

YourHungry AI
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INDEX

Introduction.....	1
Problem Statement.....	1
Project Motivation and Target Audience.....	1
User Personas.....	2
Technical Overview.....	2
Challenges and Solutions.....	3
Data Privacy Considerations.....	3
Data Visualization Plans.....	4
Go-to-Market Strategy.....	4
Differentiators and Future Enhancements.....	4
Scalability and Technical Recommendations.....	5
Market Forecast.....	5
Conclusion.....	6

Introduction

These days, life moves fast, and most people are juggling a lot—work, school, chores, you name it. That’s why even deciding what to eat can feel stressful, especially when there’s no time to plan or shop. We created YourHungry AI to help with that exact problem. It's a friendly chatbot that gives quick and simple meal ideas using only the ingredients someone already has at home. Whether it’s a busy student, a planner who preps meals for the week, or a professional just getting home from work, YourHungry AI is like a helpful buddy that makes cooking easy and stress-free.

Problem Statement

The fundamental problem YourHungry AI addresses is the widespread decision fatigue associated with meal planning. A significant number of users resort to repetitive meals or takeout simply because the process of choosing a recipe, verifying available ingredients, and planning meals is cognitively draining. This, in turn, results in food waste, poor nutrition, and additional costs. YourHungry AI seeks to eliminate that burden by transforming meal planning into a dynamic, user-friendly conversation.

Project Motivation and Target Audience

The idea for YourHungry AI came from noticing how often people felt stuck about what to cook, especially after a long day or when staring at a half-empty fridge. Instead of scrolling endlessly through recipes or downloading complicated apps, they just wanted someone—or something—to quickly help them figure it out. We realized people didn’t need a fancy app filled with hundreds of options; they needed a helpful buddy that could give them quick, realistic meal ideas based on what they already had. YourHungry AI brings that wish to life with a chatbot that listens, understands, and responds naturally, making the process simple and stress-free. It’s designed to be quick to use, perfect for busy students who are low on groceries, meal preppers who plan ahead, and working professionals who want healthy, easy meal ideas without any hassle. No need for tech skills, long signups, or complicated steps—just type what you have, and YourHungry AI takes care of the rest.

User Personas

To better understand these users, we developed user personas that include:

- Sam, a college student living off campus with limited cooking skills and a tight grocery budget.
- Rina, a working professional who meal preps on Sundays to save time during the week.
- Josh, a remote worker who cooks daily but is often uninspired by what's in the fridge.

These personas helped shape both the product tone and the user interface experience, ensuring empathy was embedded in every interaction.

Technical Overview

In addition to recipe generation, YourHungry AI also includes a geolocation-based restaurant discovery feature. This allows users to not only find what they can cook at home, but also locate nearby restaurants that serve the dishes they're interested in. This functionality is powered by the Google Places API, making it possible for the chatbot to offer both at-home and dine-out options within the same interface.

The backend of the application is built using Node.js and Express, with MongoDB Atlas used for data storage. On the frontend, the app uses React and Tailwind CSS to create a sleek and responsive interface that works across devices. These technologies allow us to deliver a modern, efficient, and visually clean user experience that meets the expectations of today's users.

Security was a major consideration from the start. We implemented token-based authentication using JWTs, managed securely with expiration rules. Token handling is done entirely on the server side, and cross-origin resource sharing (CORS) settings are carefully validated to ensure safety across environments. OAuth logins were added to simplify access while keeping user data protected.

Technically speaking, YourHungry AI works like a smart friend who understands casual kitchen chatter. When someone types in their ingredients—say, 'capsicum' or 'bell pepper'—the system knows they mean the same thing. That's thanks to a natural language processing (NLP) setup that reads what users type in everyday language and translates it into structured data the system can act on.

Behind the scenes, YourHungry AI uses OpenAI's API to generate natural, friendly recipe suggestions and Unsplash's API to pull appealing food images. It pulls thousands of meal ideas organized by ingredients, cooking time, dietary needs, and cuisine types. We chose these APIs because they are reliable, flexible, and regularly updated with fresh, high-quality content.

The way YourHungry AI works behind the scenes is designed to be as smooth and efficient as its user experience. At its core, it uses a flexible Python backend and a simple JavaScript frontend,

all hosted on the cloud so it can scale easily as more people use it. When someone sends a message with ingredients, the system gets to work—cleaning up and interpreting the text, matching ingredient names even if they’re misspelled or varied, and picking up on any dietary preferences mentioned. It then pulls a relevant recipe through quick API calls and formats the response in a chat-friendly way. Down the road, we’re planning to upgrade the model to something even smarter—like using advanced language models that better understand context and make the chatbot feel even more natural and helpful.

Challenges and Solutions

When we were building YourHungry AI, we ran into a few tricky problems. One of the first was understanding what people really meant when they typed in certain ingredients. For example, if someone says 'milk,' do they mean regular milk, almond milk, or oat milk? And when they say 'meat,' are they talking about chicken, beef, or something else? To handle this, we taught the chatbot to politely ask for more details instead of making a wrong guess. Another issue was when people had only a few things in their kitchen. Some users would say, 'I only have eggs and toast.' We didn’t want the chatbot to give up, so we made sure it could still suggest easy and fun meals using whatever little the user had.

Data Privacy Considerations

We’ve taken multiple steps to ensure user privacy and data protection throughout YourHungry AI. Any sensitive tokens (like API keys or user credentials) are stored and managed securely in backend middleware—never exposed on the front-end. JWT tokens are stored with expiry handling, and user location data is only requested when explicitly needed for the restaurant search feature.

We also implemented OAuth login integration with popular platforms to make access easy while protecting user identity. CORS protections are in place, and we continuously validate authentication across environments to maintain platform security.

Data privacy was also taken into consideration. While our current prototype does not store any personal information, future versions that include login systems, meal tracking, or personalized suggestions will incorporate encryption, anonymization, and compliance with data protection standards like GDPR and CCPA.

Data Visualization Plans

To visualize the efficacy and engagement of YourHungry AI, we plan to implement interactive dashboards. These will display key metrics such as the most commonly searched ingredients, popular recipe matches, user feedback ratings, and chat interaction heatmaps. Tools like Tableau or JavaScript chart libraries will be used to create stakeholder-facing visuals that can inform decisions on scaling or refining the product.

Go-to-Market Strategy

Introducing YourHungry AI to the marketplace would ideally involve strategic partnerships. We envision it embedded on university websites, as an API for wellness and lifestyle platforms, or even as a branded feature in kitchen appliances and smart home assistants. Social media marketing will play a role in user adoption, especially with short-form content showcasing how easy it is to go from pantry to plate using the chatbot.

Differentiators and Future Enhancements

What truly sets YourHungry AI apart is its dual functionality. Unlike most food platforms that offer either recipes or restaurant discovery, we combine both in a single, unified experience. Whether users want to cook a meal at home or go out to eat, they can make decisions quickly using one app. On top of that, the interface is clean, modern, and free from ads or spam—making it both pleasant and distraction-free.

We also personalize the experience using markdown-formatted responses, image-rich content via Unsplash API, and smart, chat-like recipe interactions. In future versions, we plan to introduce features like grocery list generation, integration with grocery delivery services, voice assistant support, and filters for dietary needs or cuisine types. Our long-term vision includes multilingual capabilities and global support for both cooking and dining out.

The key differentiator of YourHungry AI lies in its simplicity and conversational tone. Most recipe platforms assume users know what they're looking for—our tool assumes they don't. This shift from search-based interaction to conversational discovery changes how users engage with cooking and recipe planning. The chatbot doesn't just give recipes; it offers encouragement, creativity, and adaptability.

Some of the future enhancements include grocery list generation, integration with grocery delivery services, and nutritional breakdowns for each meal. These features will not only enhance user experience but also expand YourHungry AI's utility in health and wellness spaces. We're also considering voice integration for smart home usage and multilingual support to reach global audiences.

Scalability and Technical Recommendations

As YourHungry AI continues to grow, we are mindful of several challenges. API costs—especially for OpenAI and Google Places, can increase quickly with user growth. To manage this, we implemented usage monitoring and alerts. Server and database loads also need careful scaling, which is why we deployed the system using serverless infrastructure like Vercel and MongoDB Atlas.

Personalization is another scaling concern, especially as we aim to support multiple languages and diet preferences. Finally, maintaining content quality and safety in recipe suggestions and restaurant listings requires ongoing moderation.

We recommend the implementation team continue to optimize performance by catching frequently requested data, batching API calls when possible, and regularly testing authentication and security layers.

Scalability challenges include ensuring consistent API performance, supporting multiple languages, and maintaining a fast response time as user traffic grows. From a technical perspective, caching strategies, auto-scaling cloud infrastructure, and modular code will help mitigate these concerns. We also recommend that the implementation team prioritize UX testing and build user personas to continually refine the interaction model.

Market Forecast

We expect strong early adoption from student communities, food bloggers, and social cooking groups. To kickstart growth, we plan to leverage Discord-based marketing and recipe sharing as interactive promotional tools. YourHungry AI's clean design, helpful assistant experience, and dual-purpose functionality give it wide appeal.

Over time, we envision expanding into a global food discovery platform that serves both home cooks and food explorers. With ongoing feedback, updates, and feature additions, we believe YourHungry AI can become a go-to digital companion for everyday food decisions—no matter where you are in the world.

In the market, YourHungry AI has promising growth potential. As digital adoption rises and people continue seeking wellness-oriented tech solutions, YourHungry AI stands out as a useful and delightful experience. Our forecast suggests a strong fit for academic institutions, lifestyle apps, and meal kit services, with opportunities to expand into premium features like nutritional analysis, calorie tracking, or AI-curated meal plans.

Conclusion

In conclusion, YourHungry AI is not just a recipe assistant; it's a step toward mindful, efficient, and enjoyable cooking. It empowers users by transforming a daily chore into an interactive, personalized experience—rooted in what they already have and what they love to eat.