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Research Paper

ONLINE RESTAURANT

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Abstract

The Online Restaurant System is a web-based application designed to simplify the process of browsing food items, placing orders, and managing restaurant services online. Traditional restaurant ordering methods often require customers to visit the restaurant, wait for staff assistance, or place orders manually. These methods can be time-consuming and may lead to communication errors. The proposed system provides a convenient digital platform where customers can view the restaurant menu, check food details and prices, select items, add them to a cart, and place orders easily.

The system allows customers to create an account, log in, browse different food categories, customize their orders, and view order status. It can also support online payment and order notifications to improve the overall ordering experience. Restaurant administrators can manage menu items, prices, categories, customer information, and orders through an administrative interface.

The main objective of the Online Restaurant System is to provide a fast, convenient, and user-friendly platform for online food ordering and restaurant management. It reduces manual work, improves order accuracy, and helps restaurants manage customer orders efficiently. The system also provides customers with better access to menu information and order tracking.

Overall, the proposed system provides an efficient solution for connecting customers with restaurant services through a digital platform. It can be further enhanced with online payment integration, table reservations, food recommendations, customer reviews and ratings, delivery tracking, offers and discounts, and AI-based personalized recommendations.

I. Introduction

The Online Restaurant System is a web-based application developed to simplify the process of browsing menus, selecting food items, and placing orders online. In traditional restaurant services, customers may need to visit the restaurant, wait for staff assistance, or place orders manually, which can be time-consuming and may sometimes result in communication errors. With the growth of digital technology, online restaurant platforms provide a convenient way for customers to access food services from anywhere.

The proposed system allows customers to create an account, log in, browse food items according to different categories, view food details and prices, and add selected items to a shopping cart. Customers can review their orders, provide delivery details, and place orders through the platform. The system can also provide order confirmation and status tracking, allowing customers to know the current stage of their orders.

The system provides an administrative module through which restaurant administrators can manage food categories, menu items, prices, availability, customer information, and orders. Administrators can add, update, or remove food items and monitor customer orders efficiently. Maintaining this information in a centralized database helps reduce manual work and improves the accuracy of restaurant operations.

The main objective of the Online Restaurant System is to provide a fast, convenient, and user-friendly platform for online food ordering and restaurant management. It improves communication between customers and restaurants while reducing the time required to place and manage orders. The system can be further enhanced with online payment, table reservations, delivery tracking, customer reviews and ratings, offers and discounts, and AI-based personalized food recommendations.

II. Literature Survey

Several studies have focused on developing online restaurant and food ordering systems to simplify the process of ordering food and managing restaurant services. Traditional restaurant ordering methods generally require customers to visit the restaurant, wait for staff assistance, or place orders manually. These approaches can be time-consuming and may result in communication errors, incorrect orders, and delays. The development of web-based restaurant systems has provided a convenient solution by allowing customers to browse menus, view food details, check prices, and place orders through digital platforms.

Existing online restaurant systems commonly provide features such as customer registration, login, menu browsing, food categorization, shopping carts, order placement, and order history. Customers can select food items, specify quantities, review their orders, and submit them through an online interface. Restaurant administrators can manage menu items, prices, food categories, customer information, and orders. These features reduce manual work and help restaurants maintain order information in an organized manner. However, basic systems may have limited support for real-time order tracking, personalized recommendations, online payments, and customer feedback.

Recent developments in web and mobile technologies have improved the functionality of online restaurant platforms. Online payment gateways allow customers to complete transactions digitally, while notification systems can provide order confirmations and updates. Location-based services can help restaurants manage delivery areas, and customer reviews and ratings can provide useful information about food quality and service. Artificial Intelligence and data analytics can also be used to analyze customer preferences and recommend suitable food items. However, challenges such as payment security, customer data protection, accurate order processing, real-time availability, and efficient delivery management need to be considered.

Based on the study of existing approaches, the proposed Online Restaurant System aims to provide a centralized and user-friendly platform for online food ordering and restaurant management. The system allows customers to register, browse food items, view prices and details, add items to a cart, place orders, and track their order status. The administrator can manage food items, categories, prices, availability, customers, and orders efficiently. The system can be further enhanced with online payment, table reservations, food recommendations, customer reviews and ratings, delivery tracking, offers, and AI-based personalized suggestions. Thus, the proposed system provides an efficient digital solution for improving both customer convenience and restaurant management.

III. System Analysis

System analysis is an important phase in the development of the Online Restaurant System. The analysis focuses on understanding the requirements of customers, restaurant staff, and administrators. Customers need a convenient platform to browse food items, view prices, check availability, and place orders online. The system should provide detailed information about food items, including names, descriptions, prices, categories, and images. Users should be able to register, log in, select food items, add them to a cart, and place orders easily. The system should calculate the total order amount and provide order confirmation after successful placement. Customers should also be able to view their order history and track the current order status. Administrators require features to manage menu items, categories, prices, availability, customers, and orders. All important information should be stored in a centralized database for organized management. The system should provide security for user accounts and order information. It should also offer good performance, usability, reliability, and scalability. Overall, system analysis identifies the functional and technical requirements needed to develop an efficient online food ordering platform.

Existing System

In the existing system, customers generally place food orders by visiting restaurants, calling restaurant staff, or ordering through separate food delivery platforms. Customers visiting the restaurant may need to wait for staff to provide menus and take their orders manually. Telephone-based ordering can also result in communication errors, incorrect food items, or incorrect quantities. Customers may not always have access to updated information about food availability and prices. Restaurant staff have to manually record and process customer orders, which increases their workload. Maintaining customer and order records manually can also lead to errors and difficulties in retrieving information. Customers may have limited options for customizing their orders or tracking the status of their food. Traditional systems may not provide convenient online payment and digital order confirmation. Restaurant administrators may also find it difficult to manage menu items, inventory, customer details, and orders efficiently. These limitations create a need for a centralized online system that automates the ordering and management process. The proposed system aims to provide a faster, more accurate, and convenient restaurant ordering experience.

Disadvantages of Existing System

- Customers may need to visit the restaurant to place orders.
- Telephone ordering can cause communication errors.
- Customers may experience long waiting times.
- Food availability may not always be updated.
- Menu and price information may become outdated.
- Manual order entry can result in incorrect orders.
- Maintaining customer records manually requires more effort.
- Limited options for tracking order status.
- Online payment may not be available.
- Difficult to manage large numbers of orders manually.
- Limited personalization and food recommendations.
- Restaurant administrators may require more effort to manage operations.

Proposed System

The proposed Online Restaurant System is a web-based platform designed to simplify food browsing, ordering, and restaurant management. The system allows customers to register and log in to access online food ordering services. Users can browse different food categories and view food names, descriptions, prices, images, and availability. Customers can select food items, specify quantities, customize their orders where supported, and add items to a shopping cart. The system automatically calculates the total order amount before the customer confirms the order. After successful order placement, the system provides order confirmation and stores the booking details in the database. Customers can view their previous orders and track the status of their current orders. Administrators can add, update, or remove food items and manage categories, prices, and availability. They can also view customer information and process incoming orders through the administrative dashboard. The system can be integrated with online payment and notification services for additional convenience. Overall, the proposed system provides a centralized, secure, efficient, and user-friendly solution for online food ordering and restaurant management.

Advantages of Proposed System

- Allows customers to order food online from anywhere.
- Reduces waiting time for customers.
- Provides detailed menu and food information.
- Displays food prices and availability clearly.
- Reduces manual order-entry errors.
- Provides convenient shopping cart functionality.
- Calculates the total order amount automatically.
- Provides order confirmation and status tracking.
- Maintains customer and order history systematically.
- Helps administrators manage menus and orders efficiently.
- Can support online payment integration.
- Can provide food recommendations, offers, and notifications.

IV. Methodology

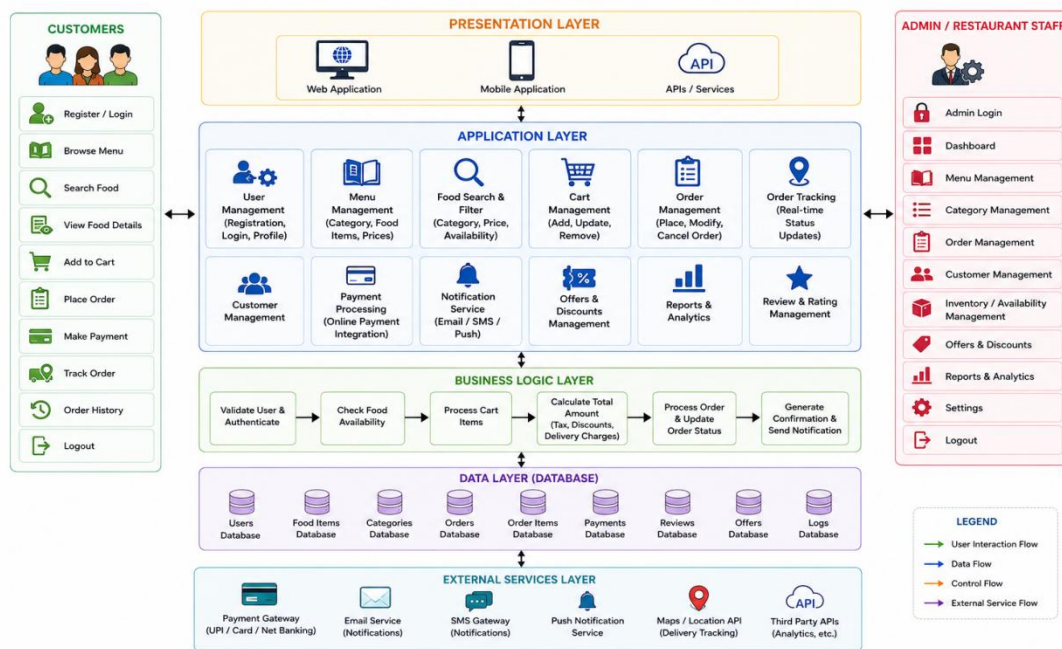
The methodology describes the systematic approach followed for developing the Online Restaurant System. The development process begins with identifying the

requirements of customers, restaurant staff, and administrators. Functional requirements such as registration, login, menu browsing, food selection, cart management, order placement, and order tracking are identified. Non-functional requirements such as security, usability, reliability, performance, and scalability are also considered. Based on these requirements, the system architecture and database structure are designed. The application is divided into different modules to simplify development, testing, and maintenance. The user interface is developed to provide simple navigation and convenient food ordering. Backend services are implemented to manage users, food items, categories, prices, availability, and orders. A centralized database is used to store customer details, menu information, and order records. The administrator module is developed to manage food items, categories, customers, and orders. Each module is tested individually to identify and correct errors. Integration testing is performed to verify communication between different modules. Finally, the complete system is evaluated to ensure that it meets the required functionality, usability, security, and performance standards.

System Architecture

The system architecture defines the structure and interaction between the major components of the Online Restaurant System. The proposed system can follow a layered architecture consisting of the presentation layer, application layer, business logic layer, database layer, and external service layer. The presentation layer provides the user interface through which customers and administrators interact with the system. Customers can register, log in, browse menus, select food items, manage their cart, and place orders through this layer. The application layer manages authentication, menu searching, cart operations, order processing, and order tracking. The business logic layer calculates order totals, verifies food availability, processes orders, and updates order status. The database layer stores customer details, food information, categories, prices, availability, and order records. The administrator interface allows authorized staff to manage menus, customers, food availability, and incoming orders. An online payment gateway can be integrated through the external service layer to process payments securely. Notification services can provide order confirmations and status updates to customers. Authentication and authorization mechanisms help protect user and administrative information. The layered architecture makes the system easier to maintain, test, and extend.

SYSTEM ARCHITECTURE – ONLINE RESTAURANT SYSTEM



V. Result and Output

ONLINE RESTAURANT SYSTEM – RESULTS & OUTPUTS

The screenshots display the user interface of the online restaurant system across seven pages:

- 1. HOME PAGE:** Features a search bar, "Delicious Food, Delivered Fast" banner, and popular categories like Pizza, Burgers, Indian, Chinese, Beverages, and Desserts.
- 2. MENU PAGE:** Displays a grid of food items with images, names, descriptions, and prices, each with an "Add to Cart" button.
- 3. CART PAGE:** Shows the items in the cart with columns for Item, Price, Quantity, and Total, along with subtotal, delivery charges, and a total amount.
- 4. CHECKOUT PAGE:** Includes delivery details (name, phone, address), order summary, and payment method selection (Cash on Delivery or Online Payment).
- 5. ORDER CONFIRMATION:** Displays a "Thank You" message and order details including Order ID, Order Date, Payment Method, and Total Amount.
- 6. MY ORDERS:** A table listing past orders with columns for Order ID, Date, Items, Amount, Status, and Action (View).
- 7. ADMIN DASHBOARD:** Provides an overview of system metrics: Total Orders (152), Pending Orders (18), Completed Orders (114), Total Customers (236), Today's Revenue (₹18,650), and Total Revenue (₹2,45,780). It also includes a line graph for orders overview and a table of recent orders.

VI. Conclusion

The Online Restaurant System successfully provides a convenient and efficient platform for customers to browse food items and place orders online. The system allows users to register, log in, view different food categories, check food details and prices, add items to the cart, and place orders easily. It also provides order confirmation and order status tracking, helping customers understand the current stage

of their orders. The administrative module allows restaurant staff to manage food items, categories, prices, availability, customers, and orders efficiently. By reducing manual ordering processes, the system minimizes errors and saves time for both customers and restaurant staff. The centralized database helps maintain customer, menu, and order information in an organized manner. The system provides a user-friendly interface and improves the overall online food-ordering experience. Functional testing confirms that the major features perform according to the expected requirements. Overall, the proposed system provides a reliable digital solution for restaurant ordering and management. In the future, it can be enhanced with online payment, table reservations, delivery tracking, customer reviews and ratings, offers and discounts, and AI-based personalized food recommendations.

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