Salesforce TCS_LastMile_Capston Project By Harsh Verma

Project Proposal:

CleanRoute360 : Smart Waste Collection Monitoring System

Problem Statement:

Over **150,000 tons** of municipal solid waste are produced daily in India; by 2025, that amount is expected to rise to **377,000 tons per day** (Source: CPCB, TERI 2023). Even so, less than **30%** of waste is treated scientifically, and only **83%** of waste is collected. Residents of tier-2 cities, such as Bhopal, Jabalpur, and Raebareli, commonly complain about garbage pickup delays of three to five days or longer, particularly in informal settlements and outlying areas (**TERI Waste Management-Report-2023**).

Due to a lack of real-time visibility, municipal supervisors frequently assume that vehicles have completed their routes. Due to carelessness or logistical problems, field workers may bypass zones or dispose of waste in unapproved areas. People find it difficult to file complaints, and when they do, the process is unreliable and takes a long time. Environmental damage, health risks, and public unhappiness result from this.

Project Overview:

A CRM system called **CleanRoute360**, which is powered by Salesforce, was created to increase accountability and transparency in municipal waste collection. Supervisors can use it to track dumping compliance, verify garbage pickup, keep an eye on vehicle movement, and react to citizen complaints in-real-time.

The system notifies supervisors of missed pickups or unauthorized activity, records vehicle visits to designated zones, and records dump site verification. Supervisors can view zone-specific dashboards and take prompt action after citizens submit geotagged complaints.

Target Users:

- Municipal supervisors and sanitation officers.
- Waste collection vehicle drivers.
- Citizens in serviced zones.
- City administrators and audit teams.

Objectives:

- Automate tracking of vehicle visits to assigned zones.
- Verify garbage collection and authorized dumping.
- Provide real-time dashboards for supervisors and administrators.
- Enable geo-tagged citizen complaints and feedback.
- Improve operational efficiency and public satisfaction.
- Ensure data accuracy and reduce manual oversight.
- Reduce illegal dumping and missed pickups through accountability.

Research & Validation Sources:

1: TERI – State of Waste Management Report (2023):

Link:https://www.teriin.org/sites/default/files/2023-10/1695795956State%20of%20Waste%20Management%20Report.pdf

2: Institute for Competitiveness – Solid Waste Management Challenges (2024):

Link:https://eacpm.gov.in/wp-content/uploads/2024/05/Solid_Waste_management_Updated.pdf

3: Eco. Env. & Cons. Journal – Status of Solid Waste Management in India (2021):

Link: https://www.envirobiotechjournals.com/EEC/v27octSupplIssue2021/EEC-42.pdf