniSafe app is to boost campus safety, simplify navigation, enhance parking effectiveness, and cultivate a connected student community. UniSafe seeks to streamline and enhance the daily campus experiences of students by merging key functionalities into one platform.

Problem Statement: University campuses frequently pose difficulties concerning safety, wayfinding, and access to vital information. Existing systems are disjointed, leading to inefficiencies and increased stress for students. UniSafe brings together these crucial tools into a comprehensive mobile solution.

Project Objectives:

1. Develop and deploy a mobile app that enhances student safety and convenience.
2. Integrate real-time GPS location sharing for increased security.
3. Provide an emergency contacts panel for swift communication during crises.
4. Display real-time parking availability and assist in campus navigation.
5. Introduce carpooling options to promote sustainability.
6. Ensure a personalized user experience through customizable user profiles.

Scope Statement: This project encompasses the design, development, and rollout of the UniSafe application on Android devices. The application will include these primary features:

- **Live Location Sharing**
- **Emergency Contacts Panel**
- **Real-Time Parking Availability**
- **Interactive Campus Map**
- **Carpooling Services**
- **Customizable User Profiles**

Key Deliverables:

- Functional mobile application compatible with Android.
- Comprehensive user guide and support documentation.
- Integration with existing campus security and parking management systems.
- Marketing and user adoption plan.
- Continuous post-launch support and updates.

Milestones:

1. **Project Kickoff**: Define project goals, finalize requirements (Week 1).
2. **Design Phase Completion**: Develop wireframes and UI/UX prototypes (End of Month 2).
3. **Development Phase Completion**: Build core features and conduct initial tests (End of Month 4).
4. **Beta Launch**: Release a beta version for pilot testing (Month 5).
5. **Full Launch**: Deploy the finalized app and start promotional activities (Month 6).
6. **Post-Launch Review**: Collect feedback and implement improvements (Ongoing).

Budget:

- **Development Costs**: [Estimated Cost] – includes software development, design, and third-party services (e.g., API integrations).
- **Marketing Costs**: [Estimated Cost] – promotions, partnerships with university bodies.
- **Maintenance Costs**: [Estimated Cost] – ongoing support, app updates, and server upkeep.

Risks and Mitigation:

- **Risk**: Delays in API integration or data feed from parking and campus security systems.
    - **Mitigation**: Early collaboration with university IT and third-party providers.
- **Risk**: Low user adoption at launch.
    - **Mitigation**: Develop a strong outreach strategy, including partnerships with student groups and incentive programs.
- **Risk**: Data privacy concerns.
    - **Mitigation**: Implement robust data encryption, comply with GDPR standards, and include comprehensive user privacy settings.

Assumptions:

- The app will have support from university IT for integration with campus systems.
- Students and campus security teams will be trained to use the app effectively.
- Reliable network and GPS data are available on campus to support real-time functions.

Constraints:

- Project timeline is fixed at 8 months.
- Budget limits may affect the scope of additional features.
- Compliance with data privacy laws must be maintained throughout the project's lifecycle.

Stakeholders:

- **Primary Stakeholders**: University students, campus security teams, university administration.
- **Secondary Stakeholders**: University IT department, local transport authorities, parents, or guardians of students.

Approval Requirements:

- Final approval by project sponsor and university administration.
- Successful completion of user acceptance testing (UAT).
- Compliance verification by the data protection office.