

Bachelor of business information technology

Business project

Food ordering system

23/06357

Wamoto charity

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**1. Introduction / Background**

A **Food Ordering System** is a software application that allows customers to browse menus, place orders, make payments, and track deliveries. These systems are widely used by restaurants, cafes, and food delivery services to enhance customer satisfaction, streamline operations, and increase sales.

This system customer with real-time updates on their order status (e.g., order confirmed, being prepared, out for delivery).

This project aims to create a food ordering system that addresses the needs of both customers and restaurants, providing a seamless user experience while optimizing internal processes.

Problem statement

* Inefficient Ordering Process: Customers often experience delays and confusion when ordering, leading to a poor user experience.
* Manual Order Management: Restaurants may rely on paper or phone-based order systems, which are prone to errors and inefficiencies.
* Limited Payment and Delivery Options: Existing systems may not provide diverse payment methods or optimized delivery solutions.
* Lack of Personalization and Customer Engagement: Restaurants may struggle to retain customers due to the inability to offer personalized experiences and track customer preferences.
* Ineffective Inventory Management: Restaurants may face difficulties in tracking stock levels and adjusting their menus based on ingredient availability.
* Insufficient Data and Analytics: Without effective tools for monitoring and analyzing customer orders, restaurants cannot optimize their operations or make informed business decisions.

**Proposed solution**

The food ordering system provides a comprehensive and an automated solution to enhance user experience and operational efficiency

This is how the system will help solve the problems;

* . Mobile app or website-a mobile application and a responsive website for customers to browse menus
* . admin dashboard-a web based portal for restaurant managers and staff to manage orders, inventory, menu items and customer data
* . delivery tracking system-a separate interface for delivery personnel to view, accept and deliver orders
* . menu browsing and item customization-customers can browse categories, view detailed information about each dish and customize their order
* . order placement and payment-a secure integrated payment gateway will allow customers to complete their transactions online
* . order tracking-real time tracking allows customers to see the status of their order along with expected time
* . menu management-restaurant staff can easily add, update or remove menu items via admin
* . order management-the system will notify restaurant staff about new orders in real time
  + **Objectives**
* These are some of the objectives of the food ordering system
* Allow customers to easily browse menus, select food items, and place orders from their devices,
* **2.**Enable restaurants to receive and process orders in real time, minimizing errors and delays, :
* 3.Provide customers with real-time updates on their order status, from order confirmation to food delivery,
* 4.Enable customers to create profiles, save favorite orders, and receive personalized recommendations based on past purchases and preferences.
* 5.: Help restaurants track available ingredients and update menu items accordingly, ensuring that the kitchen operates efficiently and reducing food waste.
* 6.: Support multiple secure payment methods ie credit cards, to facilitate easy and quick transactions.
* 7.: Provide insights into customer behavior, sales data, and order trends, enabling restaurant owners to make informed decisions for marketing, pricing, and inventory management.

8.: Enable customers to leave reviews and ratings, helping improve services and build trust with new custom

**Literature review**

**1. Evolution of Food Ordering Systems**

Food ordering systems is an online platform where customers could order food from local restaurants. These systems were mainly accessed via computers

The **food ordering market** has expanded significantly, with global giants like **Uber Eats**, taking the lead. These platforms allow users to search for food items, browse menus, place orders, and track deliveries.

**2 Key Features of Food Ordering Systems**

A comprehensive food ordering system generally includes several key features aimed at providing a seamless user experience:

* **User Registration and Profile Management**: Customers create accounts to manage their orders, preferences, and payment details
* **Menu Browsing and Customization**: Users can view detailed menus, customize orders and add items to their cart
* **Order Management and Tracking**: Once an order is placed, the system manages the entire process, from kitchen preparation to delivery. Users can track their orders in real-time
* **Payment Integration**: Multiple payment methods are integrated into food ordering systems, including credit cards, digital wallets, and sometimes cash on delivery

**3. User Experience and Interface Design**

The **user interface** and **user experience** are crucial components of any food ordering system. Research has shown that a simple, intuitive interface leads to higher user satisfaction and greater usage.

**4. Challenges in Food Ordering Systems**

While food ordering systems offer a variety of benefits, they also face several challenges:

* **Order Accuracy**: A major concern for both customers and restaurants is the accuracy of the order. Mistakes in order fulfillment can lead to customer dissatisfaction **Delivery Efficiency**: Timely delivery is a critical aspect of food ordering services. Issues such as **traffic delays**, can negatively impact delivery time, leading to frustration for users
* **Payment Security**: Payment fraud is a constant threat in e-commerce. Ensuring secure payment gateways and protecting customer data is crucial for the credibility of the system **User Retention**:

Project constraints

* .1. Budget Constraints
* Limitation: The system must be developed within a predefined budget. This might restrict the choice of features, technologies,
* Impact: Limits the use of advanced features like AI-based recommendations, extensive marketing features, or custom-built integrations with other platforms.
* 2. Time Constraints
* Limitation: The system must be delivered within a certain time frame. This affects the scope and the complexity of features that can be developed.
* Impact: Some advanced features (such as advanced analytics, personalized recommendations, or complex integrations) may be postponed to future versions.
* 3. Security Constraints
* Limitation: The system must comply with strict security standards to protect user data, especially payment information (Impact: Development might be slowed by additional testing and implementation of security protocols, such as encryption, secure payment gateways, and data protection mechanisms.
* Payment Gateway Constraints

Limitation: The system might be restricted to a limited number of payment gateways based on the country of operation or the budget for transaction fees.

Impact: Some regions or customers might not be able to use their preferred payment method, limiting convenience.

* Localization Constraints

Limitation: The system must support multiple languages or currencies for international users, but this could be limited to a subset of languages in the initial version.

Impact: Some customers may face challenges if their language or currency is not supported, particularly in a global market.

budget

**1. System Design & Development**

* **Front-End Development**: KES 15,000
* **Back-End Development**: KES 20,000
* **Database Setup (MySQL/PostgreSQL)**: KES 5,000
* **UI/UX Design**: KES 7,000
* **Testing & Debugging**: KES 8,000

**Subtotal for Development**: KES 55,000

**2. Hosting & Domain**

* **Web Hosting (1 Year)**: KES 8,000
* **Domain Name (1 Year)**: KES 2,000

**Subtotal for Hosting & Domain**: KES 10,000

**3. Software & Tools**

* **Development Tools (IDE like Visual Studio Code, etc.)**: Free (open-source)
* **Graphic Design Tools**: KES 3,000 (if needed for logo design or UI assets)

**Subtotal for Tools**: KES 3,000

**4. Contingency Fund**

* **Miscellaneous Expenses**: KES 5,000

**Total Estimated Budget**: KES 73,000

schedule

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Task no** | **Task** | **Duration**  **(days)** | **Expected start date** | **Actual start date** | **Expected end date** | **Actual end date** | **deliverable** |
| **1** | Requirement gathering | 5 | 01-5-2025 | 03-5-2025 | 04-5-2025 | 06-5-2025 | POS system requirement |
| **2** | Vendor selection | 5 | 06-5-2025 | 07-5-2025 | 09-5-2025 | 10-5-2025 | POS vendor contract |
| **3** | Web development | 5 | 11-5-2025 | 12-5-2025 | 13-5-2025 | 15-5-2025 | POS terminal and devices |
| **4** | Mobile app development | 5 | 16-5-2025 | 17-5-2025 | 19-5-2025 | 20-5-2025 | Installed POS software |
| **5** | System configuration | 5 | 21-5-2025 | 18-5-2025 | 20-5-2025 | 21-5-2025 | Customizes POS setting |
| **6** | Payment integration | 5 | 26-5-2025 | 20-5-2025 | 22-5-2025 | 22-5-2025 | Trained staff |
| **7** | Testing and quality assurance | 5 | 31-5-2025 | 21-5-2025 | 23-5-2025 | 23-5-2025 | Test report and fixes |
| **8** | Marketing and advertising preparation | 5 | 07-6-2025 | 22-5-2025 | 24-5-2025 | 24-5-2025 | POS live test run |
| **9** | launch | 5 | 11-6-2025 | 23-5-2025 | 25-5-2025 | 26-5-2025 | Fully operational POS system |
| **10** | Post launch | 5 | 20-6-2025 | 25-5-2025 | 26-5-2025 | 27-5-2025 | Final evaluation on report |

Risk management

Developing a food ordering system involves various risks that can affect its functionality, security, and user experience. Here’s a summary of the key risks and mitigation strategies:

1. **Technical Risks:**
   * **System Downtime:** Minimize by using reliable hosting and backup systems.
   * **Data Security:** Ensure secure data transmission, compliance with privacy laws, and regular security audits.
   * **Integration Failures:** Use robust third-party services, build redundancies, and thoroughly test integrations.
2. **Operational Risks:**
   * **Incorrect Order Fulfillment:** Ensure clear communication between kitchen and front-end, implement quality checks.
   * **Inventory Issues:** Integrate inventory management and regularly update stock levels.
3. **Customer Experience Risks:**
   * **Usability Issues:** Conduct usability testing and keep the UI intuitive.
   * **Order Delays/Errors:** Provide realistic delivery times, track orders, and maintain communication.
4. **Financial Risks:**
   * **Payment Gateway Failures:** Use multiple payment methods and test systems regularly.
   * **Fraudulent Transactions:** Implement fraud detection tools and monitor suspicious activities.
5. **Legal and Regulatory Risks:**
   * **Non-Compliance:** Stay updated with food safety, health regulations, and privacy laws.
   * **Intellectual Property Issues:** Use licensed content and work with legal advisors.
6. **Scalability Risks:**
   * **Handling Increased Traffic:** Build with scalability in mind, use cloud infrastructure, and test under load.
7. **Project Management Risks:**
   * **Development Delays:** Define clear goals and timelines, use Agile practices, and regularly review progress.
   * **Insufficient Testing:** Implement comprehensive testing procedures, including performance and security testing.
8. **Maintenance Risks:**
   * **System Maintenance Challenges:** Follow best coding practices, update regularly, and ensure proper documentation.

Methodology

**1. Requirements Gathering**

* **User Profiles**: Customers, restaurant staff, and delivery agents must have unique profiles for accessing the system.
* **Order Management**: Customers should be able to browse the menu, place orders, and track their order status.
* **Payment Integration**: Integration with secure payment gateways for processing transactions.
* **Admin Panel**: A backend system for restaurant staff to manage orders, menus, and payment

**2. System Design**

* **Frontend Design**: A mobile-friendly interface (for both Android and iOS) **Backend Development**: The server-side logic, including API integration for payment and order processing, is built using technologies like Node.js or Django.
* **Database Design**: A relational database is created to store customer data, orders, menu items, and payment details.

**3. Development Phase**

* **Frontend Development**: Building the user interface where customers can browse menus, place orders, and track the status of their food.
* **Backend Development**: Implementing the server-side logic, including order processing, user authentication, and payment integration.
* **Payment Gateway Integration**: Adding integration with services like Stripe or PayPal to handle secure online transactions.

**4. Testing and Quality Assurance**

* **Unit Testing**: Individual modules and components are tested for their functionality.
* **Integration Testing**: Ensuring that different system components work together, especially payment processing and order management.
* **User Acceptance Testing (UAT)**: Real users (e.g., customers and restaurant staff) test the system to ensure it meets their needs and is user-friendly.

**5. Deployment and Maintenance**

* **Deployment**: The web or mobile app is launched for public use, with the server and database hosted in the cloud for scalability.
* **Ongoing Support**: Continuous monitoring of system performance, user feedback collection, and bug fixing are part of the maintenance phase.

**6. Feedback and Iteration**

After deployment, the system is regularly updated based on user feedback and emerging needs. New features can be added over time, such as loyalty programs or real-time order tracking, based on customer demands and business goals

**1. People Needed**

* **Developer(s)**: To code the system (front-end and back-end).
* **Designer**: To create the look and feel of the system.
* **Tester**: To check for bugs and issues.
* **Manager (Optional)**: To organize tasks and timelines.

**2. Tools & Technologies**

* **Programming Languages**:
  + Frontend: **HTML**, **CSS**, **JavaScript**.
  + Backend: **PHP**, **Node.js**, or **Python**.
  + Database: **MySQL** or **MongoDB**.

**3. Design Tools**

* **Design Software**: **Figma** or **Adobe XD** for creating the interface.
* **Stock Images**: Websites like **Unsplash** or **Pexels** for photos.

**4. Testing Tools**

* **Unit Testing**: **Jest** (for JavaScript).
* **End-to-End Testing**: **Cypress**.
* **Bug Tracking**: **Trello** or **Jira**.

**5. Payment Integration**

* **Payment APIs**: **Stripe** or **PayPal** for card payments, or **MPesa** for local payments.
* **SSL Certificate**: For secure payments.

**6. Project Management**

* **Tools**: **Trello**, **Asana**, or **Notion** to organize tasks.
* **API Documentation**: For any integrations you use (like payments).

**7. Marketing & Support**

* **Social Media**: For promoting your system.
* **Google Ads**: For running online ads.
* **SEO**: To improve search engine ranking (e.g., **Google Analytics**).

references

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