Proforma for Submitting Technical Proposal

1. General Information

S. No.	Particulars	Details to be Filled by Team
1	Hackathon Title	Suvidha 2026
2	Problem Statement ID / Theme	Smart Urban Virtual Interactive Digital Helpdesk Assistant (Multilingual Smart City Kiosk System)
3	Team Name	Bumble Bee
4	Institution / Organisation Name	Vignan University, Vadlamudi, Andhra Pradesh
5	Team Leader Name	Ankit Kumar
6	Contact Email ID	ankitkr79032@gmail.com
7	Contact Mobile Number	7903204354
8	City / State	Vadlamudi, Andhra Pradesh

2. Team Composition

S. No.	Name of Team Member	Role in Team	Qualification / Specialization
1	Ankit Kumar	Team Leader	B.Tech (Computer Science & Engineering)
2	Tushar Kumar	Backend	B.Tech (Computer Science & Engineering)
3	Ayush Singh	Frontend	B.Tech (Computer Science & Engineering)
4	Vikram Aditya Kumar Suman	Architecture	B.Tech (CSE (CyberSecurity))

3. Project Overview

3.1 Project Title: SUVIDHA One – Unified Multilingual Smart Civic Helpdesk Kiosk

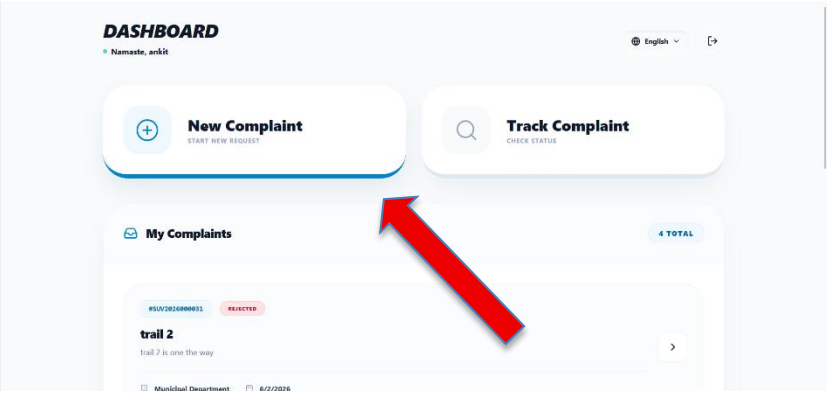
3.2 Brief Project Description:

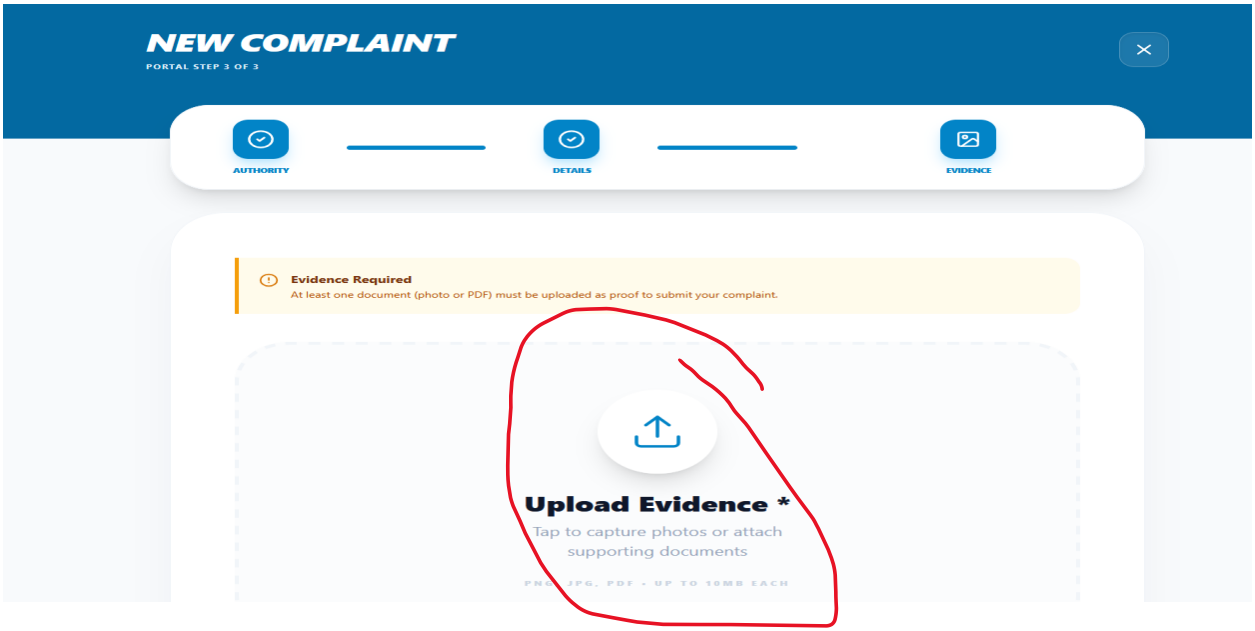
i. SUVIDHA One is a next-generation Smart Urban Digital Helpdesk Assistant designed to modernize citizen–government interactions through a unified, touch-enabled kiosk system. The solution integrates multiple public utility services including electricity, water supply, gas distribution, sanitation, and municipal services into a single, self-service digital platform.

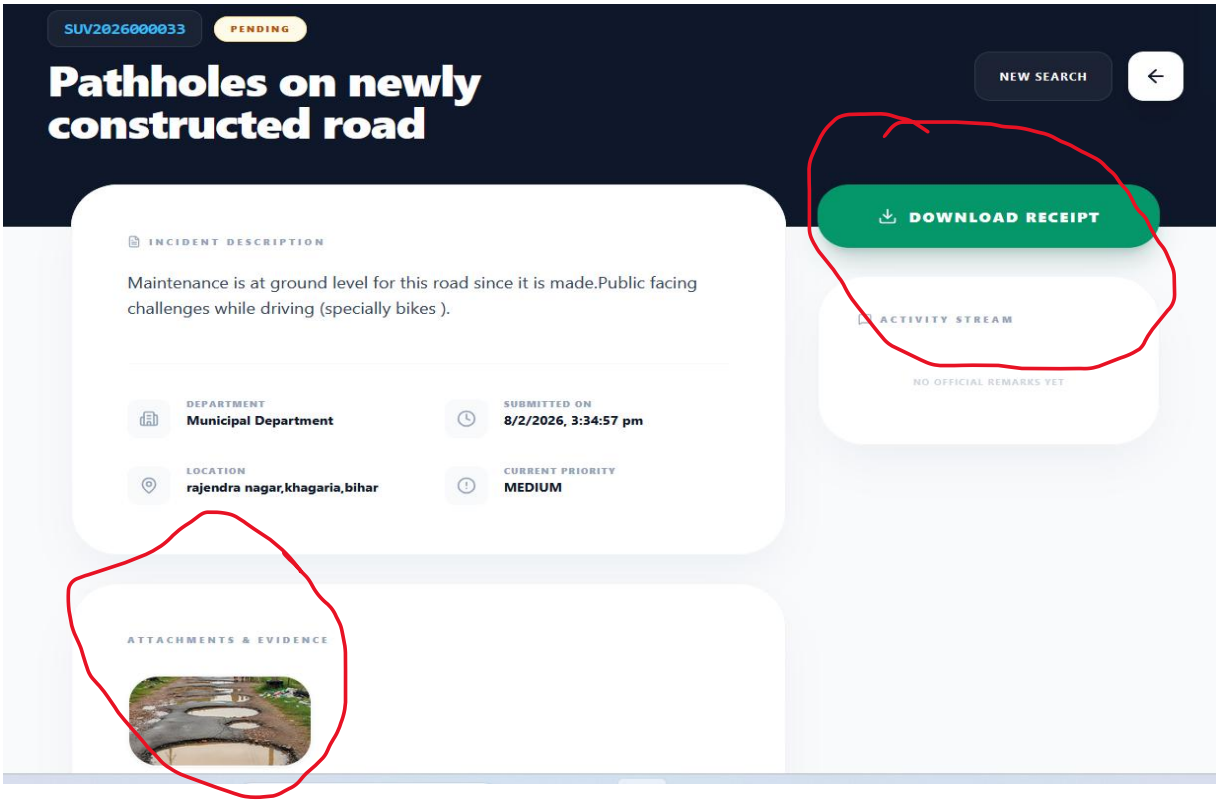
ii. The system provides a multilingual, accessible, and secure interface that enables citizens to register complaints, apply for new services, upload supporting documents, track real-time application status, and receive automated digital receipts. The kiosk is designed to be user-friendly for citizens of all backgrounds, including elderly and digitally inexperienced users.

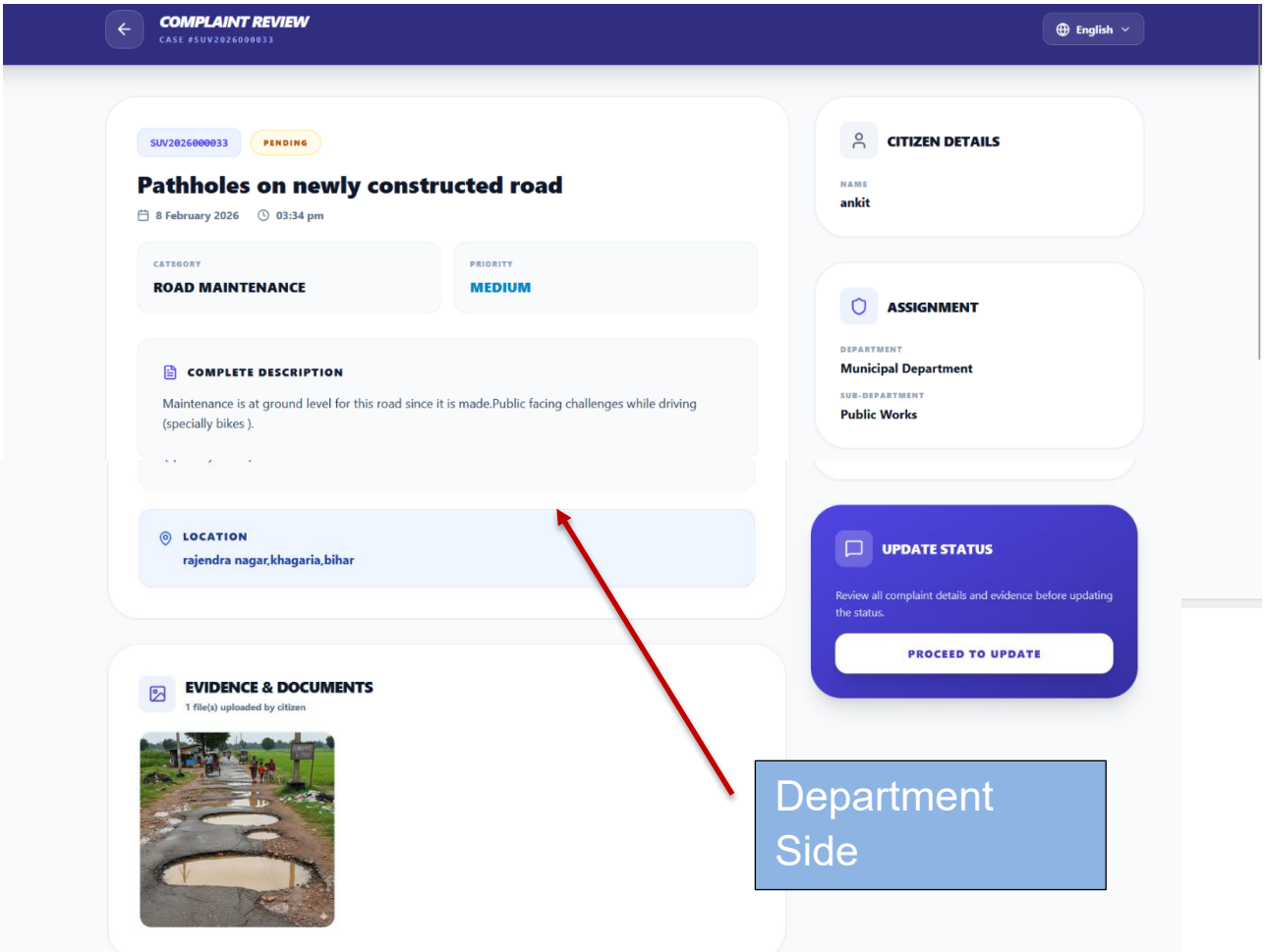
iii. By leveraging secure authentication, real-time service tracking, and scalable cloud-based architecture, SUVIDHA One enhances transparency, reduces physical queues, minimizes paperwork, and improves operational efficiency across civic departments. The solution aligns with the Smart City 2.0 vision of delivering inclusive, technology-driven urban governance.

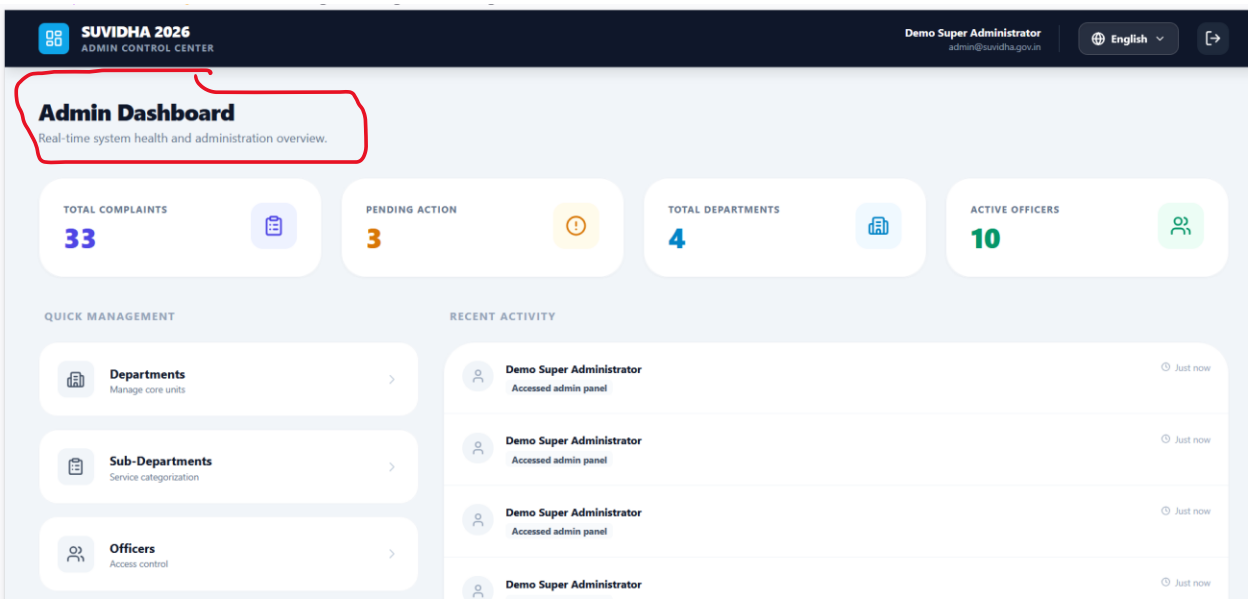
3.3 Key Features & Functionalities:






SUV2026000033
PENDING
Pathholes on newly constructed road
NEW SEARCH
DOWNLOAD RECEIPT
INCIDENT DESCRIPTION
Maintenance is at ground level for this road since it is made.Public facing challenges while driving (specially bikes).
ACTIVITY STREAM
NO OFFICIAL REMARKS YET
DEPARTMENT
Municipal Department
SUBMITTED ON
8/2/2026, 3:34:57 pm
LOCATION
rajendra nagar,khagaria,bihar
CURRENT PRIORITY
MEDIUM
ATTACHMENTS & EVIDENCE


COMPLAINT REVIEW
CASE #SUV2026000033
English
SUV2026000033
PENDING
Pathholes on newly constructed road
8 February 2026
03:34 pm
CATEGORY
ROAD MAINTENANCE
PRIORITY
MEDIUM
COMPLETE DESCRIPTION
Maintenance is at ground level for this road since it is made.Public facing challenges while driving (specially bikes).
LOCATION
rajendra nagar,khagaria,bihar
EVIDENCE & DOCUMENTS
1 file(s) uploaded by citizen
CITIZEN DETAILS
NAME
ankit
ASSIGNMENT
DEPARTMENT
Municipal Department
SUB-DEPARTMENT
Public Works
UPDATE STATUS
Review all complaint details and evidence before updating the status.
PROCEED TO UPDATE
Department Side



4. Problem Understanding & Objective

4.1 Understanding of the Problem Statement

a) *Urban civic utility offices such as electricity boards, water supply departments, gas distribution agencies, and municipal corporations often face operational challenges including long queues, manual paperwork, lack of real-time tracking, language barriers, and limited transparency in complaint resolution. Many citizens—especially elderly individuals, rural migrants, and digitally less experienced users—struggle to navigate complex online portals or physical office processes.*

b) *The SUVIDHA 2026 challenge aims to address these systemic inefficiencies by introducing a unified, self-service digital kiosk platform capable of delivering multiple public utility services through an intuitive, multilingual interface. The core problem is not merely digitization, but the creation of an inclusive, secure, and scalable citizen–government interaction system that reduces dependency on manual intervention while improving transparency and service efficiency.*

c) *A smart kiosk-based helpdesk system is highly relevant in today's Smart City 2.0 ecosystem, where urban populations are rapidly increasing and public service delivery must become faster, more reliable, and citizen-centric. By integrating authentication, service requests, complaint management, document submission, and real-time tracking into a single interface, the solution can significantly enhance operational efficiency while ensuring equitable access to civic services.*

d) *Our understanding is that SUVIDHA is not just a kiosk interface, but a foundational digital infrastructure layer that bridges the gap between citizens and government departments in a transparent and scalable manner.*

4.2 Objectives of the Proposed Solution

The key objectives of SUVIDHA One are:

1. **Unified Service Integration** – Provide a single platform for electricity, water, gas, sanitation, and municipal services.
2. **User-Friendly Interface** – Design an intuitive, touch-based kiosk system suitable for users of all age groups.
3. **Multilingual Support** – Enable service access in English, Hindi, and regional languages.
4. **Secure Authentication** – Implement OTP-based login and role-based access control.
5. **Transparency & Real-Time Tracking** – Allow citizens to track applications and complaints instantly.
6. **Accessibility & Inclusivity** – Support large fonts, high contrast mode, and guided navigation.
7. **Scalability & Reliability** – Ensure cloud-ready architecture capable of deployment across multiple cities.
8. **Reduced Manual Dependency** – Minimize paperwork and physical queues in civic offices.
9. **Data-Driven Governance** – Provide analytics dashboard for administrators to improve decision-making.

5. Technical Design & Architecture

5.1 Solution Description

- SUVIDHA One is designed as a modular, scalable, and cloud-enabled smart kiosk system that integrates multiple public utility services into a unified digital platform. The system consists of three primary layers: the Kiosk Interface Layer, the Application & API Layer, and the Data & Integration Layer.

- At the front end, the kiosk provides a touch-based, multilingual user interface designed for simplicity and accessibility. Citizens can select their preferred language, authenticate securely via OTP-based mobile verification, and access various services such as complaint registration, new service applications, bill-related queries, and application tracking. The interface includes guided workflows, large interactive buttons, accessibility modes (high contrast, large fonts), and document upload functionality supporting images and PDFs.

- The backend application layer handles authentication, service request processing, ticket generation, document management, and role-based access control. Each service request is assigned a unique reference ID and stored securely in the database. The system ensures secure communication using HTTPS protocols and implements input validation to prevent malicious activity.

- An Admin Dashboard is integrated for department officials, enabling them to view, filter, prioritize, and update service requests. The dashboard provides analytics such as complaint volume, resolution time, and department-wise statistics, helping improve governance efficiency.

- The Data & Integration Layer connects to a centralized database for storing user records, service requests, and status updates. The system is designed to integrate with existing government utility databases through secure APIs in future phases, allowing real-time synchronization of billing data, connection details, and service updates.

- The architecture is cloud-ready and horizontally scalable(Now I have used MongoDB Atlas for data managing) , allowing deployment across multiple urban utility offices. The modular design ensures that additional departments or services can be integrated without redesigning the entire system.

- Overall, SUVIDHA One combines usability, security, and scalability to deliver an efficient and transparent digital governance solution aligned with the Smart City 2.0 initiative

5.2 System Architecture Diagram

(Attach a diagram illustrating system components, data flow, and interactions.)

- Upload Architecture Diagram (PNG/PDF/Link): Link

5.3 Workflow & Data Flow

Step-by-Step Workflow:

1. *Citizen selects language on kiosk.*
2. *Citizen logs in using mobile number (OTP verification).*
3. *Citizen selects service (Electricity / Water / Gas / Municipal) for complaints.*
4. *Fills digital form and uploads required documents.*
5. *System validates input and generates unique Complaint ID.*
6. *Data is stored in centralized database.*
7. *Admin as well as selected department dashboard receives real-time update.*
8. *Admin reviews, processes, and department officer updates status.*
9. *Status updates are reflected instantly on kiosk.*
10. *Citizen receives SMS/email notification.*
11. *Digital receipt is generated and optionally printed.*

Data Flow Explanation:

- *User input → Frontend validation*
- *Frontend → Secure API request (HTTPS)*
- *API → Business logic processing*
- *Business logic → Database storage*
- *Database → Status updates*
- *Backend → Notification service*
- *Admin updates → Database → Reflected to user*

Data flows in a secure, request–response model ensuring integrity and transparency.

6. Technical Details

6.1 Tools & Frameworks Used:

- **Frontend**: React.js (with HTML5, CSS3, Bootstrap/Tailwind CSS)
- **Backend**: Node.js with Express.js
- **Database**: MongoDB (NoSQL Database)
- **APIs**: REST APIs (Custom-built using Express.js), Email Notification API (Nodemailer)

6.2 Hardware Components (if applicable):

7. Implementation Details (Link)

7.1 How does the solution work?

- **User Access & Authentication**
  The citizen accesses the SUVIDHA digital kiosk or web portal and logs in using their mobile number with OTP-based authentication. New users can register by providing basic details.
- **Service Selection**
  After successful login, the user selects the required government service such as complaint registration, certificate request, or department-specific services.
- **Form Submission & Evidence Upload**
  The user fills in the service form and can upload supporting documents, images, or videos as evidence. All inputs are validated before submission.
- **Backend Processing**
  The request is securely sent to the backend server, where it is stored in the centralized database and assigned a unique tracking ID.
- **Department Assignment**
  Based on the selected service, the request is automatically routed to the concerned department officer or authority.
- **Status Tracking & Updates**
  The user can track the real-time status of their request (Submitted, In Progress, Resolved). Notifications are sent via SMS/email.
- **Resolution & Feedback**
  Once resolved, the user receives confirmation and can provide feedback, ensuring transparency and accountability.

8. Impact & Future Scope

8.1 Innovation & Uniqueness:

- *The SUVIDHA digital kiosk system is innovative because it **bridges the gap between citizens and government services** by providing a **single, unified digital platform**. Unlike traditional kiosks that offer limited services and require manual intervention, SUVIDHA enables **end-to-end digital service delivery**.*
- *The system eliminates long queues, paperwork, and dependency on intermediaries. Features such as **OTP-based authentication**, **real-time complaint tracking**, and **evidence upload** enhance trust and transparency. Unlike existing kiosk systems that are department-specific, SUVIDHA supports **multi-department integration** under one interface.*

- *Another key innovation is its **role-based access system**, ensuring that administrators, department officers, and citizens have clearly defined permissions. This prevents data misuse and improves governance efficiency.*
- *The platform is scalable, secure, and accessible through both kiosks and web portals, making it suitable for **rural and urban deployment**. Overall, SUVIDHA transforms traditional government kiosks into a **smart, citizen-centric digital governance solution**.*

8.2 Future Improvements & Scalability:

- ✓ *Integration of **AI-based chatbots** for instant user assistance*
- ✓ *Support for **regional languages** for better accessibility*
- ✓ ***Mobile application** for wider reach*
- ✓ *Advanced analytics dashboard for government authorities*
- ✓ *Integration with national platforms like DigiLocker and Aadhaar (future-ready).*

10. Scalability & Extensibility

(i) Modular Design

The system is built using a modular architecture where each feature (authentication, complaints, notifications, admin panel) functions independently. This allows easy maintenance and upgrades.

(ii) Multi-department Integration

New departments can be added without affecting existing services. Each department has its own dashboard and workflow.

(iii) Future Service Expansion Support

The platform supports adding new services such as licenses, permits, certificates, and welfare schemes with minimal configuration changes, making it future-proof.

10. Security & Compliance

Aspect	Description
User Authentication	The system uses secure OTP-based authentication for citizens and role-based login for administrators and department officers. This ensures that only

	authorized users can access specific services and dashboards.
Data Privacy	All user data, including personal details and uploaded documents, is securely stored in an encrypted database. Access to sensitive information is restricted based on user roles, ensuring confidentiality and preventing unauthorized access.
Compliance with Govt. IT / DPDP Act	The solution follows Government of India IT guidelines and aligns with the Digital Personal Data Protection (DPDP) Act by collecting only necessary data, ensuring user consent, and supporting secure data storage and controlled access.
Secure Transactions	All data transactions between the user interface and backend servers are protected using secure communication protocols (HTTPS). Input validation, audit logs, and activity tracking are implemented to prevent data tampering and unauthorized operations.

11. Declaration

We hereby declare that the information provided in this technical proposal is true and correct to the best of our knowledge. The proposed solution is our original work and does not violate any intellectual property rights.

Ankit kumar

Signature: