📖 CookBook: Your Virtual Kitchen Assistant

Project Documentation

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1. Introduction

CookBook: Your Virtual Kitchen Assistant is a smart digital solution designed to help users explore, manage, and enjoy cooking experiences. It provides personalized recipe recommendations, ingredient management, cooking guidance, and meal planning support — acting as a reliable partner in the kitchen.

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2. Objectives

Provide easy access to a wide variety of recipes.

Suggest dishes based on available ingredients.

Enable personalized meal planning.

Reduce food waste through smart inventory tracking.

Offer step-by-step cooking instructions with voice/text assistance.

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3. Features

1. Recipe Recommendations

Search recipes by cuisine, ingredients, or dietary needs.

AI-driven personalized suggestions.

2. Virtual Pantry Management

Track available ingredients.

Notifications for low-stock or expiring items.

3. Smart Meal Planner

Weekly and monthly meal plans.

Nutrition-based suggestions.

4. Step-by-Step Cooking Assistant

Voice/text-guided instructions.

Adjustable portion sizes and cooking time.

5. Shopping List Generator

Auto-generate shopping lists from meal plans.

Sync with pantry for accuracy.

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4. System Requirements

Hardware

Device: Smartphone, Tablet, or PC

Minimum RAM: 2GB

Storage: 500MB

Software

OS: Android, iOS, Windows, or Web Browser

Programming Stack:

Frontend: React / Flutter

Backend: Node.js / Python (Django/Flask)

Database: MongoDB / MySQL

AI Model: GPT-based recommendation system

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5. Architecture

User Interface Layer → Mobile app/web interface.

Application Layer → Recipe management, meal planning, voice assistant.

Database Layer → Recipes, user preferences, pantry data.

AI Layer → Recommendation engine and cooking assistant.

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6. Use Case Scenarios

1. Ingredient-based Recipe Search: User enters “Tomato, Onion, Rice” → App suggests possible dishes.

2. Meal Planning: User sets a weekly plan → CookBook generates menu & shopping list.

3. Cooking Mode: User selects a recipe → CookBook guides step-by-step with voice prompts.

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7. Benefits

Saves time in meal planning.

Reduces food wastage.

Makes cooking accessible to beginners.

Supports healthy and diverse eating habits.

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8. Future Enhancements

Integration with smart kitchen appliances

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AR/VR-based cooking tutorials.

Community sharing platform for recipes.

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9. Team Information

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