

AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub

S. A. SUNIL ALDO¹, K. MANIRAJ²

¹Assistant Professor, Department of Computer Applications, SRM Valliammai Engineering College Kattankulathur

²Student, Master in Computer Applications, SRM Valliammai Engineering College Kattankulathur

Abstract- *The rapid growth of online food delivery services and digital marketplaces has transformed how people access food and groceries. However, many existing platforms focus mainly on restaurant delivery and often lack features that support local communities, reduce food wastage, or provide personalized cooking services. This project proposes an AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub, designed to enhance local food service accessibility while promoting sustainability and community participation. The system is developed as a full-stack web application using React.js, HTML, CSS, and JavaScript for the frontend, and Java Spring Boot for the backend, with a MySQL database for efficient data management. The platform enables users to browse food items from nearby restaurants, order groceries from local stores, and manage orders through an interactive interface. It also introduces a Home Chef module where individuals with cooking skills can offer personalized cooking services at customers' homes. Additionally, the Food Rescue Hub allows restaurants to list unsold food items at discounted prices, helping reduce food wastage. An AI-powered chatbot is integrated to assist users with platform navigation and service-related queries. Experimental testing demonstrates that the system can efficiently manage user requests, orders, and vendor data while providing a seamless hyperlocal service experience. The proposed platform aims to improve convenience, support local vendors, and encourage sustainable food consumption within communities.*

Index Terms- *Hyperlocal Delivery Platform, Food and Grocery Ordering, Home Chef Services, Food Rescue Hub, AI Chatbot, React.js, Spring Boot, MySQL.*

I. INTRODUCTION

The increasing use of digital platforms has transformed how people access food and groceries, allowing users to order meals and essential items

conveniently through online applications. However, many existing delivery platforms mainly focus on restaurant-based food delivery and often overlook community-oriented services such as personalized cooking assistance and sustainable food management. Additionally, food wastage in restaurants and hotels remains a major concern, as large quantities of unsold food are discarded daily. To address these challenges, this project introduces an AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub that enhances local food service accessibility while promoting sustainability. The system allows users to browse food from nearby restaurants, purchase groceries from local stores, and manage orders through an interactive web interface. It also includes a Home Chef module, where individuals with cooking skills can provide personalized cooking services at customers' homes. Furthermore, the platform integrates a Food Rescue Hub that enables restaurants to sell unsold food at discounted prices, helping reduce wastage. The system is developed as a full-stack web application using HTML, CSS, JavaScript, and React.js for the frontend, Java Spring Boot for the backend, and MySQL for data storage, with an AI chatbot integrated to assist users with platform navigation and service-related queries, creating a convenient and community-driven hyperlocal food service ecosystem.

II. LITERATURE REVIEW

The rapid growth of digital platforms has significantly transformed the way people access food and grocery services. Online delivery applications allow users to order meals and essential items quickly

and conveniently from nearby stores and restaurants. However, many existing platforms mainly focus on restaurant-based food delivery and often overlook other community-oriented services such as personalized cooking assistance and sustainable food management. In addition, food wastage has become a major concern in restaurants and hotels, where large quantities of unsold food are discarded daily. These challenges highlight the need for a more integrated platform that not only provides delivery services but also supports community participation and responsible food consumption.

Hyperlocal delivery systems connect customers with nearby restaurants and grocery vendors within a specific geographic area. These systems help users access food and daily essentials quickly while supporting local businesses. However, most traditional delivery platforms only provide ordering and delivery features without offering additional services that improve user convenience or address food sustainability issues. Many platforms also lack features that enable individuals with cooking skills to offer their services or allow restaurants to utilize surplus food efficiently. As a result, there is a need for a smarter and more inclusive hyperlocal platform that integrates multiple food-related services into a single system.

Recent advancements in web technologies and artificial intelligence have made it possible to develop more intelligent and interactive service platforms. AI-based tools such as chatbots can assist users by answering questions, guiding them through services, and improving the overall user experience. The proposed platform builds on these advancements by combining hyperlocal food and grocery delivery with additional modules such as Home Chef services and a Food Rescue Hub. By integrating these features with an AI chatbot and a user-friendly web interface, the system provides a more efficient and community-driven solution that enhances convenience, supports local vendors, and promotes sustainable food consumption.

III. PROBLEM STATEMENT

The increasing availability of online news has made information easily accessible, but the large volume of

articles from multiple sources often makes it difficult for users to quickly understand important information. Most existing news platforms mainly display headlines and articles without providing tools that help users analyze or interpret news content effectively. Users often need to read multiple articles to understand the key points, which can be time-consuming and may lead to information overload. In addition, many platforms provide limited interaction and lack intelligent features such as article summarization, personalized recommendations, and interactive assistance. Therefore, there is a need for a system that not only aggregates news from various sources but also helps users understand the information more efficiently. The NewsHub platform addresses this problem by providing AI-based news summarization, chatbot interaction, personalized recommendations, and automated news updates, enabling users to explore and understand news content more effectively.

IV. OBJECTIVES

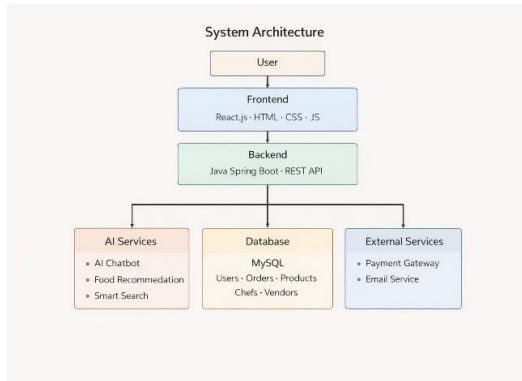
The main objectives of the AI-Powered Hyperlocal Food and Grocery Delivery Platform are:

- To develop a web-based platform that enables users to order food from nearby restaurants and purchase groceries from local stores through a single application.
- To create a hyperlocal service system that connects customers with nearby vendors, improving accessibility and convenience for daily food and grocery needs.
- To implement a Home Chef module that allows individuals with cooking skills to register and offer personalized cooking services at customers' homes.
- To introduce a Food Rescue Hub that enables restaurants to list unsold or excess food items at discounted prices, helping reduce food wastage.
- To integrate an AI-based chatbot that assists users by answering queries and guiding them through platform features such as ordering, chef booking, and navigation.
- To design a responsive and user-friendly interface using modern web technologies to ensure smooth browsing, ordering, and service access.

- To implement cart management and order tracking features that allow users to manage their purchases efficiently.
- To enhance the overall user experience by combining food delivery, grocery shopping, cooking services, and intelligent assistance within a single hyperlocal platform.

V. SYSTEM ARCHITECTURE

The system architecture of the proposed platform is designed using a layered approach that integrates the user interface, application logic, artificial intelligence services, database management, and external services to provide a smart hyperlocal food services and grocery delivery system.



A. User Layer

The User interacts with the system through a web interface using a browser or mobile device. Users can browse nearby restaurants and grocery stores, search for food items, place orders, and book home chefs through the platform. They can also view order history and track their orders. In addition, users can interact with the AI chatbot to ask questions about services available on the platform. All user requests are initially handled by the frontend interface.

B. Frontend Layer

The Frontend is developed using React.js along with HTML, CSS, and JavaScript to provide a responsive and interactive user interface. This layer is responsible for displaying food menus, grocery products, chef profiles, and order information. It also handles features such as search functionality, cart management, and user dashboards. The frontend

communicates with the backend server using API requests to fetch and update data.

C. Backend Layer

The Backend, implemented using Java Spring Boot, manages the core application logic of the system. It processes requests received from the frontend, handles order management, user authentication, chef booking, and vendor data processing. The backend also manages communication with the database and integrates external services such as payment gateways. This layer ensures that the system operates efficiently and securely.

D. AI Services Module

The AI Services module provides intelligent features that enhance the user experience of the platform. It includes an AI chatbot that assists users with queries related to food ordering, grocery browsing, and home chef services. In addition, AI-based recommendation techniques can be used to suggest popular food items or products based on user preferences and order history. These intelligent features help users navigate the platform easily and improve personalization.

E. Database Layer

The system uses MySQL as the database for storing application data such as user profiles, restaurant menus, grocery products, chef information, orders, and transaction records. The database ensures secure storage and efficient retrieval of information required by the platform. Proper database management helps maintain system performance and supports the smooth functioning of the hyperlocal delivery services.

VI. EXISTING SYSTEM

The existing system mainly consists of traditional food delivery platforms and online grocery applications that allow users to order food from restaurants or purchase grocery items through digital interfaces. These platforms provide convenient access to nearby restaurants and stores, enabling users to browse menus, select items, and place orders online. However, most existing systems primarily focus on food delivery services and often lack additional features that support community participation or personalized services. As a result,

users who require services such as home cooking assistance or integrated grocery ordering may need to use multiple platforms to fulfill their needs, which can reduce convenience and efficiency.

In addition, many existing delivery platforms provide limited solutions for addressing food wastage and sustainable food management. Restaurants and hotels frequently discard unsold food at the end of the day because there are no effective systems that allow them to distribute or sell this surplus food efficiently. Most traditional platforms also lack features that allow individuals with cooking skills to offer personalized cooking services to customers. Because of these limitations, users may find it difficult to access integrated food services, and restaurants may continue to experience unnecessary food wastage and missed opportunities for community-based service solutions.

VII. METHODOLOGY

The AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub follows a structured methodology that combines hyperlocal service integration, intelligent assistance, and modern web technologies to provide efficient food and grocery delivery services. The system allows users to browse nearby restaurants and grocery stores through a web-based interface and place orders conveniently. All user interactions are processed through the frontend interface and sent to the backend server through API requests, where the application logic handles order processing and service management.

The backend system processes requests such as user authentication, product browsing, cart management, order placement, and home chef booking. The system retrieves and stores data using a MySQL database that manages information related to users, restaurants, grocery items, chefs, and orders. The backend also coordinates different modules of the platform to ensure smooth communication between system components.

The system includes an AI-based chatbot that assists users by answering questions related to food ordering, grocery shopping, and home chef services.

In addition, recommendation features can suggest popular food items or grocery products based on user preferences, improving the overall platform experience and helping users access services more efficiently.

VIII. PROPOSED SYSTEM

The proposed system, AI Powered News Bias and Narrative Intelligence Platform, is designed to help users understand news more effectively. The platform collects news articles from multiple sources and uses artificial intelligence to summarize articles and analyze their narrative or perspective.

It also includes features such as an AI chatbot for user interaction, personalized news recommendations, video search, automated newsletters, and audio news briefings. By combining news aggregation with AI-based analysis, the system provides a more efficient and interactive way for users to explore and understand news content. The platform also helps users identify possible bias and compare different viewpoints on the same topic. It presents insights in a clear and user-friendly interface, making complex information easier to understand.

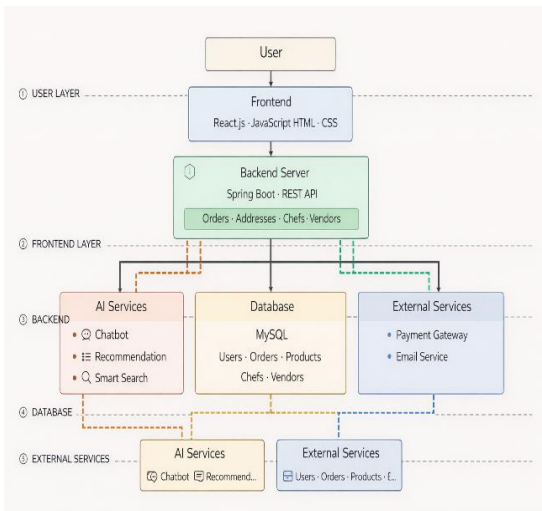
This approach improves transparency and supports users in making more informed decisions when consuming news. Additionally, the system saves users time by providing summarized and organized news content. It also encourages critical thinking by highlighting different perspectives in news reporting.

IX. SYSTEM DESIGN

The system design describes the structure and working of the AI-Powered News Bias and Narrative Intelligence Platform. The platform follows a full-stack web architecture that includes frontend, backend, and database components. The frontend is developed using React and TypeScript, providing a responsive interface for users to browse news articles, view summaries, and interact with the AI chatbot.

The backend is built using Node.js and Express, which handle API requests, data processing, and

communication with AI services for analyzing news content. The system uses a Supabase PostgreSQL database to store user information, news articles, and analysis results. These components work together to collect news from multiple sources, analyze it using artificial intelligence, and present useful insights to users through an interactive platform. This architecture ensures efficient data flow between system components and supports real-time news analysis. It also improves system scalability and performance as the platform grows.



X. API IMPLEMENTATION

The AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub uses several REST APIs to manage food ordering, grocery browsing, chef booking, AI assistance, and user account features. The backend is developed using Java Spring Boot, and all API requests are handled on the server side to ensure secure communication between the frontend interface, database, and external services. These APIs allow the system to retrieve product information, process orders, manage users, and integrate intelligent services such as chatbot assistance and product recommendations.

XI. FOOD AND GROCERY MANAGEMENT APIS

The Food and Grocery Management APIs handle the retrieval and management of restaurant menus and

grocery items in the system. The endpoint GET /api/products retrieves a list of available food and grocery items from the database. The endpoint GET /api/products/:id provides detailed information about a specific product including price, category, and availability. The endpoint POST /api/orders allows users to place new orders, while GET /api/orders/:userId retrieves the order history of a specific user. These APIs enable efficient management of food and grocery ordering services within the platform.

XII. HOMECHEFSERVICEAPIS

The Home Chef Service APIs manage chef profiles and booking services available on the platform. The endpoint GET /api/chefs retrieves a list of registered home chefs along with their skills and specialties. The endpoint GET /api/chefs/:id provides detailed information about a specific chef profile. Users can book a chef using POST /api/chef-booking, which stores booking information in the system. These APIs help users access personalized cooking services and allow chefs to manage their availability and service schedules.

XIII. USERFEATUREAPIS

The User Feature APIs support various user-specific functionalities. The endpoint POST /api/users/register allows new users to create an account, while POST /api/users/login authenticates users and provides access to the platform. The endpoint GET /api/users/profile/:id retrieves user profile information. The endpoint POST /api/cart/add allows users to add products to their cart, and GET /api/cart/:userId retrieves cart details for checkout. These APIs enable smooth interaction between users and the platform.

XIV .AI CHATBOT API

The AI Chatbot API enables intelligent interaction between users and the platform. The endpoint POST /api/chatbot/ask allows users to send queries to the chatbot and receive automated responses related to food ordering, grocery browsing, and chef booking. The chatbot helps users navigate the platform and quickly find relevant services. This feature improves

the user experience by providing instant assistance and guidance throughout the system.

XV. EXTERNAL SERVICE APIS

The External Service APIs integrate third-party services required by the platform. The endpoint `POST /api/payment/process` connects with payment gateway services to process online transactions securely. The endpoint `POST /api/email/notify` sends order confirmations and notifications to users through email services. These integrations help enhance the functionality of the platform and provide additional services required for smooth system operation.

XVI. SYSTEM TESTING

System testing is the process of verifying whether the developed system operates correctly according to the specified requirements. It helps identify errors, bugs, and performance issues before the system is deployed. In the AI-Powered Hyperlocal Food and Grocery Delivery Platform, system testing was performed to ensure that all modules, APIs, and platform features function properly. The frontend interface was tested to verify that users can browse food items, search grocery products, add items to the cart, and place orders without errors. The backend APIs were tested to ensure proper communication between the server, database, and external services. Key modules such as food ordering, home chef booking, chatbot assistance, and order management were also tested to ensure reliability.

The testing results showed that the system successfully integrates hyperlocal food and grocery services with intelligent assistance features, providing a stable and user-friendly platform for managing food delivery, grocery shopping, and personalized cooking services.

XVII. IMPLEMENTATION & RESULT

I. IMPLEMENTATION

The AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub was implemented as a full-stack web application using modern web technologies. The frontend of the system was

developed using React.js along with HTML, CSS, and JavaScript, which provides a responsive and interactive user interface for browsing restaurant menus, grocery products, and home chef services. Users can search for items, manage their cart, and place orders through an easy-to-use interface. The backend of the system was developed using Java Spring Boot, which handles API requests, order processing, user authentication, and communication with the database. The backend also manages system features such as home chef booking, food rescue listings, and chatbot assistance. The system uses MySQL as the database to store user information, product details, chef profiles, and order records. External services such as payment gateways and email notifications are integrated to support transactions and user communication, while all API requests are securely handled through the backend server.

II. RESULT

After implementation, the system was tested to evaluate its functionality and performance in handling food and grocery delivery services. The platform successfully allows users to browse food items from nearby restaurants and grocery products from local stores through a structured and user-friendly interface. Users can add items to their cart, place orders, and manage their order history efficiently. The Home Chef module enables users to view available chefs and book personalized cooking services. The Food Rescue Hub allows restaurants to list unsold food at discounted prices, helping reduce food wastage. The AI chatbot was also tested and successfully assists users by answering questions related to ordering, grocery browsing, and chef booking. Additional features such as search functionality, order management, and user authentication were tested and found to function correctly. The results show that the platform effectively integrates hyperlocal delivery services with intelligent assistance, providing a convenient and efficient system for food and grocery ordering.

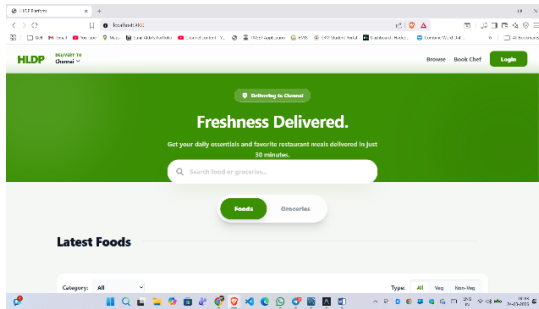


Fig 1.1 LANDING PAGE

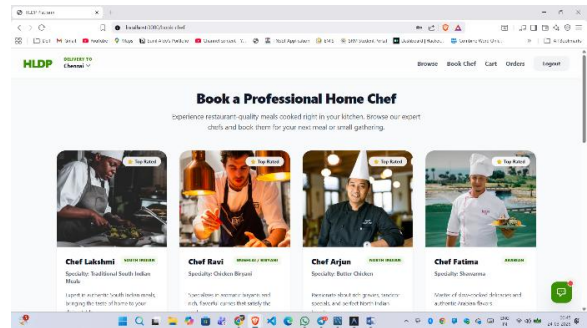


Fig 1.5 CHEF BOOKING PAGE

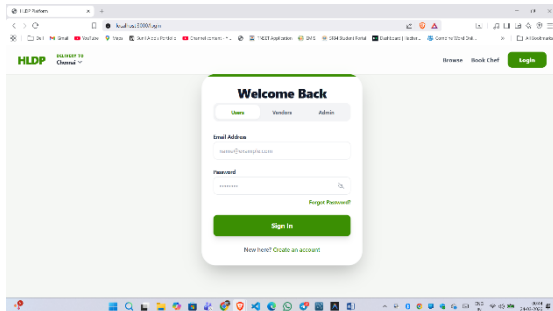


Fig 1.2 LOGIN PAGE

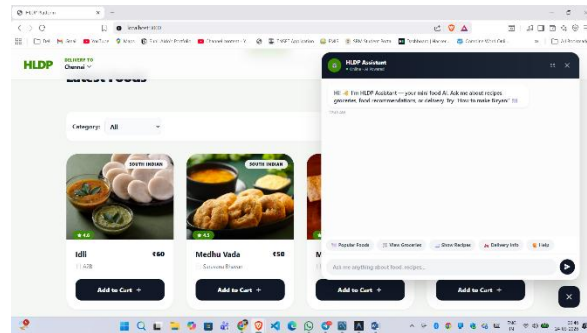


Fig 1.6 CHAT BOT DASHBOARD

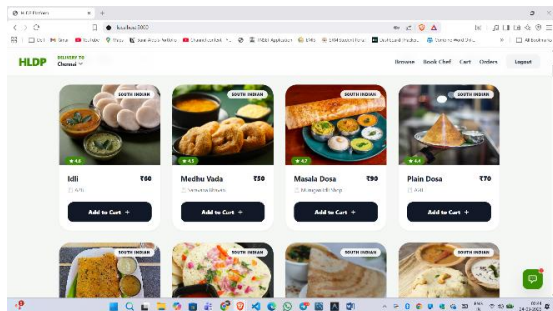


Fig 1.3 USER HOMEPAGE

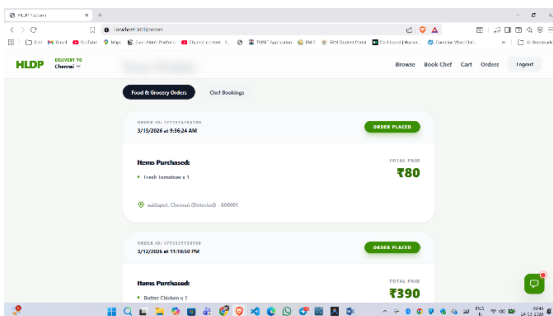


FIG 1.4 ORDERS ANALYSIS PAGE

XVIII. CONCLUSION

The AI-Powered Hyperlocal Food and Grocery Delivery Platform with Integrated Home Chef Services and Food Rescue Hub was developed to improve how users access food services and daily grocery needs within a local community. The system connects customers with nearby restaurants, grocery stores, and home chefs through a single digital platform, allowing users to conveniently browse products, place orders, and manage their services. Features such as the Home Chef booking system, Food Rescue Hub, AI chatbot assistance, and order management make the platform more interactive and useful for users.

The system is implemented using React.js with HTML, CSS, and JavaScript for the frontend, Java Spring Boot for the backend, and MySQL for data storage. The platform successfully integrates food delivery, grocery shopping, and personalized cooking services into one system. Overall, the platform provides a reliable and user-friendly solution that improves convenience for users, supports local vendors, and promotes sustainable food consumption by reducing food waste.

XIX. FUTURE ENHANCEMENTS

Although the AI-Powered Hyperlocal Food and Grocery Delivery Platform provides several useful features for food ordering, grocery shopping, and home chef services, there are still opportunities for further improvements. One enhancement could be the integration of advanced AI-based recommendation systems that analyze user preferences and order history to suggest personalized food items and grocery products. Another improvement is the development of a mobile application version of the platform, allowing users to access food delivery, grocery ordering, and chef booking services more easily through smartphones.

The system could also support real-time delivery tracking, enabling users to monitor the location and status of their orders. Future versions may also include a vendor rating and feedback system, allowing users to review restaurants, grocery stores, and home chefs. Additional features such as smart inventory management for vendors and nutritional meal recommendations can further improve the platform and make the system more intelligent and user-friendly.

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