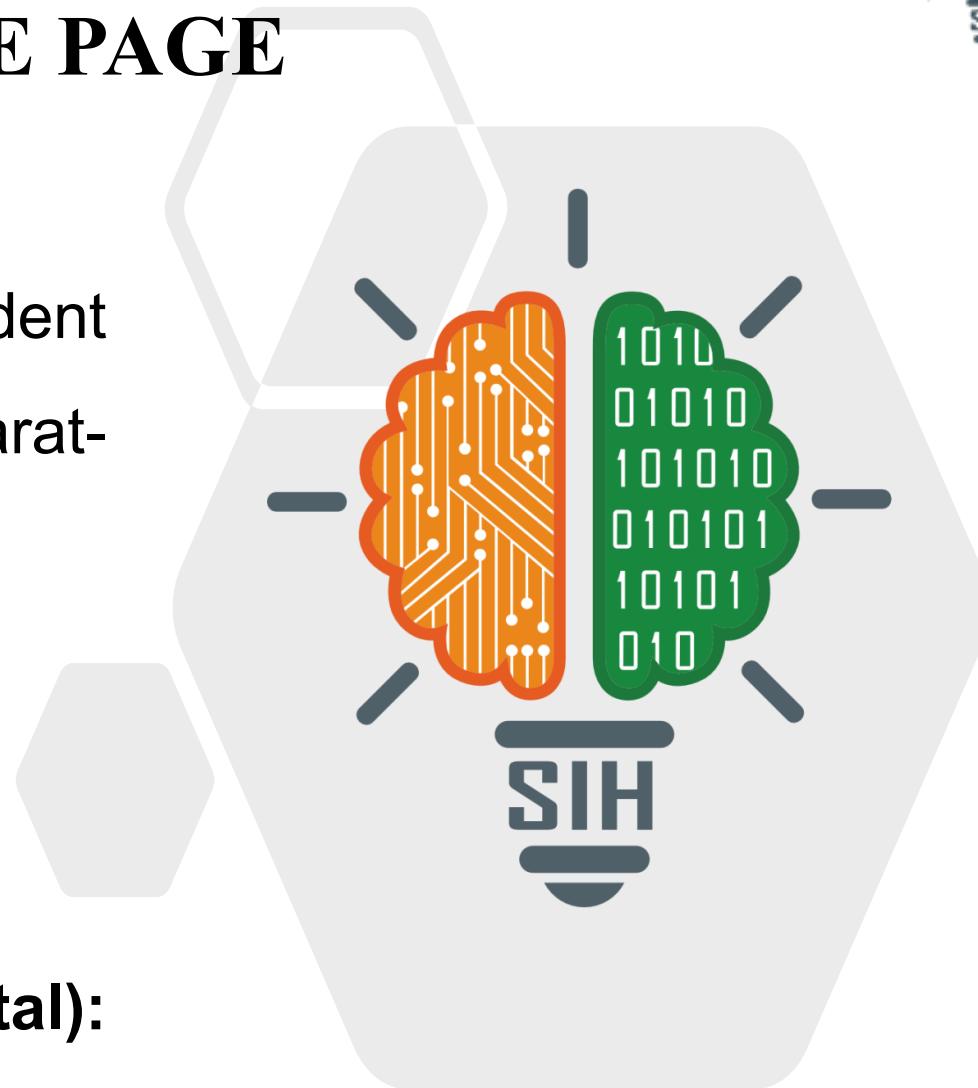


SMART INDIA HACKATHON 2025



TITLE PAGE

- **Problem Statement ID – SIH25128**
- **Problem Statement Title-** Student Innovation for Atmanirbhar Bharat-Clean & Green Technology
- **Theme-** Clean & Green Technology
- **PS Category-** Software
- **Team ID-** 83855
- **Team Name (Registered on portal):**
_OmnitriX



IDEA TITLE



Problem Addressed:

- ❖ **Fragmented E-Waste Disposal:** Hard to locate certified drop-off points or Center.
- ❖ **Data Security Concerns:** Risk of personal data leaks during device disposal.
- ❖ **Lack of Motivation:** Limited motivation for responsible recycling.
- ❖ **Non-Compliance & Low Awareness:** Difficulty tracking e-waste for EPR compliance and building sustainable habits.

Solution – Eco-Fusion Navigator

- **Interactive Map:** Find **nearby certified e-waste centers or smart IOT enabled containers, schedule pickups** easily.
- **Secure & Traceable Recycling:** Certified data wiping, item tracking, and automated **EPR compliance reporting**.
- **Gamified & Rewarding:** Earn **eco-points, eco-rewards, badges, and carbon credits** & access **circular marketplace** to refurbish/resell devices.
- **Learning & Awareness:** **Guides and tips for sustainable recycling habits.**



Unique Value Position



Effortless: One-stop platform for locating, scheduling, and managing e-waste.



Traceable: Full transparency from drop-off to disposal.



Rewarding: Gamification, carbon credits, and circular economy benefits drive user engagement.



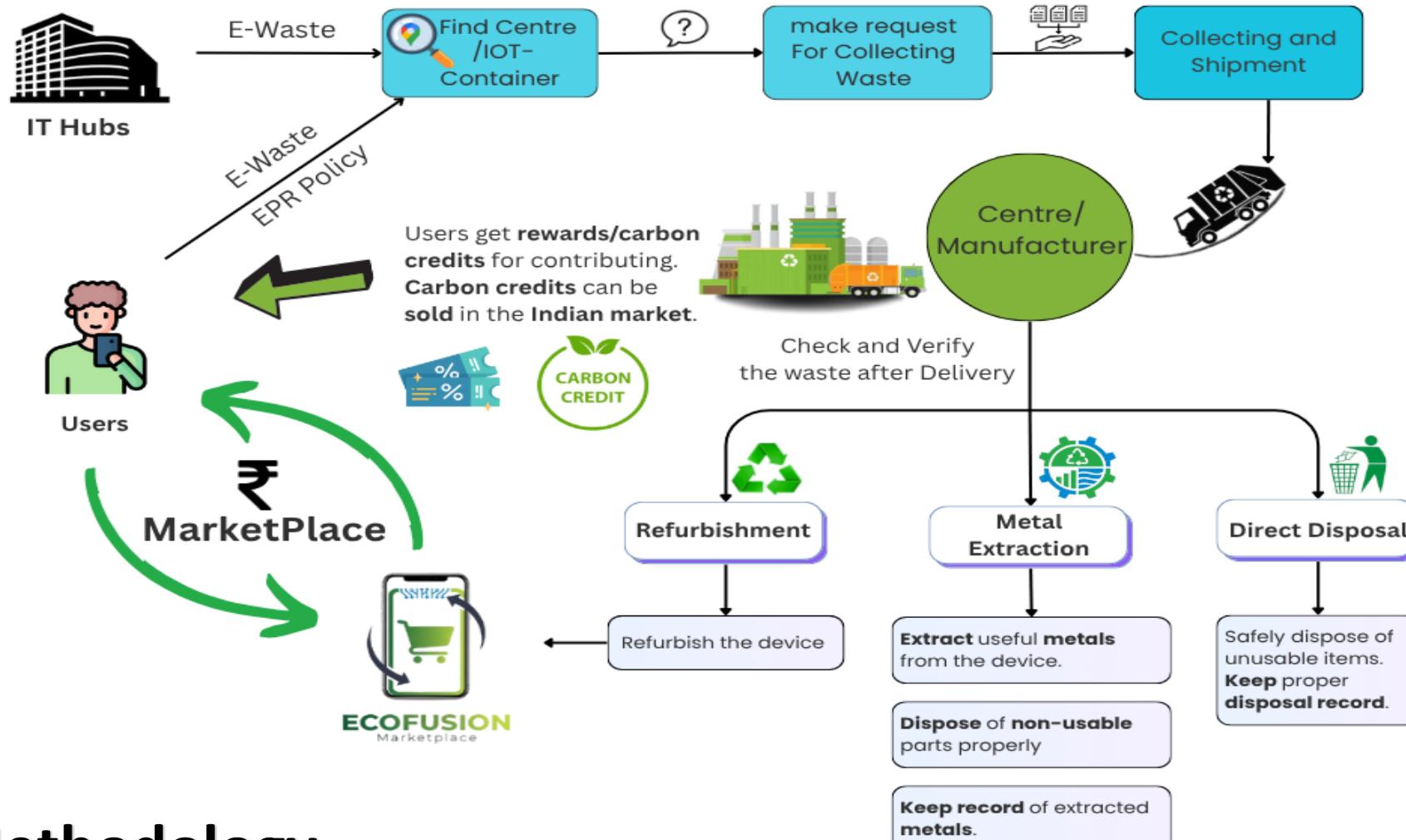
Inclusive: Tailored for consumers, IT hubs, manufacturers, and recycling centers.

[Prototype Link](#)

Login detail:
Id: sih@gmail.com
password: 123

[Demo Video Link](#)

TECHNICAL APPROACH



FEASIBILITY AND VIABILITY



FEASIBILITY

- Technical** – Proven web stack, cloud-based, secure & scalable.
- Financial** – Low setup cost, multiple revenue streams.
- Operational** – Easy onboarding with simple UI/UX.

CHALLENGES

- User Adoption/Retention** – Resistance to changing recycling habits.
- Recycler Network** – Limited certified recyclers in some regions.
- Data Security** – Concerns over safe data deletion.
- Marketplace Trust** – Reluctance to buy refurbished devices.

STRATEGIES

- User Adoption/Retention** – Gamification, eco-rewards, e-certificates & carbon credits.
- Recycler Network** – Early tie-ups with verified recyclers & government.
- Data Security** – End-to-end encryption, certified data wipe, transparency.
- Marketplace Trust** – Ratings, warranties, compliance & protection.

VIABILITY

- Scalable across India as e-waste is a universal issue.
- Powered by awareness, regulations & circular economy.
- Self-sufficient with social & environmental impact.
- Supports Clean Tech & SDGs (3, 6, 11, 12, 13).

IMPACT AND BENEFITS



Potential Impact on Target Audience:

- ❖ **Citizens/IT Hubs** – Easy, safe & rewarding recycling & Earn Carbon Credits.
- ❖ **Recyclers & Manufacturers** – Higher collection, verified partnerships.
- ❖ **Government** – Supports circular economy & SDG goals.

Benefits of the Solution:

- ❖ **National Alignment** – Supports EPR Compliance, Atmanirbhar Bharat, Net-Zero 2070, Swachh Digital Bharat & SDGs (3, 6, 11, 12, 13).
- ❖ **Environmental** – Diverts 90% e-waste from landfills, prevents toxic leakage, saves CO₂ via carbon credits.
- ❖ **Social** – Rewards drive habit-forming recycling, secure data handling, citizen empowerment for Clean & Green India.
- ❖ **Economic** – Recovers valuable metals, boosts refurbished market, generates green jobs.

RESEARCH AND REFERENCES



References :

- [1] Central Pollution Control Board (CPCB). (2022). E-Waste (Management) Rules, 2022. Ministry of Environment, Forest & Climate Change, Govt. of India.
- [2] E-Waste Management System , *EPR Portal for E-Waste*. Govt. of India.
- [3] Maharashtra Pollution Control Board (MPCB). *Electronic Waste Management*. Govt. of Maharashtra.
- [4] IIT Delhi Researchers Develop Technology To Manage, Recycle E-Waste.
- [5] Kahhat, R., Kim, J., et al. (2008). *Exploring e-waste management systems in the United States*. Resources, Conservation and Recycling, ScienceDirect.
- [6] Bhat, V., & Patil, Y. (2015). *E-waste management: A challenge to public health in India*. 2015 International Conference on Green Computing and Internet of Things (ICGCIoT), IEEE.

National Missions Supported

- Extended Producer Responsibility (EPR) Compliance [1],[2].
- Atmanirbhar Bharat [4].
- Net-Zero by 2070 Mission [4].
- Swachh Bharat Mission [1],[3].
- Sustainable Development Goals (SDGs 11, 12, 13) [5],[6]