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Recipe Search and Customizable Ordering System Multilingual and Dietary Support

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ABSTRACT:

Recipe Search Web Page Based on User Preferences is an intelligent web platform allowing users to find, plan, and manage meals based on their preferences and requirements. With option to filter by dietary needs, cooking time, ease of preparation, and cuisine, it provides a seamless and intuitive experience. Users can browse recipes, receive ingredient suggestions, and even order in real time. The system also has allergen alerts and multilingual support, making it safe and accessible to all. Suitable for health-conscious people and home cooks, it promotes healthy eating and makes cooking easy. Having merged convenience with personalization, it revolutionizes the way people engage with food planning online.

Keywords: Recipe search, meal planning, dietary filters, ingredient ordering, user preferences, multilingual support, meal kits.

Introduction

Recipe Search Web Page Based on User Preferences is a revolutionary web-based application aimed at transforming the way people plan and prepare their meals in the modern fast-paced world. Through the use of intelligent filtering and customization, the application enables users to find recipes that suit their dietary requirements, ingredient availability, and cooking style. It cuts out the distracting clutter of conventional recipe platforms and offers a simpler and healthier meal planning experience.

The site extends beyond mere recipe find to include real-time customization functionality and built-in meal kit ordering, simplifying the process from choice to ready-to-make preparation. It serves users with dietary allergies, cultural dietary needs, or time constraints, offering a consistent and individualized cooking solution. With all language support and allergen notice,

the environment is inclusive and accessible to an extensive audience of users.

Perfect for health-conscious consumers, time-strapped professionals, and those who have special diets, the site is a leap ahead in individualized nutrition and online food planning. Its possible uses range from home cooking to wellness programs, providing a more intelligent approach to daily meals. As digital health continues to gain traction, this project shows how technology can improve daily life by encouraging healthier eating, less effort, and changing the way we engage with food online.

Problem Statement

Current meal kit and recipe platforms face several challenges that negatively impact user experience. These challenges include limited options for customizing recipes and portion sizes, a lack of support for multiple languages and cultural relevance, and inadequate dietary filters (such as vegan or gluten-free). The process of meal planning and shopping is often disjointed, forcing users to look for recipes, compile shopping lists, and buy ingredients separately. Additionally, platforms tend to provide generic recipe suggestions that do not take into account individual preferences or dietary needs, and they often lack filters for cooking time or skill levels. Furthermore, poor integration with meal kit providers and the absence of real-time notifications add to the complexity. These problems highlight the need for a more personalized, efficient, and inclusive approach to meal planning and kit ordering.

Working Technologies Used:

NodeJs: Node.js handles the backend logic, processes API requests, and connects the frontend to the database.

- React.Js: React.js powers the dynamic user interface, enabling users to interactively search, filter, and explore recipes.
- Prisma: Prisma acts as the ORM, simplifying and managing database operations between Node.js and PostgreSQL.
- Clerk API: Clerk API provides secure user authentication and session management for sign-up, login, and user roles.
- Google Translation API: Google Translation API enables multilingual support by translating recipes and content into users' preferred languages.
- PostgreSQL: PostgreSQL serves as the main database to store user data, recipes, ingredients, preferences, and orders.

Working of the Project:

- 1. Main Page Initialization: The platform starts with the main page, displaying a navigation bar for easy access to all sections.
- 2. Navigation Bar (Navbar): Offers quick links to Menu, Order Food, Our Food Kits, Contact Us, Login, and more. Hand Detection: The system detects hands in the captured frames.
- 3. Menu & Recipe Search: Users can explore the **Menu Page**, use the **Search Bar** with filters (Vegan, Vegetarian, Non-Veg, Continental), and select a recipe to view full details .Mapping Landmarks on Hand: Identifies key points (fingertips, joints) on the hand for precise gesture recognition.
- 4. Recipe Page Display: Displays ingredients, preparation steps, cooking video, and a translate button for multilingual support.
- 5. Food Ordering: Users can order food directly or proceed to the Food Kit Page to browse and customize food kits. Mode Selection



- 6. Food Kit Selection: Kits are filtered by membership level; users can order kits tailored to preferences.
- 7. Order Processing & Billing: After placing an order, details are sent to the Admin Page, and the **bill is emailed to both the user and the company**.
- 8. User Authentication: Users can Login using email. Login info and order history are stored in the User Database.
- 9. Supporting Sections: Pages like Why Us?, About Us, Special Offers, Testimonials, and Contact Us build trust and user engagement.
- 10. System End Point: After ordering or exploring, the session ends, and all data is securely stored in the database.

4. Literature Survey:

1. Nadamoto, S. Hanai, and H. Nanba, "Clustering for Similar Recipes in User-Generated Recipe Sites Based on Main Ingredients and Main Seasoning" (2016)*

The paper by Nadamoto, Hanai, and Nanba (2016) proposes a clustering method for grouping similar recipes on user-generated recipe sites based on their main ingredients and seasonings. This approach helps organize and recommend recipes by identifying patterns in shared food components, enhancing recipe discovery and personalization.

2. Amaia Salvador et al., "Inverse Cooking: Recipe Generation from Food Images" (2019)

The paper by Amaia Salvador et al. (2019) explores **inverse cooking**, a method for generating recipes from food images. Using deep learning techniques, the authors propose a model that can predict ingredients and generate a recipe based on a given food image, bridging the gap between visual recognition and recipe creation. This approach has applications in food recommendation systems and culinary AI.

3. Michał Bień et al., "RecipeNLG: A Cooking Recipes Dataset for Semi-Structured Text Generation" (2020)

The paper by Michał Bień et al. (2020) introduces **RecipeNLG**, a dataset designed for **semi-structured text generation** of cooking recipes. The dataset consists of diverse recipe examples with structured inputs (ingredients, instructions, etc.) and is aimed at training models to generate coherent, detailed recipe instructions from structured data, supporting advancements in natural language generation for culinary applications.

4. Aljbawi, Bushra, "Health-aware Food Planner: A Personalized Recipe Generation Approach Based on GPT-2" (2020)

The paper by Bushra Aljbawi (2020) presents a **health-aware food planner** that uses **GPT-2** to generate personalized recipes. By incorporating nutritional considerations and user preferences, the system aims to suggest recipes that meet specific health requirements, offering a more tailored approach to meal planning through AI-driven recipe generation.

5. Florian Pecune, Lucile Callebert, Stacy Marsella, "A Socially-Aware Conversational Recommender System for Personalized Recipe Recommendations" (2020)

The paper by Florian Pecune, Lucile Callebert, and Stacy Marsella (2020) introduces a **socially-aware conversational recommender system** for personalized recipe recommendations. The system adapts to users' social contexts, preferences, and dietary restrictions through interactive conversation, offering more personalized and contextually relevant recipe suggestions.

6. Prateek Chhikara et al., "FIRE: Food Image to Recipe Generation" (2024)

The paper by Prateek Chhikara et al. (2024) introduces **FIRE** (Food Image to Recipe Generation), a system that generates recipes from food images using advanced machine learning techniques. The approach leverages image recognition and natural language processing to predict ingredients, cooking steps, and dish details, bridging the gap between visual food content and recipe creation.

5. Outputs And Result:





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Outcome:

The product of our Recipe Search Web Page Using User Preferences project is a smart, user-friendly platform that makes meal planning, recipe discovery, and food ordering a breeze with personalized filters and real-time access. By harnessing the power of web technologies, this system allows users to search for recipes tailored to their dietary needs, preferred cuisines, and cooking times, all through a simple and intuitive interface. Key features include a filter-based search (like Vegan or Non-Veg), multilingual translations of recipe content, integrated instructional videos, and a smooth food kit ordering process. Users can browse through curated meal kits, customize their selections, and place orders directly—while receiving automated email bills for clarity. The system also securely handles user logins, preferences, and order history through a well-organized database. With its engaging design and comprehensive functionality, this platform not only boosts user convenience but also encourages healthy eating habits, completely transforming the way we cook and order food.

6. Conclusion

The Recipe Search Web Page Using User Preferences is changing the game for meal planning by providing a personalized and easy-to-use platform for finding and preparing food. With handy features like dietary filters, options for cooking times, and skill-level choices, users can discover recipes that fit their individual lifestyles. Plus, the platform's multilingual support makes it accessible to a wide range of users, while its smooth integration with food kit ordering and real-time notifications makes the cooking process a breeze from start to finish. But it's not just about convenience; this platform also encourages healthier living by helping users make informed food choices that meet their nutritional needs and preferences. By cutting down on reliance on unhealthy takeout and promoting home-cooked meals, it supports both physical health and saving money. Looking to the future, AI-driven recommendations and collaborations with experts can make the experience even more personalized, paving the way for a meal planning approach that's smarter, more inclusive, health-focused, and sustainable.

7.Future Scope

The Recipe Search Web Page Using User Preferences has a lot of exciting potential for future growth and development. By harnessing the power of AI and machine learning, this platform can provide smarter and more precise recipe suggestions that align with users' health goals, tastes, and previous choices. Looking ahead, we could see features like voice-assisted search, connections with wearable health devices for real-time dietary advice, and

AR-guided cooking tutorials. Making it compatible with mobile apps and smart home gadgets will boost convenience and accessibility. Plus, cloudbased user profiles can create a smooth experience across different devices, while collaborations with nutritionists and fitness platforms can offer comprehensive wellness solutions. Adding features like multilingual voice translation, automatic grocery list creation, and tracking sustainable packaging through IoT will take the user experience to the next level. With these innovations, the platform is set to transform digital meal planning, making it smarter, more personalized, and closely tied to everyday health and lifestyle.

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