SMART INDIA HACKATHON 2025

TITLE PAGE

- ProblemStatementID:-25060
- ProblemStatementTitle:-Real Life Solutions for Waste Management
- Theme:- Clean & Green Technology
- PS Category: Software
- Team ID:- 25RBU040
- Team Name :- SmartCoders

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IDEA TITLE :- Real Life Solutions For Waste Management

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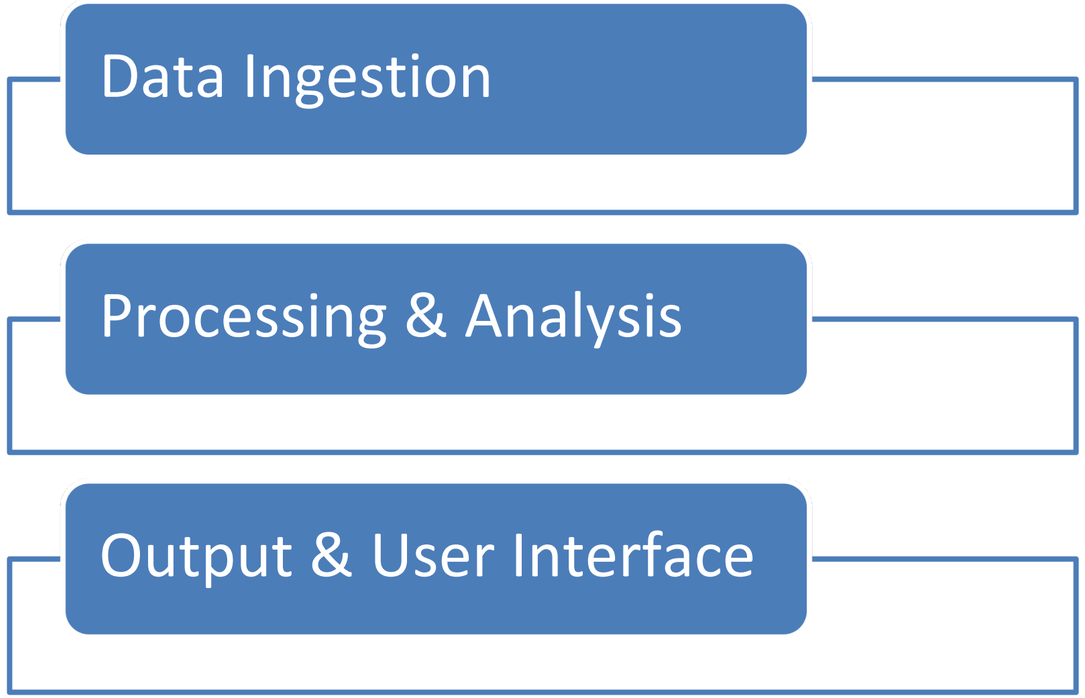
Proposed Solution :- Smart Waste – Connect : An AI Powered Waste Management System

Key Features:

📊 Real-time bin monitoring (IoT-based)
📍 Locate nearby collection centers
📢 Easy complaint registration
🤖 Reduces manual work and costs
♻️ Citizen participation + AI optimization

🔄 **System Flow:**

📥 Data Ingestion – Sensor data collection
⚙️ Processing – AI analyzes & plans optimal routes
💻 Output – Dashboard + Mobile App



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Our Technical Innovation

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- **Technologies Used**

Frontend: HTML, CSS, JavaScript
Backend: Python (Flask, Pandas)

- **Methodology**

Data Ingestion – Collect sensor data
Processing & Analysis – AI-powered Python backend processes data
Output – Display results on dashboard

Fronted -UI	Backend Core Logic	Implementation & Methodology
Technologies :- HTML, CSS, javascript And This block Interact with User	Python, Pandas, Flask Technologies Used in the Backend	Data Ingestion :- Data is Collected Processing & Analysis:-The Python Backend analyze the data Data Output:- Information is provided on Fronted Side

FEASIBILITY & VIABILITY

- **Low-Cost & Scalable** – Built using affordable, easily available
- **Software-Based** – Flexible and adaptable to different urban environments
- **Seamless Integration** – Compatible with municipal management systems
- **Reliable Connectivity** – Ensures IoT sensors stay online in all areas
- **Battery Efficiency** – Solar-powered sensors + easy maintenance
- **User Adoption** – Citizens & municipal staff engagement encouraged
- **Offline Mode** – Mobile app syncs data once connectivity is restored
- **Training & Workshops** – Simple sessions to boost adoption

IMPACT AND BENEFITS

- **Municipality** – Up to **30% reduction** in waste collection costs
- **Citizens** – Cleaner environment, fewer waste-related diseases
- **Sanitation Workers** – Safer, optimized routes & reduced manual effort
- **Social** – Better public health & sanitation practices
- **Environmental** – Less pollution via reduced garbage dumps

al Social	Economic	Environmental
It improves public health & promotes better sanitation practices within the community	It provides cost savings for the municipality due to increased efficiency in waste collection	By reducing garbage dumps and improving waste management. it contributes to less pollution

RESEARCH AND REFERENCES

📌 **Suggested References (with Links)**

UN-Habitat – Smart Cities & Education
🔗 https://unhabitat.org/programme/smart-cities

World Bank – Education Technology & Innovation
🔗 https://www.worldbank.org/en/topic/edutech

Research Papers on Timetable Scheduling (SpringerLink)
🔗 https://link.springer.com/article

Swachh Bharat Mission (Government of India)
(for inspiration on digital management systems)
🔗 https://swachhbharatmission.gov.in