WASTE SEGREGATION, DISPOSAL, AND IMPROVE SANITATION SYSTEM

Project Proposal

SIH1474

Clean & Green Technology

PROPOSED IDEA / PROTOTYPE

Problem Statement:
Ineffective waste management leads to environmental degradation, public health concerns, and financial burdens. Improper segregation of waste hinders recycling initiatives and increases landfill pressure.

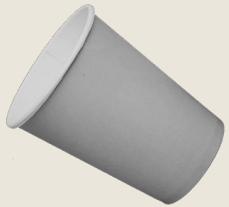
Proposed Solution:
Our smart waste bin addresses these challenges by:

- **Automated Segregation:** Employing a combination of sensors (ultrasonic, weight) and image recognition, the system identifies and separates dry waste (recyclables), wet waste (organics), and potentially other relevant categories based on user location.
- **Real-Time Data Collection and Analysis:** IoT sensors monitor bin fill level, weight, and other parameters. This data is wirelessly transmitted for real-time analysis, enabling optimized waste collection routes and improved resource allocation.
- **User-Centric Design:** Users can remotely monitor bin status and receive alerts for maintenance through a dedicated mobile application. This fosters responsible waste disposal habits.
- **Scalable and Modular Design:** The system is designed for modularity and scalability, allowing for seamless integration into existing waste management infrastructure.

PROJECT WORKFLOW

Smart Waste BIN

User Disposes Waste



Segregate

Dry Waste

Collects Dry Wastes.

Organic Waste

Collects Wet Wastes.

MONITORING

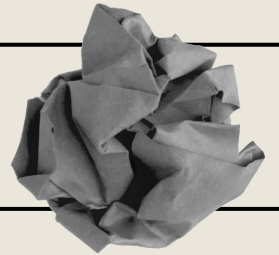
Tracking

Monitor bin fill level, weight, and other parameters.

Alerting

Alerting for efficient waste management

USE CASES



Residential Waste Management:

- Installation in residential areas for waste segregation and disposal.
- Automatic segregation of dry and wet waste using sensors.
- Diversion of waste into separate compartments within the bin.
- Continuous monitoring of fill level and composition.
- Data collection on weight and height of waste.
- Remote monitoring through a mobile app or web dashboard.
- Alert system for maintenance and capacity reach.

Commercial Waste Management:

- Deployment in commercial establishments like restaurants or offices.
- Improvement of waste management practices.
- Promotion of sustainability.
- Automatic segregation of waste upon disposal.
- Real-time monitoring of fill level and composition.
- Data collection for analysis.
- Remote monitoring and alert system for maintenance.

SHOW STOPPER / TECH STACK

Dependencies / Show Stopper

We need to ensure availability of essential hardware components such as sensors, actuators, and microcontrollers for the smart dustbin, along with reliable weight and height sensors for accurate data collection. Additionally, software development tools and skilled developers proficient in relevant programming languages are crucial for sensor data processing, IoT communication, and user interface development.

Tech Stack :

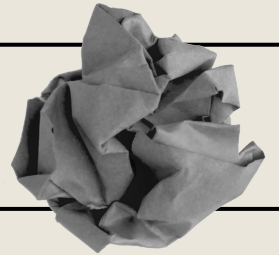
Hardware:

- Sensors (UV, Moisture, etc.)
- Actuators
- Arduino (Microcontroller)
- Weight Sensors

Software:

- Sensor Data Processing
- IoT Communication
- Data Analytics
- Cloud Platform

TEAM MEMBERS



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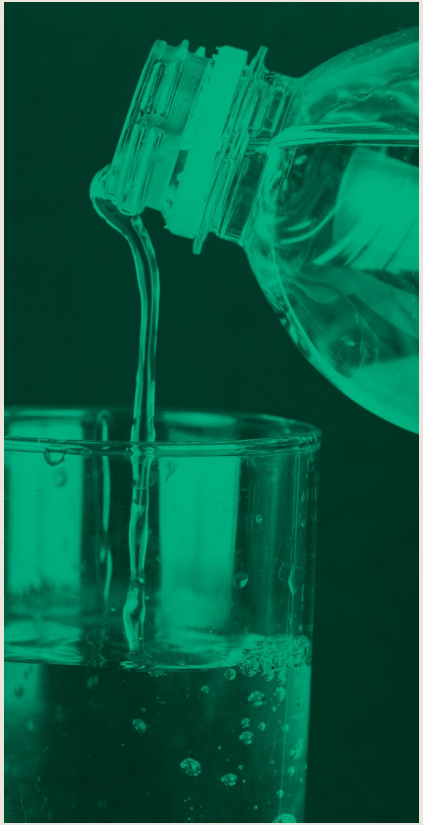

Thank YOU!