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Data Science

WasteGuard: A System for Monitoring and Reducing Food Waste

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Project Guide
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1. Introduction

A Food Waste Tracking and Reduction System is an application that helps individuals, households track, manage, and reduce food waste. It can be designed to monitor food consumption patterns This system can be particularly useful for improving sustainability efforts.

Problem Identified :

Rapid urbanization and industrialization have led to a significant increase in waste generation. Traditional waste management systems often struggle to cope with this volume, leading to issues such as:

- **Limited public awareness:** Many people are not aware of proper waste disposal practices or the importance of recycling.
- **Inadequate infrastructure:** Some areas may lack proper waste collection and processing facilities.

Solution Proposed :

To address these challenges, a smart waste management system can be implemented, incorporating the following features:

- **Data analytics and reporting:** The system can generate data on waste generation, collection efficiency, and recycling rates, which can be used to improve decision-making and resource allocation.
- **Reducing food waste:** Implementing strategies to minimize food waste at the household and commercial levels.

2. Objectives

1. **To Track Food Waste**:
   Allow users to log food waste entries by adding the type of food and quantity wasted (e.g., expired, leftover, spoiled).
2. **To Monitor Food Stock**:
   Enable users to add and track food items in their stock.
3. **To Generate Reports**:
   Provides detailed reports on food waste, including Total quantity of food wasted.
   Generate statistical reports with visualizations (e.g., bar charts, pie charts)
4. **To Raise Awareness**:
   Help users understand the impact of food waste by providing insights into their waste patterns.

3. Scope

Recycling companies : Developing new products and applications for food waste, such as food waste-based packaging or textiles.

Food Waste Tracking Apps: These apps can help consumers monitor their food waste and make informed decisions about purchasing and consumption.

Food Waste Management Companies: These companies can provide innovative solutions and services for food waste collection, processing, and valorization.

4. Feature /Functionality

1. Food Waste Logging

- Allows users to log food waste by entering details such as the food item name, quantity wasted, and reason for waste (e.g., expired, leftover, spoiled). Data is stored for future analysis and reporting.

2. Food Stock Management

- Enables users to add, update, and track food items in their stock. Automatically adjusts stock levels when food is wasted or consumed, helping users manage inventory effectively.

3. Database Integration

- Stores all data (waste logs, stock details) in a database SQLite for persistence and scalability.

4. Feature /Functionality

4. Waste Reports

- Generates detailed reports on food waste, including total quantity wasted, most wasted items, and reasons for waste. Helps users identify patterns and take corrective actions.

5. Statistical Visualizations

- Provides visual representations of waste data using charts (e.g., bar charts, pie charts). Makes it easier for users to analyze trends and understand their waste habits.

5. Outcome of Project

1. User can start the application by clicking get started.
2. User can then add the grocery list or any food item along with its quantity.
3. User can then select one of the two options to add the items :-
    1. Add to stock.
    2. Log food waste.
4. User can then generate report by either selecting waste report or statistical report.

6. Technology Stack

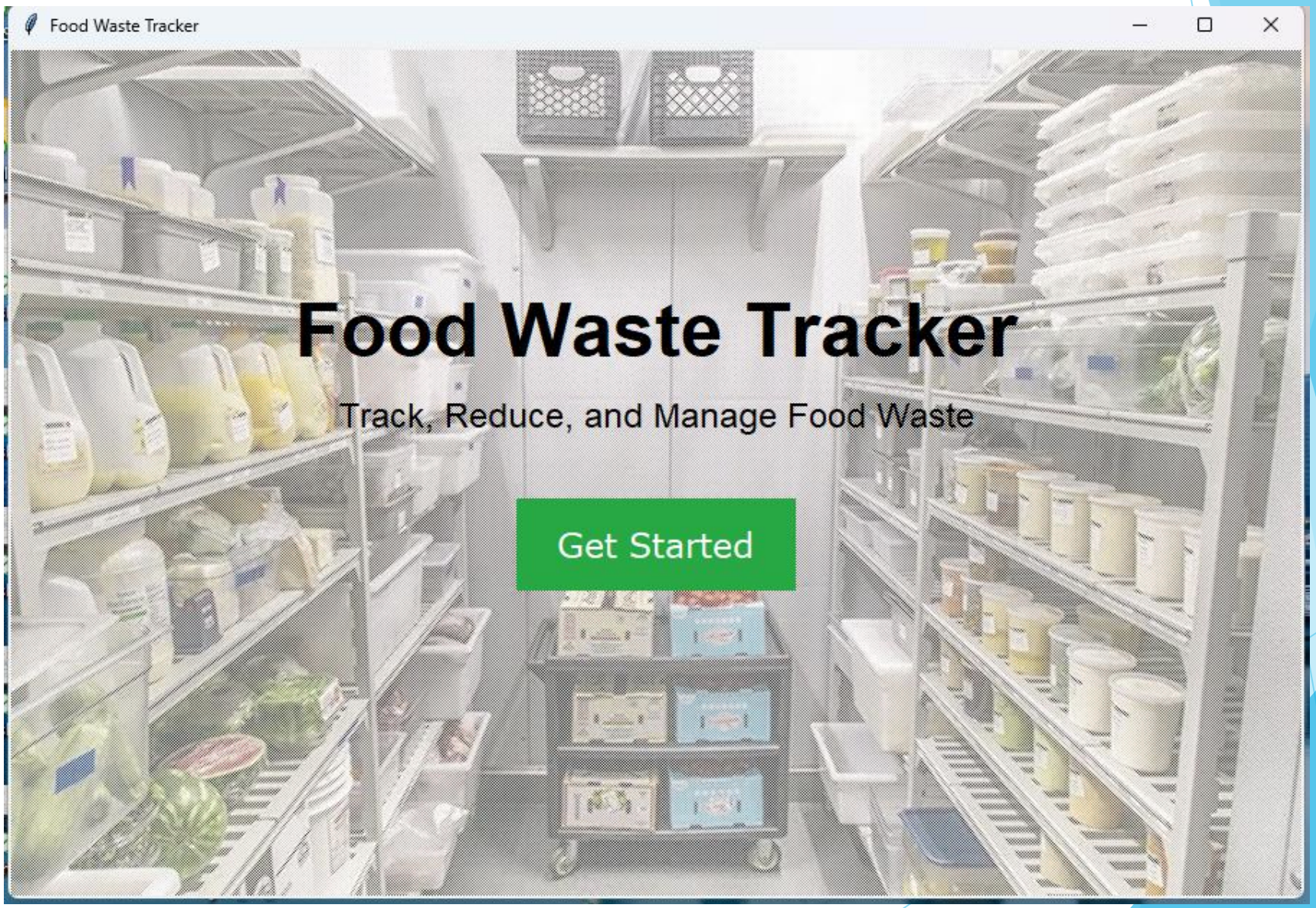
1) Python (Frontend)

- Python libraries like Tkinter, Matplotlib, PIL (GUI)

2) SQLite (Backend)

7. Block Diagram

8.Frontend


Food Waste Tracker
Food Waste Tracker
Track, Reduce, and Manage Food Waste
Get Started

8.Frontend


Food Waste Tracker
Food Waste Tracking System
Food Item:
Quantity:
Reason:
expired
Log Food Waste
Add to Stock
Clear Entries
View Stock
Generate Waste Report
Generate Statistical Report

Thank You...!!