

# AGB1211 – DESIGN THINKING

## Department of Artificial Intelligence and Data Science Academic Year: 2024 – 2025 (Odd Semester)

**Year** : II  
**Semester** : III  
**Section** : A  
**Date** : 05/12/24

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# Title of the Project

## WASTE AND SUSTAINABILITY IN HOSTEL

# Problem Identification

## The Growing Issue of Waste in Hostels :

Excessive waste generation from food, packaging, and personal items.

Lack of proper waste segregation and recycling systems.

Environmental impact due to inefficient waste management practices.

## Proposed solution:

Sends notifications to encourage sustainable practices.

Tracks and improves waste segregation efforts.

Encourages collective action through friendly challenges.

# Objective

To implement and promote sustainable waste management practices within the hostel, aiming to minimize waste generation, maximize recycling and composting efforts, and reduce the overall environmental footprint.

This will be achieved by raising awareness among hostel residents, providing adequate facilities for waste segregation, and encouraging energy and water conservation, with the goal of creating a greener and more sustainable living environment.

# BrainStorming

## KEYWORDS

### Waste Management

Recycling  
Composting  
Waste segregation  
Waste reduction initiatives  
Zero waste

### Energy Efficiency and Renewable Energy

Energy efficiency  
Renewable energy  
Solar power  
Carbon footprint

### Community And Environmental Engagement

Digital detox  
Community gardens  
Upcycling

### Sustainable Practices

Sustainable sourcing  
Green cleaning  
Eco-friendly amenities  
Biodegradable products  
Green certifications

### Water Conservation

Greywater systems  
Low-flow fixtures



# Mind Map



# Primary Research

Conducted surveys among hostel residents to understand waste habits.

## KEY FINDINGS :

- i) 60% residents are unaware of proper waste segregation.
- ii) Common sources of waste include food, plastics, and paper.
- iii) Interviews with hostel staff regarding waste disposal challenges.

# Secondary Research

- Data on global hostel waste generation and its environmental impact.
- Case studies of sustainable hostels implementing green practices.
- Importance of reducing hostel carbon footprint for a sustainable future.



# Proposed Work

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**Daily Tasks :** Log waste segregation activities, provide reminders, and track progress.

**Service :** Request waste pickup, view schedules, and give feedback.

**Mail and Complain :** Report issues, track resolution status, and suggest improvements.

**General Features :** User profiles, eco-tips via the info button, and responsive design.

# List of Modules

1. LOGIN MODULE
2. TASK MANAGEMENT MODULE
3. USER FEEDBACK & COMPLAINTS MODULE
4. USER COMMUNICATION & AWARENESS MODULE

# Module 1 Description

## LOGIN MODULE

### Purpose

- Provide secure access for users to the waste management system.
- Ensure personalized features based on user roles.

### Implementation

- Use email and password-based authentication or single sign-on (SSO).
- Allow role-based access (resident, staff, management) for specific features.
- Include a "Forgot Password" feature for recovery.

### Innovations

- Multi-factor authentication for enhanced security.
- Biometric login option for quick and secure access.

# Module 2 Description

## TASK MANAGEMENT MODULE

### Purpose

- Assign and track daily waste management tasks for hostel staff and students.

### Implementation

- Create task lists with deadlines for segregation, recycling, and disposal.
- Enable reminders and notifications for pending tasks.

### Innovations

- AI-based task optimization based on past task completion data.
- Integration with calendars for task scheduling.

# Module 3 Description

## USER FEEDBACK & COMPLAINTS MODULE

### Purpose

- Provide a platform for hostel residents to submit feedback or complaints about waste management services.

### Implementation

- Enable a "Mail and Complain" feature for users to voice concerns.
- Allow attachments (e.g., photos of uncollected waste) for detailed reports.

### Innovations

- AI analysis of complaints to identify common issues and prioritize resolutions.
- Automated acknowledgment and progress tracking for complaints.



# Module 4 Description (Cont..)

## USER COMMUNICATION & AWARENESS MODULE

### Purpose

- Educate residents about sustainable practices and provide updates about hostel waste management.

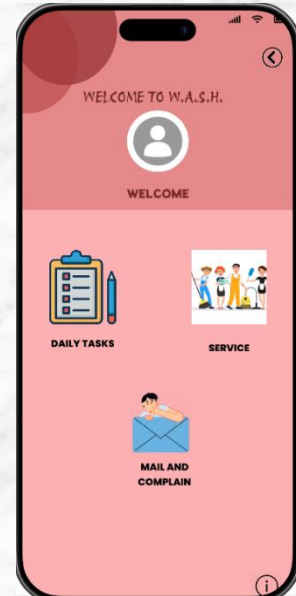
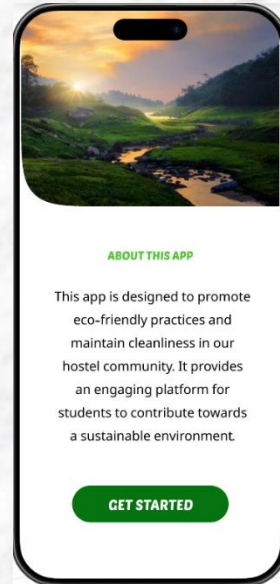
### Implementation

- Use the app to display daily tips and progress reports on waste reduction.
- Send notifications about upcoming recycling drives or initiatives.

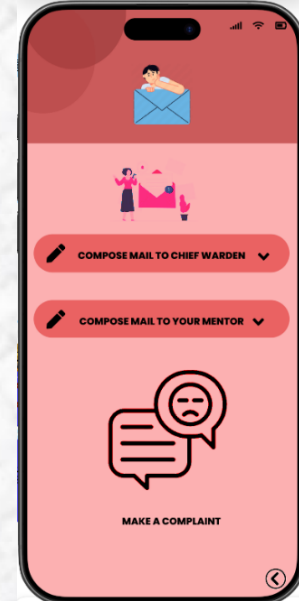
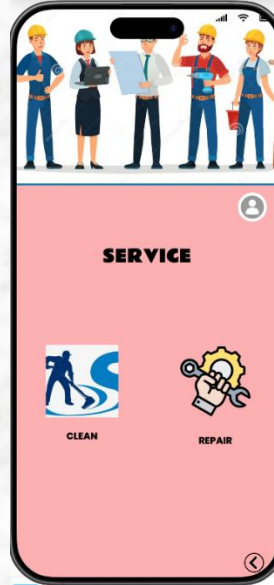
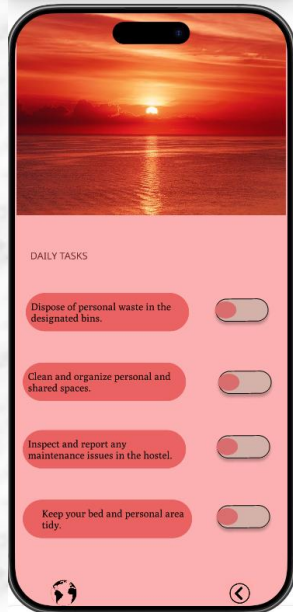
### Innovations

- Interactive graphs showing individual contributions to waste reduction.
- Gamification: rewards for sustainable practices.

# Results



# Results



# Conclusion

The Waste and Sustainability Management System promotes eco-friendly practices and efficient waste management in hostels through modern technologies like mobile apps, gamification, and real-time tracking. It addresses challenges in waste segregation and disposal with interactive guides, personalized notifications, and smart alerts, ensuring timely and effective waste management. For staff, centralized dashboards and collection trackers streamline operations and reduce the environmental footprint. Management benefits from data-driven insights and carbon footprint reports for informed decisions. Gamified features, such as eco-challenges and rewards, encourage resident engagement and foster a culture of sustainability. This system enhances operational efficiency, promotes environmental awareness, and builds a sense of community among residents, enabling hostels to reduce waste output and achieve sustainability goals.

# Thank You

## ANY QUERIES???