

Smart waste management for future smart cities

Startup name: she builds me

Proposed by MD.Afreed pasha ,MD.Ashraf ,N.sai Koushik,Dileep

SR university



Problem statement

Waste management is a critical challenge in urban and rural areas alike. Existing systems are plagued by inefficiencies such as:

- Overflowing bins in public areas
- Inefficient waste collection schedules
- Rising carbon footprint due to unoptimized routes
- Lack of real-time monitoring and accountability

These issues are only exacerbated by rapid urbanization and growing environmental concerns. The need for smarter, more sustainable waste management solutions has never been more urgent.

solution

Our Smart Waste Management and Route Optimization System offers a comprehensive solution that:

- **IoT-Based Smart Bins:** Equipped with fill-level sensors & weight monitors
- **AI-Powered Collection Routes:** Dynamic route planning to minimize fuel usage
- **Waste Monitoring Dashboard:** Real-time updates for city officials and sanitation teams
- **Segregation Alerts:** Color-coded smart bins for dry/wet waste, with sorting assistance
- **Integration with Smart City Systems:** Compatibility with traffic, civic, and energy systems

Uses **human authorization** through biometric or RFID identification to ensure accountability and prevent unauthorized access to waste management systems.

Feasibility

- **Technology Availability:** Uses Arduino, Raspberry Pi, Ultrasonic sensors, GSM/GPS modules
- **Smart City Initiatives:** Aligned with Government of India's Smart Cities Mission
- **Low Maintenance Cost:** Solar-powered bins, modular units
- **Scalable Design:** Can be expanded across residential, commercial, and industrial zones

Minimum Viable Product (MVP)

- **Prototype Smart Bin:** Built with fill-sensors and GSM module
- **Mobile App (Beta):** Sends fill-alerts and location tracking
- **Pilot Test:** Conducted in university campus with 3 bins for 1 week
- **Results:** 30% reduction in manual bin checks, 15% fuel saved in collection

Revenue Generation

- **B2B Model:** Sell systems to municipalities, housing societies, large campuses
- **Subscription Services:** Monthly/annual plans for software dashboard and data analytics
- **Government Grants:** Urban innovation and sustainability projects
- **AMC & Upgrades:** Maintenance contracts and sensor upgrades
- **Data Licensing:** Sell anonymized data for urban planning and research

Business Model Canvas

Key Partners

Municipalities, NGOs

IoT Hardware Vendors

Tech Developers

Key Activities

Hardware Deployment, App Dev

Sensor Calibration

AI Routing Algorithms

Value Propositions

Clean, Data-Driven Cities

Optimized Waste Collection

Real-Time Waste Insights

Customer Segments

City Corporations, Campuses

Relationships

Support, Field Demos

Channels

Direct Sales, Govt Tenders

Cost Structure

Sensors, Dev Team, Support

Revenue Streams

Hardware Sales, Subscriptions, AMC

Conclusion

Why Now? Cities are growing. Waste is increasing. Solutions must be smarter.

- **Circular Economy Ready:** Supports waste segregation, recycling, and analysis
- **Let's Build Clean Cities:** Join us as partners, investors, or tech collaborators
- **Future Vision:** Fully autonomous, solar-powered, AI-managed waste system