

# **ENVIRONMENTAL MONITORING AND POLLUTION MANAGEMENT**

**A PROJECT REPORT**

*Submitted by,*

<b>Konduru Harshitha</b>	<b>20211CSE0492</b>
<b>Metta Siva Nanda Reddy</b>	<b>20211CSE0126</b>
<b>Dalavai Geetha Sree</b>	<b>20211CSE0493</b>

*Under the guidance of,*

**Ms. Akkamahadevi C**

*in partial fulfillment for the award of the degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE AND ENGINEERING**

**At**



**PRESIDENCY UNIVERSITY**

**BENGALURU**

**JANUARY 2025**

# **PRESIDENCY UNIVERSITY**

## **SCHOOL OF COMPUTER SCIENCE ENGINEERING**

### **CERTIFICATE**

This is to certify that the Project report “**ENVIRONMENTAL MONITORING AND POLLUTION MANAGEMENT**” being submitted by “Konduru Harshitha, Metta Siva Nanda Reddy, Dalavai Geetha Sree” bearing roll number(s) “20211CSE0492, 20211CSE0126, 20211CSE0493” in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

**Ms. Akkamahadevi C**  
Assistant Professor  
School of CSE&IS  
Presidency University

**Dr. Asif Mohamed**  
Associate Professor & HoD  
School of CSE&IS  
Presidency University

**Dr. L. SHAKKEERA**  
Associate Dean  
School of CSE  
Presidency University

**Dr. MYDHILI NAIR**  
Associate Dean  
School of CSE  
Presidency University

**Dr. SAMEERUDDIN KHAN**  
Pro-VC School of Engineering  
Dean -School of CSE&IS  
Presidency University

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### **DECLARATION**

We hereby declare that the work, which is being presented in the project report entitled **ENVIRONMENTAL MONITORING AND POLLUTION MANAGEMENT** in partial fulfillment for the award of Degree of **Bachelor of Technology in Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Ms. AKKAMAHADEVI C, Assistant Professor, School of Computer Science Engineering & Information Science, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

**Konduru Harshitha-20211CSE0492**

**Metta Siva Nanda Reddy-20211CSE0126**

**Dalavai Geetha Sree-20211CSE0493**

## **ABSTRACT**

Pollution remains a critical global challenge, affecting vital resources such as water, land, air, and noise, which are essential for human survival and environmental health. Despite growing awareness, the lack of a centralized and efficient mechanism for reporting pollution has hindered timely and effective solutions. This report presents an innovative, community-centered platform aimed at addressing these issues by enabling seamless reporting, prioritization, and resolution tracking through a user-friendly mobile and web application. The proposed system leverages cutting-edge technology, including geolocation for precise identification of pollution sources, public voting to prioritize critical issues, and automated escalation to ensure swift action. These features create a transparent and accountable framework that empowers citizens to actively participate in environmental protection while providing government institutions with real-time data to enhance their response strategies. Furthermore, the platform bridges the gap between community efforts and institutional processes, fostering collaboration for effective pollution management. It encourages proactive engagement by simplifying the reporting process and promoting collective responsibility. By integrating technological innovation with community-driven solutions, this system offers a sustainable approach to tackling pollution and safeguarding essential resources for future generations. This report outlines the platform's design, functionality, and potential impact, demonstrating how it can transform pollution management into a more efficient and inclusive process. Through this initiative, the system aspires to not only address immediate environmental concerns but also build a foundation for long-term ecological preservation and societal awareness.

## ACKNOWLEDGEMENT

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

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**Konduru Harshitha**

**Metta Siva Nanda Reddy**

**Dalavai Geetha Sree**

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## **CHAPTER-1**

### **INTRODUCTION**

Pollution continues to be one of the most significant global challenges, posing a profound threat to the environment, ecosystems, and human health. Various forms of pollution—air pollution, water contamination, noise pollution, and land degradation—affect critical natural resources and disrupt ecological balance. According to the World Health Organization (WHO), environmental pollution is a leading cause of millions of premature deaths annually. Poor air quality, in particular, contributes to a range of severe health conditions, including respiratory diseases, cardiovascular disorders, and certain types of cancer. Similarly, water pollution diminishes access to clean drinking water, while land degradation and waste accumulation lead to habitat destruction and biodiversity loss.

Despite increased global awareness and efforts to combat pollution, significant barriers remain. Governments, international organizations, and environmental advocacy groups have emphasized the urgency of addressing pollution, yet the lack of an efficient and centralized system for reporting and managing pollution incidents continues to hinder progress. Traditional reporting methods, such as phone calls or emails to local authorities, are often inefficient and time-consuming. These systems rely heavily on individual initiative and typically lack structured mechanisms for tracking reports, prioritizing issues, or ensuring timely action. This inefficiency often results in delayed responses, unresolved concerns, and a growing sense of public frustration.

Existing digital solutions, including mobile apps and online platforms for reporting pollution, have attempted to bridge this gap but face notable limitations. Many of these platforms operate in isolation without integrating community participation or collaboration with government agencies. Additionally, they often lack automated escalation processes that ensure critical issues are addressed promptly by the appropriate authorities. As a result, pollution incidents may go unreported, unresolved, or deprioritized, leading to inefficient resource allocation and continued environmental degradation. Public awareness of how to effectively report pollution remains another significant challenge, contributing to widespread underreporting and a lack of actionable data for authorities.

Addressing these challenges requires a paradigm shift toward a more collaborative, transparent, and technology-driven approach. A centralized platform that empowers citizens to actively monitor and report pollution in their communities, fosters accountability among government bodies, and ensures timely responses is essential. Such a system would not only streamline the reporting process but also enhance public engagement and trust in environmental governance. By integrating modern technology with community-driven initiatives, it is possible to create a sustainable framework for addressing pollution more effectively.

The proposed platform is not just a tool for reporting but a catalyst for fostering environmental stewardship and collective action. By empowering individuals to actively participate in identifying and addressing pollution, the system promotes a sense of shared responsibility among citizens. This participatory approach ensures that environmental issues are no longer viewed as solely the responsibility of governments or organizations but as a collaborative effort involving communities. The integration of public voting further amplifies this collective voice, enabling communities to highlight issues that matter most to them and ensuring that critical concerns are not overlooked.



**Figure.1.1 Water Pollution**



**Figure.1.2 Land Pollution**

Moreover, the platform serves as a valuable resource for data-driven decision-making. The centralized repository of pollution reports provides authorities and environmental agencies with actionable insights, enabling them to identify patterns, allocate resources more effectively, and implement targeted interventions. This real-time data also supports long-term environmental planning and policy development, equipping governments with the tools needed to address systemic issues. By bridging the gap between citizen engagement and

institutional action, the platform lays the foundation for a more transparent, efficient, and accountable environmental governance system.

This report introduces an innovative solution to these challenges: a community-centered, technology-enabled platform for pollution reporting, tracking, and resolution. The proposed system is designed to simplify the reporting process through intuitive mobile and web applications, enabling individuals to easily report pollution incidents. Key features of the platform include geolocation services for precise identification of pollution sources, community voting mechanisms to prioritize urgent issues, and automated escalation protocols to ensure that critical concerns are addressed by the relevant authorities.

The platform's centralized structure categorizes reports based on type, location, and severity, allowing for efficient management and prioritization of pollution incidents. Community voting empowers citizens to collectively decide which issues require immediate attention, fostering a sense of shared responsibility. Once a report meets a predefined threshold of votes, it is automatically escalated to the appropriate government agencies or environmental organizations, ensuring timely action. Users are also provided with real-time updates on the status of their reports, creating a transparent feedback loop that encourages continued participation and builds trust in the system.

By combining advanced technology with community-driven solutions, this platform has the potential to revolutionize pollution management. It addresses the inefficiencies of traditional reporting systems, promotes public engagement, and enhances the ability of government institutions to respond effectively to environmental hazards. This document outlines the development, design, and objectives of the platform, demonstrating how it can transform pollution control efforts into a more efficient, transparent, and inclusive process. Ultimately, the platform aims to foster greater accountability, improve resource allocation, and contribute to the creation of a healthier, more sustainable environment for future generations.

## CHAPTER-2

### LITERATURE SURVEY

S.No.	Authors	Title	Year	Summary
1	Wing-Kwong Wong, Nguyen Thi Thuy Hang, Meng-Yuan Tsai, Guan-Cheng Shi, and Yo-Chen Tsai	Web Service and a Mobile App for Reporting Site Pollution and Other Features	2021	This study presents a web service and mobile application designed to report site pollution, enhancing public participation in environmental monitoring. By involving the community, the solution fosters accountability and ensures a broader reach in pollution control efforts, making it particularly relevant for densely populated countries like India.
2	Miriam A. Carlos- Mancilla, José Raúl Castañeda Rosas, Monica Lozada- Muñoz, Omar Alí Zatarain Durán, Yehoshua Aguilar Molina, Rodolfo Omar Domínguez García, and Miriam Gonzalez Dueñas	Development of an intelligent platform for obtaining environmental data	2022	The paper discusses the development of an intelligent platform aimed at collecting and analyzing environmental data to support decision-making processes. Such data-driven approaches are crucial for effective urban planning and pollution control, aligning with India's increasing reliance on technology for addressing environmental challenges.
3	Rida Kanwal, Warda Rafaqat, Mansoor Iqbal, and Song Weiguo	Exploratory Analysis of the Relationship between Wildfire Properties and Air Pollution in China under Sustainable Development	2023	This research explores the correlation between wildfire characteristics and air pollution in China, emphasizing the implications for sustainable development. The study provides a framework for understanding the environmental impact of natural events, which can be adapted to analyze India-specific scenarios like

				stubble burning and its significant contribution to air pollution.
4	Noble Saji Mathews, Sridhar Chimalakonda, and Suresh Jain	AiR -- An Augmented Reality Application for Visualizing Air Pollution	2020	The authors introduce 'AiR,' an Android-based mobile application that utilizes augmented reality to visualize air pollution levels in the user's vicinity, aiming to raise public awareness. This innovative approach is particularly relevant for urban areas in India, where engaging citizens through visualization can drive behavioural changes and promote environmental consciousness.
5	C. Bennila Thangammal, K. Ilamathi, P. Poonkuzhali, and R. Aarthi	An IoT Enabled Air Quality Monitoring Mobile App for Smart Cities	2022	This paper proposes an IoT-based system integrated with a mobile application to monitor air quality in smart cities, facilitating real-time data access and public awareness. With India's rapid urbanization, such scalable and real-time solutions are essential for effective pollution management in smart city initiatives.
6	R. K. Srivastava, S. Kumar, and A. Singh	A Comprehensive Review of Air Pollution Monitoring Systems in India	2021	This review analyzes existing air pollution monitoring systems in India, identifying gaps and proposing improvements. The findings provide a foundational understanding of India's current capabilities and challenges, making it essential for designing better monitoring and control strategies.
7	P. S. Kulkarni, A. R. Gokhale, and S. R. Joshi	AI-based Solutions for Air Quality Management in Indian Cities	2022	The paper explores AI-driven approaches for managing air quality in Indian cities, highlighting predictive modeling and real-time monitoring. These solutions are

				vital for addressing India's unique urban pollution challenges effectively and sustainably.
8	S. Gupta, M. Sharma, and R. Verma	Impact of Stubble Burning on Air Quality in North India: Challenges and Mitigation Strategies	2023	This study examines the effects of stubble burning on air quality in North India and proposes actionable mitigation strategies. The research is highly relevant for addressing one of the most significant contributors to seasonal air pollution in the region.
9	The Hindu	IIT-Madras designs IoT-based mobile device to monitor air quality	2023	The article reports on an IoT-based mobile technology developed by IIT-Madras researchers, enabling high-resolution air quality mapping across urban areas. This indigenous innovation highlights India's capability to tackle air pollution challenges using locally developed, cost-effective solutions tailored to its unique environmental conditions.
10	The Indian Express	An app by IIT-Tirupati students helps you 'see' the air pollution	2020	The news piece highlights an app developed by IIT-Tirupati students that uses augmented reality to help users visualize air pollution levels in their surroundings. Such visualization tools are critical for raising awareness and educating citizens, which is a key step toward behavioral change and collective action against pollution in India.

**Table.2.1 Literature Survey**

## **CHAPTER-3**

### **RESEARCH GAPS OF EXISTING METHODS**

Despite the availability of various platforms and methods designed to address pollution reporting and monitoring, significant gaps remain that hinder their effectiveness and widespread adoption. These gaps reveal the need for a more integrated, user-friendly, and efficient approach to pollution management. Current systems are often fragmented, manual, and lack public engagement, which affects their ability to provide timely, accurate, and actionable data. This section elaborates on these key research gaps.

#### **Lack of Centralization**

One of the most critical shortcomings of existing pollution reporting systems is the lack of centralization. Currently, many platforms focus on specific types of pollution (such as air, water, or noise) or are restricted to localized regions, leading to fragmented data that is difficult to consolidate. This decentralized approach often causes confusion among users, who are uncertain about where or how to report pollution incidents. Additionally, the absence of a centralized database prevents authorities from gaining a comprehensive view of pollution trends and patterns. Without a unified platform to collate and analyze reports, it becomes challenging to make informed decisions or respond effectively to emerging pollution issues. A centralized platform would streamline reporting, improve data aggregation, and ensure consistency in addressing pollution incidents across different regions, ultimately enhancing the effectiveness of pollution management efforts.

#### **Manual Processes**

Another significant gap in existing pollution reporting systems is the reliance on manual processes for critical tasks such as report submission, review, and escalation. Most current systems require users to manually submit reports via emails, phone calls, or forms, which can be time-consuming and prone to delays. Once reports are submitted, authorities must manually sort through them, assess their urgency, and prioritize actions. This manual intervention not only slows down response times but also increases the risk of errors and inefficiencies, particularly in handling urgent pollution incidents. For instance, if a pollution report is not properly categorized or escalated, it may go unnoticed or unresolved for extended

periods. Automated systems that streamline the submission, review, and escalation processes would significantly reduce delays and improve the overall efficiency of pollution management.

### **Lack of Public Engagement**

A critical gap in existing pollution reporting systems is the lack of public engagement in prioritizing pollution issues. Current methods often exclude community input, with no mechanism for the public to voice concerns or vote on the urgency of reported incidents. This absence of public participation can lead to authorities overlooking or deprioritizing critical issues that are of significant concern to the community. Without a mechanism for community-driven prioritization, there is a risk that less urgent pollution incidents may receive more attention, while more pressing issues go unresolved. A voting or ranking system that allows the public to weigh in on the urgency of reported pollution incidents would not only ensure that the most critical issues are addressed promptly but also foster greater public involvement and accountability. Encouraging community participation in the pollution reporting process would enhance the legitimacy and responsiveness of the system.

### **Limited Transparency**

Transparency is another crucial factor that is often lacking in current pollution reporting systems. Without transparency, it becomes difficult to build trust between the public and authorities, which is essential for encouraging active participation in the reporting process. Most existing platforms do not provide users with sufficient updates on the status of their reports once they have been submitted. Users are rarely informed about the actions taken or the progress made in resolving pollution issues, leading to frustration and a lack of trust in the system. This lack of transparency discourages users from reporting future incidents and undermines the overall effectiveness of the reporting platform. A more transparent system that offers real-time notifications, progress tracking, and detailed updates would not only keep users informed but also increase accountability among authorities. By providing clear and timely information, such a system would encourage users to continue reporting pollution incidents and contribute to the ongoing improvement of the platform.



## CHAPTER-4

### PROPOSED METHODOLOGY

The proposed methodology aims to transform the current pollution reporting and monitoring systems by introducing a unified, technology-driven platform. This solution integrates advanced features such as geolocation, community voting, automated escalation, and real-time notifications to address the gaps in existing systems. The goal is to provide a robust, user-friendly tool for efficient and effective pollution management.

#### **Key Components of the Proposed Solution:**

##### **Reporting System**

The core functionality of the platform is designed to allow users to report pollution incidents quickly and accurately.

**How it Works:** Users can easily report pollution incidents by uploading photos, providing detailed descriptions, and tagging the location of the incident using geolocation features. This information helps authorities pinpoint the exact location and nature of the pollution.

##### **Technology Stack:**

- **Frontend:** The user interface is built with React.js, ensuring compatibility across both web and mobile devices for a seamless experience.
- **Geolocation Integration:** The HTML5 Geolocation API or Google Maps API is used to capture the geographical coordinates of reported incidents, displaying them on an interactive map for ease of access and navigation.

##### **Automated Escalation**

To ensure timely action, critical pollution incidents are automatically escalated to the relevant authorities once they reach a predefined threshold.

**How it Works:** Each type of pollution report has a dynamic threshold for escalation. For example, a certain number of votes or repeated reporting within a specific timeframe will trigger the escalation process. When the threshold is met, the system generates a detailed report containing photos, descriptions, and geolocation, and automatically sends it to the appropriate government body.

### **Technology Stack:**

- **Business Logic:** Node.js is used to implement the rules-based logic for handling escalation processes.
- **Email Integration:** Libraries such as Nodemailer or APIs like SendGrid are used to send automated emails to authorities, ensuring rapid and accurate communication.

### **Real-Time Notifications**

A robust notification system ensures that both citizens and authorities stay informed about the status of pollution reports.

**How it Works:** Users are notified when their reports are submitted, escalated, or resolved. Authorities are notified about new reports, escalated issues, and deadlines for action.

### **Technology Stack:**

- **Real-Time Updates:** The system uses Socket.io to provide live updates on both web and mobile interfaces, allowing for real-time status changes.
- **Notification Delivery:** Push notifications for mobile devices and email alerts are integrated for both users and authorities to ensure consistent and timely updates.

### **Advantages of the Proposed Methodology**

The proposed methodology offers several advantages that improve the efficiency and effectiveness of pollution reporting and resolution:

- **Simplified Reporting:** The platform simplifies the process of reporting pollution, allowing users to easily submit detailed reports with evidence, such as photos and geolocation.
- **Faster Resolution:** Automated escalation ensures that high-priority pollution incidents are quickly flagged and sent to the appropriate authorities, reducing delays in response.
- **Improved Transparency:** Real-time notifications keep all stakeholders, including citizens and authorities, informed about the status of pollution reports, fostering greater trust and accountability.
- **Data-Driven Decisions:** Geotagged reports and vote-based prioritization provide authorities with actionable insights, enabling better resource allocation and more informed decision-making.

## CHAPTER-5

### OBJECTIVES

The proposed platform is designed with a set of clear objectives aimed at bridging the gaps in current pollution reporting systems while empowering both citizens and authorities to take proactive action against pollution. The key objectives are as follows:

#### **Enhance Public Participation in Environmental Protection**

**Empower Communities:** The platform provides an accessible and user-friendly tool for individuals and communities to actively report pollution incidents, encouraging direct participation in environmental protection.

**Foster Accountability:** By involving the public in identifying and prioritizing pollution issues, the platform instills a sense of shared responsibility and ensures that urgent environmental challenges are highlighted and addressed.

**Build Awareness:** Encouraging users to participate in the reporting process increases awareness of environmental issues, fostering a culture of sustainability and environmental stewardship.

#### **Automate and Streamline Pollution Reporting**

**Simplified Reporting Process:** The platform simplifies the process of reporting pollution by enabling users to easily submit geotagged photos and detailed descriptions of incidents through web or mobile interfaces.

**Minimized Manual Intervention:** By automating critical tasks such as categorization, prioritization, and escalation, the platform reduces the need for manual input, improving efficiency and response times.

**Scalable System:** The centralized, automated system is designed to handle large volumes of reports without delays or bottlenecks, ensuring scalability and responsiveness.

#### **Facilitate Data-Driven Decision-Making for Authorities**

**Actionable Insights:** The platform provides authorities with structured, geolocated data, allowing them to analyze pollution trends, identify hotspots, and allocate resources effectively.

**Community-Driven Prioritization:** By incorporating a voting mechanism, the platform

ensures that decisions align with community concerns, enabling authorities to address the most urgent pollution issues first.

**Long-Term Planning:** The aggregated data collected from reports can be used to inform long-term policies and preventive measures based on recurring pollution patterns and trends.

### **Improve Transparency through Real-Time Updates**

**Progress Tracking:** Users are kept informed with real-time updates on the status of their reports, including submission, escalation, and resolution, ensuring they are aware of the progress throughout the process.

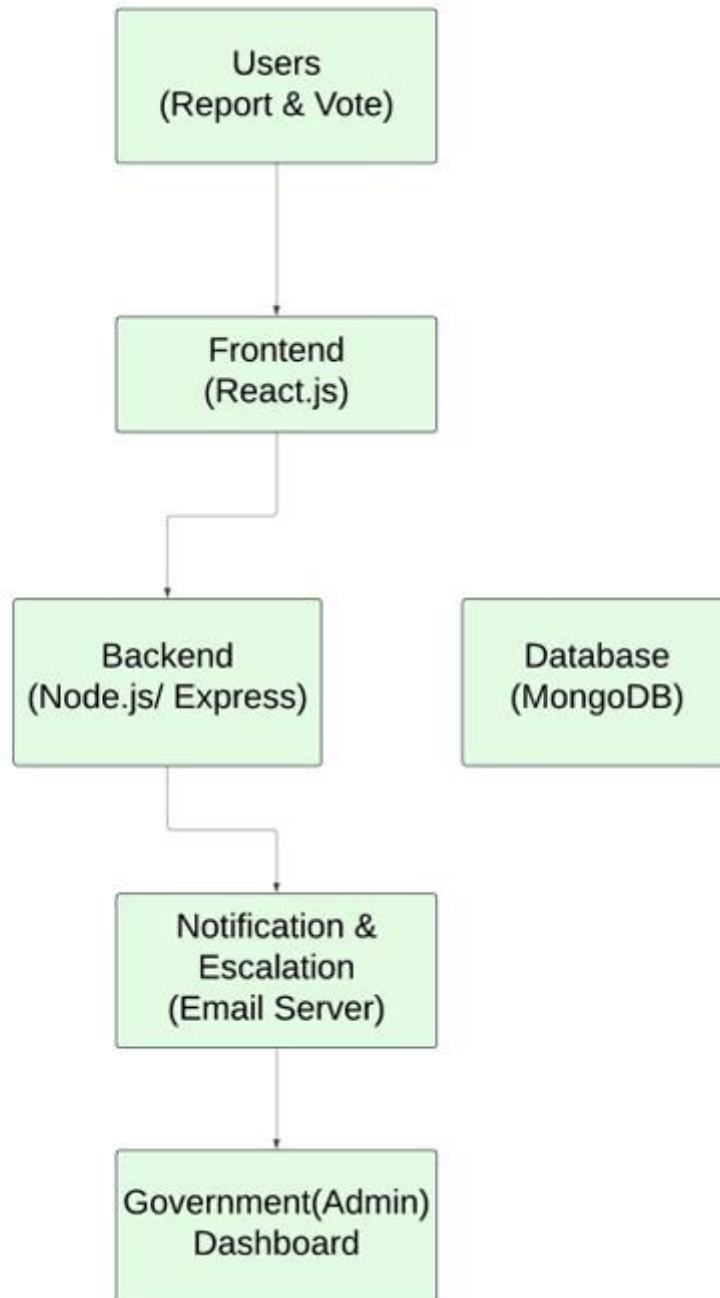
**Build Trust:** Transparent communication about actions taken helps build trust between citizens and authorities, encouraging continued engagement with the platform.

**Authority Accountability:** Regular notifications sent to both users and authorities ensure that reported pollution issues are addressed promptly and not overlooked.

## CHAPTER-6

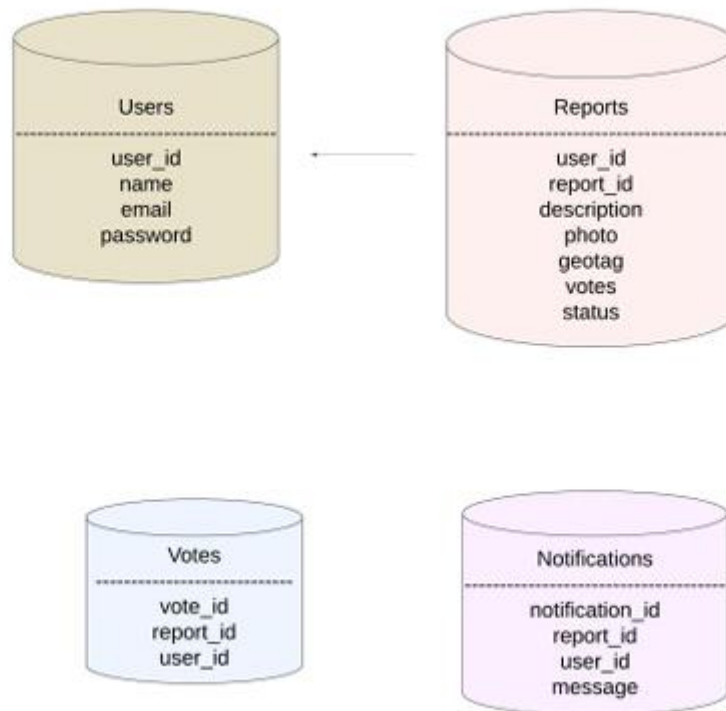
### SYSTEM DESIGN & IMPLEMENTATION

- **System Architecture Diagram**



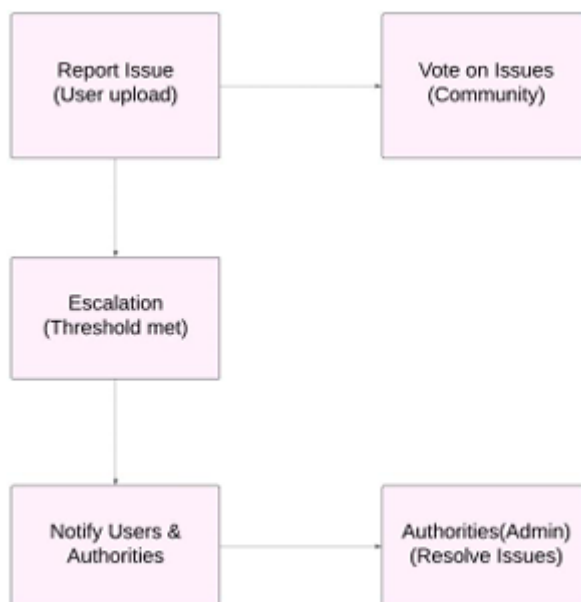
**Figure.6.1 System Architecture Diagram(State Transition Diagram)**

- **Database Schema Diagram**



**Figure.6.2. Database Schema Diagram**

- **User Flow Diagram**



**Figure.6.3. User Flow Diagram**

- Escalation Workflow Diagram

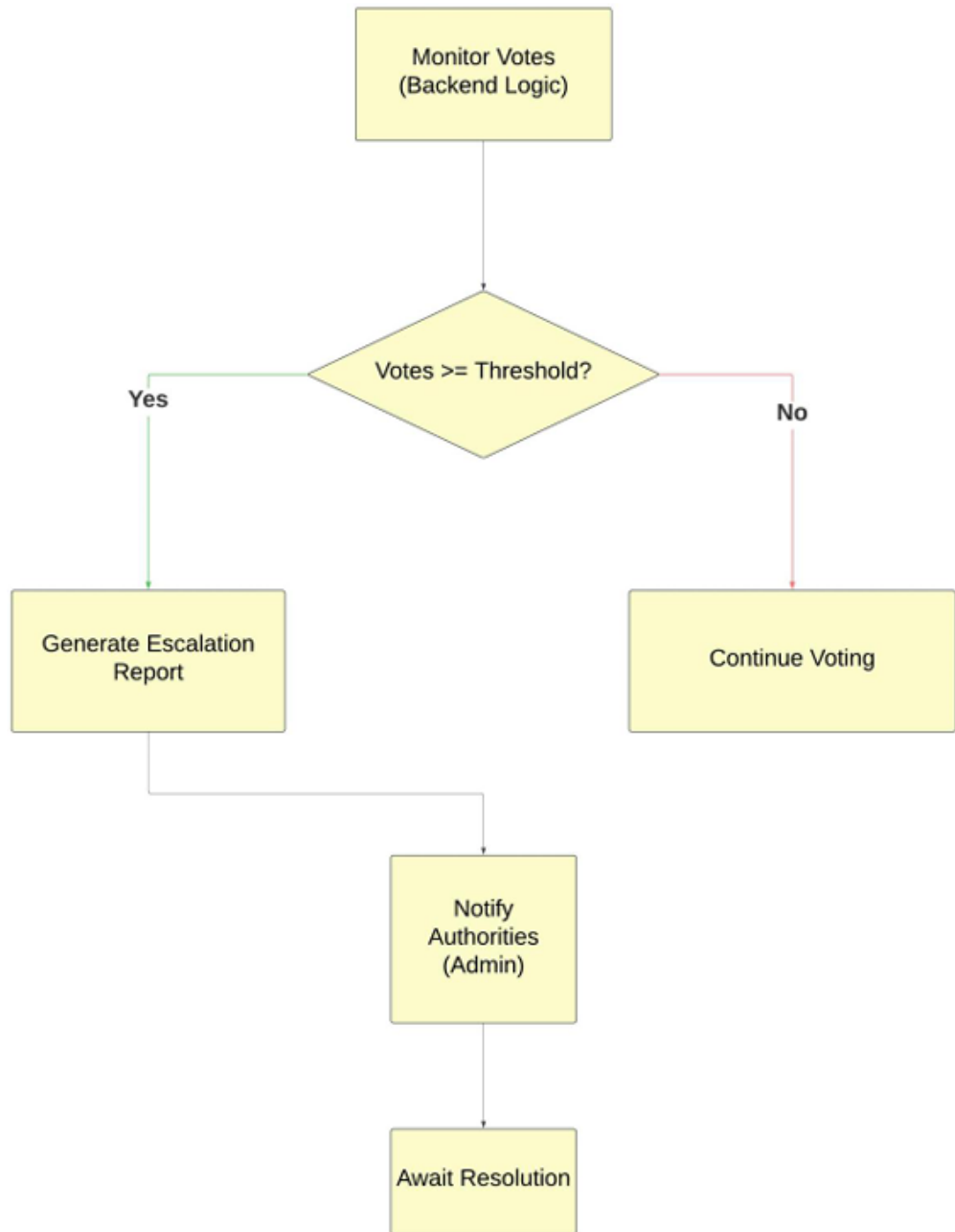
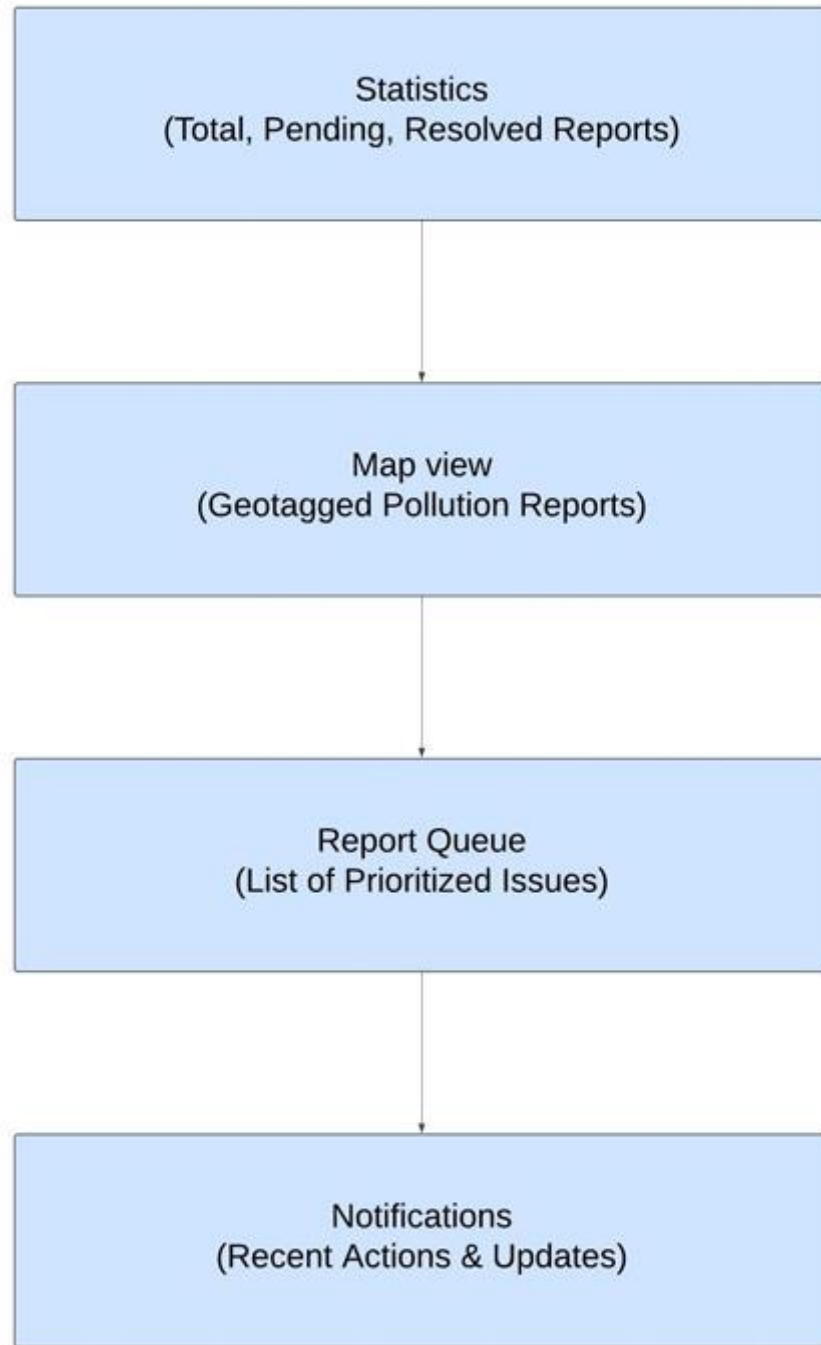


Figure.6.4. Escalation Workflow Diagram

- **Government (Admin) Dashboard Layout**



**Fig.6.5. Admin Dashboard Layout**



## CHAPTER-7

### TIMELINE FOR EXECUTION OF PROJECT (GANTT CHART)

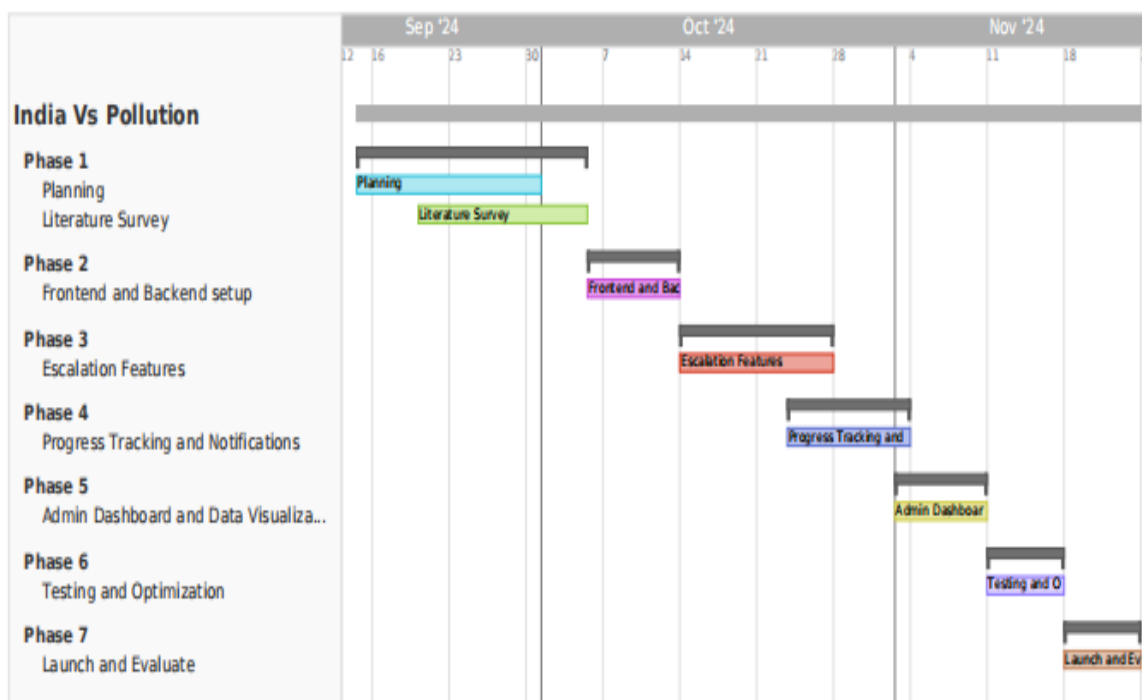


Fig.7.1. Gantt Chart

## CHAPTER-8

### OUTCOMES

The proposed platform is expected to yield transformative outcomes, addressing the persistent challenges in pollution reporting and monitoring, while benefiting both the public and governmental authorities. These outcomes are designed to enhance environmental protection efforts, improve the efficiency of response systems, and foster a more engaged, accountable, and transparent approach to managing pollution.

#### **Public Participation: Increased Engagement in Pollution Reporting**

**Empowered Communities:** The platform provides citizens with an intuitive and accessible tool for reporting pollution incidents. This ease of use encourages widespread participation, empowering individuals to take responsibility for their local environment. By simplifying the reporting process, the platform ensures that more people are motivated to report pollution, contributing to a collective effort to address environmental issues.

**Crowdsourced Monitoring:** The system enables real-time pollution monitoring, creating a decentralized network of vigilant citizens who actively track and report environmental issues. This crowdsourced approach enhances the reach of pollution monitoring, as citizens can report incidents from various locations, providing a comprehensive overview of pollution trends.

**Raising Awareness:** By actively involving the public in pollution reporting and monitoring, the platform helps raise awareness about environmental challenges. As users engage with the system, they gain a deeper understanding of the impact of pollution on their communities, promoting a culture of sustainability and environmental stewardship. This heightened awareness can lead to more informed decision-making and better community support for environmental protection efforts.

#### **Faster Response: Automated Prioritization Ensures Quicker Actions**

**Efficient Resource Allocation:** The platform incorporates a voting mechanism that allows the community to prioritize pollution incidents based on urgency. Reports that gain a higher number of votes are flagged for immediate action. This system ensures that authorities focus their resources on the most pressing issues, leading to faster and more effective responses.

**Streamlined Processes:** The automation of critical processes such as report categorization,

prioritization, and escalation significantly reduces the time required for authorities to take action. By eliminating the need for manual intervention, the platform minimizes delays, ensuring that pollution incidents are addressed promptly.

**Quick Action on Critical Incidents:** The automated escalation system ensures that urgent pollution reports are immediately flagged and forwarded to the relevant authorities. This helps prevent delays in addressing critical incidents, such as hazardous waste spills or severe air pollution events, which require swift intervention to mitigate their impact on public health and the environment.

### **Transparency: Users Stay Informed, Fostering Trust in the System**

**Real-Time Updates:** The platform keeps users informed about the status of their reports through real-time notifications. Whether a report is submitted, escalated, or resolved, citizens are notified at each step, ensuring they remain engaged and aware of the progress being made. This transparency builds trust in the system, as users can see that their concerns are being actively addressed.

**Increased Accountability:** Transparency in the reporting and resolution process promotes accountability among both citizens and authorities. Users can track the progress of their reports, and authorities are held accountable for taking timely action. This creates a feedback loop that encourages both parties to stay engaged and ensures that pollution issues are not overlooked or ignored.

**Building Trust:** Regular updates and clear communication between authorities and the public foster a sense of trust. When citizens see that their reports are being acted upon and that they are kept informed throughout the process, they are more likely to continue using the platform and participate in future pollution reporting efforts. Trust is essential for the long-term success of any environmental initiative, and the proposed platform's transparency ensures that trust is consistently maintained.

### **Government Support: Authorities Benefit from Actionable Data for Better Decision-Making**

**Comprehensive Data:** The platform provides authorities with a centralized database of geotagged pollution reports, voting trends, and user feedback. This data is invaluable for understanding pollution patterns, identifying hotspots, and monitoring the effectiveness of response efforts. By leveraging this data, authorities can make more informed decisions about

where to allocate resources and how to prioritize environmental protection efforts.

**Informed Policy Decisions:** The platform's data-driven approach supports evidence-based policymaking. By analyzing pollution reports and community voting patterns, authorities can identify recurring issues, trends, and emerging environmental risks. This allows them to develop targeted policies and initiatives that address the most critical challenges facing their communities.

**Effective Resource Utilization:** With access to real-time data, authorities can allocate resources more effectively, ensuring that interventions are timely and impactful. For example, if the platform identifies a surge in pollution reports in a particular area, authorities can quickly deploy resources to address the issue before it escalates. This targeted approach maximizes the impact of government efforts and ensures that resources are used efficiently to address the most pressing environmental concerns.

## **CHAPTER-9**

### **RESULTS AND DISCUSSIONS**

#### **Results**

The pollution management system developed as part of this project successfully addresses the critical gaps in pollution reporting and monitoring. By introducing a centralized, user-friendly platform, the system enables efficient reporting, prioritization, and resolution of environmental pollution issues. The key outcomes of the project are outlined below:

#### **Centralized Reporting System**

The platform integrates an intuitive interface that allows citizens to report pollution incidents across various categories, including air, water, land, and noise pollution. Key features of the reporting system include:

- **Geolocation:** Automated location tagging ensures that pollution reports are accurately placed, providing reliable data for authorities.
- **Photo Evidence:** Users can upload real-time images to substantiate their complaints, offering visual proof of the pollution incident.
- **Detailed Notes:** Citizens can provide additional descriptions, helping to contextualize the report and prioritize the urgency of the issue.

#### **Prioritization and Transparency**

The system incorporates a public voting mechanism to prioritize complaints and ensure efficient resolution. Features include:

- **Community Voting:** Users can vote on reported pollution incidents, helping to highlight the most urgent issues that require immediate attention.
- **Automated Prioritization:** Complaints with higher public votes are automatically escalated to government authorities for swift action.
- **Public Engagement:** The voting system actively involves citizens in the monitoring and prioritization process, fostering a sense of shared responsibility.

## **Resolution Tracking**

To ensure transparency and accountability, the system includes a resolution tracking process:

- **Complaint Stages:** Complaints are tracked through stages such as "New," "In Progress," and "Resolved," providing clear visibility into the status of each report.
- **Government Updates:** Relevant government agencies provide updates on the progress of the complaint, visible to both the complainant and the public.
- **Automated Notifications:** Citizens receive real-time notifications about changes in the status of their reports, ensuring they stay informed throughout the resolution process.

## **Geolocation and Data Analytics**

The integration of geolocation and data analytics enables the system to:

- **Identify Pollution Hotspots:** The system helps authorities pinpoint areas with recurring pollution incidents, allowing for targeted interventions.
- **Real-Time Data:** Government bodies receive up-to-date information, enabling faster decision-making and more effective environmental action.
- **Actionable Insights:** The data collected through the platform can be analyzed to generate insights that inform resource allocation and policy-making.

## **Improved Citizen-Government Interaction**

The platform fosters a stronger relationship between citizens and government institutions by:

- **Timely Reporting:** Citizens can report pollution issues in real-time, ensuring that authorities can act swiftly.
- **Transparency and Accountability:** The system ensures that citizens can track the progress of their reports, promoting transparency in government actions.
- **Reduced Delays:** By eliminating communication gaps and streamlining the reporting process, the platform reduces delays in addressing pollution concerns.

## **Discussions**

The implementation of the pollution management system demonstrates its potential to significantly improve environmental governance and citizen participation. The following observations and discussions highlight the impact of the system:

## **Empowering Citizens**

The system empowers citizens by providing them with an easy-to-use tool for reporting pollution incidents. This not only increases public awareness of environmental issues but also fosters a sense of community responsibility. As citizens actively engage in identifying and addressing pollution, they become more invested in the well-being of their environment, contributing to a collective effort for environmental protection.

## **Data-Driven Governance**

The system enhances the efficiency of government responses by providing real-time, location-specific data. This enables authorities to:

- **Respond More Quickly:** With timely and accurate information, government agencies can prioritize and address critical pollution incidents more efficiently.
- **Identify Patterns:** The platform's data analytics capabilities allow authorities to recognize recurring pollution trends, which can inform the development of targeted policies.
- **Allocate Resources Effectively:** The system ensures that resources are directed to the most pressing pollution issues, optimizing the impact of government interventions.

## **Role of Technology**

The integration of technology, including geolocation, public voting, and automated escalation, demonstrates how modern tools can address traditional governance challenges. Key technological advantages include:

- **Accuracy:** Geolocation ensures precise tracking of pollution sources, allowing for more effective monitoring and intervention.
- **Scalability:** The platform is designed to be scalable, meaning it can be extended to different cities, states, or even countries with minimal adjustments, making it a versatile solution for global pollution management.

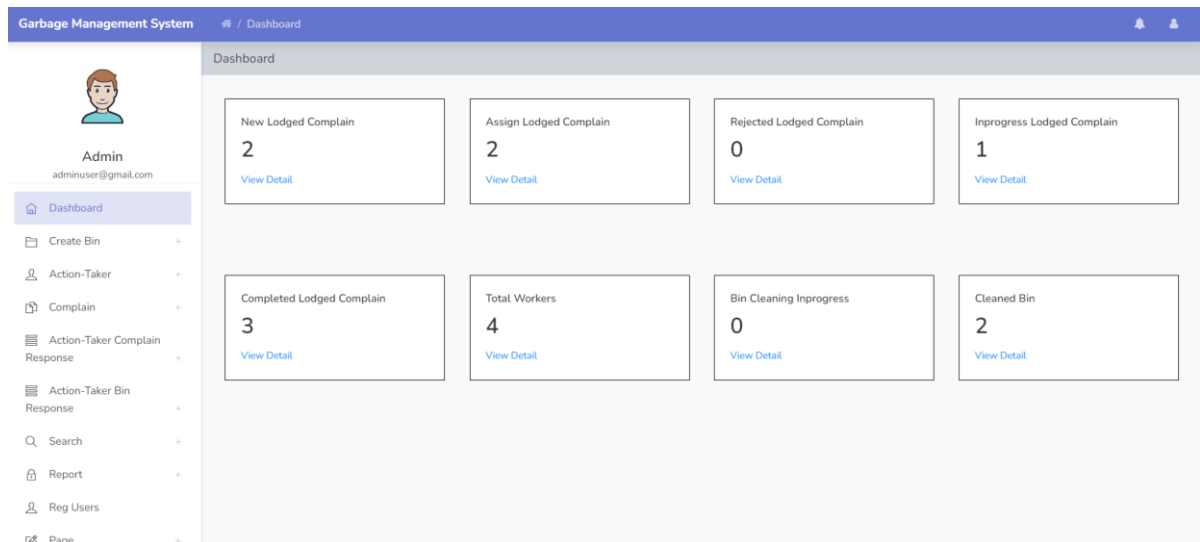


Figure.9.1. Admin Page

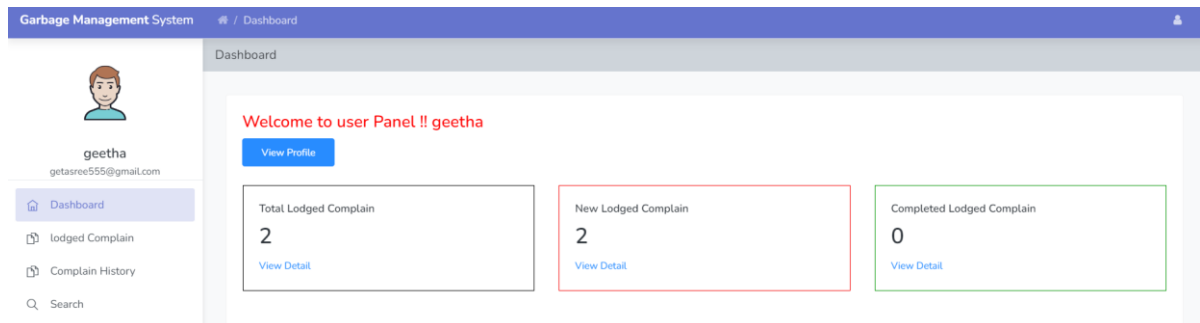


Figure.9.2. User Page

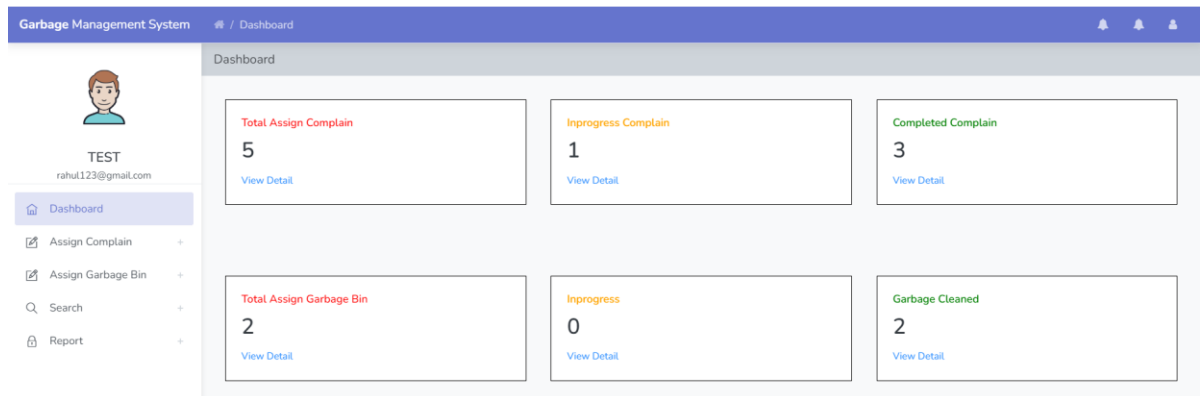


Figure.9.3. Action Taker Page



## **CHAPTER-10**

### **CONCLUSION**

This platform empowers citizens to take an active role in reporting and prioritizing pollution issues in their communities through a user-friendly, democratic process. By leveraging modern technologies like geotagging, community voting, real-time notifications, and data-driven dashboards, it streamlines communication between the public and government authorities. The integration of automation, transparency, and accountability ensures that critical environmental issues are escalated efficiently, fostering a collaborative effort to combat pollution and improve quality of life.

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## APPENDIX-A

### PSUEDOCODE

#### Index.html

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <title>Woody - Carpenter Website Template</title>
  <meta content="width=device-width, initial-scale=1.0" name="viewport">
  <meta content="" name="keywords">
  <meta content="" name="description">

  <!-- Favicon -->
  <link href="img/favicon.ico" rel="icon">

  <!-- Google Web Fonts -->
  <link rel="preconnect" href="https://fonts.googleapis.com">
  <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
  <link
href="https://fonts.googleapis.com/css2?family=Open+Sans:wght@400;500&family=
Roboto:wght@500;700;900&display=swap" rel="stylesheet">

  <!-- Icon Font Stylesheet -->
  <link href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/5.10.0/css/all.min.css" rel="stylesheet">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap-
icons@1.4.1/font/bootstrap-icons.css" rel="stylesheet">

  <!-- Libraries Stylesheet -->
  <link href="lib1/animate/animate.min.css" rel="stylesheet">
  <link href="lib1/owlcarousel/assets/owl.carousel.min.css"
rel="stylesheet">
  <link href="lib1/lightbox/css/lightbox.min.css" rel="stylesheet">

  <!-- Customized Bootstrap Stylesheet -->
  <link href="css1/bootstrap.min.css" rel="stylesheet">

  <!-- Template Stylesheet -->
  <link href="css1/style.css" rel="stylesheet">
</head>

<body>
  <!-- Spinner Start -->
  <div id="spinner" class="show bg-white position-fixed translate-middle w-
100 vh-100 top-50 start-50 d-flex align-items-center justify-content-center">
```

```

        <div class="spinner-grow text-primary" style="width: 3rem; height:
3rem;" role="status">
            <span class="sr-only">Loading...</span>
        </div>
    </div>
    <!-- Spinner End -->

    <!-- Topbar Start -->
    <div class="container-fluid bg-light p-0">
        <div class="row gx-0 d-none d-lg-flex">
            <div class="col-lg-7 px-5 text-start">
                <div class="h-100 d-inline-flex align-items-center py-3 me-4">
                    <small class="fa fa-map-marker-alt text-primary me-
2"></small>
                    <small>123 Street, New York, USA</small>
                </div>
                <div class="h-100 d-inline-flex align-items-center py-3">
                    <small class="far fa-clock text-primary me-2"></small>
                    <small>Mon - Fri : 09.00 AM - 09.00 PM</small>
                </div>
            </div>
            <div class="col-lg-5 px-5 text-end">
                <div class="h-100 d-inline-flex align-items-center py-3 me-4">
                    <small class="fa fa-phone-alt text-primary me-2"></small>
                    <small>+012 345 6789</small>
                </div>
                <div class="h-100 d-inline-flex align-items-center">
                    <a class="btn btn-sm-square bg-white text-primary me-1"
href=""><i class="fab fa-facebook-f"></i></a>
                    <a class="btn btn-sm-square bg-white text-primary me-1"
href=""><i class="fab fa-twitter"></i></a>
                    <a class="btn btn-sm-square bg-white text-primary me-1"
href=""><i class="fab fa-linkedin-in"></i></a>
                    <a class="btn btn-sm-square bg-white text-primary me-0"
href=""><i class="fab fa-instagram"></i></a>
                </div>
            </div>
        </div>
    </div>
    <!-- Topbar End -->

    <!-- Navbar Start -->
    <nav class="navbar navbar-expand-lg bg-white navbar-light sticky-top p-0">
        <a href="index.html" class="navbar-brand d-flex align-items-center px-
4 px-lg-5">
            <h2 class="m-0 text-primary">Woody</h2>
        </a>
    </nav>

```

```

        <button type="button" class="navbar-toggler me-4" data-bs-
toggle="collapse" data-bs-target="#navbarCollapse">
        <span class="navbar-toggler-icon"></span>
    </button>
    <div class="collapse navbar-collapse" id="navbarCollapse">
        <div class="navbar-nav ms-auto p-4 p-lg-0">
            <a href="index.html" class="nav-item nav-link active">Home</a>
            <a href="about.html" class="nav-item nav-link">About</a>
            <a href="service.html" class="nav-item nav-link">Service</a>
            <a href="project.html" class="nav-item nav-link">Project</a>
            <div class="nav-item dropdown">
                <a href="#" class="nav-link dropdown-toggle" data-bs-
toggle="dropdown">Pages</a>
                <div class="dropdown-menu fade-up m-0">
                    <a href="feature.html" class="dropdown-item">Feature
Quote</a>
                    <a href="team.html" class="dropdown-item">Our Team</a>
                    <a href="testimonial.html" class="dropdown-
item">Testimonial</a>
                    <a href="404.html" class="dropdown-item">404 Page</a>
                </div>
            </div>
            <a href="contact.html" class="nav-item nav-link">Contact</a>
        </div>
        <a href="" class="btn btn-primary py-4 px-lg-5 d-none d-lg-
block">Get A Quote<i class="fa fa-arrow-right ms-3"></i></a>
    </div>
</nav>
<!-- Navbar End -->

<!-- Carousel Start -->
<div class="container-fluid p-0 pb-5">
    <div class="owl-carousel header-carousel position-relative">
        <div class="owl-carousel-item position-relative">
            
            <div class="position-absolute top-0 start-0 w-100 h-100 d-flex
align-items-center" style="background: rgba(53, 53, 53, .7);">
                <div class="container">
                    <div class="row justify-content-center">
                        <div class="col-12 col-lg-8 text-center">
                            <h5 class="text-white text-uppercase mb-3
animated slideInDown">Welcome To Woody</h5>
                            <h1 class="display-3 text-white animated
slideInDown mb-4">Best Carpenter & Craftsman Services</h1>
                            <p class="fs-5 fw-medium text-white mb-4 pb-
2">Vero elittr justo clita lorem. Ipsum dolor at sed stet sit diam no. Kasd
rebum ipsum et diam justo clita et kasd rebum sea elittr.</p>

```

```

        <a href="" class="btn btn-primary py-md-3 px-
md-5 me-3 animated slideInLeft">Read More</a>
        <a href="" class="btn btn-light py-md-3 px-md-
5 animated slideInRight">Free Quote</a>
    </div>
</div>
</div>
</div>
<div class="owl-carousel-item position-relative">
    
    <div class="position-absolute top-0 start-0 w-100 h-100 d-flex
align-items-center" style="background: rgba(53, 53, 53, .7);">
        <div class="container">
            <div class="row justify-content-center">
                <div class="col-12 col-lg-8 text-center">
                    <h5 class="text-white text-uppercase mb-3
animated slideInDown">Welcome To Woody</h5>
                    <h1 class="display-3 text-white animated
slideInDown mb-4">Best Carpenter & Craftsman Services</h1>
                    <p class="fs-5 fw-medium text-white mb-4 pb-
2">Vero elittr justo clita lorem. Ipsum dolor at sed stet sit diam no. Kasd
rebum ipsum et diam justo clita et kasd rebum sea elittr.</p>
                    <a href="" class="btn btn-primary py-md-3 px-
md-5 me-3 animated slideInLeft">Read More</a>
                    <a href="" class="btn btn-light py-md-3 px-md-
5 animated slideInRight">Free Quote</a>
                </div>
            </div>
        </div>
    </div>
</div>
<div class="owl-carousel-item position-relative">
    
    <div class="position-absolute top-0 start-0 w-100 h-100 d-flex
align-items-center" style="background: rgba(53, 53, 53, .7);">
        <div class="container">
            <div class="row justify-content-center">
                <div class="col-12 col-lg-8 text-center">
                    <h5 class="text-white text-uppercase mb-3
animated slideInDown">Welcome To Woody</h5>
                    <h1 class="display-3 text-white animated
slideInDown mb-4">Best Carpenter & Craftsman Services</h1>
                    <p class="fs-5 fw-medium text-white mb-4 pb-
2">Vero elittr justo clita lorem. Ipsum dolor at sed stet sit diam no. Kasd
rebum ipsum et diam justo clita et kasd rebum sea elittr.</p>
                    <a href="" class="btn btn-primary py-md-3 px-
md-5 me-3 animated slideInLeft">Read More</a>

```

```

        <a href="" class="btn btn-light py-md-3 px-md-
5 animated slideInRight">Free Quote</a>
    </div>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
<!-- Carousel End -->

<!-- Feature Start -->
<div class="container-xxl py-5">
    <div class="container">
        <div class="row g-5">
            <div class="col-md-6 col-lg-3 wow fadeIn" data-wow-delay="0.1s">
                <div class="d-flex align-items-center justify-content-
between mb-2">
                    <div class="d-flex align-items-center justify-content-
center bg-light" style="width: 60px; height: 60px;">
                        <i class="fa fa-user-check fa-2x text-primary"></i>
                    </div>
                    <h1 class="display-1 text-light mb-0">01</h1>
                </div>
                <h5>Creative Designers</h5>
            </div>
            <div class="col-md-6 col-lg-3 wow fadeIn" data-wow-delay="0.3s">
                <div class="d-flex align-items-center justify-content-
between mb-2">
                    <div class="d-flex align-items-center justify-content-
center bg-light" style="width: 60px; height: 60px;">
                        <i class="fa fa-check fa-2x text-primary"></i>
                    </div>
                    <h1 class="display-1 text-light mb-0">02</h1>
                </div>
                <h5>Quality Products</h5>
            </div>
            <div class="col-md-6 col-lg-3 wow fadeIn" data-wow-delay="0.5s">
                <div class="d-flex align-items-center justify-content-
between mb-2">
                    <div class="d-flex align-items-center justify-content-
center bg-light" style="width: 60px; height: 60px;">
                        <i class="fa fa-drafting-compass fa-2x text-
primary"></i>
                    </div>
                    <h1 class="display-1 text-light mb-0">03</h1>
                </div>
                <h5>Free Consultation</h5>

```

```

        </div>
        <div class="col-md-6 col-lg-3 wow fadeIn" data-wow-delay="0.7s">
            <div class="d-flex align-items-center justify-content-
between mb-2">
                <div class="d-flex align-items-center justify-content-
center bg-light" style="width: 60px; height: 60px;">
                    <i class="fa fa-headphones fa-2x text-primary"></i>
                </div>
                <h1 class="display-1 text-light mb-0">04</h1>
            </div>
            <h5>Customer Support</h5>
        </div>
    </div>
</div>
<!-- Feature Start -->

<!-- About Start -->
<div class="container-fluid bg-light overflow-hidden my-5 px-lg-0">
    <div class="container about px-lg-0">
        <div class="row g-0 mx-lg-0">
            <div class="col-lg-6 ps-lg-0" style="min-height: 400px;">
                <div class="position-relative h-100">
                    
                </div>
            </div>
            <div class="col-lg-6 about-text py-5 wow fadeIn" data-wow-
delay="0.5s">
                <div class="p-lg-5 pe-lg-0">
                    <div class="section-title text-start">
                        <h1 class="display-5 mb-4">About Us</h1>
                    </div>
                    <p class="mb-4 pb-2">Tempor erat elitr rebum at clita.
Diam dolor diam ipsum sit. Aliqu diam amet diam et eos. Clita erat ipsum et
lorem et sit, sed stet lorem sit clita duo justo erat amet</p>
                    <div class="row g-4 mb-4 pb-2">
                        <div class="col-sm-6 wow fadeIn" data-wow-
delay="0.1s">
                            <div class="d-flex align-items-center">
                                <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
                                    <i class="fa fa-users fa-2x text-
primary"></i>
                                </div>
                                <div class="ms-3">

```



```

        <h2 class="text-primary mb-1" data-
toggle="counter-up">1234</h2>
        <p class="fw-medium mb-0">Happy
Clients</p>
        </div>
    </div>
</div>
    <div class="col-sm-6 wow fadeIn" data-wow-
delay="0.3s">
        <div class="d-flex align-items-center">
            <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
                <i class="fa fa-check fa-2x text-
primary"></i>
            </div>
            <div class="ms-3">
                <h2 class="text-primary mb-1" data-
toggle="counter-up">1234</h2>
                <p class="fw-medium mb-0">Projects
Done</p>
            </div>
        </div>
    </div>
</div>
    <a href="" class="btn btn-primary py-3 px-5">Explore
More</a>
</div>
</div>
</div>
</div>
</div>
<!-- About End -->

<!-- Service Start -->
<div class="container-xxl py-5">
    <div class="container">
        <div class="section-title text-center">
            <h1 class="display-5 mb-5">Our Services</h1>
        </div>
        <div class="row g-4">
            <div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.1s">
                <div class="service-item">
                    <div class="overflow-hidden">
                        
                    </div>
                </div>
            </div>
        </div>
    </div>
</div>

```

```

        <div class="p-4 text-center border border-5 border-
light border-top-0">
            <h4 class="mb-3">General Carpentry</h4>
            <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
            <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
        </div>
    </div>
</div>
    <div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.3s">
        <div class="service-item">
            <div class="overflow-hidden">
                
            </div>
            <div class="p-4 text-center border border-5 border-
light border-top-0">
                <h4 class="mb-3">Furniture Manufacturing</h4>
                <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
                <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
            </div>
        </div>
    </div>
    <div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.5s">
        <div class="service-item">
            <div class="overflow-hidden">
                
            </div>
            <div class="p-4 text-center border border-5 border-
light border-top-0">
                <h4 class="mb-3">Furniture Remodeling</h4>
                <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
                <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
            </div>
        </div>
    </div>
    <div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.1s">
        <div class="service-item">
            <div class="overflow-hidden">

```

```

        
    </div>
    <div class="p-4 text-center border border-5 border-
light border-top-0">
        <h4 class="mb-3">Wooden Floor</h4>
        <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
        <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
    </div>
</div>
<div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.3s">
    <div class="service-item">
        <div class="overflow-hidden">
            
        </div>
        <div class="p-4 text-center border border-5 border-
light border-top-0">
            <h4 class="mb-3">Wooden Furniture</h4>
            <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
            <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
        </div>
    </div>
</div>
<div class="col-md-6 col-lg-4 wow fadeInUp" data-wow-
delay="0.5s">
    <div class="service-item">
        <div class="overflow-hidden">
            
        </div>
        <div class="p-4 text-center border border-5 border-
light border-top-0">
            <h4 class="mb-3">Custom Work</h4>
            <p>Stet stet justo dolor sed duo. Ut clita sea sit
ipsum diam lorem diam.</p>
            <a class="fw-medium" href="">Read More<i class="fa
fa-arrow-right ms-2"></i></a>
        </div>
    </div>
</div>
</div>

```

```

        </div>
    </div>
    <!-- Service End -->

    <!-- Feature Start -->
    <div class="container-fluid bg-light overflow-hidden my-5 px-lg-0">
        <div class="container feature px-lg-0">
            <div class="row g-0 mx-lg-0">
                <div class="col-lg-6 feature-text py-5 wow fadeIn" data-wow-
delay="0.5s">
                    <div class="p-lg-5 ps-lg-0">
                        <div class="section-title text-start">
                            <h1 class="display-5 mb-4">Why Choose Us</h1>
                        </div>
                        <p class="mb-4 pb-2">Tempor erat elit rebum at clita.
Diam dolor diam ipsum sit. Aliqu diam amet diam et eos. Clita erat ipsum et
lorem et sit, sed stet lorem sit clita duo justo erat amet</p>
                        <div class="row g-4">
                            <div class="col-6">
                                <div class="d-flex align-items-center">
                                    <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
                                        <i class="fa fa-check fa-2x text-
primary"></i>
                                    </div>
                                    <div class="ms-4">
                                        <p class="mb-2">Quality</p>
                                        <h5 class="mb-0">Services</h5>
                                    </div>
                                </div>
                            </div>
                            <div class="col-6">
                                <div class="d-flex align-items-center">
                                    <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
                                        <i class="fa fa-user-check fa-2x text-
primary"></i>
                                    </div>
                                    <div class="ms-4">
                                        <p class="mb-2">Creative</p>
                                        <h5 class="mb-0">Designers</h5>
                                    </div>
                                </div>
                            </div>
                        </div>
                    </div>
                </div>
            </div>
        </div>
    </div>

```

```

        <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
            <i class="fa fa-drafting-compass fa-2x
text-primary"></i>
        </div>
        <div class="ms-4">
            <p class="mb-2">Free</p>
            <h5 class="mb-0">Consultation</h5>
        </div>
    </div>
</div>
<div class="col-6">
    <div class="d-flex align-items-center">
        <div class="d-flex flex-shrink-0 align-
items-center justify-content-center bg-white" style="width: 60px; height:
60px;">
            <i class="fa fa-headphones fa-2x text-
primary"></i>
        </div>
        <div class="ms-4">
            <p class="mb-2">Customer</p>
            <h5 class="mb-0">Support</h5>
        </div>
    </div>
</div>
</div>
</div>
<div class="col-lg-6 pe-lg-0" style="min-height: 400px;">
    <div class="position-relative h-100">
        
    </div>
</div>
</div>
</div>
<!-- Feature End -->

<!-- Projects Start -->
<div class="container-xxl py-5">
    <div class="container">
        <div class="section-title text-center">
            <h1 class="display-5 mb-5">Our Projects</h1>
        </div>
        <div class="row mt-n2 wow fadeInUp" data-wow-delay="0.3s">
            <div class="col-12 text-center">

```

```

        <ul class="list-inline mb-5" id="portfolio-filters">
            <li class="mx-2 active" data-filter="*">All</li>
            <li class="mx-2" data-filter=".first">General
Carpentry</li>
            <li class="mx-2" data-filter=".second">Custom
Carpentry</li>
        </ul>
    </div>
</div>
<div class="row g-4 portfolio-container">
    <div class="col-lg-4 col-md-6 portfolio-item first wow fadeInUp"
data-wow-delay="0.1s">
        <div class="rounded overflow-hidden">
            <div class="position-relative overflow-hidden">
                
                <div class="portfolio-overlay">
                    <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-1.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                    <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
                </div>
            </div>
            <div class="border border-5 border-light border-top-0
p-4">
                <p class="text-primary fw-medium mb-2">General
Carpentry</p>
                <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
            </div>
        </div>
    </div>
    <div class="col-lg-4 col-md-6 portfolio-item second wow
fadeInUp" data-wow-delay="0.3s">
        <div class="rounded overflow-hidden">
            <div class="position-relative overflow-hidden">
                
                <div class="portfolio-overlay">
                    <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-2.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                    <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
                </div>
            </div>
        </div>
    </div>

```

```

        <div class="border border-5 border-light border-top-0
p-4">
            <p class="text-primary fw-medium mb-2">Custom
Carpentry</p>
            <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
        </div>
    </div>
</div>
<div class="col-lg-4 col-md-6 portfolio-item first wow fadeInUp"
data-wow-delay="0.5s">
    <div class="rounded overflow-hidden">
        <div class="position-relative overflow-hidden">
            
            <div class="portfolio-overlay">
                <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-3.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
            </div>
        </div>
        <div class="border border-5 border-light border-top-0
p-4">
            <p class="text-primary fw-medium mb-2">General
Carpentry</p>
            <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
        </div>
    </div>
</div>
<div class="col-lg-4 col-md-6 portfolio-item second wow
fadeInUp" data-wow-delay="0.1s">
    <div class="rounded overflow-hidden">
        <div class="position-relative overflow-hidden">
            
            <div class="portfolio-overlay">
                <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-4.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
            </div>
        </div>
        <div class="border border-5 border-light border-top-0
p-4">

```

```

        <p class="text-primary fw-medium mb-2">Custom
Carpentry</p>
        <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
        </div>
    </div>
</div>
<div class="col-lg-4 col-md-6 portfolio-item first wow fadeInUp"
data-wow-delay="0.3s">
    <div class="rounded overflow-hidden">
        <div class="position-relative overflow-hidden">
            
            <div class="portfolio-overlay">
                <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-5.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
            </div>
        </div>
        <div class="border border-5 border-light border-top-0
p-4">
            <p class="text-primary fw-medium mb-2">General
Carpentry</p>
            <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
            </div>
        </div>
    </div>
<div class="col-lg-4 col-md-6 portfolio-item second wow
fadeInUp" data-wow-delay="0.5s">
    <div class="rounded overflow-hidden">
        <div class="position-relative overflow-hidden">
            
            <div class="portfolio-overlay">
                <a class="btn btn-square btn-outline-light mx-
1" href="img/portfolio-6.jpg" data-lightbox="portfolio"><i class="fa fa-
eye"></i></a>
                <a class="btn btn-square btn-outline-light mx-
1" href=""><i class="fa fa-link"></i></a>
            </div>
        </div>
        <div class="border border-5 border-light border-top-0
p-4">
            <p class="text-primary fw-medium mb-2">Custom
Carpentry</p>

```



```

        <h5 class="lh-base mb-0">Wooden Furniture
Manufacturing And Remodeling</a>
    </div>
</div>
</div>
</div>
</div>
<!-- Projects End -->

<!-- Quote Start -->
<div class="container-fluid bg-light overflow-hidden my-5 px-lg-0">
    <div class="container quote px-lg-0">
        <div class="row g-0 mx-lg-0">
            <div class="col-lg-6 ps-lg-0" style="min-height: 400px;">
                <div class="position-relative h-100">
                    
                </div>
            </div>
            <div class="col-lg-6 quote-text py-5 wow fadeIn" data-wow-
delay="0.5s">
                <div class="p-lg-5 pe-lg-0">
                    <div class="section-title text-start">
                        <h1 class="display-5 mb-4">Free Quote</h1>
                    </div>
                    <p class="mb-4 pb-2">Tempor erat elittr rebum at clita.
Diam dolor diam ipsum sit. Aliqu diam amet diam et eos. Clita erat ipsum et
lorem et sit, sed stet lorem sit clita duo justo erat amet</p>
                    <form>
                        <div class="row g-3">
                            <div class="col-12 col-sm-6">
                                <input type="text" class="form-control
border-0" placeholder="Your Name" style="height: 55px;">
                            </div>
                            <div class="col-12 col-sm-6">
                                <input type="email" class="form-control
border-0" placeholder="Your Email" style="height: 55px;">
                            </div>
                            <div class="col-12 col-sm-6">
                                <input type="text" class="form-control
border-0" placeholder="Your Mobile" style="height: 55px;">
                            </div>
                            <div class="col-12 col-sm-6">
                                <select class="form-select border-0"
style="height: 55px;">
                                    <option selected>Select A Service</option>
                                    <option value="1">Service 1</option>
                                </select>
                            </div>
                        </div>
                    </form>
                </div>
            </div>
        </div>
    </div>
</div>

```

```

        <option value="2">Service 2</option>
        <option value="3">Service 3</option>
    </select>
</div>
<div class="col-12">
    <textarea class="form-control border-0"
placeholder="Special Note"></textarea>
</div>
<div class="col-12">
    <button class="btn btn-primary w-100 py-3"
type="submit">Submit</button>
</div>
</div>
</form>
</div>
</div>
</div>
</div>
</div>
<!-- Quote End -->

<!-- Team Start -->
<div class="container-xxl py-5">
    <div class="container">
        <div class="section-title text-center">
            <h1 class="display-5 mb-5">Team Members</h1>
        </div>
        <div class="row g-4">
            <div class="col-lg-3 col-md-6 wow fadeInUp" data-wow-
delay="0.1s">
                <div class="team-item">
                    <div class="overflow-hidden position-relative">
                        
                        <div class="team-social">
                            <a class="btn btn-square" href=""><i class="fab
fa-facebook-f"></i></a>
                            <a class="btn btn-square" href=""><i class="fab
fa-twitter"></i></a>
                            <a class="btn btn-square" href=""><i class="fab
fa-instagram"></i></a>
                        </div>
                    </div>
                </div>
                <div class="text-center border border-5 border-light
border-top-0 p-4">
                    <h5 class="mb-0">Full Name</h5>
                    <small>Designation</small>
                </div>
            </div>
        </div>
    </div>

```

```

        </div>
        <div class="col-lg-3 col-md-6 wow fadeInUp" data-wow-
delay="0.3s">
            <div class="team-item">
                <div class="overflow-hidden position-relative">
                    
                    <div class="team-social">
                        <a class="btn btn-square" href=""><i class="fab
fa-facebook-f"></i></a>
                        <a class="btn btn-square" href=""><i class="fab
fa-twitter"></i></a>
                        <a class="btn btn-square" href=""><i class="fab
fa-instagram"></i></a>
                    </div>
                </div>
                <div class="text-center border border-5 border-light
border-top-0 p-4">
                    <h5 class="mb-0">Full Name</h5>
                    <small>Designation</small>
                </div>
            </div>
        </div>
        <div class="col-lg-3 col-md-6 wow fadeInUp" data-wow-
delay="0.5s">
            <div class="team-item">
                <div class="overflow-hidden position-relative">
                    
                    <div class="team-social">
                        <a class="btn btn-square" href=""><i class="fab
fa-facebook-f"></i></a>
                        <a class="btn btn-square" href=""><i class="fab
fa-twitter"></i></a>
                        <a class="btn btn-square" href=""><i class="fab
fa-instagram"></i></a>
                    </div>
                </div>
                <div class="text-center border border-5 border-light
border-top-0 p-4">
                    <h5 class="mb-0">Full Name</h5>
                    <small>Designation</small>
                </div>
            </div>
        </div>
        <div class="col-lg-3 col-md-6 wow fadeInUp" data-wow-
delay="0.7s">
            <div class="team-item">
                <div class="overflow-hidden position-relative">
                    

```

```

        <div class="team-social">
            <a class="btn btn-square" href=""><i class="fab
fa-facebook-f"></i></a>
            <a class="btn btn-square" href=""><i class="fab
fa-twitter"></i></a>
            <a class="btn btn-square" href=""><i class="fab
fa-instagram"></i></a>
        </div>
    </div>
    <div class="text-center border border-5 border-light
border-top-0 p-4">
        <h5 class="mb-0">Full Name</h5>
        <small>Designation</small>
    </div>
</div>
</div>
</div>
</div>
</div>
<!-- Team End -->

<!-- Testimonial Start -->
<div class="container-xxl py-5 wow fadeInUp" data-wow-delay="0.1s">
    <div class="container">
        <div class="section-title text-center">
            <h1 class="display-5 mb-5">Testimonial</h1>
        </div>
        <div class="owl-carousel testimonial-carousel">
            <div class="testimonial-item text-center">
                
                <div class="testimonial-text text-center p-4">
                    <p>Clita clita tempor justo dolor ipsum amet kasd amet
duo justo duo duo labore sed sed. Magna ut diam sit et amet stet eos sed clita
erat magna elit erat sit sit erat at rebum justo sea clita.</p>
                    <h5 class="mb-1">Client Name</h5>
                    <span class="fst-italic">Profession</span>
                </div>
            </div>
            <div class="testimonial-item text-center">
                
                <div class="testimonial-text text-center p-4">
                    <p>Clita clita tempor justo dolor ipsum amet kasd amet
duo justo duo duo labore sed sed. Magna ut diam sit et amet stet eos sed clita
erat magna elit erat sit sit erat at rebum justo sea clita.</p>
                    <h5 class="mb-1">Client Name</h5>
                    <span class="fst-italic">Profession</span>

```

```

        </div>
    </div>
    <div class="testimonial-item text-center">
        
        <div class="testimonial-text text-center p-4">
            <p>Clita clita tempor justo dolor ipsum amet kasd amet
duo justo duo duo labore sed sed. Magna ut diam sit et amet stet eos sed clita
erat magna elit erat sit sit erat at rebum justo sea clita.</p>
            <h5 class="mb-1">Client Name</h5>
            <span class="fst-italic">Profession</span>
        </div>
    </div>
</div>
</div>
</div>
<!-- Testimonial End -->

<!-- Footer Start -->
<div class="container-fluid bg-dark text-light footer mt-5 pt-5 wow fadeIn"
data-wow-delay="0.1s">
    <div class="container py-5">
        <div class="row g-5">
            <div class="col-lg-3 col-md-6">
                <h4 class="text-light mb-4">Address</h4>
                <p class="mb-2"><i class="fa fa-map-marker-alt me-3"></i>123
Street, New York, USA</p>
                <p class="mb-2"><i class="fa fa-phone-alt me-3"></i>+012
345 67890</p>
                <p class="mb-2"><i class="fa fa-envelope me-
3"></i>info@example.com</p>
            <div class="d-flex pt-2">
                <a class="btn btn-outline-light btn-social" href=""><i
class="fab fa-twitter"></i></a>
                <a class="btn btn-outline-light btn-social" href=""><i
class="fab fa-facebook-f"></i></a>
                <a class="btn btn-outline-light btn-social" href=""><i
class="fab fa-youtube"></i></a>
                <a class="btn btn-outline-light btn-social" href=""><i
class="fab fa-linkedin-in"></i></a>
            </div>
        </div>
        <div class="col-lg-3 col-md-6">
            <h4 class="text-light mb-4">Services</h4>
            <a class="btn btn-link" href="">General Carpentry</a>
            <a class="btn btn-link" href="">Furniture Remodeling</a>
            <a class="btn btn-link" href="">Wooden Floor</a>
            <a class="btn btn-link" href="">Wooden Furniture</a>

```

```

        <a class="btn btn-link" href="">Custom Carpentry</a>
    </div>
    <div class="col-lg-3 col-md-6">
        <h4 class="text-light mb-4">Quick Links</h4>
        <a class="btn btn-link" href="">About Us</a>
        <a class="btn btn-link" href="">Contact Us</a>
        <a class="btn btn-link" href="">Our Services</a>
        <a class="btn btn-link" href="">Terms & Condition</a>
        <a class="btn btn-link" href="">Support</a>
    </div>
    <div class="col-lg-3 col-md-6">
        <h4 class="text-light mb-4">Newsletter</h4>
        <p>Dolor amet sit justo amet elitr clita ipsum elitr
est.</p>
        <div class="position-relative mx-auto" style="max-width:
400px;">
            <input class="form-control border-0 w-100 py-3 ps-4
pe-5" type="text" placeholder="Your email">
            <button type="button" class="btn btn-primary py-2
position-absolute top-0 end-0 mt-2 me-2">SignUp</button>
        </div>
    </div>
</div>
</div>
<div class="container">
    <div class="copyright">
        <div class="row">
            <div class="col-md-6 text-center text-md-start mb-3 mb-md-
0">
                &copy; <a class="border-bottom" href="#">Your Site
Name</a>, All Right Reserved.
            </div>
            <div class="col-md-6 text-center text-md-end">
                <!--/** This template is free as long as you keep the
footer author's credit link/attribution link/backlink. If you'd like to use
the template without the footer author's credit link/attribution link/backlink,
you can purchase the Credit Removal License from "https://htmlcodex.com/credit-
removal". Thank you for your support. ***/-->
                Designed By <a class="border-bottom"
href="https://htmlcodex.com">HTML Codex</a>
            </div>
        </div>
    </div>
</div>
</div>
<!-- Footer End -->

<!-- Back to Top -->

```

```
<a href="#" class="btn btn-lg btn-primary btn-lg-square rounded-0 back-to-top"><i class="bi bi-arrow-up"></i></a>

<!-- JavaScript Libraries -->
<script src="https://code.jquery.com/jquery-3.4.1.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/js/bootstrap.bundle.min.js"></script>
<script src="lib1/wow/wow.min.js"></script>
<script src="lib1/easing/easing.min.js"></script>
<script src="lib1/waypoints/waypoints.min.js"></script>
<script src="lib1/counterup/counterup.min.js"></script>
<script src="lib1/owlcarousel/owl.carousel.min.js"></script>
<script src="lib1/isotope/isotope.pkgd.min.js"></script>
<script src="lib1/lightbox/js/lightbox.min.js"></script>

<!-- Template Javascript -->
<script src="js1/main.js"></script>
</body>

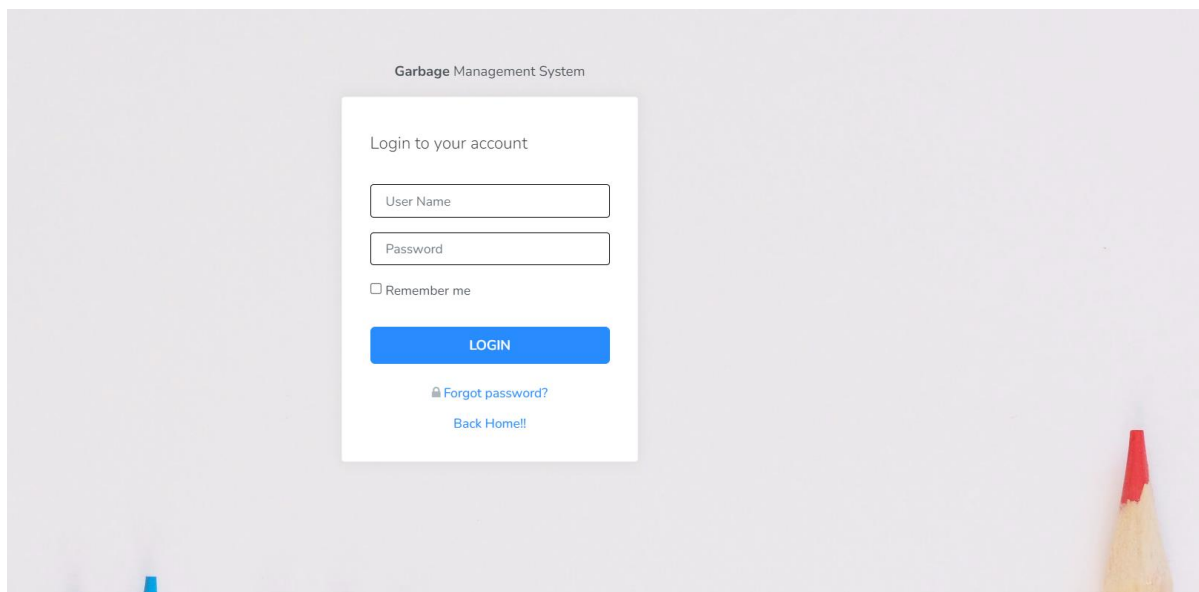
</html>
```

## APPENDIX-B

### SCREENSHOTS



**Figure.1. Home page**



**Figure.2. Login page**



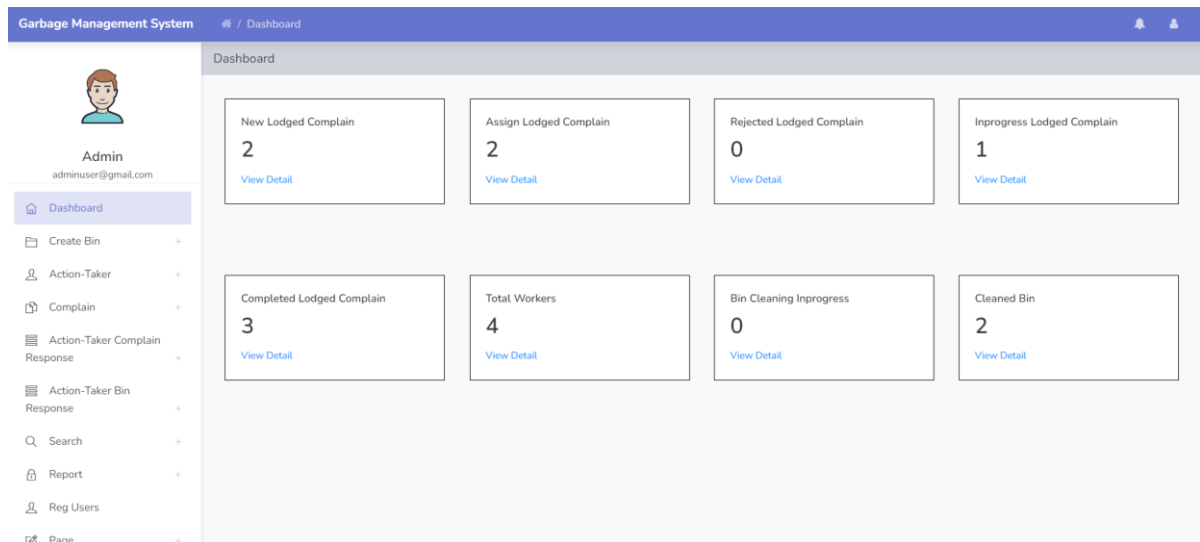


Figure.3. Admin page

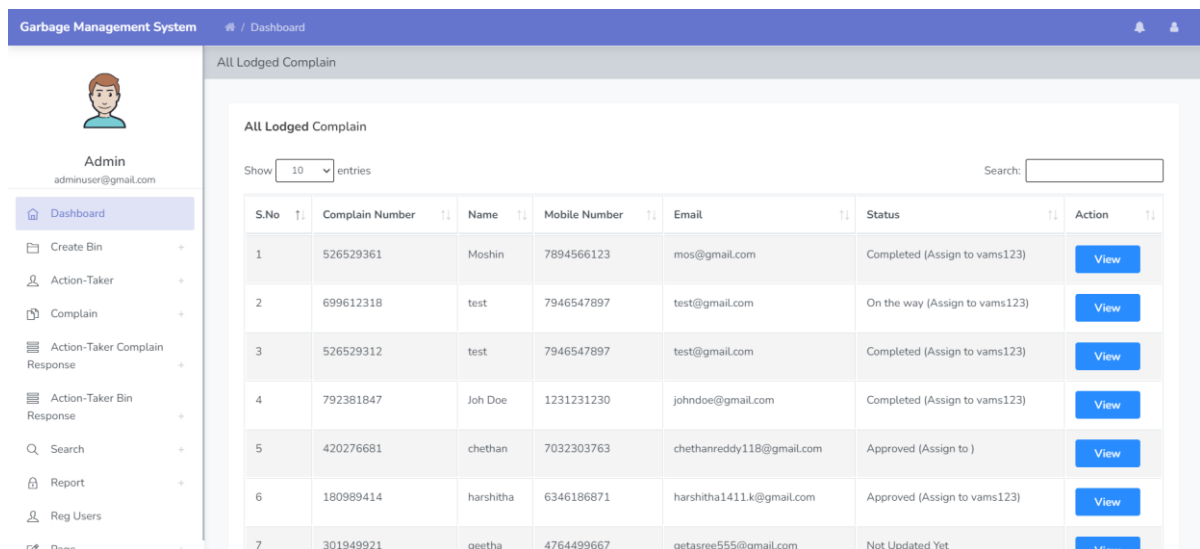


Figure.4. Lodged Complain

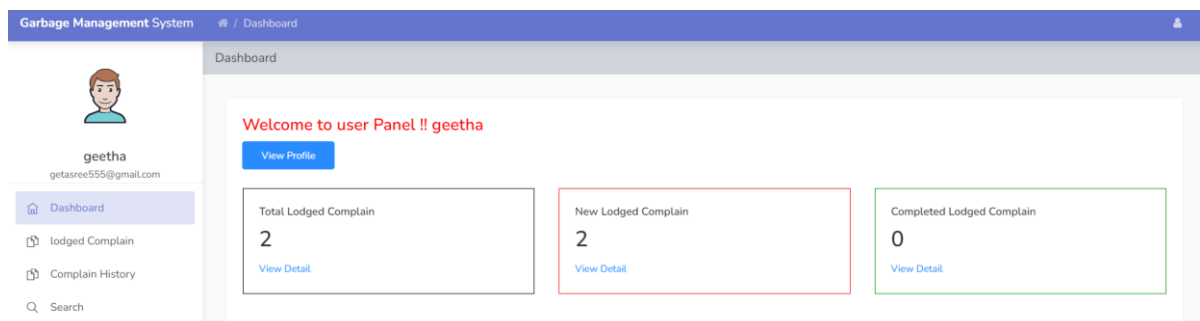


Figure.5. User Page

Pollution Management System / Dashboard

adminuser@gmail.com

- Dashboard
- Complain
- Search
- Report
- Reg Users
- Page

Mobile Number	1231231230	Address of Garbage	dhahdialwdje17371854
Area	dhfv	Locality	hdbfhjdjf
Landmark	fncdskufh	Note	No Notes
Image			
Assign To	test123	Complain Date	2024-12-17 12:22:58
Complain Final Status	Your request has been approved	Admin Remark	Approved

Tracking History

#	Remark	Status	Time
1	Task Approved	Approved	2024-12-17 12:25:21

Take Action

Figure.6. Lodging Complain

Pollution Management System / Dashboard

adminuser@gmail.com

- Dashboard
- Complain
- Search
- Report
- Reg Users
- Page

Mobile Number	1231231230	Address of Garbage	dhahdialwdje17371854
Area	dhfv	Locality	hdbfhjdjf
Landmark	fncdskufh	Note	No Notes
Image			
Assign To	test123	Complain Date	2024-12-17 12:22:58
Complain Final Status	Your request has been approved	Admin Remark	Approved

Tracking History

#	Remark	Status	Time
1	Task Approved	Approved	2024-12-17 12:25:21

Take Action

Remark :

Completed

Assign to :

Assign Date :

Status :

Close Update

Figure.7. Admin assigns the Complain to Action taker

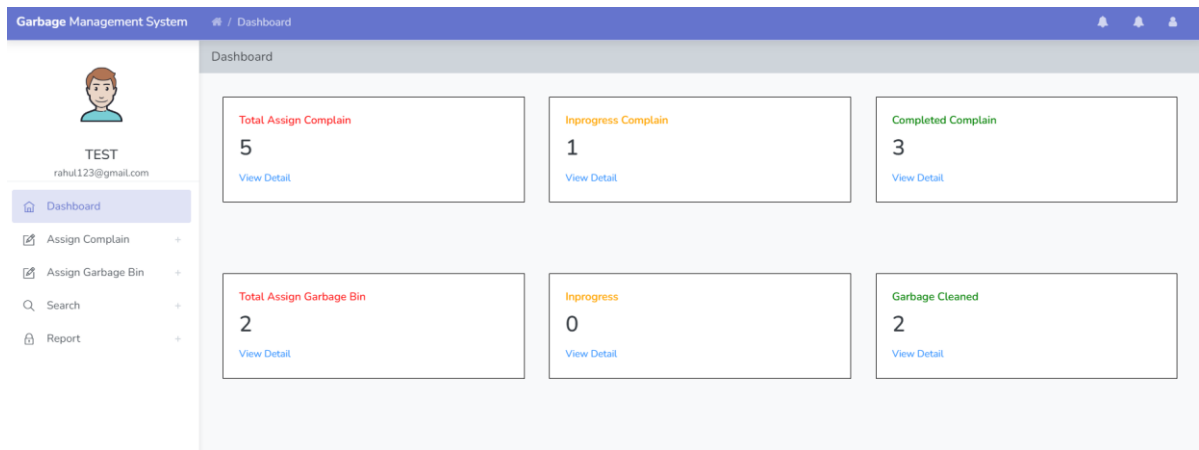


Figure.8. Action Taker's Home page

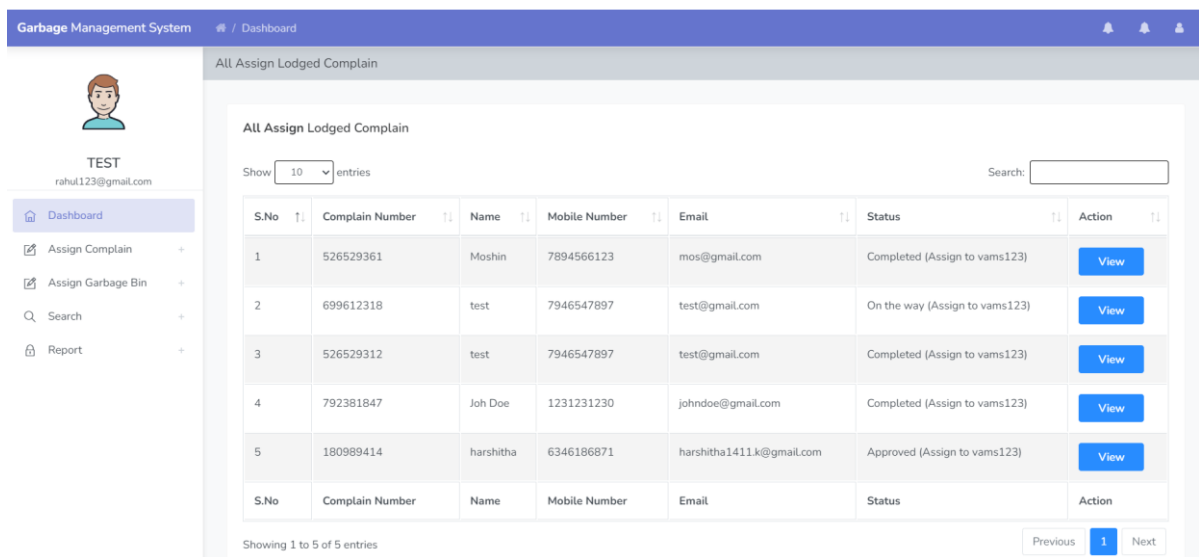


Figure.9. All assigned lodged complains

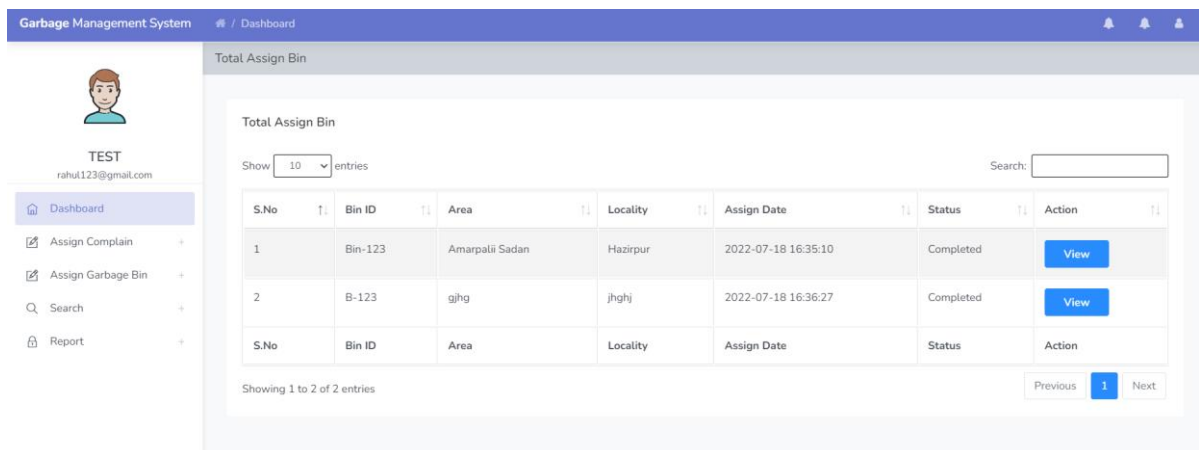


Figure.10. Complain in Bin

## APPENDIX-C

## ENCLOSURES

### Publication Certificate





Figure.11 Certificate

## Similarity Index

Akkamahadevi Final\_report 2

### ORIGINALITY REPORT

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Figure.12 Plagiarism Check report

## SDG Mapping

This project aligns with SDG-13: Climate Action



**Figure.13 SDG**

By empowering communities to actively report and prioritize environmental pollution, a key contributor to climate change. By enabling real-time reporting, raising public awareness, and facilitating prompt government response, the platform drives local actions to reduce pollution, fostering a cleaner environment and supporting global climate resilience efforts.