

Product Requirements Document (PRD)

Smart Construction & Demolition Waste Collection Monitoring System

1. Product Overview

This document defines the requirements for redesigning the user interface and navigation of the existing Smart C&D Waste Monitoring System website.

Purpose:

To improve the visual appearance, navigation clarity, and professional usability of the system without modifying any existing features, logic, workflows, database, or monitoring functions.

Scope:

Visual redesign only. Functional behavior must remain unchanged.

2. Key Constraint (Critical Requirement)

The following must NOT be changed:

- Existing features and options
- Existing buttons and functions
- Existing workflows and monitoring logic
- Existing database structure
- Existing tracking and collection logic

The following may be improved:

- Layout and structure
- Colors and styling
- Typography
- Icons and spacing
- Menu layout and navigation presentation

3. Target Users

Primary Users:

- Municipal waste management authorities
- Construction site supervisors
- City administrators
- Waste collection operators

Secondary Users:

- Recycling facility operators
- Monitoring authorities

4. Current Problems Identified

- Basic visual design
- Weak visual hierarchy
- Limited professional appearance

- Navigation structure can be improved
- Dashboard metrics not visually emphasized

5. Design Goals

Primary Goals:

- Create a professional smart city dashboard interface
- Improve navigation clarity
- Improve readability and usability
- Improve visual hierarchy
- Improve monitoring efficiency

Secondary Goals:

- Improve user experience
- Improve system clarity
- Improve interface responsiveness

6. Layout Requirements

New Layout Structure:

- Top Navigation Bar
- Left Sidebar Menu

- Main Dashboard Area
- Content Display Area

Sidebar Menu must contain existing options only, without adding or removing features.

7. Navigation Requirements

Sidebar Menu:

- Dashboard
- Collection Units
- Monitoring / Map
- Analytics / Reports
- Notifications
- Settings

Top Navigation Bar:

- System title
- User profile icon
- Notification icon
- Status indicator

8. Dashboard Requirements

Dashboard must visually emphasize existing data using:

- KPI cards
- Visual tiles
- Clear labels
- Status indicators

Examples:

- Total Units
- Active Units
- Pending Collections
- Completed Collections

No new metrics should be added.

9. Monitoring and Map Requirements

Map must remain the primary monitoring component.

Visual improvements:

- Larger map display
- Clear markers
- Color-coded status indicators:

Green: Active

Yellow: Idle

Red: Maintenance

10. Visual Design Requirements

Color Scheme:

Primary: Deep Green or Teal

Secondary: Dark Grey

Background: Light Grey or White

Typography:

- Professional font
- Clear hierarchy

Components:

- Cards
- Panels
- Tables
- Icons

11. Interaction Requirements

- Hover effects on menu items
- Hover effects on cards
- Smooth visual transitions
- Improved spacing

No logic changes allowed.

12. Technical Requirements

Frontend: React (existing)

Allowed Changes:

- CSS
- Styling
- Layout

Not Allowed:

- Backend modification
- API changes
- Database modification

13. Success Criteria

Success will be measured by:

- Improved visual appearance
- Improved usability
- Improved navigation clarity
- Professional dashboard presentation

14. Out of Scope

The following are not allowed:

- Adding features
- Removing features
- Changing system logic
- Changing workflows
- Changing monitoring functionality