



Capulus Technologies
Private Limited



Smart Waste Management System

Sustainability Made Simple

www.capulustech.com

INTRODUCTION

Transforming Urban Waste Solutions For Cleaner, Smarter Cities

Modern urban challenges demand innovative solutions for effective waste management. Capulus Technologies' **Smart Waste Management System** leverages cutting-edge technologies like IoT sensors, AI-powered analytics, and real-time dashboards to streamline waste collection and disposal. The system offers advanced features such as **tracking of different waste types**—dry, wet, e-waste, and medical waste—ensuring proper segregation and handling. Additionally, it includes **recycled waste tracking**, promoting eco-friendly practices and reducing landfill dependency. These tools empower city authorities with actionable insights to enhance operational efficiency and meet sustainability goals.

By fostering collaboration between city authorities and communities, the system delivers a seamless and data-driven waste management process. Citizens benefit from user-friendly apps that encourage participation through features like reporting overflowing bins and accessing recycling tips. This holistic approach not only addresses cleanliness but also contributes to creating cleaner, greener, and smarter urban environments, setting the stage for a sustainable future.





OBJECTIVES

Optimized Waste Collection

Improve efficiency with smart scheduling and real-time monitoring.

Cost Reduction

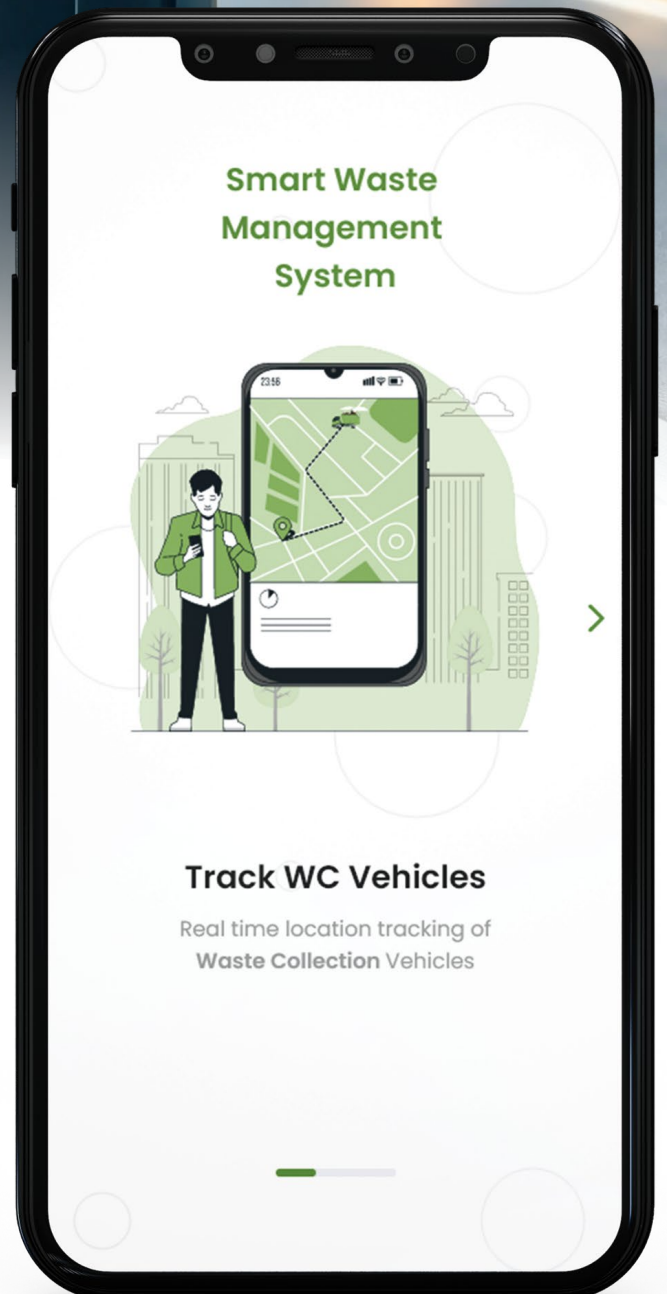
Minimize fuel usage and streamline operations for cost-effective management.

Citizen Involvement

Encourage community participation with easy-to-use mobile applications

Transparent Operations

Deliver actionable insights to authorities through real-time data analytics.



KEY FEATURES



IoT-Based Monitoring

- ♻️ Sensors in bins track fill levels, preventing overflows.
- ♻️ GPS trackers enable precise vehicle monitoring.



AI-Powered Optimization

- ♻️ Adjusts collection schedules dynamically for efficient routing.
- ♻️ Cuts time and fuel costs, reducing environmental impact.



Data Analytics

- ♻️ Predicts waste trends for smarter planning.
- ♻️ Helps cities make more informed decisions.



Citizen Engagement App

- ♻️ Allows residents to report issues and track schedules.
- ♻️ Provides real-time updates for better communication.



Centralized Dashboard

- ♻️ Offers a comprehensive view of operations.
- ♻️ Enables data-driven decisions for improved efficiency.

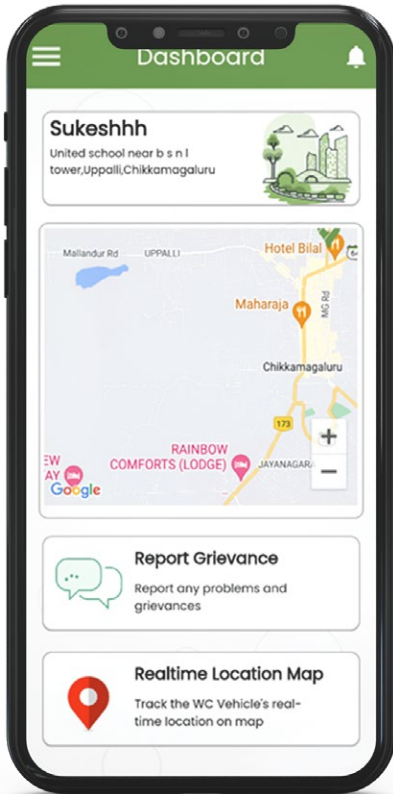


Seamless Integration

- ♻️ Integrates seamlessly with existing municipal infrastructure.
- ♻️ Ensures a smooth transition with minimal disruption.

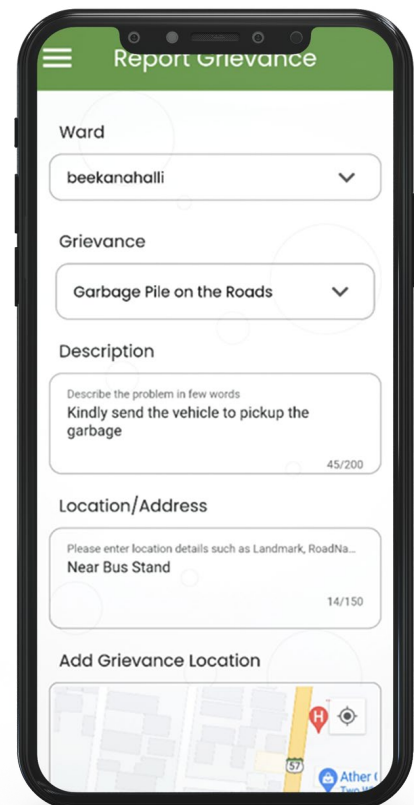
INTERFACES

Public Facing Mobile App



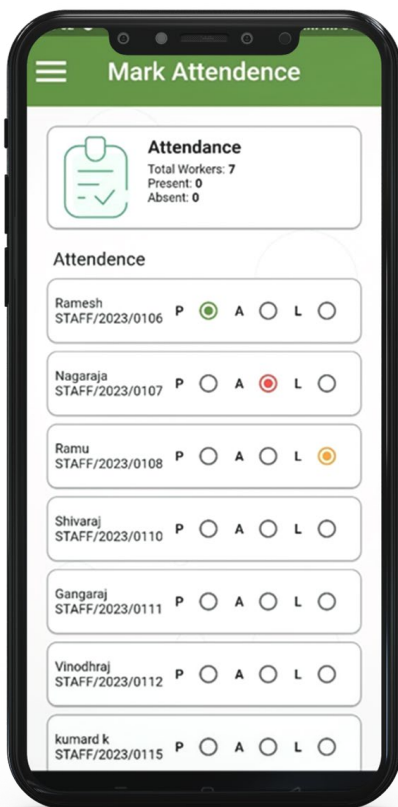
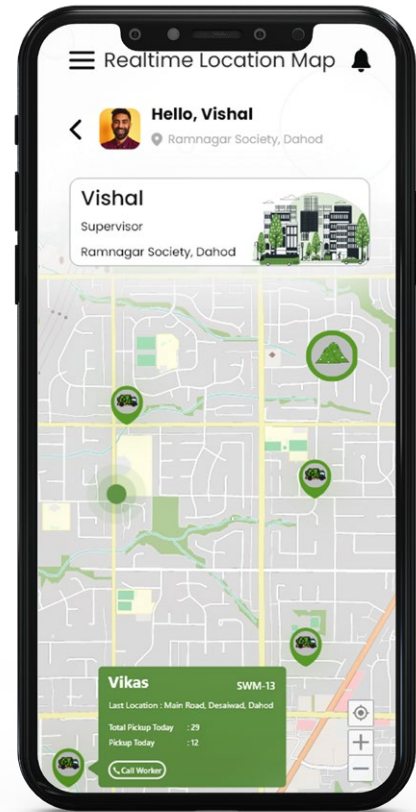
- ♻️ The app provides a user-friendly dashboard where users can create and manage their profiles.
- ♻️ Users can set their location preferences, enabling the app to provide relevant waste management information based on their area.
- ♻️ Users can access a real-time location map that displays the current positions of waste collection vehicles.
- ♻️ The live map enables users to track the movement of waste collection vehicles, helping them plan their waste disposal accordingly.

- ♻️ Users can report any problems and grievances related to Waste Management and Cleanliness of the city.
- ♻️ The app maintains a history of previously reported grievances, allowing users to track the status and resolution of each complaint.
- ♻️ Users can receive updates and notifications on the progress of their reported issues.

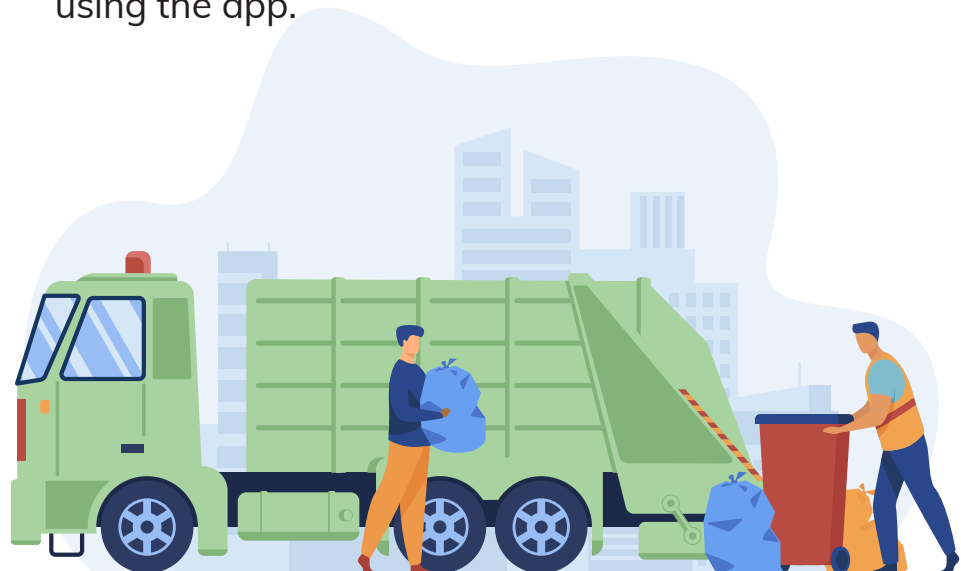


Supervisor Mobile App

- ♻️ The app features a comprehensive dashboard that provides an overview of the supervisor's activities and responsibilities.
- ♻️ The dashboard includes details of the supervisor, attendance records of workers, and the list of assigned grievances.
- ♻️ The app allows supervisors to take attendance of workers under their supervision.
- ♻️ The app provides access to GIS that displays the real-time locations of all waste collection vehicles enabling efficient route optimization and monitoring.



- ♻️ Supervisors can monitor the progress of waste collection.
- ♻️ Supervisors can view and manage public grievances assigned to them through the app.
- ♻️ Supervisors can access a list of all workers under their supervision and can efficiently manage worker schedules and allocate tasks using the app.





Central Web Application Dashboard

A centralized hub streamlines waste management operations by monitoring bin fill levels in real time. It leverages data analytics to provide actionable insights for optimizing collection routes and schedules. This system integrates seamlessly with existing infrastructure, enhancing operational efficiency. With its user-friendly interface, it supports informed decision-making for cleaner and more sustainable urban environments. The platform also includes formal complaint tracking, fostering swift resolution and continuous improvement, making waste management more efficient and sustainable.

1

Statistics and Analytics

The dashboard presents key waste metrics through graphs and tables effectively.

2

Grievance

Report waste management issues to ensure effective resolutions and improvements.

3

Geo Map View

Geo maps display reported issue locations, highlighting patterns and critical areas.

4

Weigh Bridge

Integration of weigh bridge ensures accurate vehicle weighing during waste disposal operations.

Benefits



Sustainability

Data-driven waste management minimizes environmental impact by optimizing collection and disposal processes. It promotes sustainability and eco-friendly practices.



Cost-Effectiveness

Streamlined processes and optimized fuel use significantly reduce operational costs. These savings contribute to more efficient and cost-effective waste management practices.



Citizen Engagement

Mobile apps enable citizens to report issues and track updates. This fosters a collaborative approach to creating cleaner, more sustainable urban environments.



Transparency

Real-time reporting and analytics deliver actionable insights. This data-driven approach supports informed decision-making and enhances operational efficiency.



Seamless Integration

The system integrates seamlessly with existing software for a smooth transition. This compatibility ensures minimal disruptions and maximizes operational efficiency.



Enhanced Support

Dedicated customer support ensures smooth implementation and addresses challenges promptly. Continuous assistance guarantees system performance and long-term success.



How It Works

**1**

Admin assigns routes and staff to vehicles in web backend

**2**

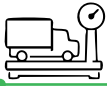
Vehicles equipped with RFID readers and GPS tracking devices

**3**

Smart bins and QR codes or RFID tags issued to households for waste collection

**4**

Primary vehicles collect waste, scan QR codes or RFID tags for record-keeping.

**5**

Weighing of waste in an automated electronic weighbridge for accurate data.

**6**

Waste collection and route data used to optimize vehicle routes in the backend.

**7**

Public can report grievance using the mobile app, reflected on the dashboard.

**8**

Fleet management platform displays real-time vehicle data.

**9**

Sensor management platform monitors and controls IoT devices for data collection.





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Capulus Technologies revolutionizes waste management with innovative, scalable, and eco-friendly solutions designed for modern cities. Our systems leverage advanced technology to enhance efficiency, promote sustainability, and ensure seamless operations tailored to your unique needs.

Visit our website or contact us today to explore how our Smart Waste Management System can transform your city into a cleaner, greener space!

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Sustainability Made Simple

E-mail

sales@capulustech.com
contact@capulustech.com

Phone

+91 - 63616 78981
+91 - 82622 98089

Online

www.capulustech.com

 /capulustech