REPORT

On

NyayaGhost: Disguised domestic violence safety and legal agent

Project Based Learning -V (22AI014)

Submitted by

Jashkarn Singh (2310993841-5A)

Jatin Kumar (2310993844-5A)

Semester: 5

BE-CSE (Artificial Intelligence)

Guided by

Dr. Harshvardhan

CHITKARA UNIVERSITY INSITUTE OF ENGINEERING & TECHNOLOGY

CHITKARA UNIVERSITY, RAJPURA

NOVEMBER 2025

ACKNOWLEDGEMENTS

With immense pleasure We, Mr. Jaskarn Singh & Mr. Jatin Kumar presenting the "NyayaGhost" project report as part of the curriculum of 'BE-CSE (AI)'.

I would like to express my sincere thanks to Dr. Harshvardhan for their valuable guidance and support in completing my project.

I would also like to express my gratitude towards our dean Dr. Sushil Kumar Narang for giving me this great opportunity to do a project on this website. Without their support and suggestions, this project would not have been completed.

Signature…….

NAME: Jashkaran Singh

ROLL NO: 2310993841

Signature…….

NAME: Jatin Kumar

ROLL NO: 2310993897

ABSTRACT

NyayaGhost is a disguised, AI-driven mobile application developed using React Native to support victims of domestic violence through safety, legal aid, and emotional assistance—while maintaining utmost privacy and security. The app's disguised interface conceals its true purpose, ensuring users can seek help without alerting abusers. It features an SOS system (including a custom SOS trigger and triple-tap panic exit) that instantly alerts emergency contacts or authorities. Users can upload audio, video, and media evidence, which is securely logged in SOS history for legal use.

To enhance user safety and empowerment, NyayaGhost provides access to nearby shelters, a directory of verified lawyers, and a document/legal generator for filing complaints or protection orders. A built-in legal guide and calculator personalized legal insights based on case conditions. The app integrates voice command activation and self-defence tutorials to support real-time protection. Additionally, an emotional support agentic chatbot offers 24/7 empathetic conversation and guidance during crises.

By combining AI-powered agentic systems, location-based services, and legal automation, NyayaGhost aims to bridge the gap between victims, law enforcement, and legal support—empowering individuals to act safely and independently within a secure, disguised environment.

Table of Contents

1.INTRODUCTION

Nyayaghost is an innovative agentic mobile application designed to combat and respond to disguised domestic violence through the power of technology, empathy, and legal intelligence. Built with React Native, the app empowers users—especially those in vulnerable situations—to seek help, record evidence, and access legal and emotional support with utmost privacy and safety.

At its core, Nyayaghost integrates critical safety and support features such as SOS and Custom SOS alerts, nearby shelter detection, and panic exit via triple tap or voice command for emergency situations. Users can upload media and audio evidence to create secure digital proof, while SOS logs maintain a timeline of critical incidents.

To enhance empowerment and awareness, the app includes self-defence tutorials, an information page with verified safety resources, and an emotional support agentic chatbot for real-time assistance and comfort. On the legal front, Nyayaghost provides a directory of nearby lawyers, a document generator for essential legal forms, and a condition-based legal guide supported by an agentic legal chatbot for personalized legal advice and procedural clarity.

By combining AI-driven assistance, real-time safety tools, and legal empowerment, Nyayaghost serves as a comprehensive digital ally—offering protection, awareness, and justice at your fingertips.

1.1 Technology Stack

Feature	Technology Used
SOS & Custom SOS Alerts	Supabase Realtime + Geolocation API
Nearby Shelters & Lawyer Directory	Google Maps / OpenStreetMap API + Supabase DB
Media & Audio Evidence Uploads	Supabase Storage + Deepgram (for transcriptions)
SOS Logs & Case History	Supabase Database
Self-Defence Tutorials	YouTube API integration (embedded)
Legal Condition-Based Guide	Gemini API + Custom Prompt Templates
Emotional Support Chatbot (Agentic)	Gemini API
Voice Command Activation	Deepgram Speech-to-Text
Triple Tap Panic Exit	React Native Gesture Handler
Document Legal Generator	Gemini API
Offline Mode (Critical SOS)	Local SQLite + Background Services

Table 1.1 Technologies used for a particular feature

2. PROJECT DESCRIPTION

The platform provides users with a secure and intelligent mobile interface to:

- **Trigger Instant SOS Alerts:** Instantly send distress signals to pre-set emergency contacts and nearby authorities with geolocation sharing through a single tap or voice command.
- **Customize SOS Preferences:** Configure custom SOS alerts with personalized messages, emergency contacts, and response levels to ensure accurate assistance during crises.
- **Locate Nearby Shelters & Safe Houses:** Access an interactive map displaying verified women's shelters, police stations, and nearby safety zones using integrated geolocation services.
- **Upload Evidence Securely:** Capture and upload images, videos, and audio recordings as legal evidence of domestic violence or abuse, securely stored in encrypted Supabase cloud storage.
- **View SOS Logs:** Maintain a history of triggered SOS alerts, responses, and evidence submissions with timestamps for legal and personal tracking.
- **Access Self-Defence Tutorials:** Learn practical self-defence techniques through integrated video tutorials and guides designed for emergency preparedness.
- **Explore the Information Hub:** Navigate an informational section containing verified resources, helpline numbers, and legal awareness materials on domestic violence laws and rights.
- **Emotional Support Chatbot:** Engage with an empathetic, AI-powered support agent (powered by Gemini API) that provides emotional comfort, coping strategies, and immediate companionship during distress.
- **Panic Exit (Triple Tap Feature):** Instantly hide the app and switch to a neutral screen by tapping thrice on the phone screen, ensuring discreet protection in unsafe situations.
- **Voice Command Activation:** Use Deepgram-powered voice recognition to activate SOS, call help, or navigate key features hands-free for accessibility and speed.
- **Nearby Legal Directory:** Find verified lawyers, legal aid centers, and pro bono advisors nearby using the integrated legal directory and geolocation mapping.
- **AI-Powered Legal Document Generator:** Automatically generate essential legal documents such as FIR drafts, complaint letters, and affidavits through natural language input using Gemini API.
- **Legal Guide Based on User Condition:** Receive tailored legal guidance depending on the user's reported situation, location, and evidence, simplifying complex legal procedures into actionable steps.
- **Agentic Legal Chatbot:** Interact with an intelligent legal advisor capable of answering legal queries, guiding users through reporting procedures, and explaining rights in a personalized manner.
- **Secure Backend & Storage:** Built on Supabase for authentication, real-time logging, and encrypted data storage, ensuring complete confidentiality and integrity of user information.

3. METHODOLOGY

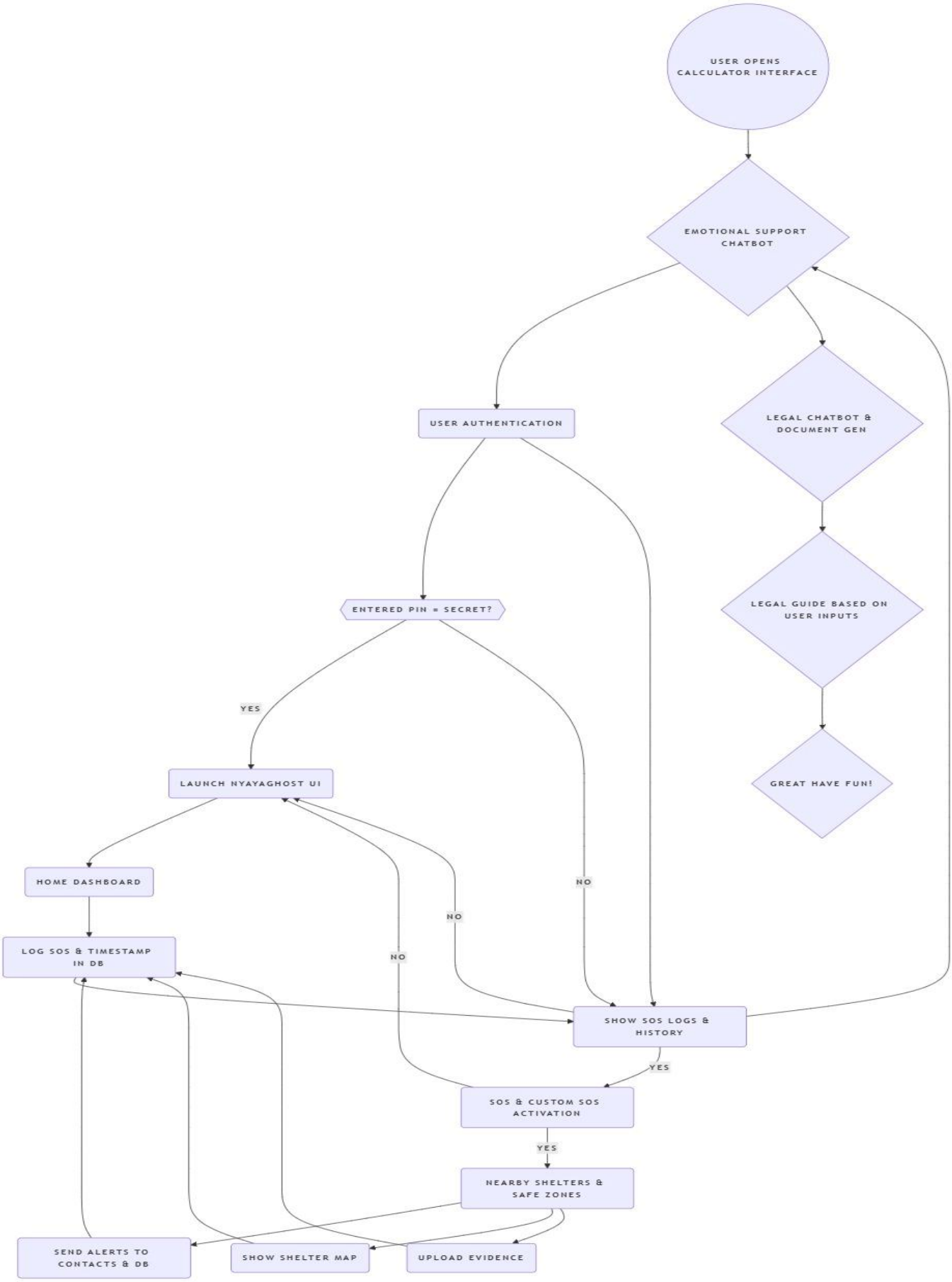
The development of NyayaGhost, an agentic mobile application designed to assist victims of disguised domestic violence, follows a systematic, modular, and user-centric methodology. The process integrates agile development principles, AI-driven automation, and secure backend architecture to ensure reliability, privacy, and real-time responsiveness.

3.1 System Design and Architecture

The overall system is structured into three core layers:

- **Frontend Layer (Client Application):** Developed using React Native with Expo Go, the mobile app serves as the primary user interface. It focuses on intuitive navigation, minimal design for safety, and quick access to emergency functionalities such as SOS triggers, panic exits, and voice commands.
- **Backend Layer (Data and Service Management):** Powered by Supabase, this layer handles secure authentication, encrypted evidence storage, SOS log maintenance, and real-time synchronization of alerts and chatbot interactions.
- **AI & Integration Layer (Agentic Intelligence):** The Gemini API and Deepgram API form the cognitive and speech-processing backbone of the system. They power the emotional support chatbot, voice-based command recognition, and contextual legal advisory services.

4. FLOWCHART


USER OPENS CALCULATOR INTERFACE
EMOTIONAL SUPPORT CHATBOT
USER AUTHENTICATION
LEGAL CHATBOT & DOCUMENT GEN
ENTERED PIN = SECRET?
LEGAL GUIDE BASED ON USER INPUTS
YES
LAUNCH NYAYAGHOST UI
GREAT HAVE FUN!
HOME DASHBOARD
NO
NO
NO
LOG SOS & TIMESTAMP IN DB
SHOW SOS LOGS & HISTORY
YES
SOS & CUSTOM SOS ACTIVATION
YES
NEARBY SHELTERS & SAFE ZONES
SEND ALERTS TO CONTACTS & DB
SHOW SHELTER MAP
UPLOAD EVIDENCE

5. Screenshots

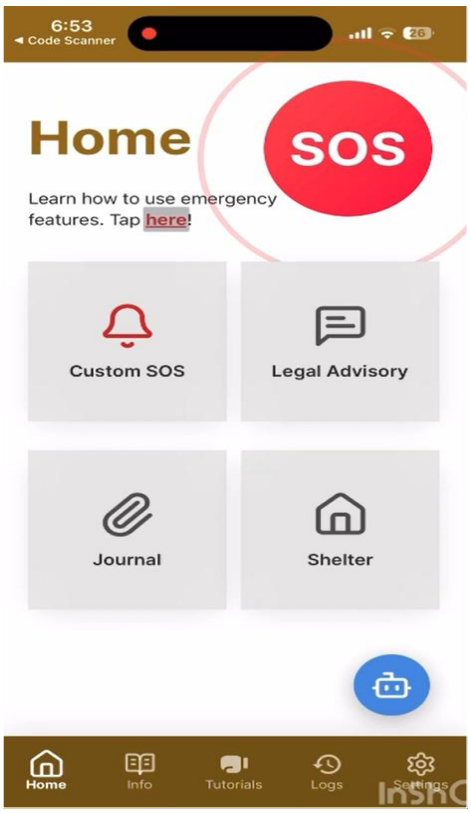


Fig 7.1: Homepage

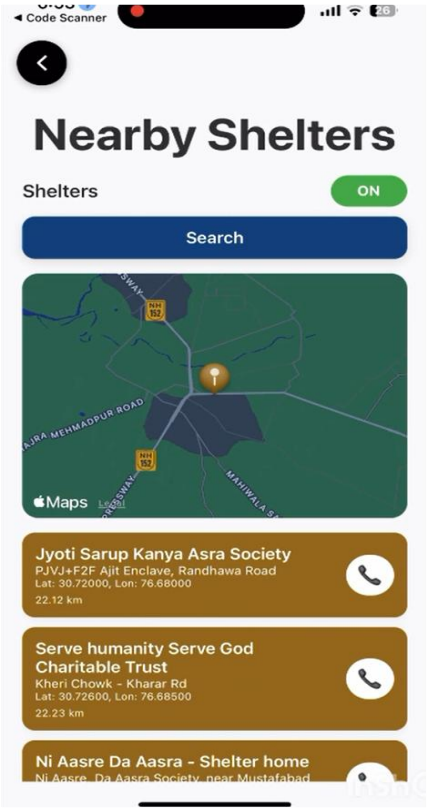


Fig 7.2: Shelters

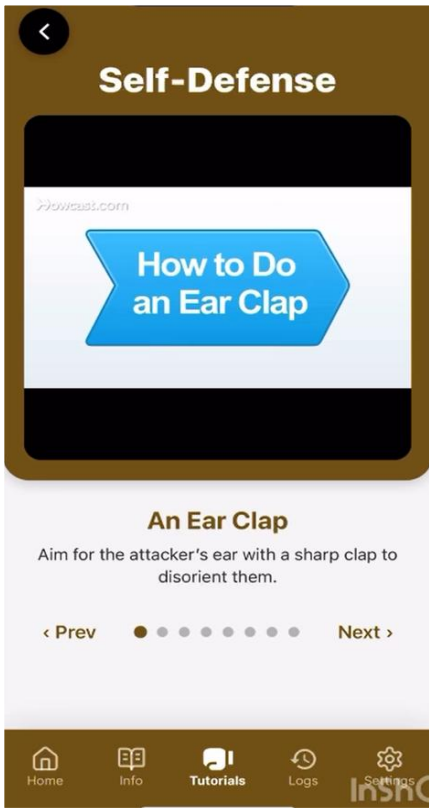


Fig 7.3: Self-defence tutorials

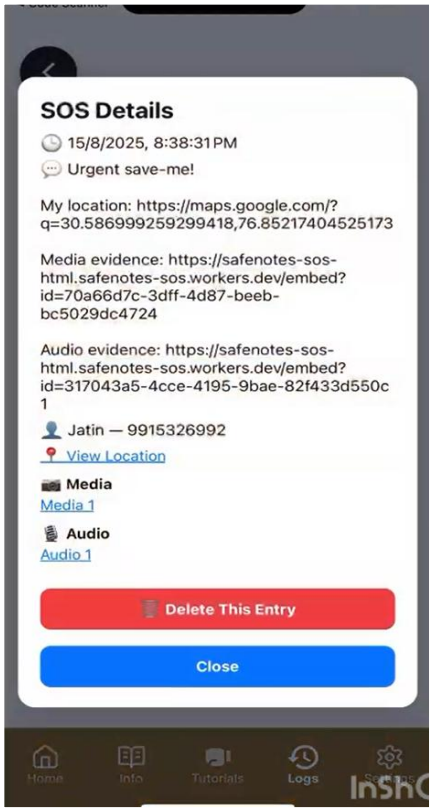


Fig 7.4: SOS History

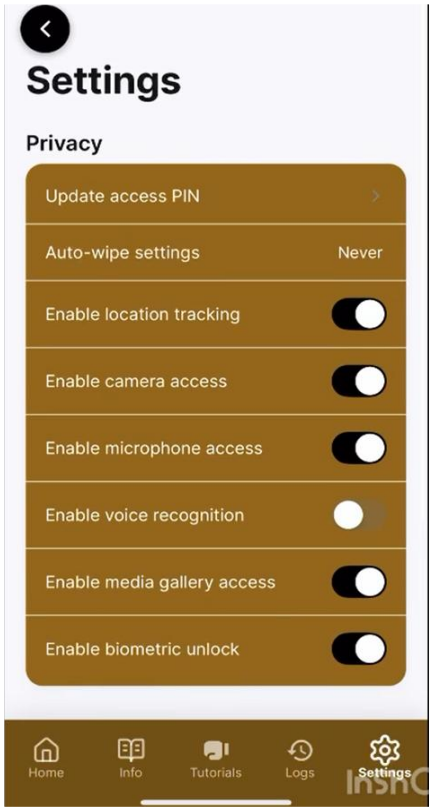


Fig 7.5: Settings

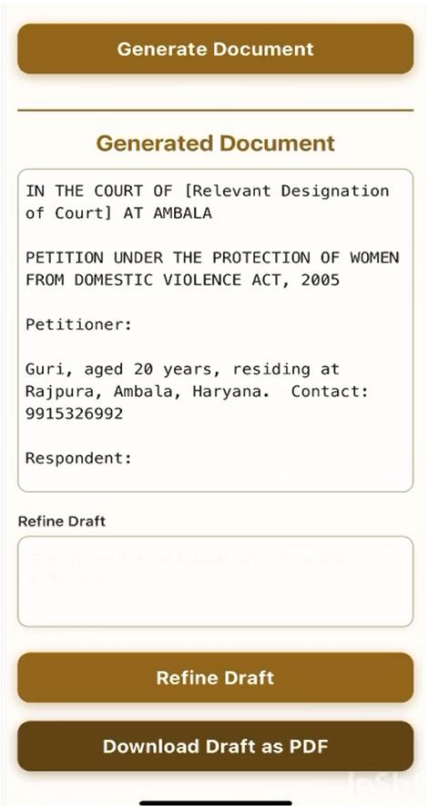


Fig 7.6: Document Generator

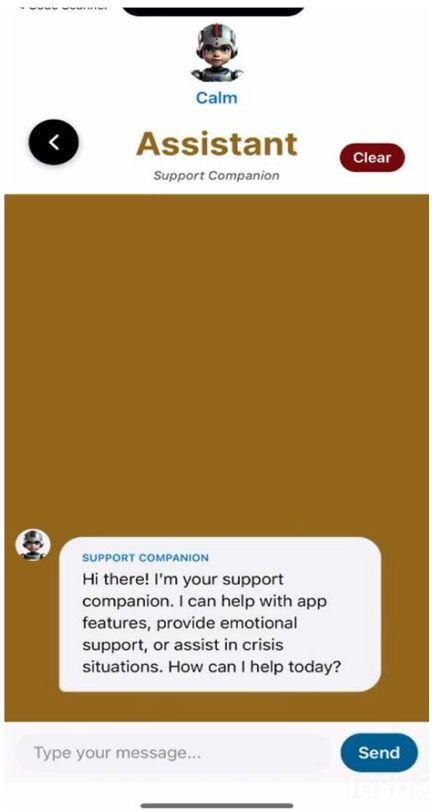


Fig 7.7: Assistant

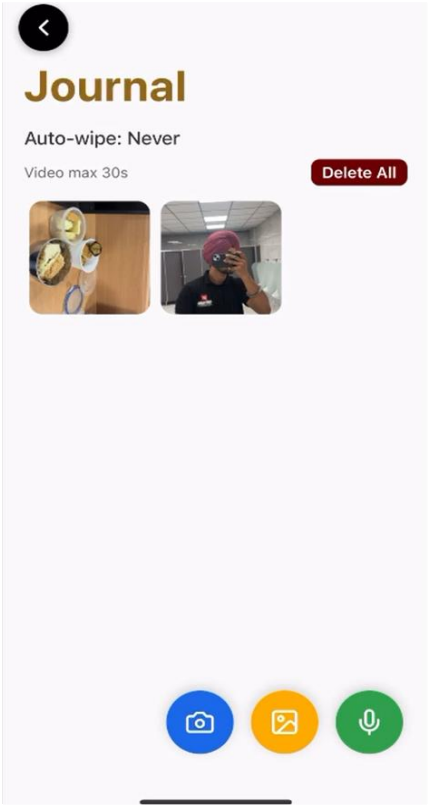


Fig 7.8: Evidence

6. Challenges Faced

- **Voice Command Integration:** Achieving accurate voice command recognition for SOS activation in noisy or tense environments was complex. This was resolved by fine-tuning Deepgram API for optimized noise filtering and using fallback manual SOS buttons for redundancy.
- **AI Chatbot Accuracy (Emotional & Legal):** Balancing empathetic tone with legal correctness in the AI chatbots was challenging. The team overcame this by creating context-aware prompt templates for Gemini API, ensuring emotional sensitivity while maintaining factual legal responses.
- **Panic Exit Mechanism:** Implementing a triple-tap panic exit that immediately switches to the disguised calculator without lag was technically demanding. The solution involved gesture detection using React Native Gesture Handler combined with cached state switching for instant interface redirection.
- **Maintaining App Performance & Battery Efficiency:** Frequent background checks for location and real-time events impacted device performance. Optimization was achieved through controlled background task scheduling, lazy loading, and efficient API calls using Expo's background fetch API.

7. Future Enhancements

- **AI-Driven Intelligence & Automation:** Predictive Threat Detection: Integrate advanced AI algorithms to analyze behavioral patterns, audio tone, and environmental data to predict potential abuse situations and trigger proactive SOS alerts.
- **Enhanced Emergency & Safety Systems:** Wearable Device Integration: Introduce compatibility with smartwatches, fitness bands, or NFC pendants to allow quick and discreet SOS activation from wearable devices.
- **User Experience & Accessibility Enhancements:** Multilingual Voice Support: Expand Deepgram API functionality to support regional Indian languages for voice commands, SOS activation, and chatbot interactions.
- **Community & Support Expansion:** Verified Support Network: Establish a network of certified lawyers, NGOs, therapists, and shelter partners within the app, allowing users to connect safely to verified professionals.

8. Conclusion

NyayaGhost stands as a pioneering agentic mobile application designed to combat disguised domestic violence through the intelligent integration of technology, privacy, and empathy. It brings together crucial safety, legal, and emotional support functionalities within a single, discreet, and secure platform. Built using React Native with Expo Go, and powered by Supabase, Deepgram API, and Gemini API, the system ensures seamless cross-platform functionality, real-time responsiveness, and intelligent automation.

The application's disguised calculator interface enables victims to access life-saving tools without raising suspicion, while features such as instant SOS alerts, voice-activated commands, panic exit triple-tap, and encrypted evidence uploads provide immediate protection and support. The inclusion of AI-driven legal and emotional chatbots transforms the app into a 24×7 companion—offering legal guidance, mental health support, and document automation through contextual understanding.

The architecture of NyayaGhost emphasizes security, anonymity, and accessibility, ensuring that users can seek help without compromising their identity or data safety. Through Supabase Realtime services, encrypted storage, and AI-assisted workflows, the system provides a holistic and reliable emergency assistance network.

Beyond its current implementation, NyayaGhost is designed for scalability and innovation. Planned future upgrades—such as blockchain-based evidence validation, AI-driven threat prediction, wearable SOS integration, and multilingual voice support—will further enhance its capacity to serve victims efficiently and securely. Its modular structure allows the system to evolve into a broader legal-tech and safety ecosystem, adaptable to diverse contexts and communities.

By combining agentic AI, real-time technology, and human-centered design, NyayaGhost redefines how digital platforms can empower individuals facing abuse. It not only provides immediate rescue and legal guidance but also restores confidence and autonomy to those in distress. With its advanced framework, ethical focus, and commitment to safety, NyayaGhost has the potential to become a transformative digital ally in the fight against domestic violence—bridging the gap between technology, justice, and compassion**.**