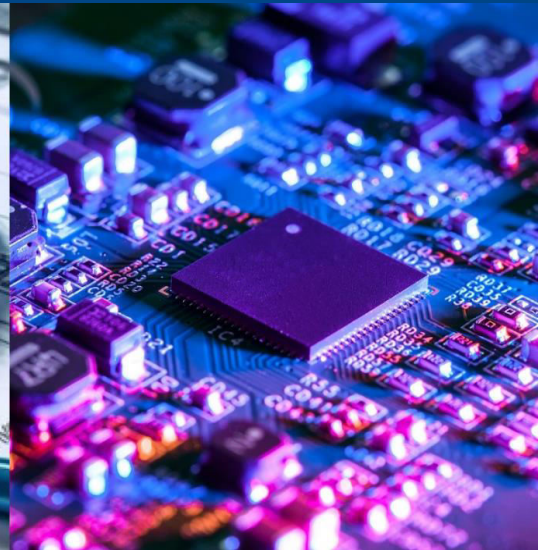
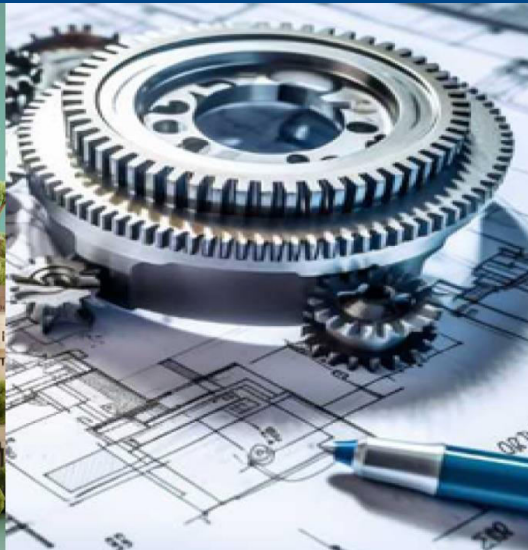
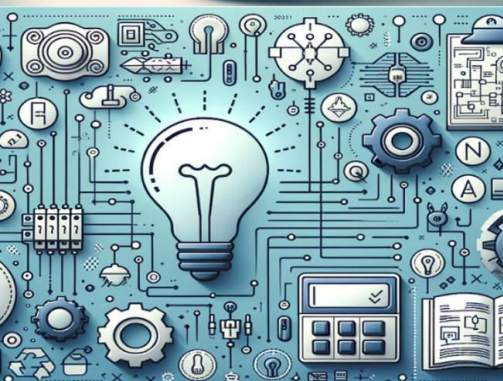




International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 4, April 2025



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Garbage Collection Application (Pick My Trash)

Kali P.B., Fulari A.V., Birajdar U.B., Mashale K.N., Tanwade Y.S.

Department of Computer Engineering, SVSMD's KKI Polytechnic College, Akkalkot, India

Prof. Banegaon R.P., Prof. Pawar V.D.

Guide, Department of Computer Engineering, SVSMD's KKI Polytechnic College, Akkalkot, India

ABSTRACT: In recent years, rapid urbanization has led to increased waste generation, posing significant challenges to municipal solid waste management systems. This project proposes the development of a smart garbage collection application aimed at improving the efficiency and effectiveness of waste collection processes. The application will allow residents to report full or overflowing bins, track garbage trucks in real time, schedule pickups, and receive notifications about collection timings and recycling tips. On the administrative side, the app will provide tools for route optimization, monitoring of collection status, and data analytics to support decision-making. By leveraging GPS technology.

KEYWORDS: JAVA, PHP, SQLite Database, XML (Android).

I. INTRODUCTION

Cities and towns across India struggle with inefficient waste disposal due to lack of real-time monitoring and public engagement. Akkalkot, a religious hub in Maharashtra, witnesses garbage overflow especially during festivals and peak tourism seasons. Traditional systems lack accountability and data insights.

This project proposes a mobile and web-based system that digitizes garbage collection, complaint management, and monitoring — allowing both citizens and authorities to participate in cleaner city initiatives.

Akkalkot, a town in the Solapur district of Maharashtra, holds special religious significance due to the presence of the shrine of Shri Swami Samarth Maharaj, attracting thousands of pilgrims and tourists throughout the year. While this influx contributes to the town's vibrancy and economy, it also results in a massive surge in waste generation, particularly during festivals, religious events, and peak tourist seasons.

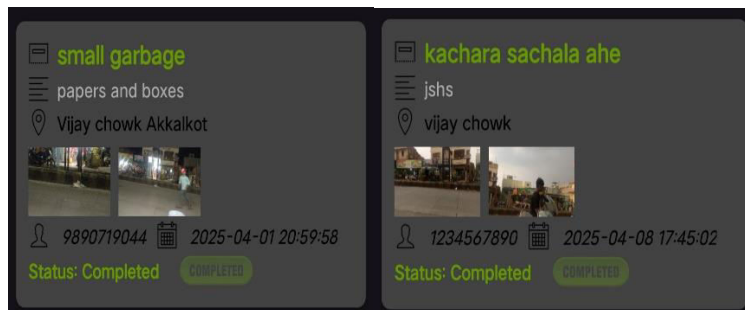
Unfortunately, Akkalkot's existing waste management practices are primarily manual and paper-based, lacking the capability to dynamically respond to increased demand. Issues such as unattended garbage piles, delays in waste collection, and poor grievance redressal mechanisms lead to deteriorating sanitation and a negative experience for both residents and visitors. The traditional systems lack accountability, offer no visibility into field operations, and provide limited data to inform planning or policy.

To address these challenges, this project proposes a mobile and web-based platform that aims to digitize and modernize the entire waste management workflow in Akkalkot. The system facilitates active collaboration between citizens, municipal authorities, and waste collectors, making the process more transparent, efficient, and responsive.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



II. EXISTING SYSTEM

1. Swachhata App (MoHUA)

- **Purpose:** Citizen complaints for garbage & cleanliness
- **Features:** GPS tagging, photo uploads, resolution updates
- **Limitations:** Not active in all towns, no real-time task assignment

2. Clean India App

- **Purpose:** Community awareness & volunteer-led cleanups
- **Features:** Photo posts, volunteer engagement
- **Limitations:** Lacks task management, admin tools

3. SpotGarbage

- **Purpose:** AI-based garbage detection via camera
- **Features:** Smart image processing for analysis
- **Limitations:** No complaint tracking, backend-heavy

4. MyCleanCity (Smart City Pilot)

- **Purpose:** Tech-enabled waste monitoring
- **Features:** Truck tracking, IoT bins, admin dashboard
- **Limitations:** Costly, IoT-heavy, not feasible for small towns

5. NagarSankalp (Maharashtra Municipal Use)

- **Purpose:** Urban complaint logging
- **Features:** Task assignment, status updates
- **Limitations:** Generic use, poor user interface, not garbage-specific

• Real Time Examples:

1. Municipal Complaint Resolution:

Citizens can instantly report overflowing bins, littered areas, or missed pickups.

2. Garbage Collection Task Management:

Admin can assign and track real-time cleaning tasks to sanitation workers.

3. Location-Based Pickup Scheduling:

Authorities can plan garbage pickup routes based on complaint hotspots.

4. Public Awareness & Participation:

Engages residents in maintaining cleanliness through a transparent feedback loop.

5. Data-Driven Decision Making:

Helps municipal bodies identify high-waste areas and improve planning.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

III. NEED OF THIS PROJECT

Effective waste management is a critical part of maintaining hygiene, public health, and the overall quality of life in any city. In smaller towns like Akkalkot, the lack of structured systems and real-time communication between citizens and the municipal corporation leads to several issues such as:

Overflowing garbage bins and unattended waste in public areas
Manual complaint handling, which is slow, unrecorded, and inefficient
No tracking or transparency in garbage collection and issue resolution
Limited citizen participation due to the absence of digital platforms
No analytical data to identify high-waste areas or optimize collection routes

To overcome these challenges, there is a strong need for a digital solution* that enables:

Real-time complaint logging and tracking by citizens
Efficient task assignment and resolution monitoring by authorities
Proof-based verification of work through image uploads
Low-cost implementation without requiring IoT devices or smart bins
Scalability and simplicity to be adopted by any town or municipality

This project fulfills that need by creating a smart yet affordable* waste management system that promotes transparency, accountability, and public engagement in the mission of a cleaner Akkalkot.

IV. PROPOSED SYSTEM

The proposed system is a non-IoT-based Smart Garbage Management Application developed specifically to address the garbage-related challenges in small towns like Akkalkot. The system focuses on public participation, administrative accountability, and digital task management—all without the need for expensive sensors or hardware infrastructure.

Citizen App (Mobile Application)

Allows users to report garbage issues by uploading images, adding location (via GPS), and writing a description.
Citizens can track the status of their complaints in real-time.
Users receive notifications when the issue is resolved.

Admin Panel (Web Dashboard)

Municipal officers and ward supervisors can view all complaints raised in the system.
They can assign tasks to garbage collectors and monitor their progress.
The system generates daily, weekly, and monthly reports to help with analysis and planning.

Collector App or Panel (Mobile/Web Interface)

Garbage collectors receive assigned tasks with image, address, and location map.
After completing the task, they upload a photo as proof of resolution.
The status is automatically updated in both the admin panel and the citizen's app.

V. ADVANTAGES

- No IoT dependency – making it low-cost and easy to deploy in rural or semi-urban areas.
- Focused exclusively on garbage management, unlike general civic apps.
- Transparency and accountability through photo-based proof and complaint tracking.
- Simple and intuitive UI for all types of users, including municipal staff.



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

VI. METHODOLOGY

1. User App (Android) – For Citizens

This mobile application is designed to empower citizens to engage with municipal services in a simple and effective way. Key features include:

- **Complaint Logging:**
 - Users can report civic issues such as garbage collection delays, overflowing bins, illegal dumping, etc.
 - Complaint categories for better sorting (e.g., sanitation, waste segregation, etc.).
 - Auto-detection of location via GPS or manual address entry.
- **Image Upload:**
 - Users can attach photos as evidence to support their complaints.
 - Allows before-and-after images for improved transparency and monitoring.
- **Pickup Status Tracking:**
 - Real-time tracking of complaint status (e.g., Pending, Assigned, In Progress, Resolved).
 - Notifications or alerts on status updates.
- **Feedback and Rating:**
 - Option to rate the service post-resolution.
 - Submit feedback to help improve service delivery.
- **Profile Management:**
 - User registration/login with mobile number or email.
 - History of submitted complaints and their statuses.

2. Admin Panel (Web-Based) – For Municipal Officers

This web dashboard helps municipal staff manage and streamline complaint resolution and waste collection operations.

- **Task Assignment:**
 - View incoming complaints in real-time.
 - Assign complaints or pickup requests to relevant field workers or collectors.
 - Set deadlines or priority levels.
- **Tracking and Monitoring:**
 - Live tracking of assigned tasks and their progress.
 - Interactive maps to visualize problem areas or high-frequency complaint zones.
 - Collector location tracking (if GPS-enabled).
- **Reports and Analytics:**
 - Generate daily, weekly, or monthly reports on resolved/unresolved complaints.
 - Graphs and data visualization for performance tracking and operational insights.
 - Export data in CSV or PDF formats.
- **User Management:**
 - Manage collector accounts, officers, and citizen reports.
 - Role-based access controls for different levels of staff.
- **Notification System:**
 - Send alerts or messages to collectors or citizens regarding actions or delays.

3. Collector Panel – For Waste Collection Teams

This panel (can be a mobile or tablet interface) is tailored for the operational workforce responsible for executing field tasks.

- **Daily Task List:**
 - View a list of assigned complaints and waste pickups for the day.
 - Sorted by priority, location, or type of issue.
- **Complaint Resolution:**
 - Update complaint status in real-time (e.g., Mark as Resolved).
 - Upload images after completion for verification.



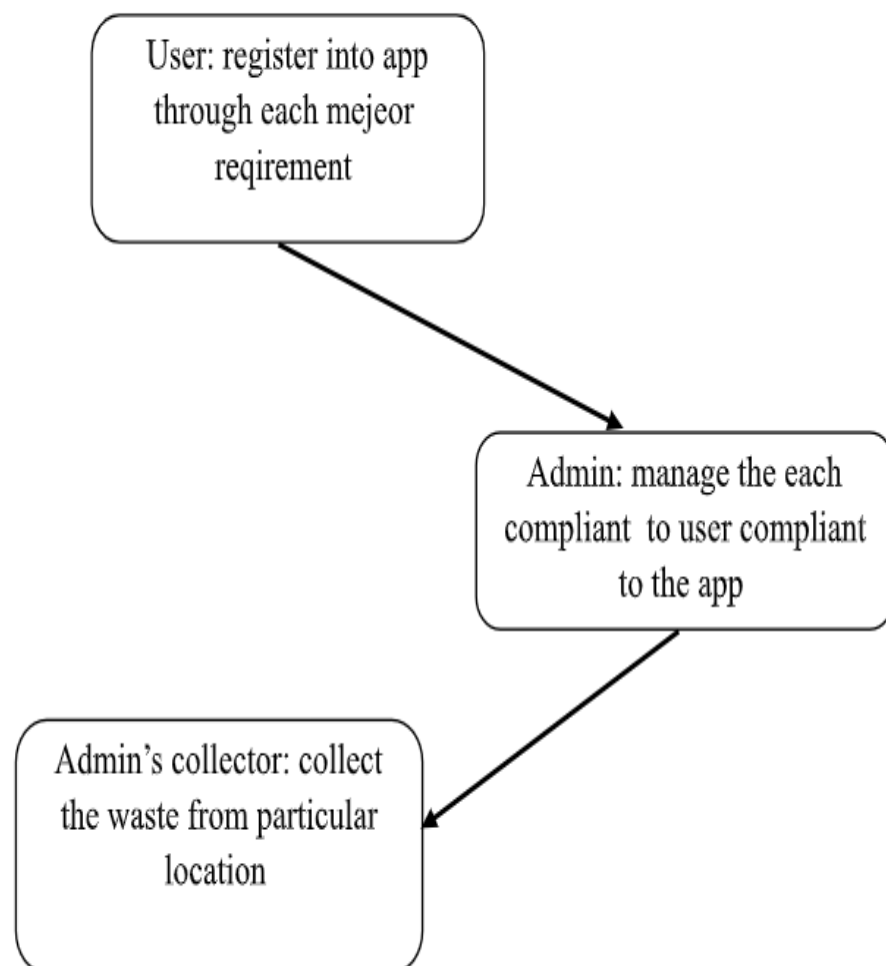
International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

- **Navigation & Maps:**
 - GPS-based directions to the assigned complaint or pickup location.
 - Optimized routes to minimize travel time.
- **Status Updates:**
 - Mark attendance, task started/completed times.
 - Notify admin if an issue cannot be resolved (e.g., blocked access, incorrect location).
- **Communication Tools:**
 - Option to contact admin or supervisors for escalations.
 - Chat or voice call integration (optional).

Architecture Diagram:

1. System Design

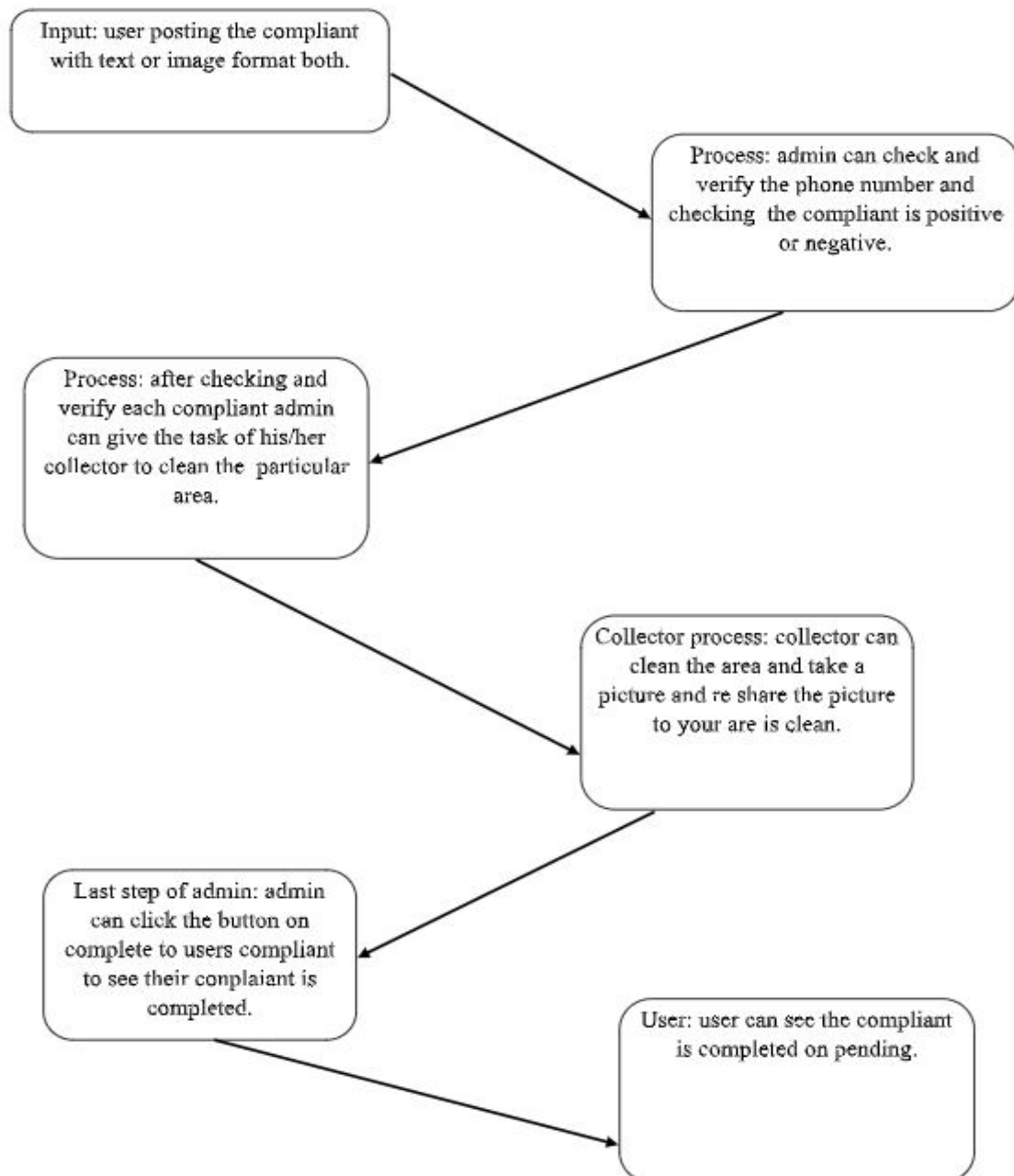




International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

2.Data flow :-



VII. CONCLUSION

This system proves that smart waste management doesn't require IoT for smaller cities. Using basic smartphones, cloud services, and public collaboration, towns like Akkalkot can become cleaner, greener, and more efficient. Future work includes AI-based complaint categorization and multilingual support.

This project demonstrates that **effective and scalable smart waste management** is entirely achievable even **without expensive IoT infrastructure**, especially in smaller towns like Akkalkot. By harnessing widely available and low-cost



International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

technologies such as **Android smartphones**, **cloud-based backend systems**, and **active citizen participation**, municipalities can significantly improve the cleanliness, hygiene, and overall livability of their communities.

Unlike large metropolitan smart cities that rely on costly IoT devices, smart bins, and sensor networks, this system proves that a **minimalist, people-powered approach** can deliver impactful results. Citizens serve as active sensors by reporting issues via mobile apps, while administrators and waste collectors collaborate through a unified platform to resolve them. The result is a **closed feedback loop** that enhances accountability, transparency, and operational efficiency without overburdening municipal budgets.

VIII. FUTURE WORK

└ **Route Optimization:**

Use GPS to suggest efficient garbage collection routes, saving time and fuel.

└ **Automatic SMS/IVR Alerts:**

Notify citizens about complaint status and feedback through SMS and voice calls, including support for non-smartphone users.

└ **Public Cleanliness Leaderboard:**

Rank cleanest areas, most active citizens, and best-performing collectors to promote healthy competition and motivation.

└ **Integration with Swachh Bharat Portal:**

Sync data with national dashboards for performance tracking, reporting, and improved Swachh Survekshan rankings.

REFERENCES

1. IRJET - Smart Waste Management using Android
2. ERT - Civic Tech in Tier-3 Indian Cities
3. Marella, B.C.C., & Kodi, D. (2025). Fraud Resilience: Innovating Enterprise Models for Risk Mitigation. Journal of Information Systems Engineering and Management, 10(12s), 683–695.
4. Google Maps API Documentation
5. Firebase Docs
6. Swachh Bharat Mission Dashboard



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com