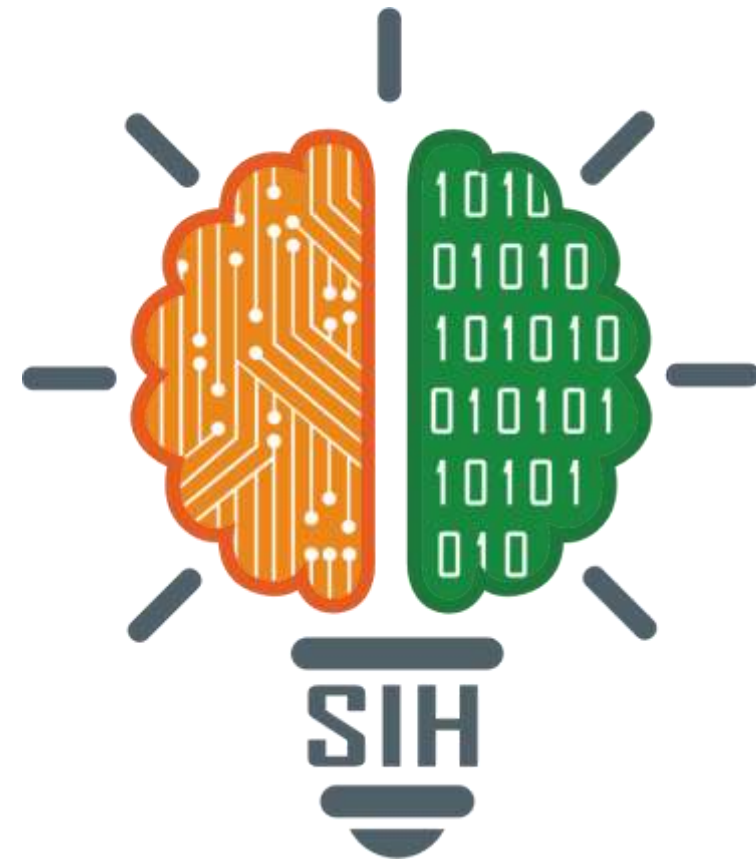# SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID –** SIH25031

- **Problem Statement Title-** Crowdsourced Civic Issue Reporting and Resolution System

- **Theme-** Clean & Green Technology

- **PS Category-** Software

- **Team ID-**

- **Team Name-** TechStellars

Crowdsourced Civic Issue Reporting and Resolution System

Analytics & Feedback Data is analyzed to improve future processes.

Verify Completion Citizens and authorities verify the completed work.

Assign Task Authorities assign tasks based on bids and ratings.

Triage Reports Authorities prioritize and manage incoming reports.

8

7 Rewards & Ratings Citizens receive rewards, and contractors get ratings.

6

5 Execute Work Contractors complete tasks and provide proof.

4

3 Contractor Bids Contractors submit bids through secure links.

2

1 Report Issue Citizens report issues via various channels.

AI-Based Report Segregation & Routing : AI automatically analyzes incoming citizen complaints. And Segregates them based on:
- ❑ Category of report
- ❑ Ward number
- ❑ Pincode / Geolocation

Reports are automatically forwarded to the respective admin:
- ❑ Waterworks Admin – water-related issues
- ❑ Road & Infrastructure Admin – roads, potholes, infrastructure
- ❑ Sanitation & Waste Management Admin – garbage, cleaning, drainage
- ❑ Electricity / Power Admin – streetlights, power supply

Explaining Problem Statement:-

- ❑ Citizens face difficulty in reporting and tracking local civic issues due to lack of an efficient system.
- ❑ Municipalities struggle with timely identification, prioritization, and resolution of these problems.

Proposed Solution:-

Smart Mapping & Visualization
Priority Map – Shows urgency & number of complaints.
Analytics Dashboard – Tracks resolution & efficiency

Citizen-Centric Tools
Smart Reporting – Photo, Video, GPS & voice-to-text
Multi-Channel – App + SMS options
Gamification – Civic points & badges and leaderboards to encourage *active* and *responsible participation.*
Quick Select – Report issues easily by choosing from predefined categories.

Government & Contractor Workflow
Municipal Dashboard – Real-time issue mapping
Smart Assignment – Matches best contractors
Bidding System – Contractors compete on cost & time
Work Verification – Photos & citizen validation
Trust Score – Rates reliability & performance

Efficient Complaint Handling
Citizen Verification & Crowd Validation – Issues gain validity when verified by nearby citizens.
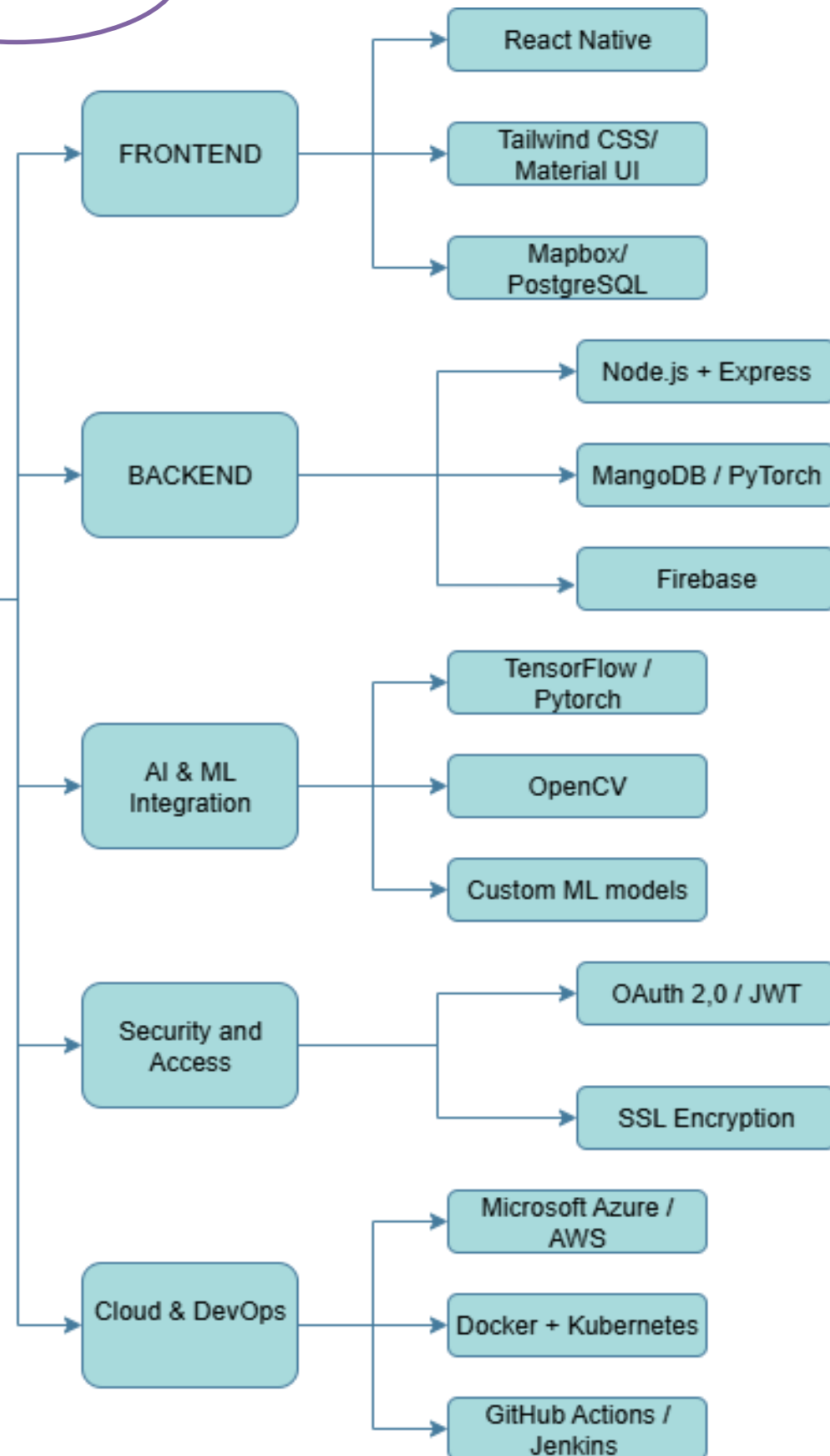**Two-Way Feedback Loop** – Citizens confirm or reopen issues after authority action.

Transparency & Accountability
Escalation System – Auto-raises unsolved issues
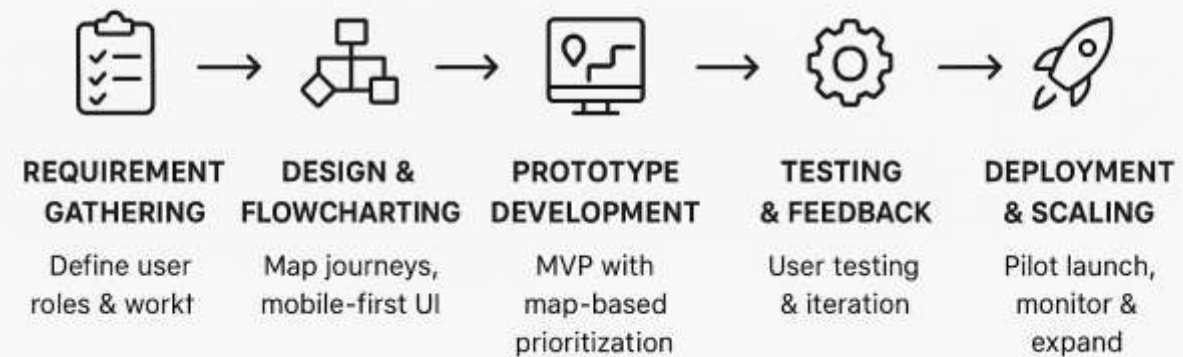**Blockchain Ledger** – Secure, tamper-proof records
Crowd Verification – Citizens confirm completion

TECHNICAL APPROACH

TechStellars

TECHNOLOGY USED

FRONTEND
- React Native
- Tailwind CSS/ Material UI
- Mapbox/ PostgreSQL

BACKEND
- Node.js + Express
- MangoDB / PyTorch
- Firebase

AI & ML Integration
- TensorFlow / Pytorch
- OpenCV
- Custom ML models

Security and Access
- OAuth 2,0 / JWT
- SSL Encryption

Cloud & DevOps
- Microsoft Azure / AWS
- Docker + Kubernetes
- GitHub Actions / Jenkins

Methodology:

- **Citizen App**: Report issues with Photo, Video , Location, Voice/Text + get live updates & alerts.
- **Admin Dashboard**: Officials see, sort, assign complaints + update progress & reports.
- **Backend System**: Connects mobile app and admin dashboard to route citizen-reported issues, assign contractors, and securely store photos and task data.
- **Analytics**: Maps hotspots, tracks govt response speed, creates transparency reports.

METHODOLOGY & IMPLEMENTATION

REQUIREMENT GATHERING — Define user roles & workt

DESIGN & FLOWCHARTING — Map journeys, mobile-first UI

PROTOTYPE DEVELOPMENT — MVP with map-based prioritization

TESTING & FEEDBACK — User testing & iteration

DEPLOYMENT & SCALING — Pilot launch, monitor & expand

Implementation:-

Here is a link for better understanding of a prototype we have developed as a solution to this problem:

clickHere
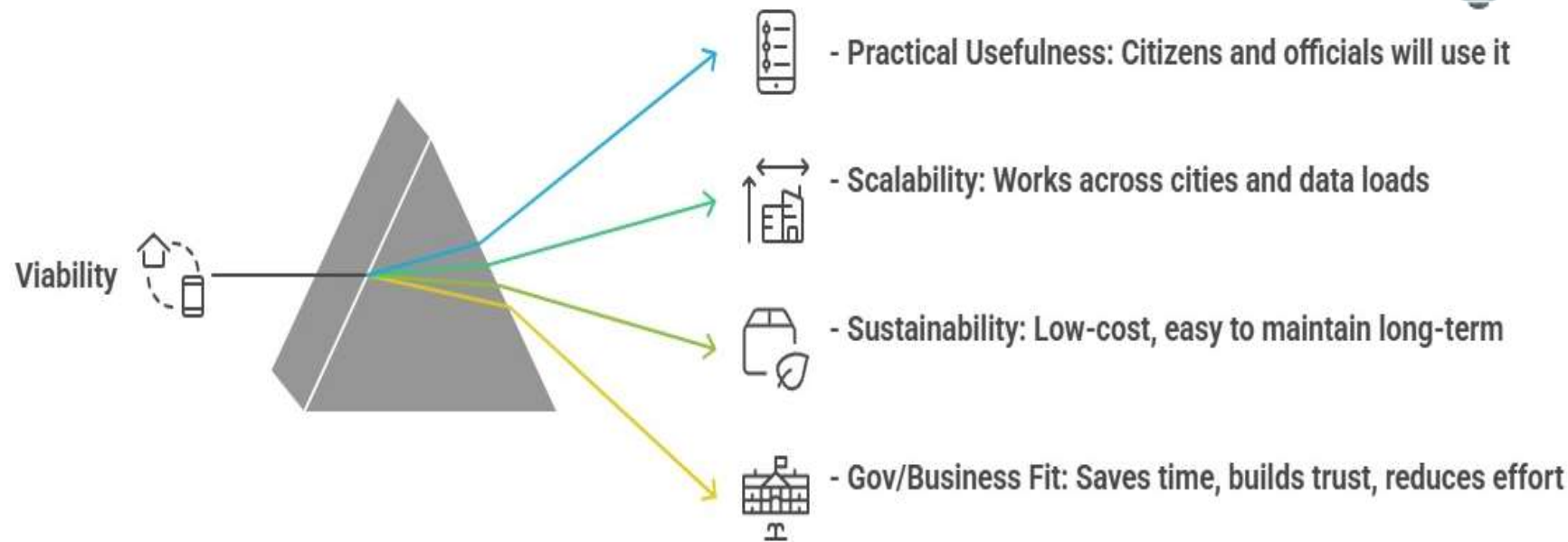
FEASIBILITY AND VIABILITY

FEASIBILITY:

Technical: Cloud-based, cross-platform app + React dashboard; Node.js/Django backend; Firebase/AWS storage; Push notifications & Maps API.

Operational: Citizens familiar with apps (e.g., Swachhta); staff adapts quickly with minimal training; real-time municipal dashboard.

Financial: Low dev cost (open-source + free tiers); high ROI via faster resolution, accountability; sponsorship potential.

Scalability: MVP in 36–48 hrs.; expand city → nationwide with AI routing, analytics & IoT integration.

Legal/Environmental: DPDP Act 2023 compliant; aligned with Clean & Green Tech mission

Viability

- Practical Usefulness: Citizens and officials will use it
- Scalability: Works across cities and data loads
- Sustainability: Low-cost, easy to maintain long-term
- Gov/Business Fit: Saves time, builds trust, reduces effort

Challenges	Strategies
Expression	**Solution:** We have provided voice description and voice-to-text features, enabling users to express themselves easily without needing to write
Accessibility	**Inclusive Access:** Support regional languages, voice input, and intuitive navigation.
Verification	**Smart Verification:** Our app uses machine learning to check images, add timestamps, and confirm reports with help from the community.
Politics	**Neutral Oversight:** Publish open-access dashboards to prevent bias, promote fairness, and build public trust in issue resolution.
Connectivity	**Offline Capability:** Allow SMS reporting and sync data when connectivity returns
Engagement	**Visible Impact & Rewards:** Users earn badges and points for reporting issues, appear on leaderboards, and top three performers earn "Star of the Month" recognition.

IMPACT AND BENEFITS

TARGET AUDIENCE

Citizens
Report issues, track progress

Authorities
Manage reports, assign tasks, analyze data

Contractors
Bid on work, complete tasks (no login)

Solution Benefits

Citizens Benefits
Easy issue reporting, real-time updates, recognition for verified contributions.

1

2

Authorities Benefits
Faster task management, segregated reports, better accountability,

Contractors Benefits
Transparent bidding, performance-based recognition.

3

4

System Benefits
Scalable, secure, and aligned with smart city goals.

Impacts:

Better Governance
- ❏ Promotes transparency in processes
- ❏ Builds accountability among officials
- ❏ Encourages quality work via ratings and fair bidding

Smarter Task Management
- ❏ Assigns tasks to the right people at the right time
- ❏ Reduces confusion and saves time

Citizen Empowerment
- ❏ Gives people a platform to raise concerns
- ❏ Ensures their issues are visible to authorities

Quality & Fairness
- ❏ Ratings motivate good performance
- ❏ Fair bidding creates equal opportunities
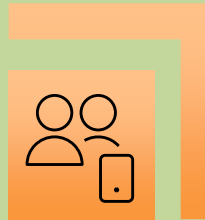
RESEARCH AND REFERENCES

Research and References Foundation

Tech References
Civic Tech Field Guide
Explore guide
Civic Tech Research
Read paper
Civic Tech Lab Projects
View projects

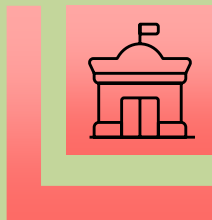### Government Initiatives
Digital India Boosts
View initiative
India Stack
Explore India Stack

Existing Platforms
FixMyStreet (UK)
SeeClickFix (USA)
Swachhata App(India)

Research Papers & Reports
Civic Tech Overview
Read on arXiv
Civic Tech Case Studies
Explore on
JAN SUVIDHA Report
 View PDF
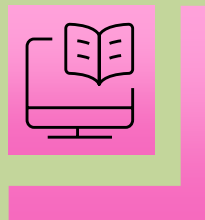
Future-Ready Innovations
AI Chatbot Assistance – Guides citizens in reporting issues & answering queries.
Reward Active Citizens – Top contributors can get reductions in electricity and water bills.

FixMyStreet (UK): Geo-tagged civic issue reporting.

SeeClickFix (USA): Mobile-first complaint & resolution app.

Swachh Bharat Mission: Sanitation & waste management drive.

civic SEVA

Swachhata App (India, MoHUA): Sanitation grievance reporting tool.

Smart Cities Mission: Real-time urban issue management.

Digital India Mission: Driving e-governance & transparency.

These are a few interviews and surveys that we have conducted for better understanding of the problem statement :
❑ Interview of parshad (jalori gate)
❑ Interview of parshad (moti chowk)
❑ Interview of Contractor