MY NEW PERSONAL CHEF

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ABSTRACT

The My Personal Chef system is a web-based application designed to help users discover recipes and receive personalized cooking suggestions based on available ingredients. The system is developed using the MERN stack, which includes MongoDB, Express.js, React.js, and Node.js.The application allows users to browse recipes, search for dishes, view detailed cooking instructions, and save favourite recipes. One of the key features of the system is the Pantry Matching feature, which suggests recipes based on ingredients entered by the user.The system also includes an administrative module where administrators can add, update, and manage recipes. Additionally, the system integrates Artificial Intelligence using Google Gemini AI to automatically extract recipe details from YouTube cooking videos.The application provides an interactive and user-friendly interface that simplifies recipe discovery and enhances the cooking experience for users.

KEYWORDS:Personal,Recipes,Personalized,Ingredients,Instructions,Administrators ,Enhances.

1. INTRODUCTION:

In today's digital world, the use of online platforms for everyday activities has increased significantly. One such activity is cooking and meal planning. Many people rely on the internet to discover new recipes, learn cooking techniques, and explore different cuisines from around the world. Although a large number of recipe websites and cooking applications are available, users often face difficulties when searching for suitable recipes. Recipes are usually scattered across multiple platforms, and users have to spend considerable time browsing different websites to find dishes that match their preferences and available ingredients. Another common challenge faced by users is deciding what to cook using the ingredients they already have at home. Many recipe platforms provide large collections of recipes, but they do not provide efficient methods to

recommend recipes based on the ingredients available with the user. As a result, users may struggle to find appropriate recipes and may even waste ingredients that could otherwise be used effectively. Therefore, there is a need for a system that can simplify recipe discovery and provide intelligent suggestions based on available ingredients. The project"MyPersonal Chef" is developed to address these problems by creating a centralized web-based recipe management and recommendation system. The system provides an organized platform where users can browse, search, and manage cooking recipes easily. Users can explore a collection of recipes stored in the database and view detailed cooking instructions that include ingredients, preparation steps, cooking time, and difficulty level. One of the most important features of the system is the Pantry Suggestion feature. This feature allows users to enter the ingredients they currently have in their kitchen. The system then analyses these ingredients and compares them with the ingredient lists stored in the recipe database. Based on the number of matching ingredients, the system recommends recipes that the user can prepare with minimal additional ingredients. This feature helps users make better decisions when choosing recipes and also helps reduce food wastage.

2. LITARATURE REVIEW

he increasing demand for smart food recommendation systems has led to the development of web-based applications that assist users in discovering recipes, managing pantry ingredients, and receiving personalized cooking suggestions. Recent research in recommender systems, artificial intelligence, and full-stack web development strongly supports the design of intelligent recipe platforms.

One of the important studies in this domain is AI-Powered Personalized Recipe Recommendation System, which uses content-based filtering, collaborative filtering, and TF-IDF with cosine similarity to suggest recipes based on user preferences, nutritional goals, and ingredient availability. The study reported significant improvement in recommendation accuracy compared to traditional methods. This directly supports the personalized suggestion module of your system.

Another relevant work is Recipe Recommendation System using Machine Learning, where the system recommends recipes based on ingredients entered by the user. The authors used Natural Language Processing (NLP) techniques

to analyze ingredient names and cooking instructions, enabling accurate dish matching. This research strongly validates your Pantry Matching feature, where recipes are suggested based on available ingredients.

Recent studies such as RecipeRec: A Heterogeneous Graph Learning Model for Recipe Recommendation further enhance personalization by modeling relationships among users, recipes, and ingredients using graph neural networks. This approach captures deeper user preference patterns and improves recommendation quality in real-world scenarios.

Another important work, RECipe: Multi-Modal Recipe Knowledge Graph, focuses on text, image, and review-based recipe recommendations. This multi-modal framework supports natural language queries and image-based searches, showing how intelligent systems can improve recipe discovery beyond simple keyword search.

The integration of large language models (LLMs) in food recommendation systems has gained significant attention. The study KERL: Knowledge-Enhanced Personalized Recipe Recommendation using Large Language Models demonstrates how AI models can generate recipes, nutritional information, and personalized meal suggestions using user constraints and contextual knowledge. This aligns closely with your integration of Google Gemini AI for intelligent cooking assistance.

A recent work titled AI Powered Recipe Generator Using MERN Stack is highly relevant to your system architecture. It specifically uses MongoDB, Express.js, React.js, Node.js, and Gemini AI API to create customized recipes based on ingredients, cuisine preferences, and user history. This directly validates the technical design of your MERN-based application.

Research and developer implementations also show the use of Gemini AI for recipe extraction from web content and videos, where AI models parse cooking instructions, ingredients, and preparation steps from unstructured sources such as YouTube videos and blogs. This strongly supports your innovative module of automatic recipe extraction from YouTube cooking videos.

Additionally, several modern applications emphasize favorite recipe saving, personalized dashboards, and admin content management systems, which improve user engagement and system maintainability. These features align with your recipe saving and admin management modules.

3. EXISITING METHOD:

In the existing system, users typically rely on traditional recipe websites, cooking blogs, and video platforms to search for dishes and cooking instructions. Popular platforms such as YouTube and recipe portals provide a large collection of recipes, but most of them require users to manually search using dish names or categories.

Traditional recipe applications mainly offer:

recipe browsing

category-based filtering

ingredient lists

step-by-step instructions

user reviews and ratings

However, these systems usually lack personalized pantry-based matching, meaning users must independently decide what to cook based on the ingredients available at home. Many existing platforms depend on keyword-based search, where users enter recipe names such as “biryani,” “pasta,” or “cake.” This approach does not effectively support situations where the user wants recipes based on available ingredients like tomato, onion, rice, and eggs. Another limitation of the existing system is the absence of AI-driven personalization. Most platforms provide the same recommendations to all users without considering:

1. cooking preferences
2. dietary restrictions
3. ingredient availability
4. past user choices
5. favorite cuisines

3.1 DIS-ADVANTAGES:

1. Manual search process
2. No ingredient-based suggestions
3. No personalized AI recommendations.
4. Time-consuming recipe discovery
5. No automatic YouTube recipe extraction.
6. Limited user interaction.
7. Static content management.

4.PROPOSED METHOD

The application allows users to browse a wide range of recipes, search for dishes, and view detailed cooking instructions including ingredients, preparation steps, and cooking time.A key feature of the proposed system is the Pantry Matching Module. In this module, users enter the ingredients currently available at home, and the system intelligently suggests suitable recipes

that can be prepared using those ingredients. This reduces food waste and improves convenience.Another important module is the AI-Powered Personalized Recommendation System, which uses Google Gemini AI to analyze user preferences, search history, and available ingredients to provide customized cooking suggestions.The proposed system also includes an innovative YouTube Recipe Extraction Module. By integrating AI with YouTube cooking videos, the system automatically extracts:recipe title,ingredients, list cooking,steps preparation, instructions.This helps users quickly understand recipes without watching the full video.

4.1 ADVANTAGES:

1. AI-based personalized recipe suggestions
2. Pantry ingredient matching
3. MERN stack scalability
4. Automated YouTube recipe extraction
5. Favorite recipe saving
6. Admin recipe management
7. Reduced food waste
8. Improved user experience

5.SYSTEM ARCHITECTURE

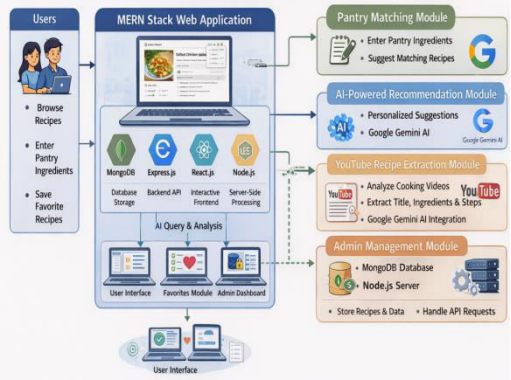

FIG 2.0:SYETM ARCHITECTURE

6.RELATED WORK:

Module 1: User Management Module

Allows users to register and create an account.Provides login functionality for users.Allows users to manage their profile information.Handles user authentication and authorization.

Module 2: Recipe Management Module

Allows users to browse recipes stored in the database.Provides search functionality for finding recipes by title.Allows filtering recipes by category and type. Displays detailed cooking instructions including ingredients and preparation steps.

Module 3: Favourites Module

Allows users to save recipes as favourite s. Enables users to view and manage their saved recipes.Provides quick access to frequently used recipes.

Module 4: Pantry Suggestion Module

Allows users to enter ingredients they have available.Compares user ingredients with recipe ingredient lists.Suggests recipes with the highest number of matching ingredients.Displays ranked recipe suggestions.

Module 5: Admin Module

Allows administrators to add new recipes.Allows administrators to edit and update recipe information.Enables deletion of recipes from the database.Allows moderation of user feedback.

Module 6: Database Module

Stores user data, recipes, favourites, and feedback.Provides data retrieval and storage functionality.Ensures efficient data management and integrity.

7. RESULTS:

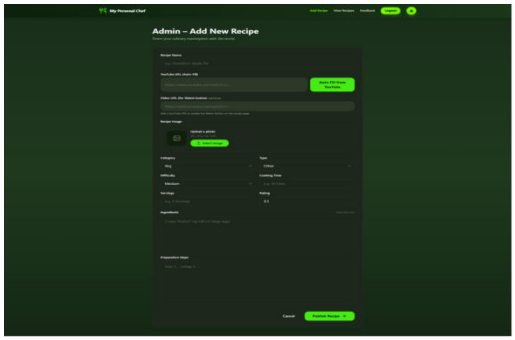

FIG 2.1: The above screen shows the **Admin Add Recipe page** where administrators can add new recipes to the system.

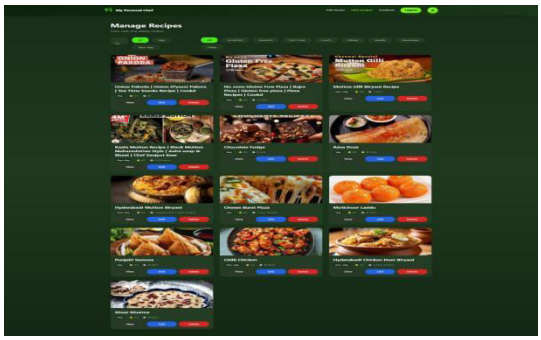

FIG2.2 : The above screen shows the **Admin View Recipes page** where administrators can edit or delete existing recipes.

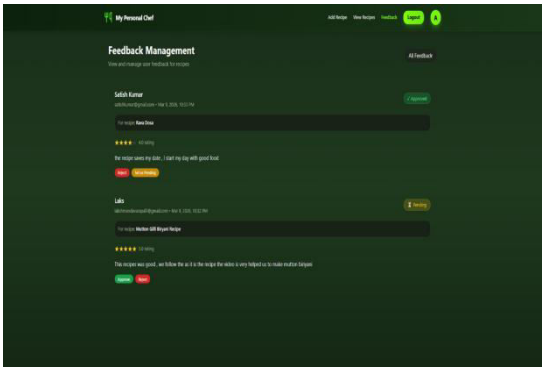

FIG 2.3 : The above screen shows the **Admin Feedback page** where administrators can review and manage feedback submitted by users.

8. CONCLUSION:

The system provides an interactive interface where users can browse recipes, view detailed cooking instructions, and save recipes for later use. One of the key features of the system is the **Pantry Matching feature**, which allows users to enter ingredients they already have and

receive recipe suggestions based on matching ingredients. This feature helps users reduce food waste and quickly decide what they can cook with available ingredients.The project also includes an **administrative module** that allows administrators to manage recipe data efficiently. Administrators can add new recipes, edit existing recipes, delete recipes, and review user feedback. This ensures that the recipe database remains organized and continuously updated.Future scope Additionally, **community features** could be introduced where users can share recipes, rate dishes, and provide reviews. Cloud deployment and improved AI-based recipe extraction from various sources such as cooking websites and blogs could further enhance the system.

9. REFFRENCES

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