



# KITCHEN BDY

Smart Kitchen Inventory & AI Recipe Management App | Built From Scratch

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Smart Pantry Tracking • AI Recipe Generation • Bill Scanning • Meal Scheduling • Live Weight Integration

## Platform Overview

Kitchen BDY is a smart kitchen inventory and meal management mobile application designed, developed, and delivered entirely from scratch by The Coders Adda. The app empowers users to take complete control of their kitchen tracking pantry stock in real time, automating grocery management through AI-powered bill scanning, and generating personalised recipes based on what is actually available in their pantry.

Built on a modern, advanced technology stack, Kitchen BDY combines AI, optical character recognition, live hardware integration, and intelligent meal planning into a single, seamless mobile experience available on both iOS and Android. It is one of the most technically sophisticated consumer applications built in-house by The Coders Adda demonstrating our capability to deliver AI-driven, hardware-integrated mobile products from concept to production.

## Application Modules

Kitchen BDY delivers a complete smart kitchen experience through the following integrated modules:

MODULE	DESCRIPTION
<b>Authentication</b>	Secure user authentication supporting both manual sign-in and Google Sign-In, with personalised on-boarding and user preference management.
<b>Home Dashboard</b>	A smart home screen displaying pantry health score, low-stock alerts, quick actions, and a real-time overview of kitchen inventory status.
<b>Bill Scanner</b>	AI-powered grocery bill scanning using optical character recognition automatically extracting item data from receipts and intelligently filtering relevant grocery items into inventory.
<b>Pantry Management</b>	Complete pantry stock tracking with quantity management, low-stock threshold alerts, expiry reminders, and live device-based weight integration for real-time stock measurement.

<b>AI Recipe Generation</b>	Intelligent recipe suggestions generated dynamically based on available pantry items personalised by cuisine preference, number of guests, and dietary or health choices.
<b>Meal Scheduling</b>	A dedicated meal planner enabling users to schedule meals across the week based on AI-generated recommendations, preferences, and current pantry availability.
<b>Alerts &amp; Reminders</b>	A centralised alerts hub keeping users informed of low-stock items, expiry warnings, and custom pantry reminders ensuring the kitchen is always stocked and organised.

## Technical Challenges

Building Kitchen BDY from scratch required solving the following complex engineering and AI integration challenges:

TECHNICAL CHALLENGE	HOW IT WAS SOLVED
<b>AI-Powered Bill Data Extraction</b>	Extracting accurate, structured grocery data from unstructured bill images required integrating an advanced optical character recognition engine with an AI filtering layer ensuring only relevant inventory items are parsed and stored, discarding non-grocery data with high precision.
<b>Gemini AI Item Classification</b>	Implementing Gemini AI as an intelligent post-processing layer to classify, validate, and filter raw OCR output distinguishing grocery items from discounts, taxes, and irrelevant bill content at inference speed.
<b>Live Device Weight Integration</b>	Establishing real-time communication between physical weight measurement devices and the mobile app required a low-latency, device-agnostic integration layer capable of reflecting live weight changes directly in pantry stock levels.
<b>Real-Time Pantry State Management</b>	Maintaining a consistent, real-time pantry state across bill scans, manual additions, weight inputs, and consumption updates with instant UI reflection and backend synchronisation demanded a robust reactive state architecture.
<b>Context-Aware AI Recipe Generation</b>	Generating meaningful, personalised recipe recommendations dynamically from variable pantry inventory factoring in cuisine type, guest count, dietary restrictions, and health preferences required a deeply contextual AI prompt engineering approach on a modern backend stack.

## Business Solution

Kitchen BDY was built to solve real, everyday problems around kitchen management and food waste through intelligent automation:

- **Automated Grocery Tracking:** Integrated AI-powered bill scanning to automatically extract and filter grocery items from receipts eliminating manual inventory entry entirely.

- **AI-Powered Item Filtering:** Deployed Gemini AI as an intelligent classification layer to ensure only relevant grocery items are added to pantry inventory with high accuracy.
- **Smart Pantry Management:** Built real-time pantry tracking with low-stock alerts, expiry reminders, and live device-based weight integration for precise stock monitoring.
- **Personalised AI Recipes:** Implemented AI recipe generation personalised to available pantry stock, cuisine preferences, guest count, and dietary requirements.
- **Meal Planning:** Delivered a unified meal scheduling system allowing users to plan their week based on AI recommendations and real pantry availability.
- **Cross-Platform Delivery:** Built on a modern, cross-platform mobile architecture — delivering a consistent, high-performance experience across both iOS and Android.

## Implementation / Work Done

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### Mobile Application — iOS & Android

- Designed and developed a complete cross-platform mobile application from scratch, built on a modern framework delivering native-quality performance across both iOS and Android.
- Implemented dark and light theme support, smooth navigation flows, and a responsive home dashboard with real-time pantry health indicators and quick actions.

### AI & Intelligence Layer

- Integrated an advanced optical character recognition engine for grocery bill scanning, combined with Gemini AI for intelligent item classification and inventory filtering.
- Built an AI-powered recipe generation engine capable of producing contextually relevant, personalised recipes dynamically from live pantry data and user preferences.

### Backend & Data Architecture

- Architected a scalable, modern backend on an advanced server-side framework with a structured relational database — handling real-time inventory sync, user data, meal plans, and alert management.
- Implemented secure authentication flows supporting both manual sign-in and Google Sign-In with session management and user personalisation.

### Hardware Integration

- Engineered real-time integration with physical weight measurement devices — enabling live stock weight readings to update pantry inventory automatically within the app.

## Outcome

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Kitchen BDY stands as a fully self-built, production-ready AI-powered mobile application — showcasing The Coders Adda's capability to deliver intelligent, hardware-integrated consumer products from scratch:

<b>◆ Full Product Built From Scratch</b>	Kitchen BDY was conceived, designed, and delivered entirely in-house from architecture and AI integration to mobile UI as a complete, production-ready application.
<b>◆ Intelligent Inventory Automation</b>	Bill scanning and AI filtering eliminate manual grocery entry entirely users simply scan a receipt and their pantry is updated automatically.
<b>◆ AI-Driven Kitchen Intelligence</b>	Gemini AI powers both grocery classification and recipe generation delivering a genuinely smart kitchen experience personalised to each user's pantry and preferences.
<b>◆ Real-Time Pantry Awareness</b>	Live weight integration and instant low-stock alerts ensure users always have an accurate, up-to-date view of their kitchen inventory.
<b>◆ Personalised Meal Planning</b>	AI recipe generation and meal scheduling based on available stock, cuisine preferences, and dietary choices reduces food waste and simplifies daily meal decisions.
<b>◆ Modern Cross-Platform Architecture</b>	Built on a modern, advanced technology stack delivering a fast, scalable, and secure experience across both iOS and Android from a single codebase.