



# Online Food Ordering System

**Laxmipriya Pradhan**

(2201298099)

Dept. of Computer Science&Engineering  
Gandhi Institute For Technology, Autonomous  
Bhubaneswar, Odisha, India

**Indrani Layek**

(2201298089)

Dept. of Computer Science&Engineering  
Gandhi Institute For Technology, Autonomous  
Bhubaneswar, Odisha, India

**Abstract**—The rapid growth of internet-based services has transformed the food industry, making online food ordering systems an essential component of modern digital commerce. This project presents the design and implementation of a web-based Online Food Ordering System developed using PHP, JavaScript, HTML, CSS, and a MySQL database managed through a XAMPP server environment. The system enables customers to browse restaurant menus, place orders, and manage their profiles conveniently through a browser interface, while administrators can efficiently manage menus, orders, and user data via a dedicated dashboard. The objective of this project is to streamline the food ordering process, eliminate manual inefficiencies, enhance customer experience, and provide a scalable solution for small to medium-sized food businesses. The system demonstrates how traditional client-server architecture can be effectively leveraged to build practical, user-friendly e-commerce applications.

accessibility. The digitization of this process through a web-based platform addresses these shortcomings by providing a centralized, automated, and user-friendly solution. The system developed in this project harnesses widely adopted web technologies — PHP for server-side scripting, MySQL for relational data management, JavaScript and CSS for dynamic and responsive front-end interaction — to deliver a robust and maintainable application.

This paper presents the motivation, system architecture, design methodology, key features, implementation details, and future scope of the Online Food Ordering System project. Section II reviews related work. Section III describes the system architecture and design. Section IV discusses the technologies used. Section V elaborates on the key modules. Section VI addresses testing and results. Section VII outlines future enhancements, and Section VIII concludes the paper.

**Keywords** — Online Food Ordering; PHP; MySQL; XAMPP; JavaScript; HTML; CSS; Web Application; E-Commerce; Client-Server Architecture

## II. RELATED WORK

A substantial body of literature exists on web-based ordering and e-commerce systems. Researchers have explored various architectural paradigms ranging from monolithic PHP-MySQL stacks to modern microservice frameworks. Early work by Turban et al. [1] highlighted the significance of electronic commerce in retail and food services, establishing foundational principles for user-centered interface design and secure transaction management.

Several studies have examined the user experience aspects of food ordering platforms. Kumar and Sharma [2] analyzed customer satisfaction metrics for online food delivery services and found that interface simplicity, order accuracy, and payment security are the most critical factors influencing adoption. Subsequent work by Das et al. [3] proposed a lightweight PHP-MySQL architecture for small restaurant chains,

## I. INTRODUCTION

The food service industry has undergone a remarkable transformation in recent years, driven by the proliferation of internet technologies and mobile computing. Consumers increasingly prefer the convenience of ordering food online rather than visiting physical restaurants or making telephone calls. An Online Food Ordering System (OFOS) represents a critical bridge between restaurants and their customers, enabling seamless transaction management, real-time menu updates, and efficient order tracking.

Traditional food ordering methods are associated with multiple inefficiencies, including manual order recording, communication errors, and limited



demonstrating that open-source server stacks offer cost-effective alternatives to commercial platforms.

More recent investigations have focused on integrating real-time features such as live order tracking and push notifications into web applications using JavaScript frameworks [4]. While these advanced features improve user engagement, the foundational client-server model utilizing PHP, MySQL, and XAMPP remains highly relevant for educational and small-business deployments due to its simplicity, portability, and low infrastructure cost. The present project builds upon this established foundation while incorporating modern HTML5 and CSS3 techniques for a responsive and accessible interface.

### III. SYSTEM ARCHITECTURE AND DESIGN

The Online Food Ordering System follows a three-tier client-server architecture comprising the presentation layer, the application logic layer, and the data layer. This separation of concerns promotes maintainability, scalability, and ease of testing.

#### A. Presentation Layer

The presentation layer is implemented using HTML5, CSS3, and JavaScript. HTML5 provides the semantic structure for all web pages, ensuring accessibility and compatibility across modern browsers. CSS3 is used to style the interface with responsive design techniques, ensuring usability on desktops, tablets, and mobile devices. JavaScript adds interactivity such as dynamic menu filtering, form validation, and asynchronous updates to the shopping cart without full page reloads.

#### B. Application Logic Layer

PHP serves as the server-side scripting language, handling all business logic including user authentication, session management, order processing, and communication with the database. PHP scripts process HTTP requests from the browser, execute the appropriate queries against the MySQL database, and return dynamically generated HTML responses. The XAMPP local server environment bundles Apache HTTP Server, MySQL, PHP, and Perl, providing a self-contained development and testing platform.

#### C. Data Layer

MySQL is used as the relational database management system. The database schema consists of multiple normalized tables including Users, Restaurants, Menu\_Items, Orders, Order\_Details, and Payments. Foreign key constraints enforce referential integrity. Stored procedures and indexed queries are

used to optimize common read operations such as fetching menu items by category.

### IV. TECHNOLOGIES USED

The following technologies and tools were employed in the development of this project:

- PHP (Hypertext Preprocessor): Server-side scripting for dynamic content generation, form handling, session management, and database interaction.
- MySQL: Relational database for persistent storage of user profiles, menu data, order records, and payment information.
- XAMPP Server: A cross-platform local server stack that provides Apache, MySQL, PHP, and phpMyAdmin for rapid development and testing.
- HTML5: Semantic markup language for structuring web pages, forms, and multimedia content.
- CSS3: Stylesheet language for visual design, layout management, animations, and responsive breakpoints.
- JavaScript: Client-side scripting for interactive UI components, AJAX-based cart updates, and real-time form validation.

The combination of these technologies represents the classic LAMP/WAMP stack adapted for a Windows-based local server (XAMPP), which is widely taught in academic settings and used in production deployments for small to medium-scale web applications [5].

### V. KEY MODULES

#### A. User Registration and Authentication

New customers can register by providing their name, email address, phone number, and password. Passwords are hashed using PHP's built-in `password_hash()` function before storage. Returning users authenticate via a login form; sessions are created upon successful verification and destroyed on logout. Input sanitization using prepared statements prevents SQL injection attacks.

#### B. Menu Browsing and Search

The menu module displays all available food items categorized by type (e.g., Starters, Main Course, Beverages, Desserts). Each item card shows the dish name, description, price, and an option to add it to the cart. A JavaScript-powered search bar allows customers to filter items in real time without page refresh.

#### C. Shopping Cart and Order Placement

The cart module maintains a server-side session array that stores selected items and quantities.



Customers can update quantities or remove items before proceeding to checkout. Upon confirming the order, the system writes records to the Orders and Order\_Details tables, generates a unique order ID, and displays an order confirmation summary.

#### **D. Admin Dashboard**

A password-protected administrative interface allows authorized personnel to add, edit, or remove menu items; view all pending and completed orders; update order statuses; and manage registered user accounts. The dashboard presents summary statistics including total orders, revenue, and popular items using simple PHP-generated aggregates.

#### **E. Order Tracking**

Customers can view the current status of their orders (Placed, Preparing, Out for Delivery, Delivered) through their profile page. Order statuses are updated manually by the administrator from the dashboard. The page auto-refreshes using a JavaScript timer to reflect the latest status without requiring manual reload.

### **VI. TESTING AND RESULTS**

The system was tested using both functional and usability testing methodologies. Functional tests verified the correctness of user registration, login, menu display, cart operations, order placement, and admin panel functions. All major user flows were executed successfully without critical errors.

Usability testing was conducted with a small group of peers who evaluated the interface for clarity, ease of navigation, and task completion rate. Feedback indicated that the interface is intuitive and that the checkout process is straightforward. Minor improvements were made to button placement and error message visibility based on this feedback.

Security testing included attempts at SQL injection via form fields and session hijacking scenarios; prepared statements and server-side session validation effectively mitigated these attacks. Cross-browser compatibility was confirmed on Google Chrome, Mozilla Firefox, and Microsoft Edge.

### **VII. FUTURE SCOPE**

Several enhancements are envisioned to extend the capabilities and scalability of the system:

- **Payment Gateway Integration:** Incorporating third-party payment APIs (e.g., Razorpay, PayPal) to enable secure online transactions directly within the platform.
- **Mobile Application:** Developing a companion Android/iOS application using React Native or

Flutter that interfaces with the existing PHP backend through a RESTful API.

- **Real-Time Order Tracking:** Implementing WebSocket-based communication to provide live, push-based order status updates to customers.
- **Machine Learning-based Recommendations:** Analyzing order history to suggest personalized menu items to returning customers.
- **Multi-Restaurant Support:** Extending the architecture to support multiple restaurant vendors under a single platform, similar to commercial aggregators.
- **Cloud Deployment:** Migrating from the XAMPP local server to a cloud hosting environment (AWS, Azure, or GCP) for production-grade availability and scalability.

### **VIII. CONCLUSION**

This paper presented the design and implementation of a web-based Online Food Ordering System developed as an academic project at Gandhi Institute For Technology, Autonomous, Bhubaneswar, under Biju Patnaik University of Technology, Rourkela, Odisha. The system successfully demonstrates how PHP, MySQL, JavaScript, HTML, CSS, and the XAMPP server environment can be combined to deliver a functional, secure, and user-friendly food ordering platform.

The project covers essential software engineering concepts including database design, server-side scripting, session management, input validation, and responsive front-end development. It lays a strong foundation for further development into a production-ready application incorporating payment gateways, mobile interfaces, and cloud hosting. The authors believe that future iterations of this system, incorporating the enhancements outlined above, will offer significant practical value to the food service industry.

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