SMART INDIA HACKATHON 2024

Problem Statement ID – SIH1751

Problem Statement Title – Dashboard for Swachhta and LiFE. Develop a dashboard aimed at maintaining cleanliness and LiFE practices, integrating AI-powered image processing technology for effective monitoring of Swachhta and green practices adopted in post offices.

Theme – Clean & Green Technology

PS Category – Software

Team ID – 586

Team Name – TERMINATORS

Survey Overview

Team Terminators from Amrutvahini College of Engineering conducted a field visit to Sangamner Post Office as part of research for the Smart India Hackathon project "ShuddhiNetra Nirikshak." The aim was to gather insights into the current state of cleanliness, adherence to Swachhta protocols, and implementation of Lifestyle for Environment (LiFE) practices. The visit involved a survey with the post office employees to understand the challenges and deviations from prescribed cleanliness and green growth standards.

Objective

To assess the effectiveness of the Swachhta Action Plan (SAP) 2024 and the green growth practices followed by the Sangamner Post Office. The focus was to identify pain points regarding cleanliness and waste management to inform the development of the proposed AI-driven dashboard and monitoring system.

Survey Methodology

A Google Form survey was distributed to the employees, focusing on cleanliness, waste management, and adherence to environmental practices. The survey consisted of multiple-choice questions, open-ended queries, and ratings to gather both qualitative and quantitative data.

Survey Questions

- **Cleanliness Rating**: Employees were asked to rate the current cleanliness level in their office.
  - Excellent, Better, Good, Satisfied, Poor.

- **Types of Waste Observed**: Common types of waste in the office environment were identified.
  - Paper Waste, Plastic Waste, Organic Waste, Glass Waste, Metal Waste.

- **Waste Accumulation Areas**: Key areas where waste tends to accumulate most frequently were highlighted.
  - Workstations, Cafeteria, Meeting Rooms, Restrooms, Common Areas.

- **Types of Paper Waste**: Detailed categorization of paper waste (Envelopes, Receipts, Newspapers, etc.) and plastic waste (Packaging, Envelopes, Plastic Tape) was covered.

Key Findings

1. **Cleanliness Levels**:

   - **Better (45%)**: The majority of employees found the cleanliness of the post office satisfactory, with room for improvement.

   - **Good (30%)**: Some staff felt the cleanliness met basic standards.

   - **Poor (15%)**: A minority expressed dissatisfaction with cleanliness, especially in common areas.

2. **Common Waste Types**:

   - **Paper Waste (60%)**: Receipts, letters, and forms were the most common forms of paper waste, which often went uncollected in specific areas like desks and counters.

   - **Plastic Waste (40%)**: Plastic wrappers and packaging from supplies were seen as frequent waste items, especially near the workstation and inventory areas.

   - **Organic Waste (25%)**: In the cafeteria, food waste and leftover packaging were often found in bins, but inadequate disposal methods were noted.

3. **Areas of Waste Accumulation**:

   - **Workstations/Desks (50%)**: Employees reported that the most frequent waste buildup occurred around their desks, especially paper and plastic waste.

   - **Restrooms (20%)**: Restrooms often lacked regular cleaning, leading to unhygienic conditions.

   - **Common Areas (30%)**: Hallways and lounges were also noted for accumulating waste, especially during peak office hours.

4. **Challenges in Waste Management**:

   - **Irregular Collection**: Employees noted that waste, particularly paper and plastic, was not consistently collected. This resulted in clutter, particularly at individual workstations.

   - **Lack of Green Initiatives**: Many felt that green growth protocols were not sufficiently implemented, with inadequate training and resources for recycling and waste segregation.

   - **Manual Monitoring Burden**: The post office staff highlighted the challenges of manual waste monitoring, leading to inefficiency and delayed cleanup.

Conclusion

The survey results indicated a clear need for enhanced waste management protocols and adherence to Swachhta and LiFE standards at the Sangamner Post Office. Employees reported that while basic cleanliness standards were met, there were consistent challenges with waste buildup, particularly paper and plastic waste. The lack of systematic waste collection, along with minimal implementation of green growth practices, created room for improvement.

These findings align with the focus of Team Terminators' solution, "ShuddhiNetra Nirikshak." Our AI-powered dashboard can significantly alleviate manual efforts, providing real-time insights and alerts to improve Swachhta standards. The automated monitoring system will enhance post office operations by tracking cleanliness and green practices more efficiently.

By implementing the proposed solution, Sangamner Post Office could become a model for Swachhta and environmental compliance across the network. The solution addresses key challenges identified in the survey, particularly in waste accumulation and resource allocation for maintaining clean, green office spaces.