SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID –** 25031
- **Problem Statement Title-** Crowdsourced Civic Issue Reporting and Resolution System
- **Theme-** Clean and Green Technology
- **PS Category-** Software
- **Team ID-** Infinite_loopers
- **Team Name (Registered on portal) -** Infinite_loopers

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GrieVeda

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❖Proposed Solution

Our Solution "**GrieVeda"** is an AI-powered, citizen-centric grievance redressal platform that enables geo-tagged complaint reporting, duplicate detection, and with face recognition yet anonymous. It provides real-time tracking and public confirmation, while giving authorities structured, verified, and prioritized issues for faster, transparent, and efficient resolution.

• How it addresses the problem

- We ensure **Easy & Safe Reporting** as Citizens can submit issues with geo-tagged photos, voice/text input. Anonymity hides personal information for safety, while faceprint authentication prevents fake IDs.
- We use **AI for Smart Prioritization**: Complaints are ranked as Critical, Moderate, or Minor based on urgency, citizen upvotes/downvotes, and location sensitivity—ensuring the most important issues get attention first.
- Our platform **eliminates duplication** as AI redirects users to existing posts, allowing users to upvote or suggest solutions, thereby reducing spam.
- The government dashboard highlights areas with higher complaints. Authorities can identify hotspots of problem and monitor which local bodies are underperforming creating accountability at the root levels

• Innovation and uniqueness of the solution

- **Anonymity + Face Authentication:** Face authentication at signup ensures one user–one account, while anonymous complaint mode allows safe and identity-free reporting.
- **AI Hazard Detection & Priority Scoring:** Uses ML and community-driven upvote system to automatically assess urgency of issues.
- **Real-time Proactive Safety Alerts:** Notifies nearby users about high-risk hazards like critical bridge cracks or deep potholes.
- **Automated Duplicate Management**: AI redirects users to existing complaints in the same area for confirmation and upvoting, reducing spam.
- **Automatic Escalation:** Unresolved complaints are auto-routed to higher authorities within set timelines.
- **Scalability:** Integration-ready, and replicable across Jharkhand and other states.
- **Community Feed & Leaderboard(Civic Heroes):** A transparent feed where citizens view, validate, and upvote issues in their locality and ensuring user engagement with live leaderboard.

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TECHNICAL APPROACH

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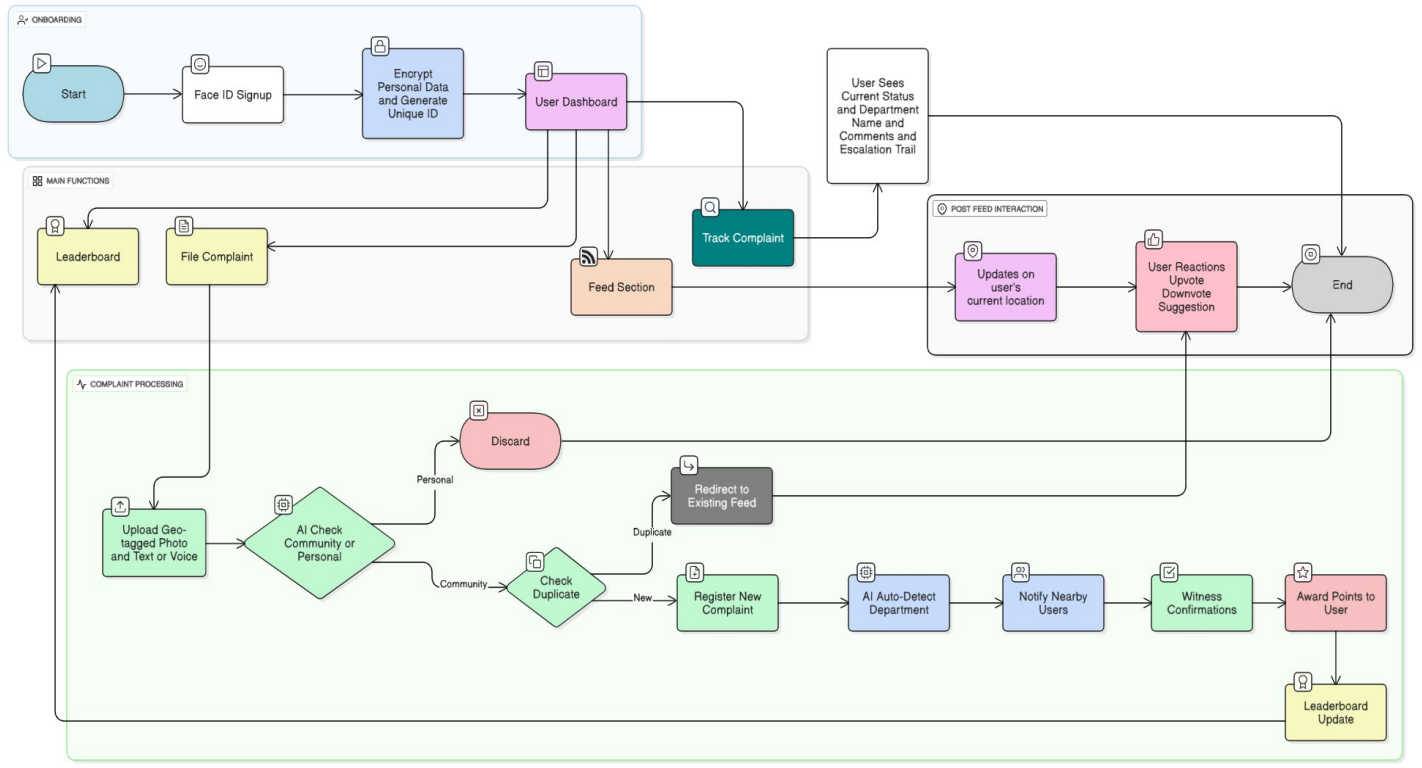
Technologies to be used (TechStack)

- **Frontend** (App & Web): React Native (Mobile), React.js (Web), TailwindCSS (UI)
- **Backend & APIs:** Node.js + Express | Python (FastAPI for AI services)
- **Database:** PostgreSQL + PostGIS (Geo-data), MongoDB
- **AI/ML:** TensorFlow / PyTorch (Face Verification, Complaint Deduplication, NLP for Dept. Classification)
- **Cloud & Infra**: AWS / GCP (Compute, Storage, Auto-scaling, Security)
- **Authentication:** Face Verification (FaceNet) + OAuth2.0
- **Location:** Google Maps API / OpenStreetMap for Geotagging
- **Notifications:** Firebase Cloud Messaging (Real-time updates)

PostgreSQL node aws mongo DB

Methodology and process for implementation



Client side's app flow

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TECHNICAL APPROACH

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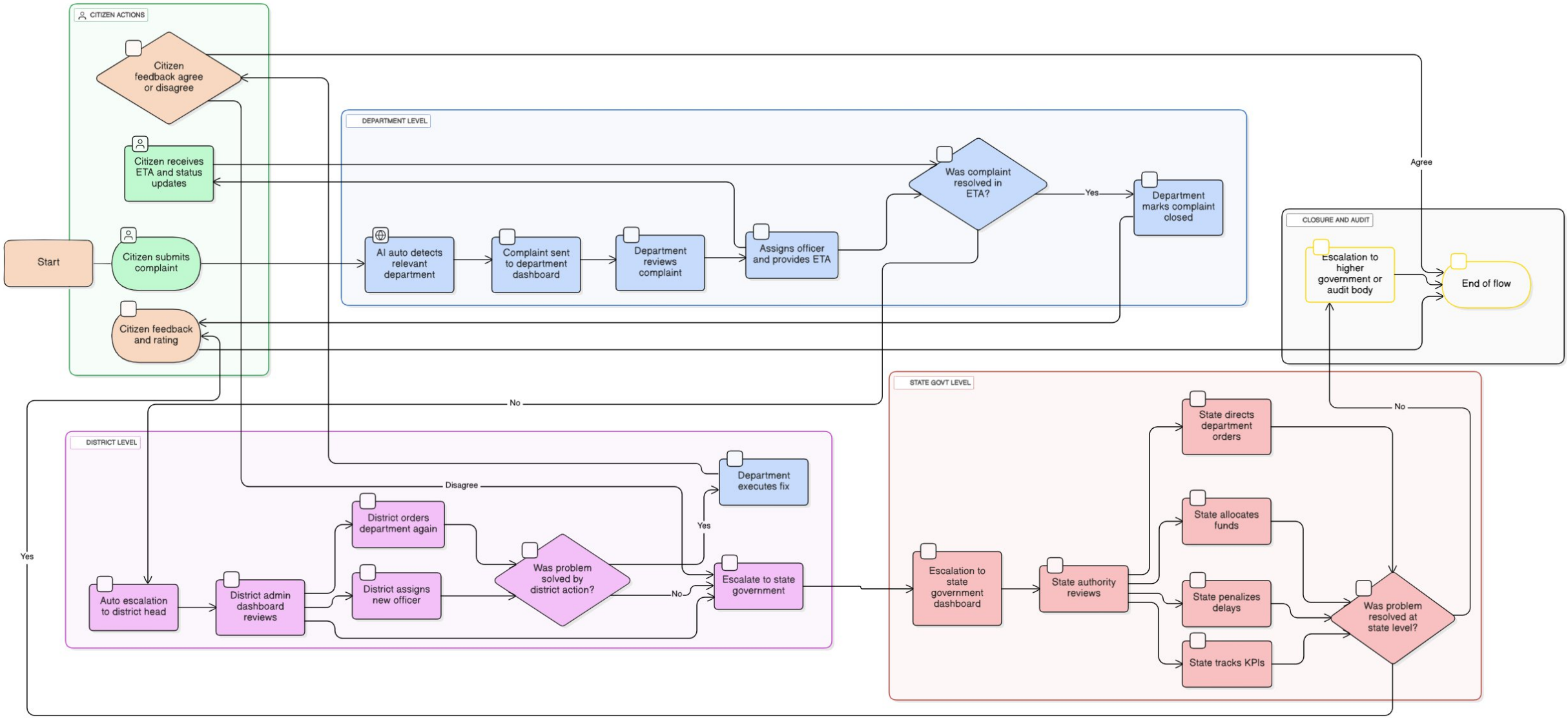
User complain flow



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FEASIBILITY AND VIABILITY

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Analysis of the feasibility of the idea

- Technically Feasible : AI-powered duplicate complaint detection, face verification
- Operationally Scalable : Cloud deployment ensures handling of complaints with geotagging & multilingual support.
- Easy Adoption: Citizen mobile app + authority dashboard designed for smooth analysis.
- Economically Viable: Uses open-source AI & cloud pay-as-you-go services ,cost-effective at scale.
- Socially Impactful :Eliminates fake/duplicate complaints, accelerates redressal, builds citizen trust in governance.

Potential challenges and risks

- Ensuring AI accuracy, as detecting cracks, potholes, or hazards from poor-quality or low-light images in rural settings can be difficult.
- Driving citizen adoption, since many users may hesitate to use a digital platform or doubt whether their complaints will be acted upon.
- Managing integration delays with government systems, as municipal processes require policy approvals and coordination across departments.
- The system may stop working if not maintained properly or if the government doesn't continue using it.

Strategies for overcoming these challenges

- AI Accuracy: Continuous training using datasets from Jharkhand's real conditions
- Citizen Adoption: Awareness campaigns, local language support, and reward-based incentives to build trust and participation.
- We will do a trial run will also help local officials and citizens learn the system, to find problems early and improve it. Once it works smoothly, we will expand it step by step. Finally, the platform will scale across the entire state
- Add the platform to state e-governance with a small yearly budget. Train municipal staff to run it, get tech support from startups, and give higher authorities a dashboard to ensure regular use.

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IMPACT AND BENEFITS

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○ Potential impact on the target audience

✓ The Citizens will gain a safe, anonymous, and simple way to report issues, track progress, and trust that their voices are being heard.

✓ The Government Staff receives structured, AI-prioritized complaints with reduced duplication, making their work more efficient.

✓ The Communities will become active stakeholders through locality feeds and upvotes, encouraging collaboration and civic awareness.

○ Benefits of the solution

➢ **Social Impact**: Safer roads, cleaner neighbourhoods, quicker hazard detection, and stronger trust between citizens and government.

➢ **Economic Impact**: Reduced accident costs, improved efficiency in municipal operations, and optimized use of government resources.

➢ **Environmental Impact**: Better waste management, improved sanitation, and reduced pollution through timely resolution of issues.

RESEARCH AND REFERENCES

- Jharkhand's Panchayati Raj Department is exploring the use of AI-based platforms to enhance administrative performance and governance oversight.

  Jharkhand Panchayati Raj Dept contemplates using AI-based platforms to improve performance

- A 2021 report by the Ministry of Road Transport and Highways stated that potholes were responsible for **over 3,500 deaths** in the previous three years.

  NCRB Accidental Deaths & Suicides in India

- National Family Health Survey (NFHS-5) found that only about 16.6% of rural households in Jharkhand have a proper drainage system, yet these issues are rarely tracked officially.

  https://www.nfhsiips.in/nfhsuser/index.php