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HOME EATS-FRESH HOME COOKED DELIVERY PLATFORM

Anusree Chinthala, Ayesha Shireen, Jajimogga Avinash, Mangli Shiva Shankar
Final Year Students, Bachelor of Technology, Department of Artificial Intelligence & Data Science

Guide: Mr.N.V. Sagar
Assistant Professor, Department of Artificial Intelligence & Data Science,
J.B. Institute of Engineering and Technology (UGC Autonomous), Hyderabad, Telangana, India

ABSTRACT
Home-based food services have emerged as a significant alternative to traditional restaurant-based food delivery systems. However, the absence of a structured and scalable digital platform limits the accessibility and growth of home chefs. This paper presents HomeEats, an intelligent home-based food ordering and delivery platform designed to connect home cooks with customers through a seamless digital ecosystem. The system integrates modern technologies such as mobile applications, cloud computing, and recommendation systems to provide personalized food suggestions, real-time order tracking, and secure payment mechanisms. Unlike conventional food delivery platforms that primarily focus on restaurants, HomeEats emphasizes homemade food, enabling micro-entrepreneurs to participate in the digital economy. The platform includes features such as user authentication, menu management, order processing, and admin control, ensuring efficient system operation. Furthermore, the integration of location-based services and user feedback mechanisms enhances user experience and system reliability. Experimental evaluation demonstrates improved usability, scalability, and recommendation accuracy.

Keywords:
Food Delivery System, Home-based Cooking, Recommendation System, Mobile Application, Cloud Computing, User Personalization

INTRODUCTION
In recent years, the rapid advancement of mobile technologies, cloud computing, and digital platforms has significantly transformed the food delivery industry. Online food ordering systems have become an integral part of urban lifestyles, enabling users to conveniently access a wide range of food options through mobile applications. However, despite the widespread adoption of such platforms, most existing systems primarily focus on restaurant-based services, thereby overlooking the potential of home-based food providers. This limitation creates a gap in the digital food ecosystem, where skilled home chefs and small-scale food entrepreneurs lack a structured platform to reach a broader customer base.Home based food services have gained increasing popularity due to their emphasis on freshness, affordability, and personalized cooking.In comparison with existing systems, which mainly provide basic ordering and delivery functionalities, HomeEats offers a more comprehensive solution by combining personalization, accessibility, and support for micro-entrepreneurs. The platform not only enhances the user experience but also contributes to economic empowerment by enabling individuals to monetize their cooking skills. By transforming informal home-based food services into a structured digital ecosystem, the proposed system addresses both technological and societal challenges.Therefore, the HomeEats platform represents a significant step toward the evolution of food delivery systems, demonstrating how modern technologies can be effectively utilized to create inclusive, scalable, and intelligent solutions for real-world applications.

OBJECTIVES
The main objective of the HomeEats project is to develop a smart and user-friendly food service platform that connects home cooks, customers, event organizers, and NGOs through a single digital application. The system aims to provide healthy homemade food, reduce food wastage, and support efficient food management using modern technologies.
The specific objectives of the project are as follows:

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- To develop a mobile-based food ordering platform that enables customers to browse homemade food items and place orders easily through a user-friendly interface.
- To support home cooks and small-scale food providers by giving them a digital platform to upload menus, manage food availability, and generate income opportunities.
- To implement a structured food donation system that allows event organizers to donate surplus food directly to NGOs for efficient redistribution.
- To reduce food wastage by connecting excess food providers with organizations that can utilize the food effectively.
- To provide personalized food recommendations using rule-based recommendation techniques based on user preferences and order history.
- To implement demand prediction functionality that helps home cooks identify high-demand food items using historical order data.
- To ensure smooth communication between frontend and backend systems using REST APIs for efficient data transfer and processing.
- To develop a responsive and interactive mobile application using Flutter for better user experience across different devices.
- To create a secure backend system using Django for handling authentication, database operations, and business logic.
- To implement feedback and rating mechanisms for improving service quality, customer satisfaction, and transparency within the platform.
- To provide an efficient database management system for storing user details, food items, orders, donations, and feedback securely.
- To develop a scalable and socially impactful system that combines technology with community welfare and smart resource utilization.

METHODOLOGY

The HomeEats system was developed using a client-server architecture with Flutter as the frontend and Django as the backend. The development process began with requirement analysis and system design, followed by UI development for the mobile application.

The backend was implemented using Django and Django REST Framework to handle user authentication, food management, order processing, donation management, and API communication. SQLite database was used to store user details, food items, orders, donations, and feedback data.

REST APIs were used for communication between the Flutter frontend and Django backend. Intelligent features such as rule-based food recommendation and demand prediction were implemented using Python logic and historical order data.

Finally, testing and validation were performed to ensure smooth functionality, accurate data processing, and proper system performance

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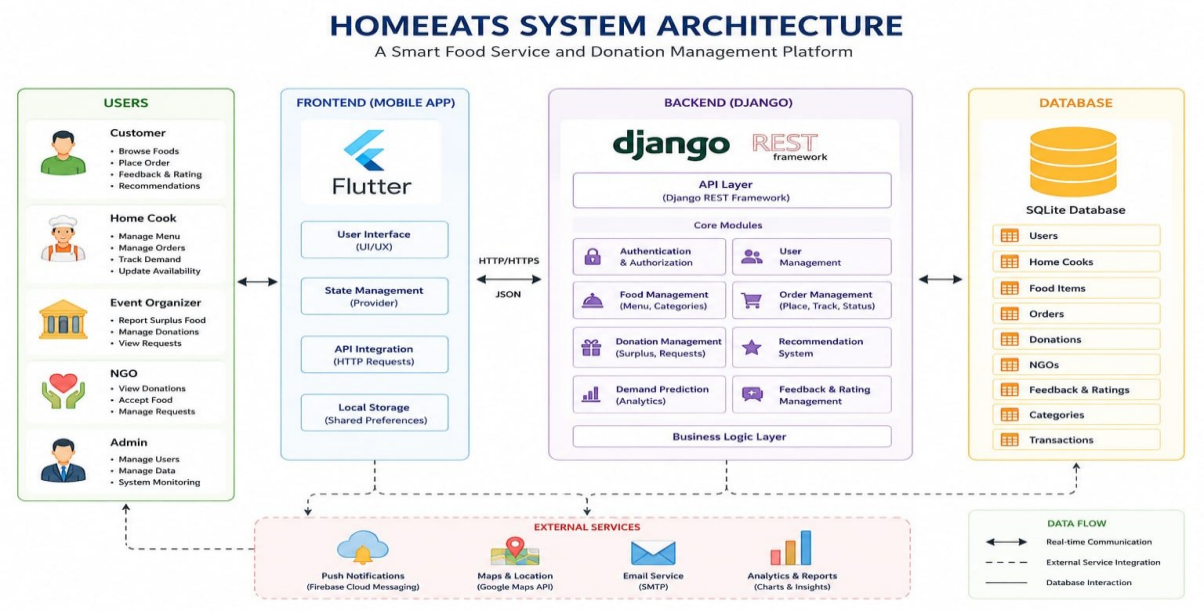

Figure 1 Overall System Architecture Diagram of the Project

RESULTS AND DISCUSSION

The HomeEats application was successfully developed and tested with all major functionalities working properly. The system allows customers to browse homemade food items, place orders, provide feedback, and receive food recommendations through a user-friendly mobile interface.

Home cooks can efficiently manage food listings, update availability, and monitor customer demand. The food donation module successfully connects event organizers with NGOs for surplus food redistribution, helping reduce food wastage.

The integration between the Flutter frontend and Django backend was completed successfully using REST APIs, ensuring smooth data communication and efficient performance. The feedback and rating system also improved transparency and user satisfaction.

Overall, the HomeEats platform provides an efficient, scalable, and socially beneficial solution for homemade food ordering and food donation management.

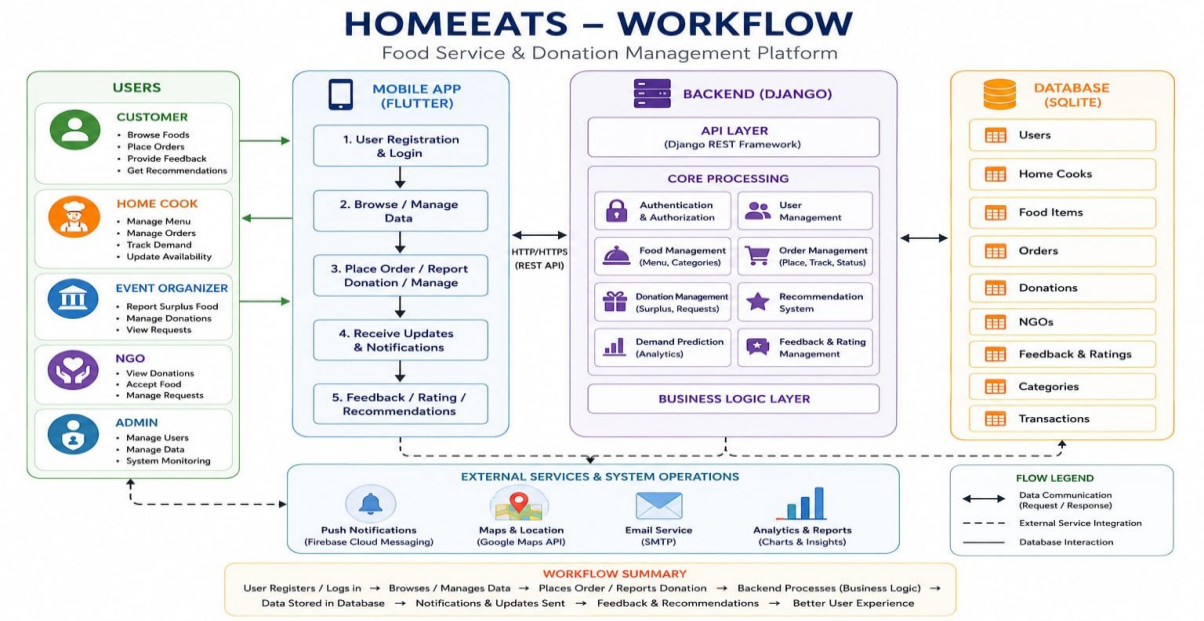

Figure 2 Workflow of the Project

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CONCLUSION

HomeEats is a smart and efficient food service and donation management platform developed to connect home cooks, customers, event organizers, and NGOs through a single digital system. The application successfully provides homemade food ordering, food donation management, and intelligent recommendation features in a user-friendly environment.
The project was implemented using Flutter for the frontend and Django for the backend, ensuring smooth performance, secure data management, and effective communication through REST APIs. The system also helps reduce food wastage by enabling surplus food distribution to NGOs.
Overall, HomeEats provides a scalable, socially beneficial, and technology-driven solution that improves food accessibility, supports home-based cooks, and promotes efficient resource utilization.

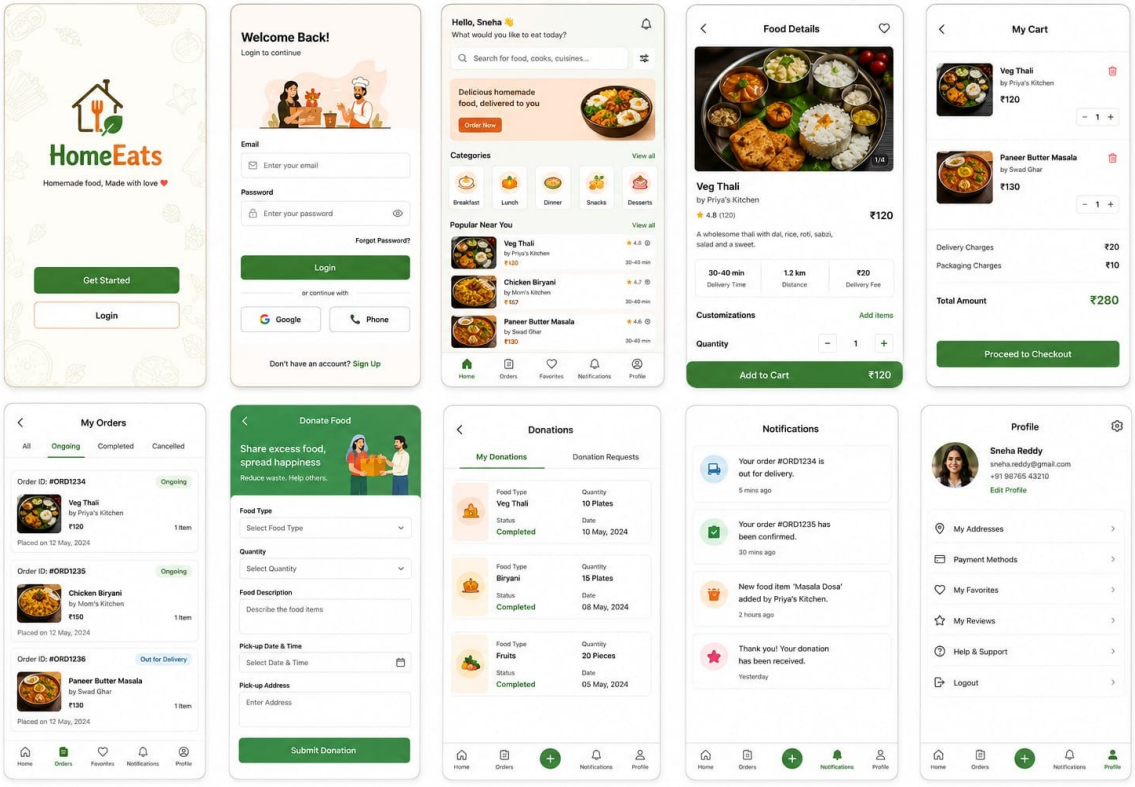

Figure 3 User Interface of the Project

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