

QR-Based Ordering System

Background & Problem Statement

In this particular situation, the burger joint is a busy quick-service restaurant that still uses a manual ordering system. Before their names are called, customers must wait in line, quickly scan the digital menu on a screen, place their order with the cashier, and then wait close to the kitchen. This process has begun to cause a number of issues as the restaurant's popularity has increased. During peak hours, long lines frequently form, making customers wait longer than they would like. Customers make hurried decisions because the menu display doesn't give them enough time to consider their options or personalize their meals. Additionally, orders are manually passed to the kitchen, which frequently results in errors and delays. Additionally, as people gather to hear their names, the waiting area fills up, creating a stressful and noisy atmosphere. All things considered, these inefficiencies have started to lower customer satisfaction and slow down operations, which is why the restaurant is searching for a more intelligent, automated solution..

Proposed Solution

The primary objective is to implement a basic, mobile-friendly ordering system that utilizes QR codes. To view the entire menu straight from their phone, customers can scan a QR code that is placed on their table or at the restaurant entrance. They can then browse products, personalize their orders according to their preferences, and safely pay without having to wait in line. After the order is placed, the system automatically updates the manager's dashboard with sales and payment details and sends it to the kitchen for preparation. Customers and employees enjoy a seamless, contactless, and effective dining experience as a result..

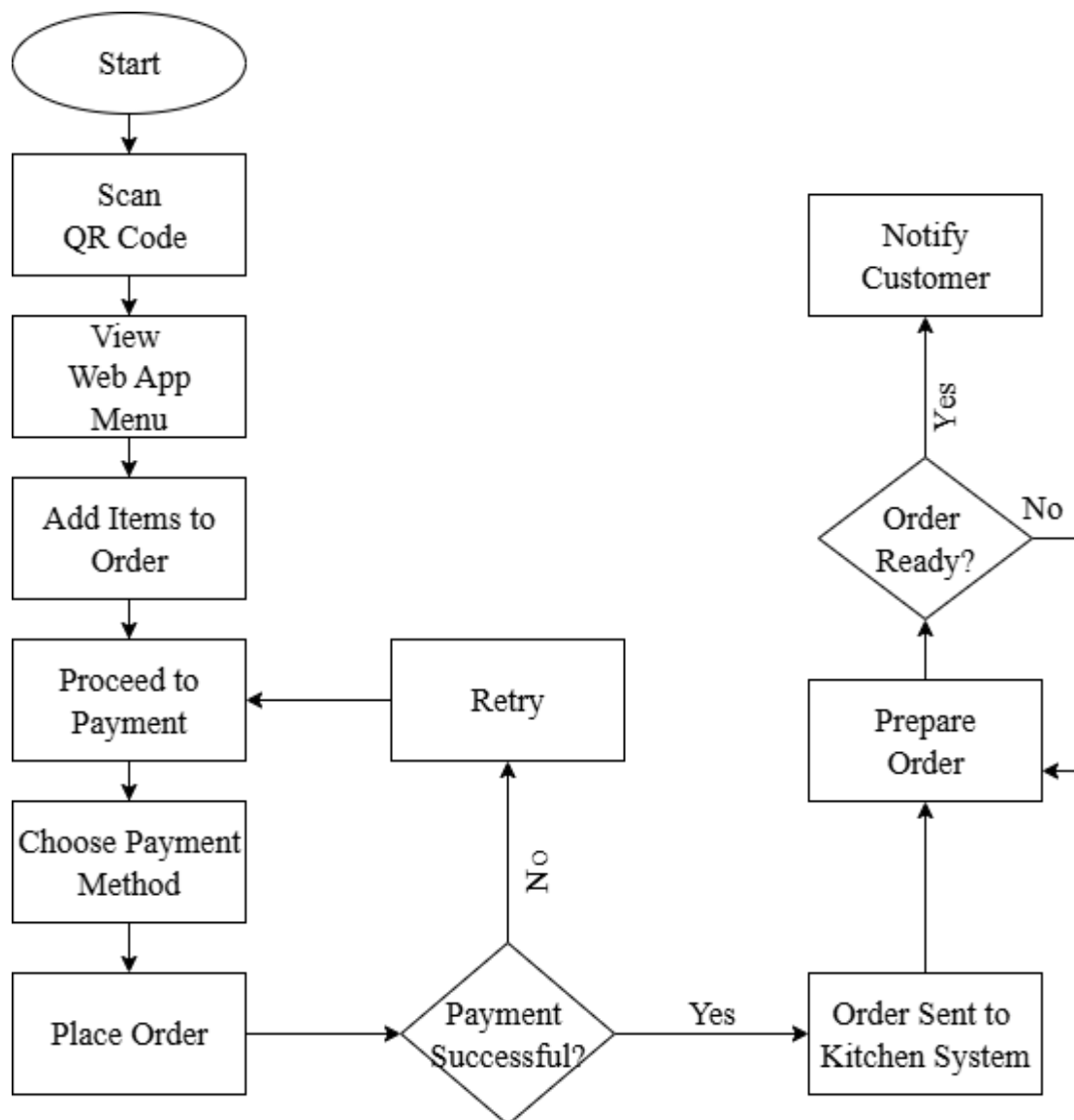
Scope

- Customers can scan a QR code to view the menu, add items to the cart, and pay online or at the counter.
- Orders are automatically sent to the kitchen display where staff can accept, prepare, and mark them as ready.
- Managers can update menu items, mark items out of stock, manage orders, and view daily sales reports.
- Real-time order tracking for customers and notifications when the order is ready.
- Secure payment gateway, basic analytics, and admin dashboard included.

Personas:

Persona	Role & Goals
Customer	Wants to browse the menu at their own pace, customize their order, pay conveniently and know exactly when to pick up their food.
Kitchen Staff	Needs a clear, real-time list of incoming orders with item details and modifiers. They manage order statuses and mark items out of stock.
Manager / Admin	Menu management, update pricing and availability, monitors order volume, verifies payments

Ordering Workflow



- A QR code at the entrance or on the customer's table is scanned by the patron.
- The restaurant's digital menu option is displayed when a mobile web app opens automatically.
- The client browses the menu, checks item specifications, and personalizes their choices (e.g., size, toppings, preferences).
- They add items to the cart.
- The customer proceeds to payment, chooses a payment method (card, wallet, or pay at counter), and places the order.
- The payment is validated by the system.
 - The customer is asked to try again if the payment is unsuccessful.
 - The system confirms the order if it is successful.
- The Kitchen Display System (KDS) receives the confirmed order automatically.
- After receiving the order, the kitchen staff prepares it and updates its status (In Prep → Ready).
- The customer's phone provides real-time order status updates.
- The customer is notified via the app when the food is ready.
- The food is either brought to the table or picked up by the customer from the counter.
- The procedure concludes when the order is recorded in the system as Completed.

Functional Requirements

1. Menu & Ordering

- The system recognizes the customer's table or takeout session and initiates a new order when they scan the QR code.
- All food categories and items should be displayed on the digital menu along with pictures, descriptions, allergens, variations, and modifiers. When the manager or kitchen marks an item as out of stock, it will immediately be removed from the menu.
- Before checking out, customers can apply promo codes, choose options, add special notes (up to 100 characters), and add or remove items. The entire cost, including taxes and service charges, should be displayed in the system with clarity.
- Card payments, digital wallets, and "Pay at Counter" options should all be accepted. Multiple payments shouldn't be generated by repeated taps or page refreshes. The order is saved and locked after the payment has been verified.

2. Order Lifecycle & Notifications

- Orders are sent directly to the Kitchen Display System (KDS) and go through the following stages: Cart, Submitted, In Queue, In Preparation, Ready, and Completed.

- If necessary, kitchen employees can mark items as out of stock and accept, prepare, or finish an order. Customers can view real-time order updates on their phones, and the system should handle delays if the kitchen is overly busy.
- Order statuses should be updated instantly. The system should automatically refresh if the connection is slower.

3. Admin & Reporting

- Managers can view all active and completed orders, cancel or refund transactions, add or edit menu items, set prices, and manage item availability. They can also create daily or weekly sales or performance reports.
- Secure payments and data privacy must be guaranteed by the system. All payments must adhere to PCI security standards, and only necessary customer data should be kept on file.

User Stories

TITLE	USER STORY	ACCEPTANCE CRITERIA	PRIORITY	ESTIMATION	DESCRIPTION
Scan Menu via QR	As a customer, I want to scan a QR code at my table so that I can view the digital menu instantly.	1. System loads correct menu when a valid QR code is scanned. 2. Invalid QR shows error message.	High	3 points	Enables instant menu access without needing staff assistance.
Customize Order	As a customer, I want to select size, toppings, and modifiers so that I can	1. Mandatory modifiers must be selected. 2. Price updates automatically.	Medium	5 points	Improves customer satisfaction by offering flexible menu customization.

	personalize my meal.				
Checkout & Payment	As a customer, I want to pay directly from my phone so that I can skip the cashier line.	1. Payment through card, wallet, or cash option. 2. Payment success triggers order confirmation.	High	8 points	Reduces queue time and manual payment errors.
Kitchen Dashboard	As kitchen staff, I want to see new orders instantly so that I can start preparing them right away.	1. Orders appear in real time. 2. Staff can change status to “In Prep” or “Ready.”	High	8 points	Streamlines order processing and reduces communication delays.
Track Order Status	As a customer, I want to track my order so that I know when my food is ready.	1. Order status updates in real time. 2. Notification when ready.	Medium	5 points	Enhances customer experience and reduces inquiries.
Manage Stock	As a manager, I want to edit menu, price, mark	1. Items marked out of stock disappear from	Medium	3 points	Helps manage availability dynamically.

	items out of stock so that customers can't order unavailable food.	menu immediately.			
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Key Benefits

- Reduces down on waiting times and gets rid of lines.
- Reduces order errors by using automation.
- Real-time tracking increases customer satisfaction.
- Assists the manager in monitoring kitchen performance, sales, and payments.
- Does not require additional apps for both dine-in and takeout modes.

Roadmap

Month 1: Create user journey, wireframes, and confirm scope.

Months 2–3: Develop QR session, menu browsing, and order flow features.

Months 3–4: Integrate payments and kitchen display for real-time updates.

Months 4–5: Build the manager dashboard and reporting module.

Month 6: Pilot launch, feedback collection, and performance tuning.

Main Challenges

- Securely integrating payment gateway
- ensuring reliable internet connectivity
- training staff to use the new system

Conclusion

With the help of this QR-based ordering system, a typical restaurant can become a more intelligent, efficient, and customer-focused enterprise. It builds a data-driven foundation for future expansion in addition to increasing service efficiency.