

School of Computer Science and Engineering

Department of Computer Science and Engineering

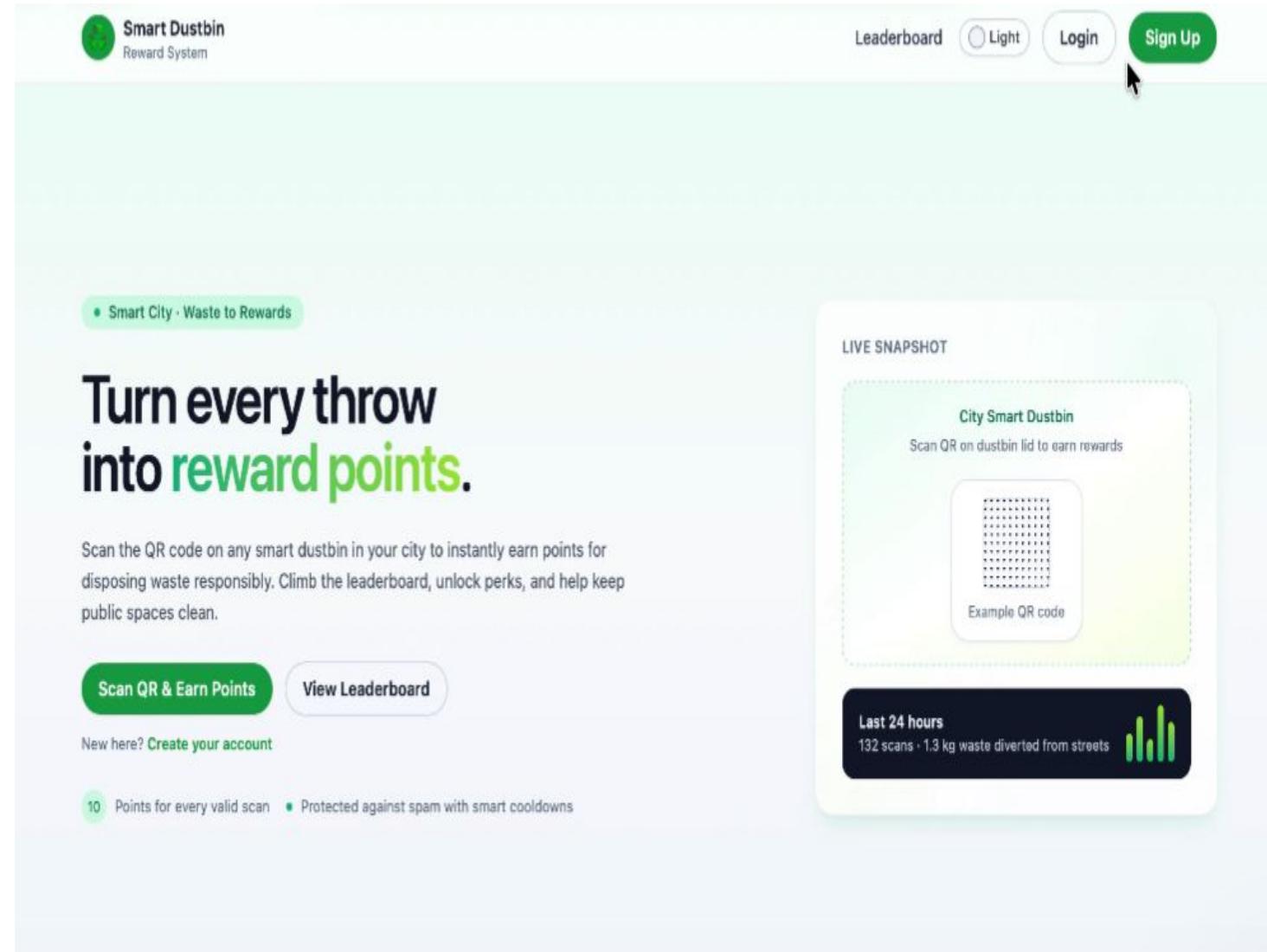
SMART-DUSTBIN DISPOSAL WITH REWARD SYSTEM

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OUTLINE

- ❖ Introduction
- ❖ Literature Review
- ❖ Problem Statement
- ❖ Proposed Solution
- ❖ Objectives
- ❖ Results



The image shows a screenshot of the Smart Dustbin Reward System website. At the top, there is a navigation bar with the logo "Smart Dustbin Reward System", a "Leaderboard" button, a "Light" button, a "Login" button, and a "Sign Up" button (which is highlighted with a cursor). Below the navigation bar, there is a green header with the text "Smart City - Waste to Rewards". The main content area features a large call-to-action button with the text "Turn every throw into reward points." and a QR code labeled "Example QR code". Below this, there is a section titled "LIVE SNAPSHOT" showing statistics: "Last 24 hours" (132 scans, 1.3 kg waste diverted from streets) and a bar chart. At the bottom, there are buttons for "Scan QR & Earn Points" and "View Leaderboard", and a link to "Create your account".

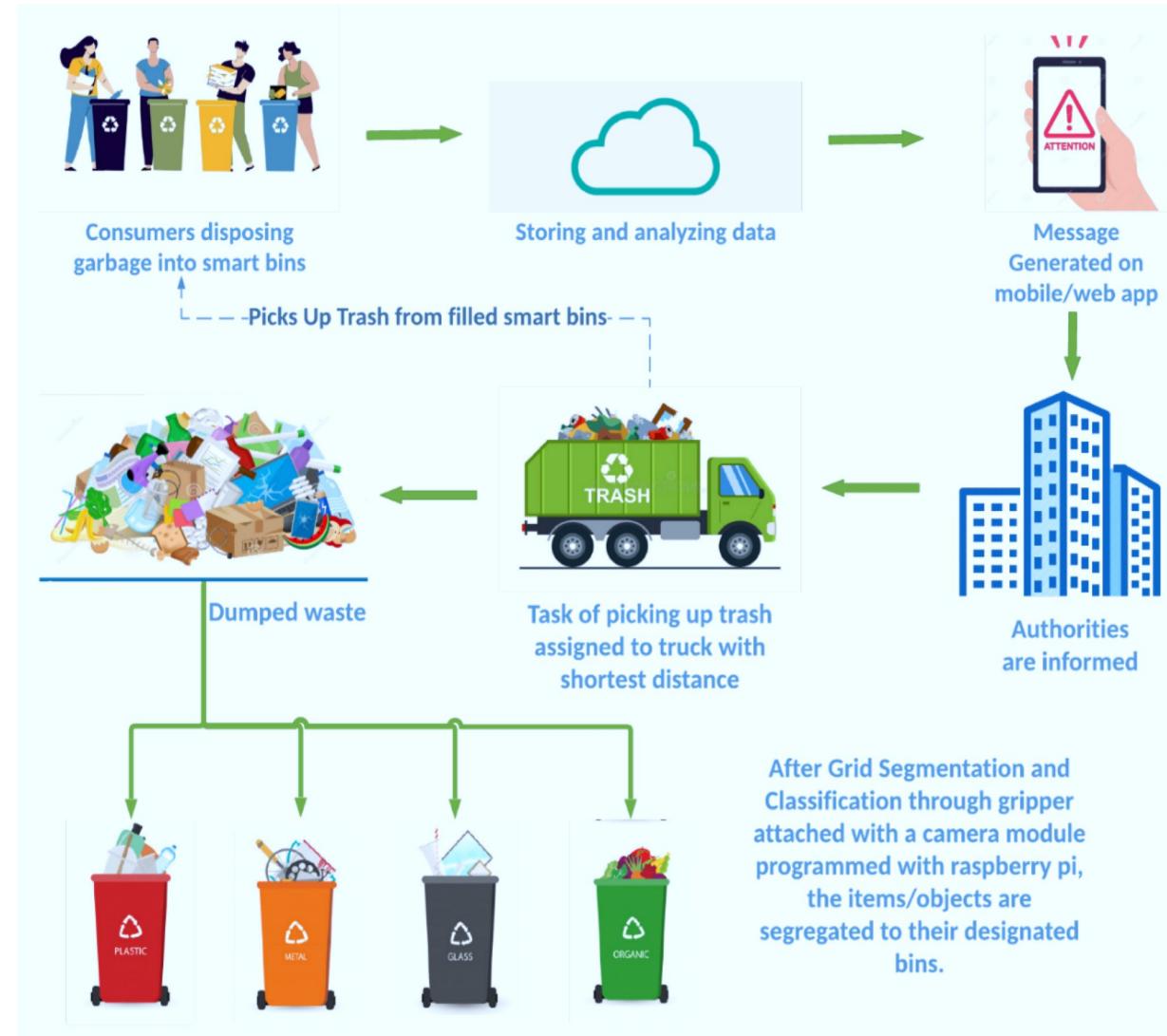
INTRODUCTION

GLOBAL CHALLENGE

Effective waste management is a critical challenge for modern society. Rapid urbanization has led to increased waste generation, polluted streets, and health hazard.

MOTIVATION GAP

A primary driver of this issue is the lack of public motivation. Current system rely on compliance rather than incentivization. This project proposes a solution that makes waste disposal rewarding.

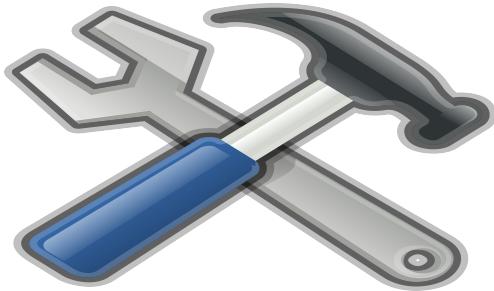


LITERATURE REVIEW & BACKGROUND



CURRENT STATE

Traditional waste management is reactive. It relies on citizens' intrinsic motivation, which often fails, leading to degradation.



ENFORCEMENT
LIMITATIONS

Punitive measures and strict enforcement are difficult to scale and maintain. They do not create long-term behavioral change.



GAMIFICATION GAP

There is a lack of systems that utilize "Gamification" effectively—turning the chore of waste disposal into a rewarding activity.

PROBLEM STATEMENT

- Traditional waste management fails due to a lack of citizen engagement. This project addresses the critical need for an incentivized system to motivate responsible waste segregation and disposal in urban environment.
- Manual monitoring is inefficient and time-consuming.
- No reward or ranking system for waste management performance.

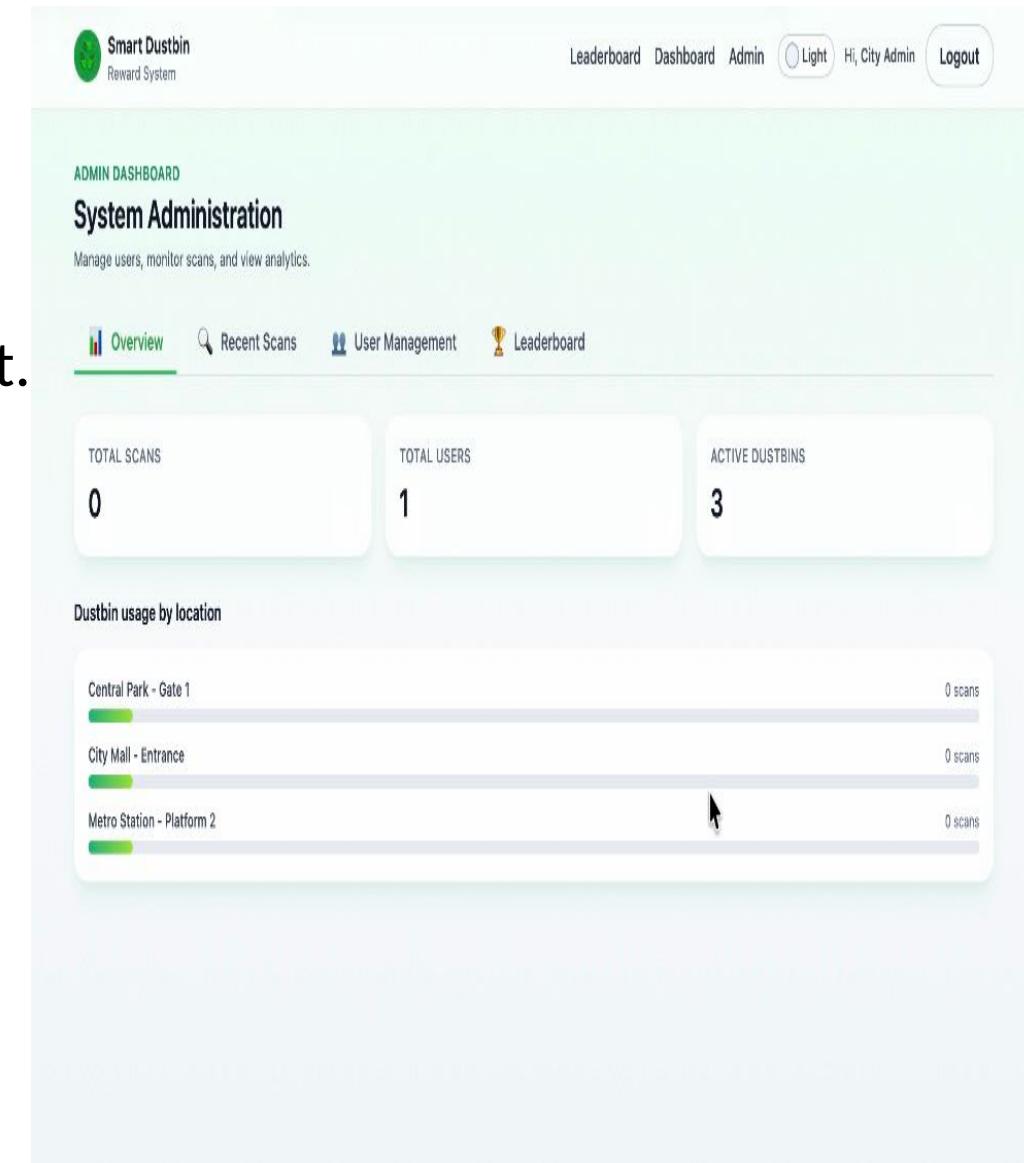
PROJECT OBJECTIVES

- ✓ Smart Identification:Design a high-tech system identifies and accurately measures deposited waste.
- ✓ Website Interface:Develop a comprehensive website for user interaction and reward tracking.
- ✓ Reward System:Implement a real-time mechanism that credits points to user upon verified waste disposal.
- ✓ User Experience>Create a smooth and intuitive UI/UX to maximize user adoption and behavioral change.

SYSTEM OVERVIEW

Web Application developed for waste management.

- Role-based login (Admin & Client).
- Dashboard for monitoring dustbin status.
- Leaderboard for ranking performance.
- Centralized data storage and management.



The screenshot shows the Admin Dashboard of the Smart Dustbin Reward System. At the top, there's a navigation bar with links for Leaderboard, Dashboard, Admin, a light mode switch, Hi, City Admin, and Logout. The main header is "ADMIN DASHBOARD" under "System Administration". Below it, a sub-header says "Manage users, monitor scans, and view analytics." There are four tabs: Overview (selected), Recent Scans, User Management, and Leaderboard. Under the Overview tab, there are three summary cards: "TOTAL SCANS" (0), "TOTAL USERS" (1), and "ACTIVE DUSTBINS" (3). Below these is a section titled "Dustbin usage by location" showing three locations with 0 scans each: "Central Park - Gate 1", "City Mall - Entrance", and "Metro Station - Platform 2". A cursor is hovering over the third location.

DASHBOARD

- View all registered clients.
- Monitor dustbin status and waste levels.
- Manage users and system data.
- Track overall performance statistics.
- Access leaderboard rankings.

The screenshot shows the Smart Dustbin Reward System dashboard. At the top, there's a navigation bar with links for 'Leaderboard', 'Dashboard' (which is highlighted in green), 'Admin', a light mode switch, a greeting 'Hi, City Admin', and a 'Logout' button. Below the navigation is a section titled 'COMMUNITY LEADERBOARD' with the sub-section title 'Top citizens keeping the city clean'. It says 'Ranked by total reward points from valid smart dustbin scans.' A table displays the following data:

RANK	USER	POINTS
1	City Admin	0

At the bottom of the page, there's a footer with the URL 'localhost:5173/dashboard', the copyright notice '© 2026 Smart Dustbin Reward System - Built for cleaner cities.', and a small link 'Leaderboard'.

LEADERBOARD SYSTEM

- Ranks users based on performance metrics.
- Encourages healthy competition
- Improves accountability in waste collection.
- Displays top-performing clients.

The screenshot shows the Admin Dashboard of the Smart Dustbin Reward System. At the top, there's a header with the system logo ('Smart Dustbin Reward System'), user information ('Hi, City Admin'), and navigation links ('Leaderboard', 'Dashboard', 'Admin', 'Light', 'Logout'). Below the header, the main title is 'ADMIN DASHBOARD' followed by 'System Administration'. A sub-instruction 'Manage users, monitor scans, and view analytics.' is present. There are four main cards: 'Overview' (selected), 'Recent Scans', 'User Management', and 'Leaderboard'. Under 'Overview', three summary statistics are displayed: 'TOTAL SCANS' (0), 'TOTAL USERS' (1), and 'ACTIVE DUSTBINS' (3). Below these, a chart titled 'Dustbin usage by location' shows three locations with 0 scans each: 'Central Park - Gate 1', 'City Mall - Entrance', and 'Metro Station - Platform 2'. At the bottom of the dashboard, there's a footer with the URL 'localhost:5173/leaderboard', the copyright notice '© 2026 Smart Dustbin Reward System - Built for cleaner cities.', and a link to the 'Leaderboard' and 'Dashboard'.

WORKING PROCESS

1. User logs in (Admin/Client).
2. Dashboard displays real-time data.
3. Data updates when waste is collected.
4. System stores data in database.
5. Leaderboard updates automatically.

ADVANTAGES

- Reduces manual monitoring effort.
- Improves cleanliness and efficiency.
- Transparent performance tracking.
- Scalable for smart city implementation.

FUTURE ENHANCEMENT

- Integration with IoT sensors.
- Mobile application version.
- AI-based waste prediction system.
- GPS tracking for waste collection vehicles.

CONCLUSION

- Smart Dustbin Disposal System improves waste management.
- Website-based dashboards enhance monitoring and control.
- Leaderboard motivates better performance.
- Supports sustainable and smart city initiatives.

THANK YOU!