SMART INDIA HACKATHON 2025

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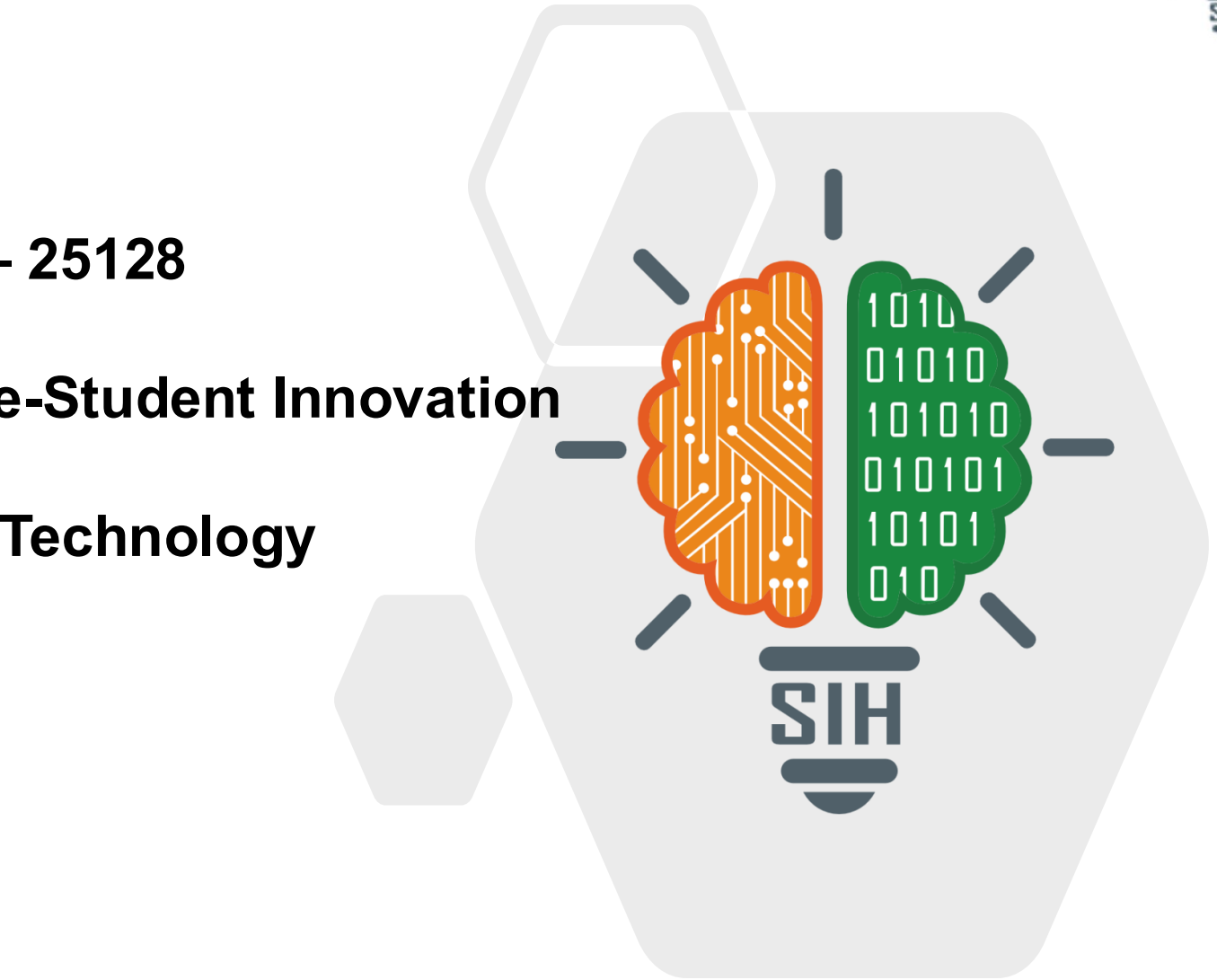
- **Problem Statement ID – 25128**
- **Problem Statement Title-Student Innovation**
- **Theme- Clean & Green Technology**
- **PS Category- Software**
- **Team ID- 101449**
- **Team Name- Tree.io**



Tree.io

SUDHAAR

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Where did the idea come from ?

SUDHAAR was developed to **STREAMLINE COMMUNICATION** with the **MCD**, tackling civic issues like garbage and potholes while ensuring **TRANSPARENCY** and efficiency. Noticing how people often wait days for **SCRAP DEALERS** and end up piling garbage in homes, we created a platform that directly **CONNECTS** residents with dealers and the MCD , promoting cleaner homes, supporting livelihoods, and reducing roadside waste.

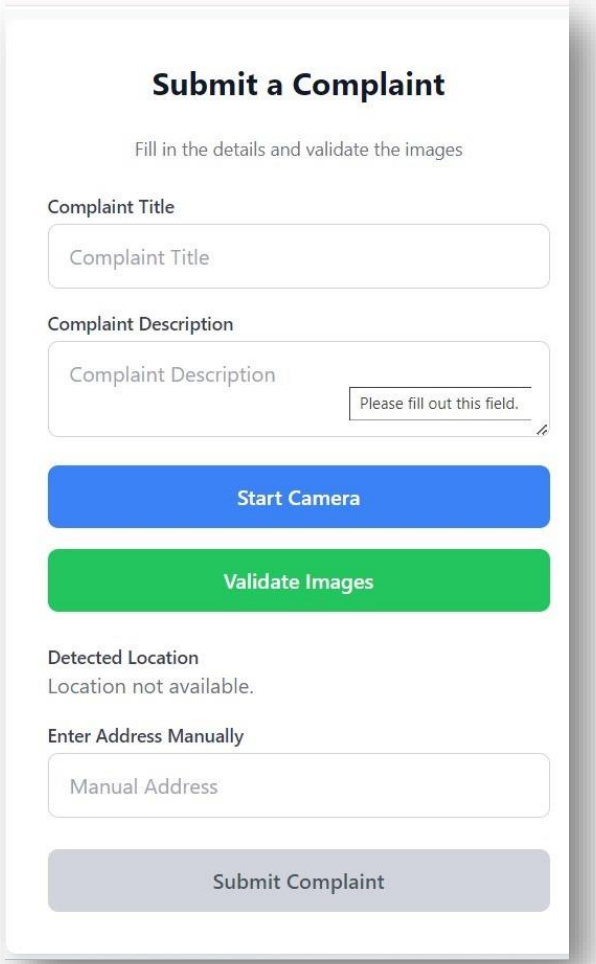
Proposed Solution

Introducing **SUDHAAR**: A streamlined platform enhancing urban sustainability by addressing civic issues efficiently.

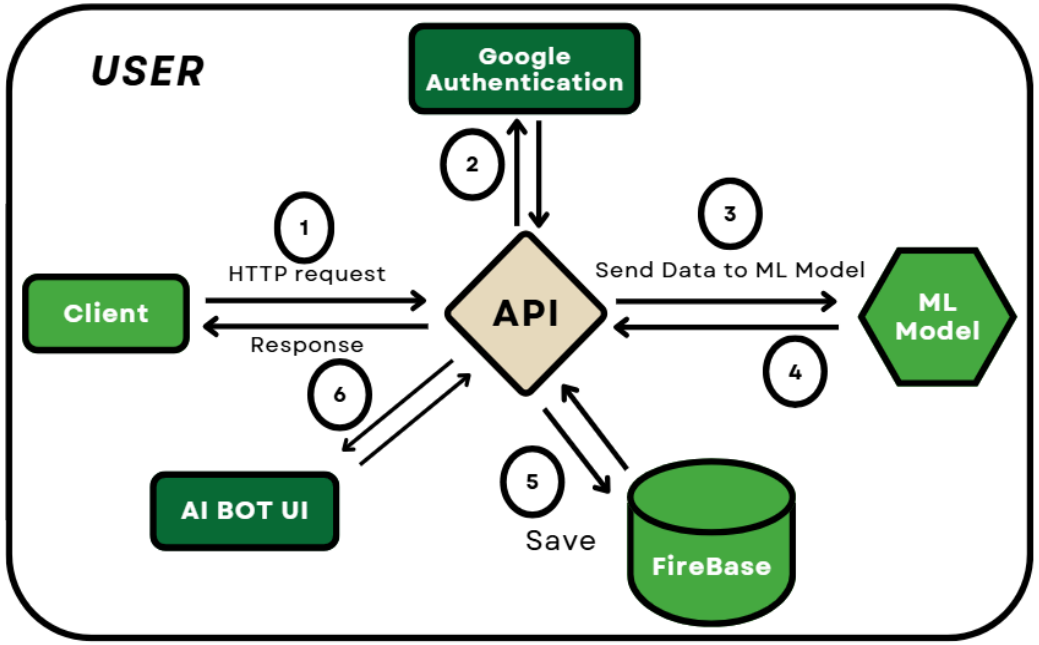
- SUDHAAR uses **AI** to validate user-submitted photos of garbage and potholes, ensuring accurate reports to MCD, while **REWARDING USERS** with points redeemable for **VOUCHERS**, encouraging active community reporting.
- After submitting a complaint, SUDHAAR provides issue updates and **RESOLUTION EMAILS**. The **GEMINI API-POWERED CHATBOT** assists with complaints, wallet access, support, and queries efficiently.
- With SUDHAAR, users can **LIST THEIR SCRAP** on the platform, enabling dealers to **PURCHASEE IT**. This promotes recycling, reduces waste, and provides a sustainable livelihood for local scrap dealers.

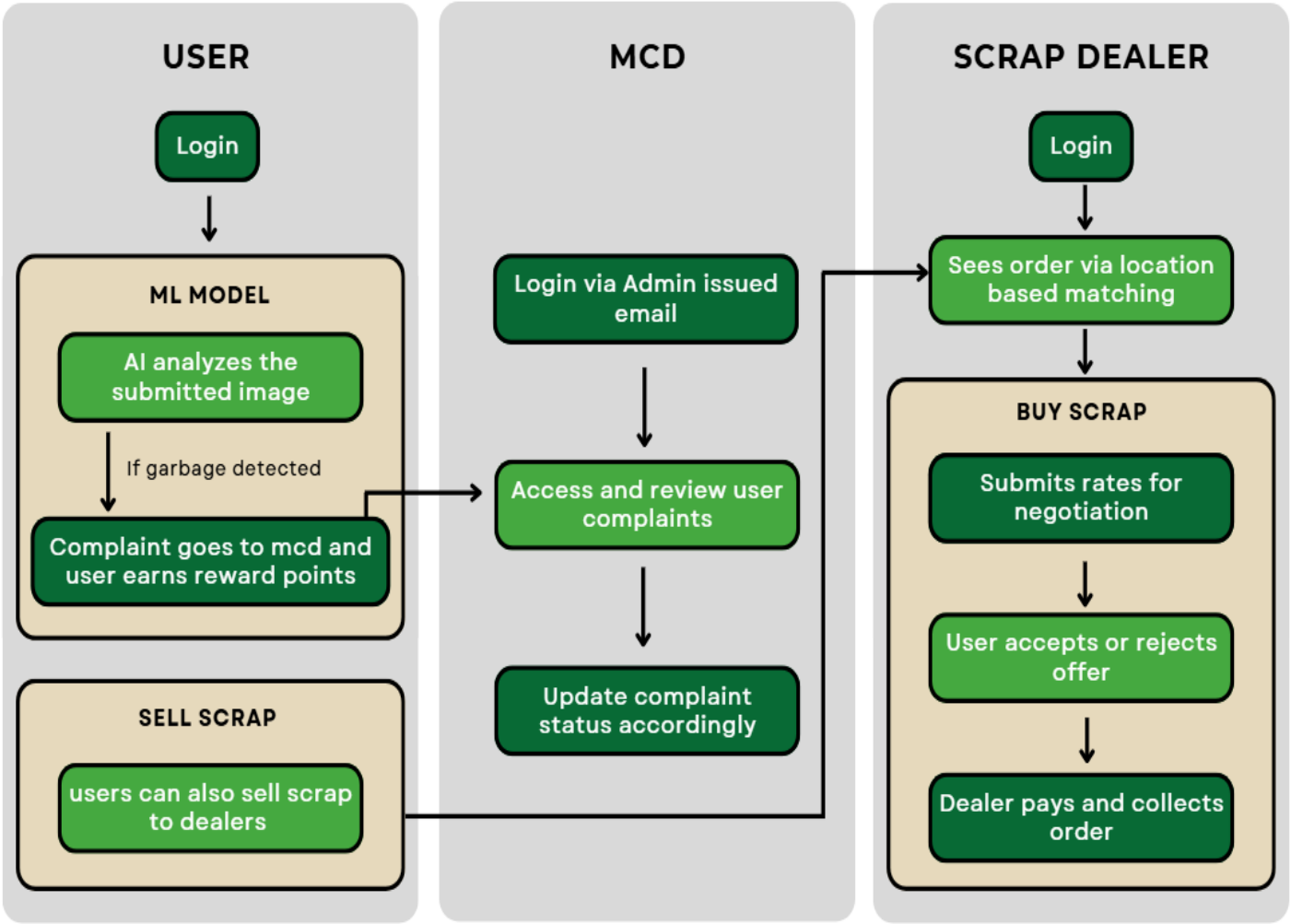
SUDHAAR is an innovative platform driving sustainability through seamless issue reporting, eco-friendly rewards, and real-time tracking, empowering communities and businesses to foster a greener, more responsible future. It offers multiple features like:

- Scrap Selling & Trading
- AI-Powered Complaint Solving
- Multilingual Support
- Vouchers & Rewards
- Chatbot Integration
- Community TAB
- Google Auth / OTP Verification
- Email Notifications & Alerts



TECHNICAL APPROACH





FEASIBILITY AND VIABILITY

Feasibility

User-friendly platform with **Chatbot Assistance,** enabling seamless complaint lodging, status updates, transactions via wallet, notification via emails and **Multilingual Support** for Users.

Offers **Strong Revenue** potential through **ads, partnership** and **Scrap Trade Commission** per transaction. With government grants, and eco-friendly **Sponsorships**, the growth outlook is highly positive.

Meets the growing demand for sustainable urban solutions by combining **Easy issue reporting**, eco-friendly **Rewards**, and scrap trading. This approach ensures **User involvment** and sets it apart from competitors.

Can be scaled to **Multiple cities**, coordinating with municipal corporations and enabling **Local Scrap Trading** through **Location-Based Matching**, enhancing regional recycling efforts.

Challenges & Solutions

User Engagement

Users **EARN POINTS** for reporting issues, **REDEEMABLE VOUCHERS**, keeping them **MOTIVATING** and encouraging ongoing participation in the platform.

Communication Barrier

Users recieve **EMAIL NOTIFICATIONS** for complaints and transactions, along with **OTP VERIFICATION**, keeping users informed and maintaining **TRUST** through clear updates on reported issues.

User Dissatisfaction

If unsatisfied with MCD's resolution, users can mark **"RESOLVED"** or **"NOT RESOLVED,"** prompting review. If unresolved in **3 DAYS**, a **REPOST** option becomes available.

Exploitation Of Rewards

To ensure authenticity, users upload **REAL-TIME** photos, and the website automatically **GEO-TAGS** the location, preventing **AI-GENERATED** or **UNRELATED** images for rewards.

IMPACT AND BENEFITS

OUR AUDIENCE:

COMMON PEOPLE:

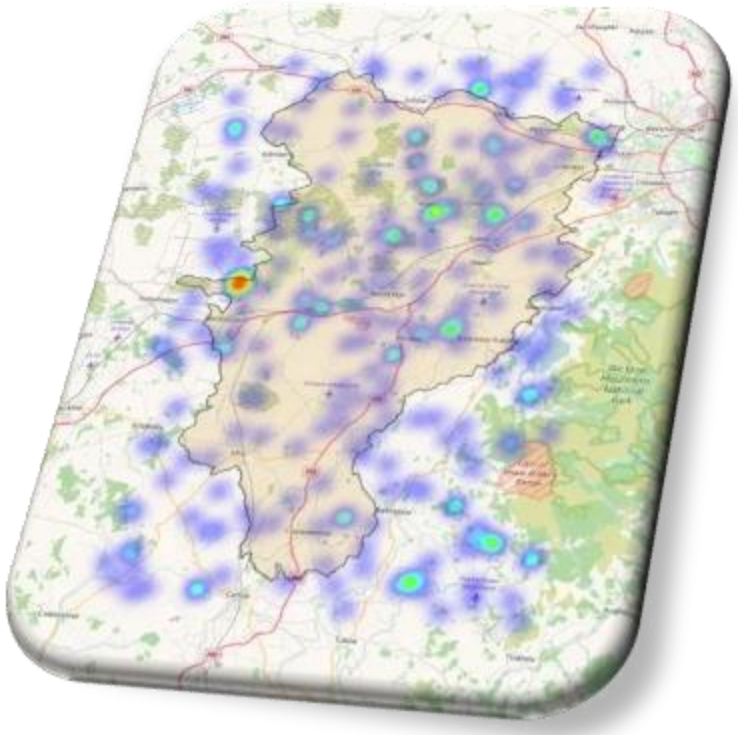
SUDHAAR empowers common people to **REPORT GARBAGE ISSUES, TRACK CLEANUPS, TRADE SCRAP** for value, and earn eco-friendly rewards, fostering cleaner homes and neighborhoods while promoting active participation in sustainable waste management.

MCD:

SUDHAAR helps MCD workers and officials by **STREAMLINE ISSUE REPORTING**, improving task management with **REAL-TIME TRACKING**, and boosting accountability through public feedback, leading to more efficient and transparent waste management operations.

SCRAP DEALERS:

SUDHAAR helps scrap dealers by **CONNECTING THEM DIRECTLY WITH SELLER**, reducing the need to roam in bad weather. It provides a steady flow of **SCRAP-RELATED JOBS**, enabling efficient collection, saving time, and helping them earn a stable income.



BENEFITS:

Users are motivated to report and resolve environmental issues, fostering a CLEANER COMMUNITY AND CIVIC RESPONSIBILITY, leading to sustained improvements..

MCD

Strengthens municipal COST-EFFICIENCY by accelerating issue resolution and OPTIMISING WASTE MANAGEMENT through scrap trading, resulting in lower operational costs and improved resource utilization

Supporting scrap dealers in finding jobs FOSTERS ECONOMIC GROWTH, reduces waste, and promotes sustainability by connecting them with opportunities for expanding their business potential.

PREVENTS DISEASES by ensuring timely WASTE COLLECTION cutting healthcare costs. Promoting ECO-FRIENDLY PRODUCTS with vouchers encourages sustainable choices

RESEARCH AND REFERENCES

- **Source Code & Demo Video**
  - GitHub-https://github.com/JaiBansal007/Sudhar-App
  - Video-https://youtu.be/wS1blRJtoGY
- **Public Issue Resolution**
  - Studies on how digital platforms enhance public issue resolution guided the "Not Resolved" feature of SUDHAAR, ensuring user feedback leads to effective government action.
  - Reference: Future of e-Government: An integrated conceptual framework - ScienceDirect
- **Reward Systems in Civic Apps**
  - Insights from civic apps like MyGov and FixMyStreet helped shape SUDHAAR's user reward system, providing incentives for continued user participation in reporting and tracking issues.
  - Reference:Gamification of Citizen Participation: A Systematic Mapping | IEEE Journals & Magazine | IEEE Xplore
- **Scalable Technology for Civic Apps**
  - **Next.js**, **Firebase**, and **AWS** were chosen for SUDHAAR's architecture to ensure a scalable, real-time, and secure platform capable of handling a large volume of user complaints.
  - Reference: Real-World Next.js: Build scalable, high-performance, and modern web applications using Next.js, the React framework for production | Packt Publishing books | IEEE Xplore
- **AI and Mapping Integration**
  - **TensorFlow.js** and **Leaflet.js** were used for incorporating machine learning and geolocation, facilitating eco-friendly behavior tracking and precise issue reporting in the app.
  - Reference: Artificial intelligence in marketing: Systematic review and future research direction - ScienceDirect