# Project Overview

# Fridge2Fork

## 1. Introduction:

Food waste is a problem we can no longer ignore. Every year, tons of perfectly edible food end up in the trash, contributing to environmental damage and unnecessary spending. Many people throw away food simply because they don't know what to do with it.

The **Zero Waste Recipe Generator** is designed to change that! This smart tool helps you turn leftover ingredients into delicious meals. Just enter what you have in your fridge or pantry, and it will suggest recipes that make the most of those ingredients. It's a simple way to **reduce waste, save money, and cook smarter**—without the guilt of throwing food away.

## 2. Objective:

The goal of this project is to make sustainable eating easy for everyone. Here's what we aim to achieve:

- **Help People Waste Less Food** – Instead of throwing away extra veggies or half-used ingredients, you'll get recipes that use them up.
- **Encourage Sustainable Eating Habits** – Cooking with what you already have reduces waste and lowers your carbon footprint.
- **Save Money on Groceries** – The less food you waste, the less money you waste!
- **Make Cooking More Accessible** – No need to search for complicated recipes. This tool tailors' recipes based on what's available.
- **Provide Personalized Meal Ideas** – Whether you're vegetarian, gluten-free, or on a specific diet, the tool will suggest meals that suit your needs.
- **Offer Smart Ingredient Swaps** – Missing an ingredient? No problem! The tool suggests alternatives so you can still make a great dish.

## 3. Applications:

Who can benefit from this tool? Practically everyone!

- **Home Cooks:** If you ever wonder, "What can I make with what's in my fridge?"—this tool is for you.
- **Budget Shoppers:** Stretch your groceries further by using every ingredient efficiently.
- **Restaurants & Cafeterias:** Businesses can use this tool to create recipes from surplus ingredients, cutting down on food waste.
- **Eco-Conscious Consumers:** If you care about sustainability, this tool helps you make a real impact.
- **Grocery & Food Apps:** Supermarkets and food delivery services can integrate this feature to help customers reduce waste and plan better meals.

4. **Tools and Technology requirements:**

To bring this project to life, we'll need a mix of **frontend, backend, and AI-powered features**:

- **Frontend:**
  - We'll build a **website** that's clean, simple, and easy to use.
  - Technologies like **React.js, Vue.js, or Angular** will ensure a fast and smooth experience.
  - **UI frameworks like Tailwind CSS or Material UI** will make the design user-friendly.
- **Backend:**
  - The backend will process ingredients and suggest recipes using **Node.js (Express.js)**.
  - **APIs like Spoonacular, Edamam, or USDA FoodData** will provide real recipe suggestions and nutritional info.
  - A database (PostgreSQL, Firebase, or MongoDB) will store user preferences and ingredient lists.
- **AI & Machine Learning:**
  - **Natural Language Processing (NLP)** will recognize and categorize ingredients from user input.
  - **Machine Learning models** will improve recipe recommendations based on user preferences and trends.

## REFERENCES:

[1] Food Waste Research: Information from the Food and Agriculture Organization (FAO) and WRAP (Waste and Resources Action Programme) helps guide our waste-reduction efforts.

[2] Recipe Databases: Datasets from Spoonacular, Edamam, and Kaggle provide a wide range of meal ideas.

[3] Sustainability Guidelines: The project aligns with the United Nations Sustainable Development Goals (SDG 12: Responsible Consumption and Production) to encourage responsible food use.

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