



## **Food Picky Restaurant Aggregation and Food Ordering Web Application**

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### **ABSTRACT**

Through the integration of cutting-edge technologies, our web application redefines the experience of ordering food. The platform effortlessly integrates Web-Based Accessibility for broad availability, Artificial Intelligence (AI) for personalized recommendations, and Augmented Reality (AR) for an immersive interface. This is primarily designed to facilitate our task of fostering confidence and trust among users. The manual interactions, limited customisation, and lack of technological integration characterize the traditional meal ordering procedure. Customers' and restaurants' ordering experiences are less streamlined, less participatory, and less effective when cutting-edge elements like augmented reality, artificial intelligence, and machine learning are absent. This project offers an AI- and AR-powered online platform to upsell more products and improve user experience, in response to the fast-paced nature of modern living. Online registration is available, along with an E-menu, order placement, and quick confirmations. Augmented reality (AR) increases user engagement by letting users make better selections and prevent surprises when their meal arrives. With its ability to make individualized recommendations and recommend popular food items based on trends and tastes, artificial intelligence (AI) improves user interaction. Simplifying ordering procedures, reducing paper effort, and providing a fully digital experience are the main goals. The platform allows for weekly, monthly, and annual comparisons with its graphical representations of everyday sales.

This implementation will simplify things and give readers a clear, thorough comprehension of the subject, enabling them to understand the main ideas and current developments in the industry.

**Keywords** – AI Algorithm, Android web application, AR, Dynamic database.,

### **I. INTRODUCTION**

A web program called restaurant aggregation and food ordering software is made to order food and track it until it reaches your hands. A database was created to house all of the data, and this architecture was created from the ground up. Users can choose the location with this web application. Using our intuitive application, logging in and signing up is simple. Customers can easily register by using their social network or email addresses, guaranteeing a safe and rapid beginning to their gastronomic adventure. After registering, users can easily adjust their orders, preferences, and personal information for a customized and delightful experience thanks to their customizable profiles.

With our user-friendly design, navigating the wide range of restaurant offers becomes a pleasurable experience. Patrons are able to peruse menus. Online ordering system is originally designed for use in college cafeterias, but just as applicable in any food delivery industry. The main advantage of this web application is that AI algorithms which can study individual customer behaviour on food ordering websites to identify their likes and dislikes. It analyses the culinary preferences of every client to suggest menu items and neighbouring eateries. This paper presents a novel AI and AR-enabled online platform designed to automate essential functionalities. In order to meet the needs of a population that is time-sensitive, the platform combines Web-Based Accessibility, Artificial Intelligence (AI), and Augmented Reality (AR) to create an engaging and seamless user experience.

Orders are sent to the registered restaurants via an internet network using the menu from the web app. The ordered lists from the customers will be given to the cooking staff and the restaurant manager or owner. The order status can be updated in the system by the working professional. In addition, the consumer has the ability to see the progress of their order and cancel it.

There will already be hosting for the entire web application. A customer who is outside the restaurant can use his smartphone to place an order or reserve a table inside. By providing an easy-to-use interface for consumers to browse menus and visually experience restaurant environments, the VR-Enabled Interface promotes well-informed decision-making. Simultaneously, the incorporation of artificial intelligence (AI) via sophisticated machine learning algorithms enhances user engagement and happiness by precisely forecasting sales, personalizing product recommendations based on individual preferences, and optimizing delivery route planning. This system's FLEXIBILITY is its biggest asset.

## II. LITERATURE REVIEW

Current Food Order Process: Only one restaurant can accept orders at a time from customers. The traditional method lacks the aggregation of several food providers into a single platform for an extensive diversity of options. Furthermore, there are no personalized features in the ordering process. To address the shortcomings of the current system, we suggest that a central database be used for restaurant owners to customize an online food ordering system that uses the web to store updated menu information and order-based applications. Currently, customers receive generic recommendations, if any, and there is minimal customization based on individual preferences. The system for ordering food wirelessly is based on the mobile first approach. The restaurant's three connected major areas draw both business and non-commercial patrons. Android devices that use wireless technology have become quite popular, and Android applications are used to discover creative ways to automate ordinary tasks in restaurants utilizing mobile technology. Android is a mobile operating system for tablets and smartphones that is based on Linux and longitude. We illustrate the usage of Android devices in business applications, specifically the food ordering system in restaurants, inspired by the adoption of Android mobile OS in the health and other domains. It is advantageous and worthwhile to create Android applications that target large populations, especially in light of the market's bright future. Additionally, the app incorporates AI, which will assist users in receiving personalized recommendations and culinary products that are popular with other users.

There has been a notable movement in the food sector in recent years toward the ordering and delivery of meals via digital platforms. Research by Smith et al. (2019) and Patel et al. (2020) emphasize the growing acceptance of Restaurant aggregation and ordering systems, with a focus on the time-saving, variety of culinary options, and ease of use they provide for customers. This entails coding the algorithms used to analyse user data and produce recommendations. Collaborative filtering, content-based filtering, or a hybrid strategy could be the foundation of the concept.

Comparative Study:

ZOMATO:

FoodieBay, an Indian international restaurant aggregator and food delivery service, was founded in 2008 by Deepinder Goyal and Pankaj Chaddah. On January 18, 2010, the company changed its name to Zomato Media Pvt. Ltd. Zomato provides menus, user reviews, information on restaurants, and meal delivery from affiliated eateries in a few cities. Zomato is currently accessible in more than 10,000 cities and 24 countries.

SWIGGY:

Swiggy is an Indian online meal ordering and delivery service. Having seen a significant shift in the food industry, the two founders, Sriharsha Majety and Nandan Reddy, decided to meet Rahul Jaimini and launch Swiggy instead of continuing with their previous eCommerce venture. In July 2014, the meal delivery service Swiggy was founded in Bangalore. By September 2021, 500 Indian cities are served by it. Beyond food delivery, Swiggy also provides on-demand grocery deliveries under the Instamart brand and a speedy mail delivery service called "Swiggy Genie." Swiggy is operated by Bundl Technologies Private Limited.

Ranking by the Google play store of 10 top free in food and drink

1. Zomato: Food Delivery & Dining 2.
2. Swiggy: Food Delivery & More
3. Domino's Pizza- online food Delivery
4. Blinkit (formerly Grofers)
5. Country Delight Milk Delivery
6. KFC online order and food delivery.
7. Pizza Hut Delivery & Takeway
8. McDonald's
9. Burger King India
10. Licious-Chicken, Fish & Meat

**The Objectives of our proposed system are:**

Customize User Interactions: Use AI algorithms to provide users with tailored product recommendations based on their interests, increasing user happiness and engagement.

Simplify and speed the ordering process for users to cut down on the time they spend placing orders and waiting for food.

Combine Various Vendors:

Bring together a wide variety of food vendors on one platform to give users a ton of options and encourage vendor inclusiveness.

Reduce Food Waste: By optimizing food preparation and using machine learning to produce precise sales forecasts, food waste may be reduced and a sustainable business model can be strengthened.

Innovative Technology: By utilizing the newest technology to improve customer happiness, the food product is showcased through the combination of VR and AI.

### III. SYSTEM ARCHITETURE

The simple system architecture of customizable online food ordering system using web based

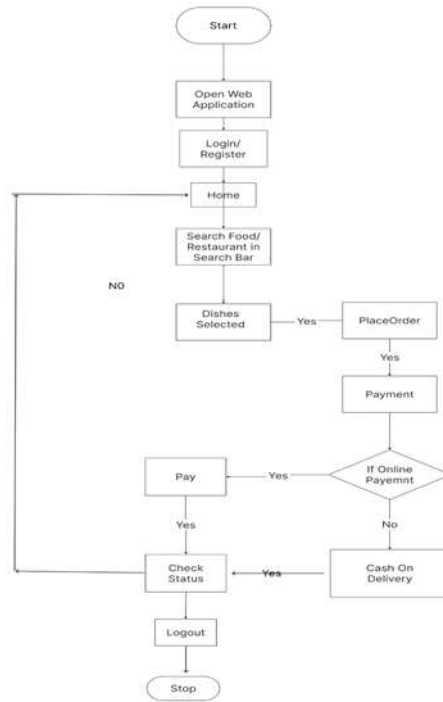


Fig 1: System Architecture

Here, we offer a unique design for food ordering systems with the goal of giving clients a smooth and intuitive experience. The following steps make up the architecture: (1) Open Website/Application: The client goes to the meal ordering system's website or application. (2) Login/Register: Using their login credentials, the customer logs in or registers. (3) Food or Restaurant Search: Using a variety of filters and parameters, the customer looks for the food or restaurant they want. (4) Choose Dishes: The client puts the dishes they wish to order in their basket after choosing them. (5) Place Order: The consumer verifies their order after seeing the information. (6) Payment: The client selects their chosen method of payment, cash on delivery or online. (7) Verify the Status: Until the order is delivered, the customer can follow its progress. (8) Receive Food: After receiving their food, the customer eats and is satisfied. (9) Logout: The user exits the program or website. Figure 1 provides an illustration of the architecture.

#### SYSTEM MODULES AND SYSTEM DESIGN

The manager or owner of the restaurant will have the opportunity to access the admin panel and edit the menu to reflect the foods that are currently available. Additionally, we will promote the day's many offerings. The manager will flexibly add several cuisine categories. The customer chooses the information after entering the eatery.

**This project consists of 4 main modules as follows:**

##### 1) AUTHENTICATION MODULES

Registration Page

Login Page

## User Profile

### Server-Side Validation

**Server-Side Validation:** In my application, server-side validation refers to the procedure of utilizing a programming language such as PHP to validate user inputs on the web server. Before saving the data in a database or carrying out any operations on it, server-side validation makes sure that it is in a valid format and complies with the business rules. Malicious users are also prevented from entering data through server-side validation that might potentially undermine security or exploit the program. Built-in functions or libraries can be used by server-side validation to verify the data types, lengths, forms, patterns, and values of user inputs.

**Registration Page:** a registration page on my website that enables visitors to sign up for an account on a program or website. Normally, a form on my registration page requests personal data from the user, including name, email address, password, and other optional fields. A submit button, a link to the login page, and links to the terms and conditions or privacy policy are also included on the registration page. A registration page should validate user inputs both client-side and server-side and notify the user of any issues or successful submissions.

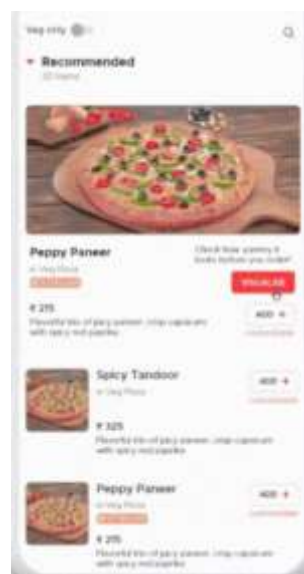
**Login Page:** The login page on my website gives current users access to their accounts on my online application. Usually, the login page consists of a form with a submit button that requests the user's password and email address. A link to the registration page, a link to the forgotten password page, a checkbox to remember the user, and a link to the home page can all be found on the login page. A login page should employ a session or cookie to authenticate the user and confirm the credentials on the server-side. Additionally, a login page ought to inform the user of any difficulties or successes.

**User Profile:** a user profile in this web application that shows the user's interests, actions, and private data on a page or platform. A user's name, avatar, and status are usually displayed in the header of their profile, while their details, settings, posts, comments, likes, follows, and other features are displayed in the body. A menu or sidebar that enables the user to access additional pages or sections may also be present in a user profile. Users should be able to read, amend, and remove their information from their profile. They should also receive feedback messages in the event that anything changes or is incorrect.

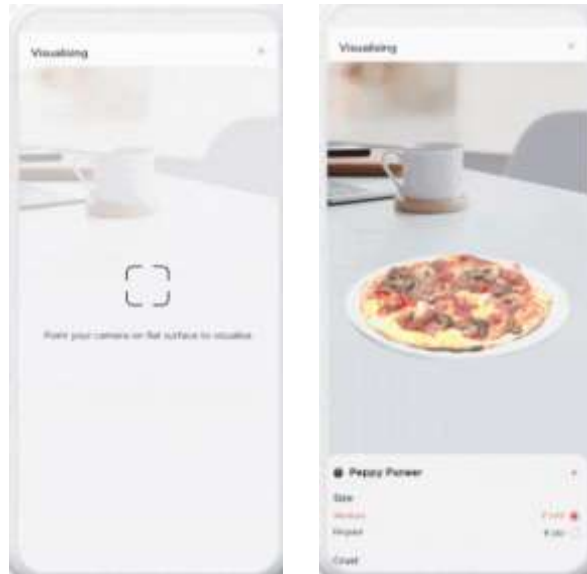
### 2) ADMIN PANEL INTEGRATION (module)

We also describe in this article the setup and design of the admin panel, which gives the administrators control over the meal ordering system. The following elements make up the admin panel: (1) Administrator Login Page: Using their username and password, administrators can access the admin panel via this webpage. Links to the home page and the forgotten password page are also included on the admin login page. (2) Admin Panel: The admin panel is a webpage that shows the administrators' menu and dashboard. The dashboard displays the most important data and metrics related to the system, including the quantity of orders, clients, eateries, and couriers. Administrators can access various sections of the admin panel, including order management, payment management, restaurant management, and user management, by navigating through the menu. (3) User Management: Through the user management section, administrators can see, add, edit, and remove system users, including servers, couriers, and customers. Administrators can also view user rating systems, reviews, preferences, and order histories. (4) Restaurant Management: Through this section, administrators have the ability to view, add, edit, and remove restaurants that are partners in the system. The administrators can also view the menus, prices, images, reviews, ratings, and locations of the restaurants. (5) Order Management: Using this section, administrators can review, edit, and cancel orders that customers have placed. The administrators can also view the order details, status, payment method, and delivery details. (6) Payment Management: Using this section, the administrators can review, validate, and manage the payments that the clients have made. The administrators can also view the invoices, receipts, and payment history.

### 3) AR FOOD VISUALIZER (module 4)



Additionally, before users place their orders, they can interactively view the 3D models of the food items thanks to the AR-Visualizer feature that we introduce in this paper. A realistic and immersive way to preview the food items is provided by the AR-Visualiser feature, which improves the user experience. Here's how the AR-Visualizer feature operates: (1) After choosing a dish from the menu, the user hits the "VISUALISE" button. (2) The user uses the camera on their smartphone to scan the table or any other flat surface. (3) Using augmented reality technology, the app superimposes the 3D model of the food item on the scanned surface. (4) The 3D model can be moved, zoomed in, and rotated by the user to see it from various perspectives and distances. (5) The user can also visualize various food items side by side to compare them. (6) The user has the option to return to the menu or add the food item to their cart.



#### 4) MENU RECOMMENDATION-

We are providing menu recommendation to the customer such as if customer order any Menu then our system will shows related menus to that order.

#### 5) CUSTOMER FEEDBACK-

We also provide facility to the customer to give feedback about services of restaurant.

#### SYSTEM TECHNOLOGY

The technologies which are used to implement the system are:

1. Visual Studio Code for developing web application.
2. Wampp Server with Visual C++ distribution Packages.
3. VC10(x64,x86),VC12C,VC13(x64,x86),VC22(x64,x86)
4. SQL 2008 is a light weight Database which is going to be used for database access.

## V. CONCLUSION

Customers can use their smartphones to navigate between restaurants and access digital restaurants, as demonstrated in this paper. We are utilizing smart web applications to provide the required interfaces for customers to view and order menus, rather than relying solely on applications lacking AI and AR features for customer interaction. Customers can view, place orders, receive real-time updates, and pick up receipts directly from their smartphones with the private login system. In addition to enabling restaurant owners to handle orders from patrons as soon as they log in, it also lets customers navigate the locations and directions within the eatery. Our experience creating smartphone applications for digital restaurants and navigating eateries with them demonstrates how wireless communication and smartphone technology can fulfill and enhance business management and service delivery needs. This system is easy to use, convenient, and effective, which enhances restaurant performance and efficiency.

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