Feasibility Study

The objective of this feasibility study is to establish the reasons for developing the Travel Safety Companion app with its enhanced modules (Tour Packages and FaceTracePro), ensuring it is acceptable to users, adaptable to change, and conforms to established standards. The study will analyze whether the software will meet organizational requirements, determine if it can be implemented using current technology within the specified budget and schedule, and assess whether it can be integrated with other existing software. The organization would continue using existing travel safety tools, which may not offer the same level of comprehensive safety features and real-time updates, resulting in lower traveler satisfaction and increased risk. The new system provides a centralized platform for managing travel safety, thereby improving user safety and preparedness.

Types of Feasibility

Various types of feasibility that are commonly considered include technical feasibility, operational feasibility, and economic feasibility.

1. Technical Feasibility

   The technical feasibility of FaceTracePro involves assessing current resources and technology. The development will utilize:

- Core Platform:
  - Backend: Python with Django
  - Frontend: Flutter for cross-platform development
  - Database: Firebase for real-time data handling and user authentication
- Additional Components for New Modules:
  - Face_recognition library for facial detection
  - OpenCV for image processing
  - WebSocket for real-time communication
  - Twilio API for notifications
  - Enhanced Firebase collections for package management

- RESTful APIs for tour operator integration

- Hardware Requirements:
  - Standard development computers
  - Basic cloud server for hosting
  - Secure data storage systems

These technologies are well-established and have strong community support. The development team possesses expertise in these technologies, ensuring smooth implementation. The chosen technologies are stable and widely used in the industry, ensuring long-term support and reliability.

- Tasks Involved:
  - Analyze the technical skills and capabilities of the development team
  - Ensure the relevant technology is stable and established
  - Confirm that the technology chosen for development has a large user base for consultation and support
  - Verify integration feasibility between modules

2. Operational Feasibility

Operational feasibility assesses whether the software will perform steps to solve business problems and meet user requirements. The Travel Safety Companion app aims to address:

- Core Features:
  - Real-time safety alerts
  - Emergency contact information
  - Comprehensive destination guides

- Tour Packages Module:
  - Streamlined booking process

- Package comparison tools
- Operator management interface

- FaceTracePro Features:
    - Automated surveillance
    - Real-time missing person alerts
    - Law enforcement coordination
    - Privacy-compliant facial recognition

It aligns with the business objective of enhancing traveler safety and satisfaction. The intuitive design of the platform will facilitate user adoption and satisfaction.

- Tasks Involved:
    - Determine whether the problems anticipated in user requirements are of high priority
    - Ensure the solution suggested by the development team is acceptable to users
    - Analyze whether users will adapt to the new software
    - Determine if the organization is satisfied with the proposed solutions
    - Address privacy and security concerns for facial recognition
    - Verify integration with existing procedures

3. Economic Feasibility

Economic feasibility evaluates whether the software can generate financial gains for the organization. The development of TBSC requires investment in various components including software development team resources, essential hardware infrastructure for facial recognition processing, and system integration.

- Cost incurred on software development:
    - Development Team (3 members for 4 months):
        - Student developers: ₹15,000/month/person = ₹1,80,000
        - Project guidance and mentoring: ₹20,000
    - Development tools and IDEs: Free (Open source)

- Version control and project management: Free (GitHub)
- Total Development Cost: ₹2,00,000

- Cost required for full software investigation:
  - Requirements gathering and analysis: ₹10,000
  - Feasibility study documentation: ₹5,000
  - User surveys and feedback collection: ₹5,000
  - Market research: ₹10,000
  - Total Investigation Cost: ₹30,000

- Cost of hardware, software, and training:
  - Hardware:
    - Development computers (existing): ₹0
    - Basic server for hosting: ₹15,000/year
    - Storage and backup: ₹5,000/year
  - Software:
    - Firebase (Spark Plan): Free
    - Face Recognition API usage: ₹10,000/year
    - SMS/Email service: ₹5,000/year
  - Training:
    - Technical documentation: ₹5,000
    - User manual creation: ₹5,000
    - Training sessions: ₹10,000
    - Total Infrastructure & Training Cost: ₹55,000

Total Initial Investment: ₹2,85,000

Annual Maintenance Cost: ₹35,000

- Expected Revenue Streams:
  - Basic app: Free
  - Premium features subscription: ₹99/month
  - Commission from tour packages: 5% per booking
  - Featured listings from travel operators: ₹500/month
  - Targeted advertisements: ₹2,000/month

- Projected Monthly Revenue (Conservative Estimate):
    - 100 premium users: ₹9,900
    - Tour package commissions (20 bookings): ₹10,000
    - 5 featured listings: ₹2,500
    - Advertisement revenue: ₹2,000
    - Total Monthly Revenue: ₹24,400
- Break-even Period: Approximately 12 months
    - Expected Annual Revenue (Year 1): ₹2,92,800
    - Expected Net Profit (Year 1): ₹7,800

The platform is expected to generate sustainable revenue through its diversified offerings while providing essential safety features for travelers. The use of free and open-source tools helps keep costs down, while the revenue model is based on conservative estimates of user adoption and market penetration. These improvements are expected to lead to long-term savings and better resource utilization, effectively offsetting the initial costs.