



# VOIS Innovation Marathon 2.0



# Nyay-Setu: Architecting Sovereign Legal Intelligence

Team No. 60



DYPSST, Pune, Maharashtra



 [LinkedIn](#)

 [GitHub](#)

Team Lead -Virendra Gadekar, BCA

- Designed and developed the complete full-stack platform
- Built the AI-powered Vakil-Friend system
- Implemented secure evidence hashing and verification
- Developed blockchain-based evidence integrity layer
- Led system architecture & deployment



 [LinkedIn](#)

 [GitHub](#)

Harsh Pandey, BCA

- Designed the Tri-Sector Revenue Model (B2C / B2B / B2G)
- Structured national scalability roadmap
- Aligned solution with e-Courts Phase III vision
- Focused on long-term sustainability and adoption

# Problem Statement

## The Case Backlog Crisis

- **5.3 Crore** cases pending as of 2025.
- **85%** stuck in District Courts.
- **324 years** to clear at current pace.

## Judicial Productivity Drain

- **2 Hours lost** daily per judge on manual summoning/ scheduling.
- **1.46 Crore** cases are solved annually, but institutions keep the backlog rising

## Economic Barrier to Justice

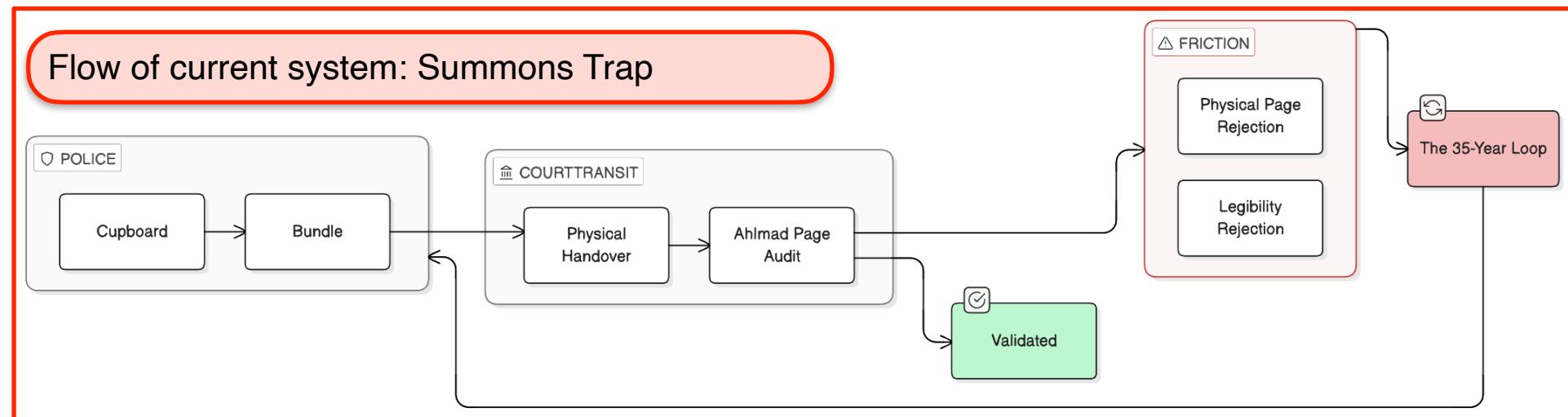
- **15.6%** litigants travel **50–300 km** for **5-minute hearings**
- **Daily wages lost + legal fees + travel cost**

## Evidence Integrity Risk

- **Paper-based evidence vulnerable to loss and manipulation**
- **Physical proof can be altered or swapped**

# Need of Project

- **Access Gap** : Justice must move beyond physical courtrooms to reach every citizen.
- **Process Complexity** : Citizens struggle with legal language and procedural filing.
- **Trust Deficit** : Paper-based evidence systems are vulnerable to manipulation.
- **Connectivity Barrier** : Distance and travel cost limit participation in hearings.



# Proposed Solution



## Citizen Intelligence & Judicial Speed

- **Vakil-Friend AI** converts citizen stories into structured legal cases
- **Multilingual voice & text support** for inclusive access
- Instant **AI briefs** to reduce judicial reading time

## The Chain of the Trust (Immutable Records)

- **SHA-256 hashing** creates a unique digital fingerprint
- **Blockchain anchoring** ensures tamper-proof evidence
- **Mathematically verifiable integrity**, not human trust

## 5G Virtual Court (Remote Connectivity)

- **BNSS 530 compliant** low-latency virtual hearings
- **Justice from home** using VOIS 5G priority lanes
- Zero-lag, secure audio-video communication

## Inclusive Accessibility

- **Offline-first PWA** for rural and low-network regions
- **Face login** for password-less access
- **Sovereign, enterprise-grade codebase**

# Solution Overview Intelligent AI

## For Litigants

- **Vakil-Friend AI** enables conversational case filing
- **Instant document validation** during upload
- **Tamper-proof case diary** with real-time updates

## For Judges

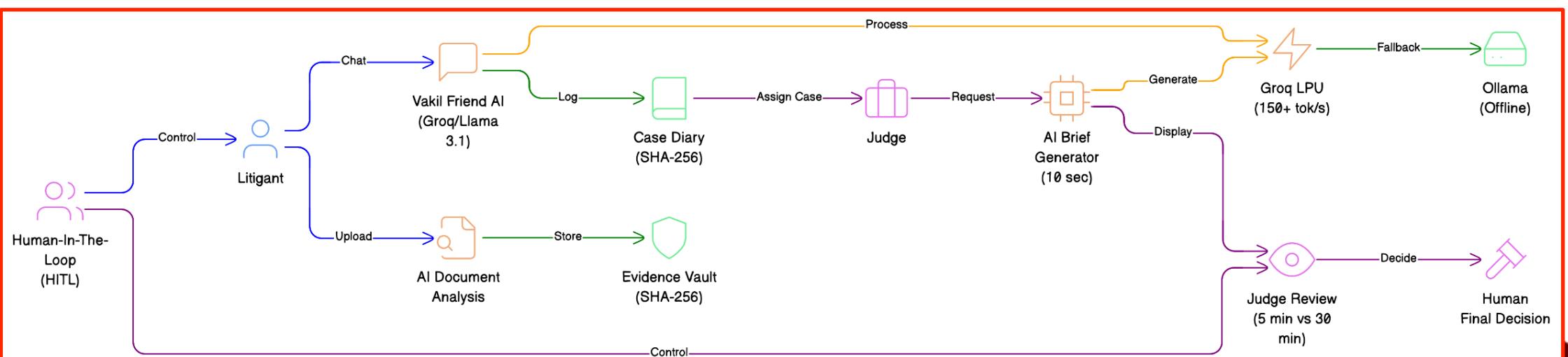
- **AI-generated case briefs** in seconds
- **Faster case review** with structured summaries
- **Instant legal research & compliance checks**

## Groq LPU (Language Processing Unit)

- **Sub-second AI inference** (150+ tokens/sec)
- **Llama 3.1 (8B / 70B)** for legal reasoning
- **Real-time conversational AI**, offline fallback

## Ethical Boundaries & HITL

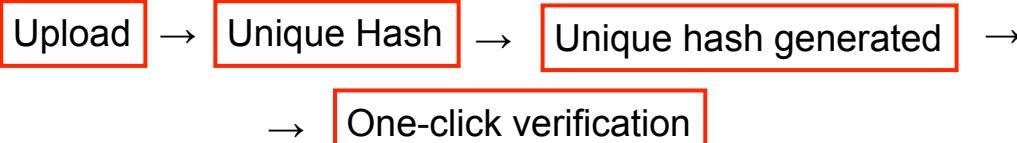
- AI assists, never decides
- Human authority at every stage
- All actions cryptographically logged



# Solution Overview – Trust & Compliance Layer

## SHA-256 Evidence Lock

- Cryptographic integrity for every uploaded document
- Instant tamper detection on any modification
- Immutable audit trail for evidentiary trust
- Court-grade digital evidence security



## Video Call Integration

- Secure virtual courtroom for remote hearings
- Jitsi-based encrypted video & screen sharing
- Real-time notes during proceedings
- Consent-based recording
- No server-side data storage

## BSA Section 63(4) Certificate Generator

(Bhartiya Sakshya Adhiniyam, 2023)

- Auto-generates legally valid electronic evidence certificates
- Validates device logs, creator identity, and hash integrity
- Downloadable PDF for direct court submission
- Visual verification badge for judges

### Compliance Met:

Device Logs • User ID • SHA-256 Hash

## Progressive Web App (PWA)

- Offline-first justice access
- Installable on any device
- Instant loading via service workers
- Push notifications for hearings
- Lightweight, native-like experience

# Technology used

## AI & Machine Learning

- Groq LLM Infrastructure
- Llama 3.1 for Legal Reasoning
- Bhashini for Indic Language Support
- Local AI fallback (Ollama)

## Frontend Stack

- React-based Progressive Web App
- Offline-first architecture

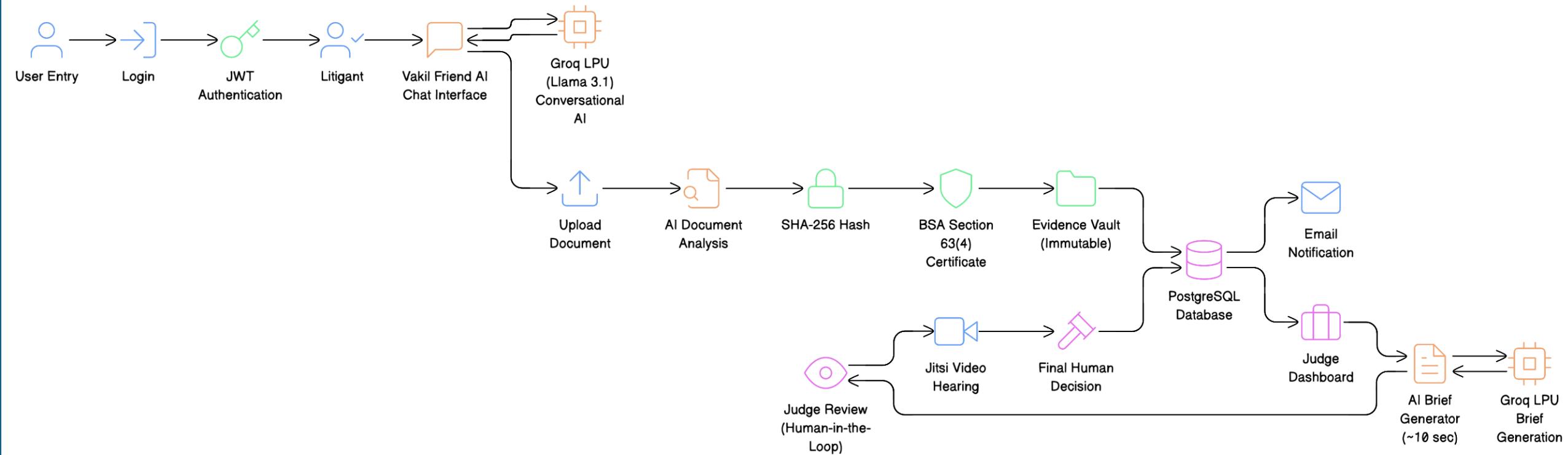
## Backend Ecosystem

- Spring Boot (Java)
- Secure API architecture with JWT
- ORM-based database integration

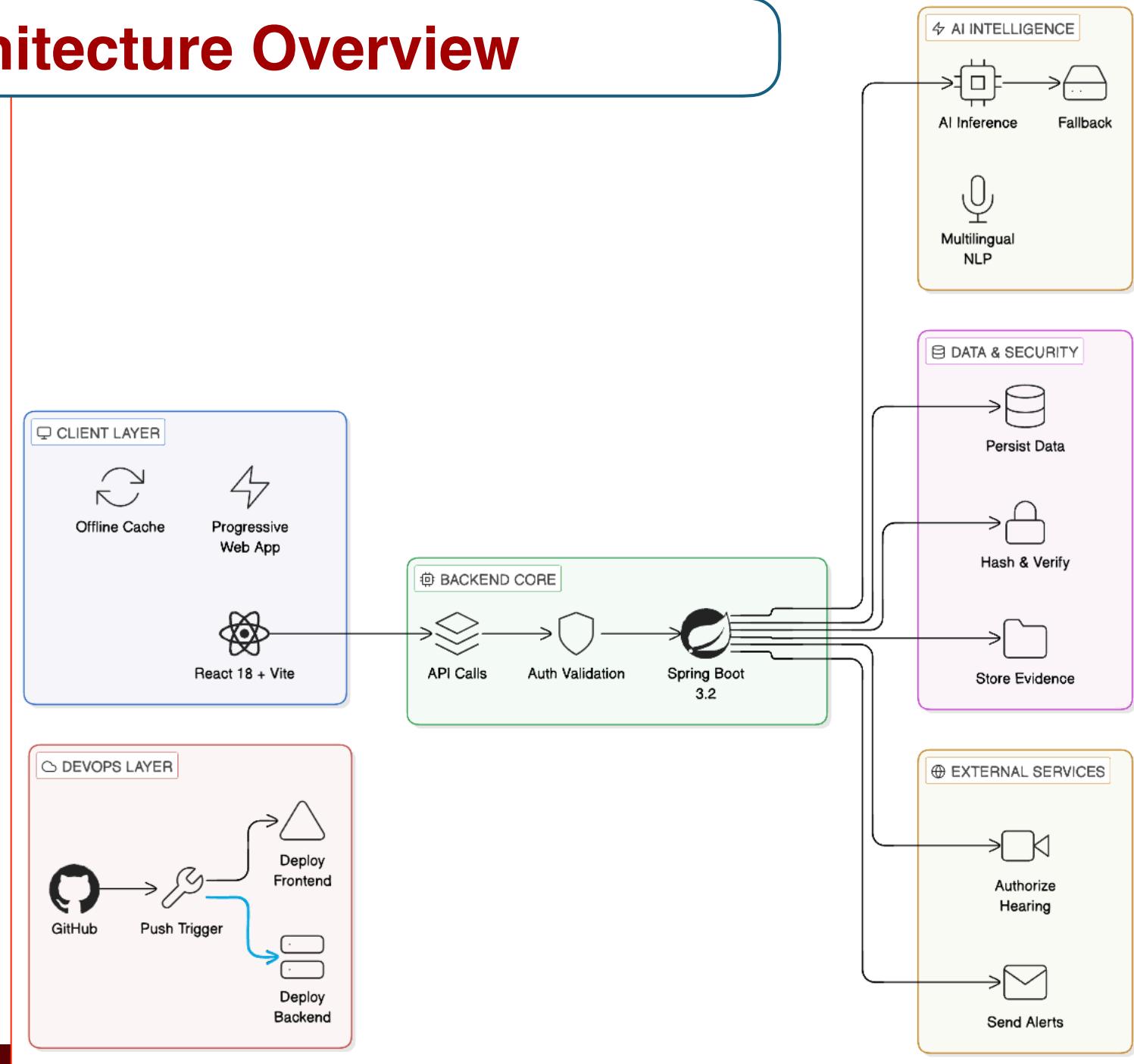
## Infra & Media

- PostgreSQL (ACID compliant)
- Encrypted Video (Jitsi)
- Cloud Deployment (Vercel & Render)
- CI/CD automation (Jenkins)

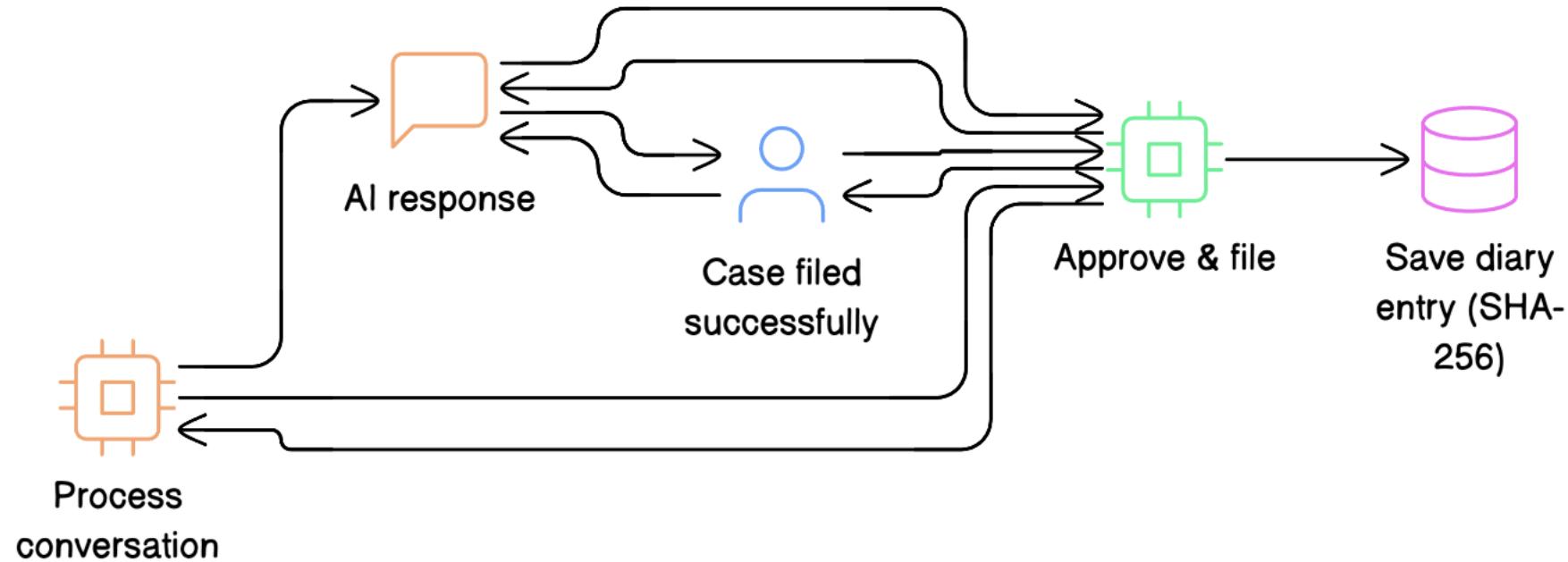
# End-to-End System Architecture Flow



# System Architecture Overview



# Case Filing Workflow



# Vakil-Friend: Conversational Case

**NyaySetu**

**LITIGANT Dashboard**  
Welcome back, Litigant Z!

**Vakil-Friend AI**  
Chat with our AI to file your legal case  
Language: English

**Vakil-Friend AI**  
Secured AI Assistant

the gyanchand Tripathi hit my car yesterday and now he is threatening and not paying the damage. It Happen On First of Feb on 8 am.my Name is Virendra Gadekar a 21 year old. As i was driving the car on MG road the car come from opposite side and hit my car hard from front. i was safe, car get front damaged.

**A Difficult Situation**

I'm so sorry to hear that you've been involved in an accident and are now facing harassment from the other party. It's completely unacceptable for Gyanchand Tripathi to threaten you and refuse to pay for the damages.

Let's break down the information you've provided so far:

- **ISSUE:** Gyanchand Tripathi hit your car from the front and is now threatening and refusing to pay for the damages.
- **CASE\_TYPE:** Based on your description, this appears to be a **CIVIL** case, specifically a **PROPERTY** damage case.
- **PETITIONER:** You are Virendra Gadekar, a 21-year-old.
- **RESPONDENT:** Gyanchand Tripathi is the person you are filing against.
- **INCIDENT\_DATE:** The incident occurred on February 1st.
- **EVIDENCE:** You mentioned that your car was damaged from the front, but you haven't mentioned any physical or digital proof you possess. Please let me know if you have any photos, witness statements, or other evidence that can support your case.
- **URGENCY:** You haven't specified the urgency level yet. Please let me know if this is a **NORMAL, URGENT, or CRITICAL** matter.

Describe your legal issue...

**X Collapse Sidebar**

Live Demo



# Secure Evidence Upload & BSA Certificate

**LITIGANT Dashboard**

Welcome back, Litigant Z!

**neighbour's actions were unacceptable, and you're feeling threatened and frustrated about the damages to your vehicle. To proceed,**

Case ID: 1a2bc566-fcc0-4f48-b7b7-0cde8268ba13

**NORMAL Priority**

Overview Case Files Timeline Procedural Health

**AI Suggested Documents**

Based on your case type CIVIL, Groq AI recommends uploading these:

- Complaint Registration Copy
- Police FIR (First Information Report) copy
- Vehicle Registration Certificate (RC)
- Vehicle Insurance Policy
- Medical Certificate (if any injuries occurred)

Uploaded Files (1)

Damaged Car Photo.pdf **VERIFIED**  
 Hash: 55d207c68900dacf... • 470.35 KB

AI Insights Certificate

Upload File

Collapse Sidebar

**CERTIFICATE OF ELECTRONIC EVIDENCE**

Under Section 63(4) of Bharatiya Sakshya Adhiniyam, 2023

This is to certify that the electronic record identified below was generated, stored, and maintained in the ordinary course of official business. The integrity of this record is cryptographically secured and verified.

Attribute	Details
File Name	Damaged Car Photo.pdf
Record Type	CASE_DOCUMENT
Timestamp	03 Feb 2026, 02:07 AM
Source IP	0:0:0:0:0:0:1
SHA-256 Hash	55d207c68900dacf38ca8842dc724b04a8f03137c73bf9aff75c7c2b6265f6b

I hereby certify that:

- The computer/system producing this record was operating properly.
- The contents have not been tampered with since creation.
- The digital fingerprint (Hash) matches the original record.

Digitally Signed by NyaySetu Vault  
 System Generated Certificate

ID: 7ce856f6-3bed-4548-bb42-2adelb281c32

# Judge Dashboard – AI Legal Brief



NyaySetu

- Judicial Overview
- My Docket
- Unassigned Pool
- Live Hearing
- Court Analytics
- Profile

[Collapse Sidebar](#)

## JUDGE Dashboard

Welcome back, Judge X!

**AI Legal Brief**  
Pre-Hearing Analysis

### CASE SYNOPSIS

The State is prosecuting a case of attempted murder against an unknown respondent, who is alleged to have committed the offense against a neighbor. The investigation is ongoing, and the respondent has not been identified or apprehended. The case is a serious felony offense that requires careful consideration of the evidence and potential defenses.

### KEY LEGAL ISSUES

- The admissibility of evidence obtained during the ongoing investigation, particularly any statements or confessions made by the respondent.
- The issue of identification, as the respondent's identity has not been confirmed and may require additional investigation or forensic analysis.
- Potential defenses, including self-defense, provocation, or diminished capacity, which may be raised by the respondent if and when identified.

### PROCEDURAL STATUS

The case is currently at the pre-charge stage, with the police investigation ongoing. Once the investigation is complete, the State will file charges against the respondent, and the case will proceed to arraignment. The respondent will then be formally charged and advised of their rights, after which the case will proceed to trial.

### SUGGESTED ACTIONS

The Judge may wish to inquire about the status of the ongoing investigation and the expected timeline for completion. Additionally, the Judge may consider issuing a pre-charge order to require the State to provide a detailed report on the evidence collected and the basis for the intended charges.

[Regenerate](#)

[to Police.](#)

25 Jan 2026, 12:43 am  
Hearing scheduled for 2026-01-26

25 Jan 2026, 12:42 am  
Hearing scheduled for 2026-01-25

**AI Court Assistant**  
Judicial Support

[Schedule Hearing](#) [Add Party](#)

[Case Brief](#)

Good day, Your Honor. I'm ready to assist with **State vs Attempted murder by ...**

You can ask me about case details, schedule hearings, or add parties to the proceedings.

[Ask about case details...](#)

Live Demo



# Virtual Court – Secure Video Hearing



**NyaySetu**

- Dashboard
- Litigant Directory
- Active Cases
- AI Legal Assistant
- Hearings**
- Analytics
- Profile

**LAWYER Dashboard**  
Welcome back, Lawyer Y!

Thank you for sharing the details of the incident. It seems like your neighbor's actions were unacceptable, and you're feeling threatened and frustrated about the damages to your vehicle. To proceed,

SESSION LIVE 08:29 PM

End-to-End Encrypted Secure Judicial Line

jitsi

Hearing D 0 C 796 Ee 9 A 7 00:14 Performance settings

me

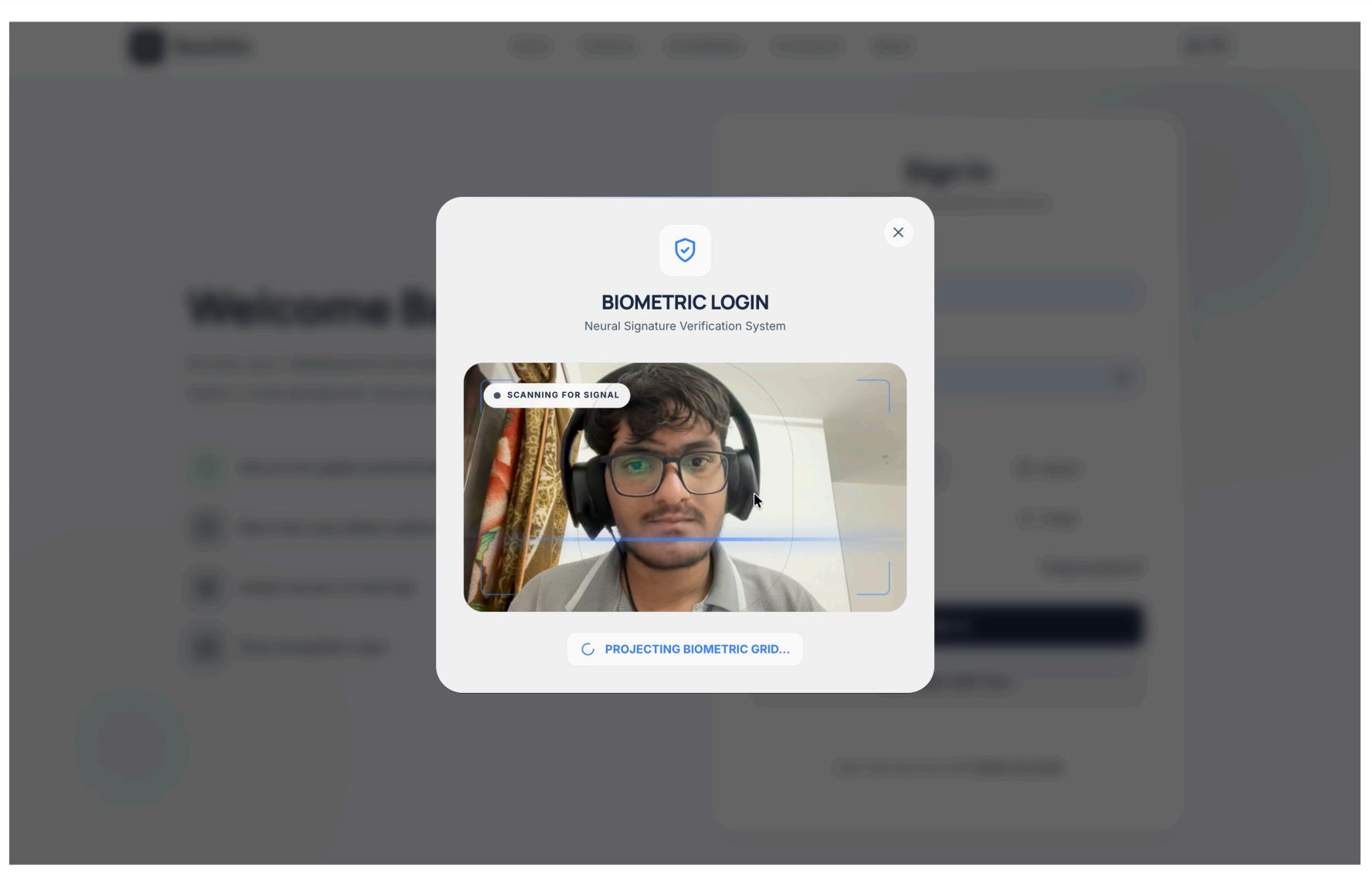
LEAVE SESSION

Collapse Sidebar

Live Demo



# Biometric Login – Secure Identity



[Live Demo](#)



# Novelty and Uniqueness

1

**Real-Time AI Judicial Assistance** : Sub-second AI-generated structured legal briefs for faster case review.

2

**Cryptographic Evidence Integrity** : SHA-256 hashing ensures tamper-proof, mathematically verifiable records.

3

**5G-Enabled Virtual Justice** : Designed for low-latency remote hearings, reducing travel barriers.

4

**Built-in Legal Compliance** : Automatic generation of court-valid Certificates of Electronic Evidence (BSA 2023).

# Future Roadmap – Towards Sovereign Legal

## OpenNyayAI – Judicial Sovereign Model (Short-Term)

- Domain-specific judicial language model
- Trained on Indian court judgments
- Initial focus: land & property dispute
- Ensures legal-context accuracy & data sovereignty
- <https://github.com/viru0909-dev/OpenNyayAI>

## Medium-Term: National Scalability

- 22-language expansion (Indic AI support)
- Secure integration with CCTNS & e-Prisons
- Rural inclusion & interoperable justice ecosystem

## Long-Term: AI-Driven Judiciary

- Smart-contract-based settlement execution
- Predictive judicial resource planning
- Data-driven policy intelligence

## B2C – Legal-Tech for All

- Freemium model to democratize legal access
- Free legal education + case tracking
- Premium AI drafting & BSA Section 63 certificates
- High-volume, low-cost national reach

## B2B – Lawyer's Virtual Office (SaaS)

- Subscription model for advocates (₹999/month)
- AI case summaries & evidence locker
- Automated diary & hearing sync
- High retention due to workflow integration

## B2G – Judicial Infrastructure Partnership

- Licensing modules under e-Courts Phase III
- AI-powered e-Sewa Kendra integration
- Blockchain-based evidence anchoring
- Alignment with ₹7,210 Cr national mandate

# Open Access: Repository & Live Platform

GitHub 



<https://github.com/viru0909-dev/nyay-setu-working>

Live Demo 



<https://nyaysetu-lovat.vercel.app/>

# Bank Details



Full Name (as per bank records):	Bank Name	Branch Name	Account Number	Account Type (Savings / Current)	IFSC Code
VIRENDRA DATTATRAY GADEKAR	UCO BANK	RAHU	14313211082156	SAVINGS ACCOUNT	UCBA0001431
HARSH PANDEY	STATE BANK OF INDIA	DEFENCE BKG BR, BAKSHI KA TALAB, LUCKNOW	42308016501	SAVINGS ACCOUNT	SBIN0006683

UCO BANK  
 \*\*\*\*\*  
 Toll Free Number: 1800-103-0123  
 CRFC NO:  
 BRANCH NAME: RAHU  
 BRANCH ADDRESS: UCO BANK, RAHU PUNE 412207  
 BRANCH MAIL ID: rahu@ucobank.co.in  
 PHONE: 02119272362

NAME: VIRENDRA DATTATRAY GADEKAR  
 ACCOUNT NO: 14313211082156 SAVINGS ACCOUNT CIF: R07752692  
 ACCOUNT OPEN DATE: 16-08-2024 MODE OF OPERATION: SELF  
 CUST ADDRESS: KAPARE WASTI PIMPALGAON RAHU PIMPALGAON, DAUND PUNE MAHARASHTRA  
 PUNE 412214

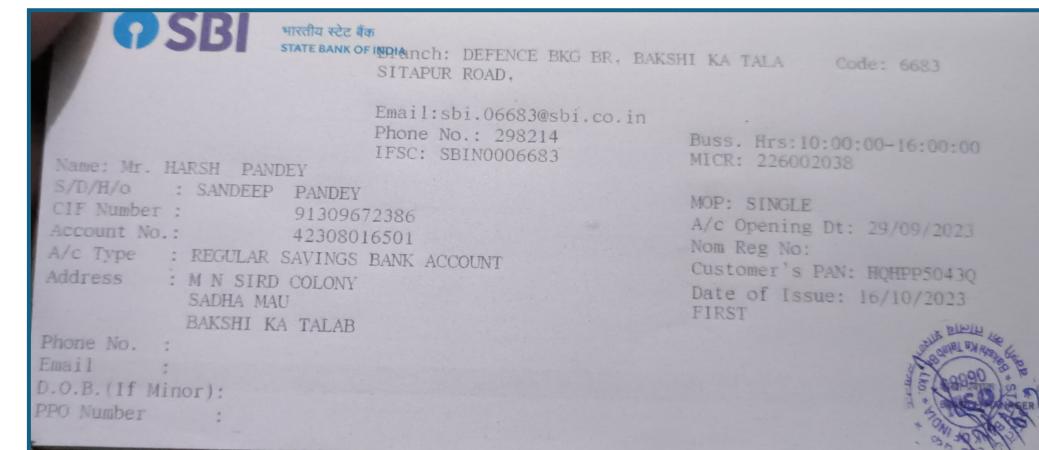
NOMINATION REGISTERED: YES  
 PB.No. 1

PASSBOOK



BRANCH SEAL AND SIGNATURE

DICGC INSURANCE UPTO 5 LAC  
 MICR Code: 411028502



VIRENDRA DTTATRAY GADEKAR

HARSH PANDEY

# Thank You