SMART CANTEEN ORDERING

End-to-End Product Concept & PRD

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Reducing campus canteen wait times through digital pre-ordering and cashless payments.

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Problem Statement

Students, employees, and canteen staff face long wait times, slow payments, and frequent order mix-ups when ordering food at the campus canteen. During peak hours, queues become unmanageable, the payment process is inefficient, and there's no clear way to track orders. This leads to lost time, customer frustration, and operational inefficiency for the canteen.

We need a digital solution that allows pre-ordering, real-time order tracking, and seamless cashless payments to reduce wait times and improve the overall canteen experience for both customers and staff.

Top 3 Pain Points

1. **Excessive Waiting During Peak Hours**
    - “Too much waiting during peak hours” and “10–15 min or 15+ min wait times” were the most common.
    - This shows that queue congestion is the single largest problem.
2. **Payment & Limited Payment Options**
    - “Payment process is slow” + “Limited payment options” appeared frequently.
    - Users want faster, seamless, cashless payment.
3. **Order Management Issues (Tracking & Errors)**
    - “Orders get mixed up frequently” + “No order tracking”
    - People want real-time status and assurance their order is correct.

Competitor Analysis

To understand how leading food ordering platforms address similar problems, we examined **Zomato**, **Swiggy**, **Dunzo**, and a few campus-specific ordering apps. The goal was to identify features that solve long wait times, payment friction, and order management issues, and see which ideas can be adapted for a campus canteen environment.

Zomato offers a large restaurant listing, strong discovery tools, scheduled ordering for selected outlets, and personalized recommendations. These features reduce ordering friction and allow customers to plan ahead, though scheduled orders are limited and delivery times can be inconsistent.

Swiggy provides real-time order tracking, fast payments, and a “Group Ordering” feature that lets multiple people build a shared cart. It also uses incentives such as campus-focused campaigns and gamified streaks to drive adoption. These features directly address transparency and peak-hour congestion but may be over-engineered for a single canteen setting.

Dunzo focuses on hyperlocal delivery and very fast pickup/drop services. While it goes beyond food to deliver

essentials, its key strength is speed and flexibility. However, the non-food aspects may complicate the user experience for a single canteen.

Across these platforms, the standout ideas we can borrow are **real-time order tracking**, **pre-ordering to avoid queues**, **multiple cashless payment options**, and **group ordering for friends or colleagues**. We should also consider gamification or small incentives to encourage repeat usage among students.

At the same time, we should avoid overloading the app with non-core features or relying heavily on discounts, since our main focus is solving the core pain points: **reducing waiting times, streamlining payments, and improving order accuracy**.

Insights from Competitor Analysis

The review of leading platforms shows that the most effective way to improve the canteen experience is to **combine pre-ordering, real-time order tracking, and seamless digital payments**. These features directly address the top three pain points identified in user research: long queues, slow payments, and order mix-ups. In addition, **group ordering** and **gamified incentives** used by apps like Swiggy could drive higher adoption and engagement among students. However, unlike large food delivery services, our solution should remain **focused and lightweight**, avoiding non-core categories or heavy discounts that erode margins. By adapting only the most relevant features, Smart Canteen Ordering can deliver a simple, campus-friendly solution that improves speed, transparency, and efficiency for both customers and staff.

DEFINING PERSONAS AND USER JOURNEY MAP

Student – Aarav

Age: 21
Occupation: Engineering Student
Goals / Motivations: Quick meals between classes, digital payment convenience, avoid waiting in line.
Pain Points: Long queues during peak hours, slow cash payments, unclear order status.
Tech Comfort Level: High – uses apps like Swiggy, UPI payments daily.
Quote: "I just want to grab my food fast and get to class on time."

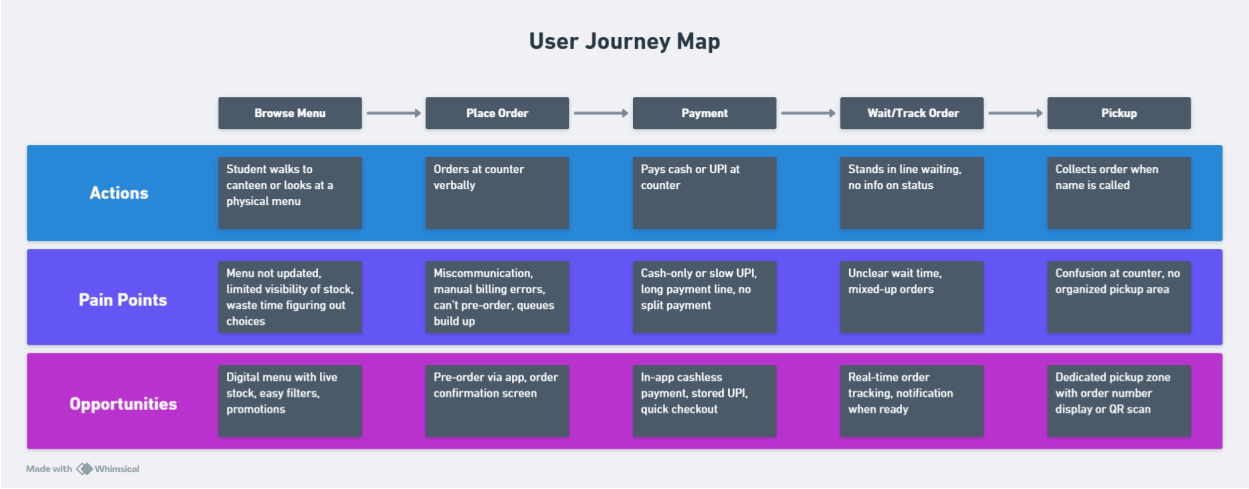
Canteen Manager – Mr. Sharma

Age: 45
Occupation: Canteen Owner/Manager
Goals / Motivations: Increase throughput, reduce chaos at the counter, forecast demand better to reduce waste.
Pain Points: Manual billing, unpredictable demand, complaints about waiting time.
Tech Comfort Level: Moderate – uses WhatsApp, basic POS systems.
Quote: "If I can know orders in advance, I can manage my staff and inventory better."

Canteen Staff – Ramesh

Age: 32
Occupation: Canteen Staff
Goals / Motivations: Simple order display, fewer mistakes, steady flow of orders.
Pain Points: Overwhelmed during peak hours, orders get mixed up, difficulty handling cash quickly.
Tech Comfort Level: Low to Moderate – familiar with simple smartphone apps.
Quote: "I want a simple screen that shows who ordered what so I can prepare it quickly."

User Journey Map



Goals & KPIs

Problem Hypothesis

Because the current canteen ordering system is entirely manual, students and employees spend 10–15 minutes or more waiting during peak hours, payments are slow, and order mix-ups are common. By introducing a digital pre-ordering and payment system, we hypothesize we can **reduce average wait time, improve order accuracy, and streamline payment**, resulting in better customer satisfaction and smoother canteen operations.

Goals

1. **Reduce average wait time** from 15 minutes to under 5 minutes during peak hours.

2. **Enable cashless, seamless payment** for at least 80% of orders.

3. **Increase order accuracy** (reduce mix-ups) from current baseline (estimate ~85%) to 98%.

4. **Improve canteen throughput** (orders served per hour) by at least 25%.

5. **Give canteen staff and management better visibility** into demand to reduce food waste by 10%.

Key Performance Indicators (KPIs)

KPI	Current Baseline	Target After Implementation
Average Wait Time	10–15 min	< 5 min
% of Cashless Payments	30%	≥ 80%
Order Accuracy (no mix-ups)	85%	≥ 98%
Orders Processed Per Hour	Baseline X	+25% (X × 1.25)
Food Waste (unsold items)	Baseline Y	−10% (Y × 0.9)
Customer Satisfaction Score	Not Tracked	≥ 4.5/5 rating on in-app feedback

Success Criteria

- If average wait time is cut to under 5 minutes during peak hours.
- If at least 80% of orders use cashless payments.
- If order errors drop below 2%.
- If the canteen can handle at least 25% more orders per hour with the same staff.

Business Impact

Achieving these KPIs will lead to:

- Higher throughput and sales for the canteen.
- Improved customer satisfaction and loyalty among students/employees.
- More predictable demand → less waste.
- Streamlined operations for staff → less stress, fewer mistakes.

Requirements

1. Functional Requirements (User-Facing)

Functionality	Description	Priority
Digital menu browsing	Users (students/employees) can view an updated digital menu with item details, prices, and availability in real time.	High
Pre-Ordering	Users can place orders ahead of time (select desired pickup time) to avoid queues.	High
Cashless Payments	Users can pay seamlessly using UPI, cards, or digital wallets.	High
Real-Time Order Tracking	Users can track the status of their order (Placed → Preparing → Ready for Pickup) via app notifications.	High
Pickup QR / Order Number	Users receive a QR code or unique order number for quick pickup verification at the counter.	High
Order History	Users can view past orders for easy reordering.	Medium
Group Ordering	Allow multiple users to build a shared cart and pay individually.	Medium
Feedback	Users can rate their experience or give feedback to the canteen.	Medium

2. Functional Requirements (Staff-facing)

Functionality	Description	Priority
Order Management Dashboard	Canteen staff see incoming orders, preparation status, and pickup times in a simple interface.	High
Inventory Visibility	Staff can mark items out of stock in real time, updating the digital menu instantly.	High
Demand Forecasting / Reports	Daily/weekly insights into popular items, peak times, and waste tracking.	Medium
Notifications to Staff	Automatic alerts for new orders or changes to existing orders.	High

3. Non-Functional Requirements

Requirement	Description	Priority
Performance	The app should load under 2 seconds and handle peak order volumes without lag.	High
Usability	Intuitive interface suitable for both tech-savvy students and less experienced staff.	High
Security	All payments and user data encrypted (PCI-DSS compliant if applicable).	High
Scalability	The system can support future expansion to multiple canteens or campus outlets.	Medium
Availability	System uptime 99% during operating hours.	High
Accessibility	Support multiple devices (Android/iOS, low-end smartphones) and basic accessibility standards.	Medium

MVP Feature List

MVP Features (User-Facing)

1. **Browse Digital Menu**
    - Updated real-time menu with prices and availability.
2. **Place Order & Pay**
    - Pre-order items and pay seamlessly via UPI/cards/wallets.
3. **Order Notifications**
    - Push or in-app notifications for order status (Placed → Preparing → Ready for Pickup).
4. **Order History**
    - Users can view and reorder from their past orders for convenience.

MVP Features (Staff-Facing)

1. **Simple Order Dashboard**
    - Staff view incoming orders, update status, and mark items out of stock.
2. **Pickup Verification**
    - Display order number/QR for quick handover and reduced mix-ups.

Key MVP Principles

- **Solve Core Pain Points First:** Speed, transparency, and payment convenience.
- **Simple UI:** Works on low-cost smartphones for both students and staff.
- **Scalable Foundation:** Future features (group orders, loyalty, analytics) can be added later.

User Stories & Acceptance Criteria

User Story 1 – Browse Menu

- **As a** student,
- **I want to** view the canteen menu digitally with prices and availability,
- **So that** I can decide what to order quickly without standing at the counter.

Acceptance Criteria:

- Menu displays all available items with prices and descriptions.
- Items marked “Out of Stock” cannot be added to cart.
- Menu updates reflect changes made by staff in real-time.

User Story 2 – Order & Pay

- **As a** student,
- **I want to** place and pay for my order through the app,
- **So that** I can skip the queue and pick up my food quickly.

Acceptance Criteria:

- User can add items to cart, choose quantity, and checkout.
- App supports UPI, cards, and wallet payments.
- Confirmation screen shows total price and estimated pickup time.

User Story 3 – Notifications (Order Status)

- **As a** student,

- **I want to** receive real-time notifications about my order status,

- **So that** I know exactly when my food is ready for pickup.

Acceptance Criteria:

- User receives notification at each stage: Order Placed → Preparing → Ready for Pickup.

- Status also visible in-app at any time.

- Notifications update instantly when staff changes order status.

User Story 4 – Order History

- **As a** student,

- **I want to** see my previous orders,

- **So that** I can reorder easily without searching the menu again.

Acceptance Criteria:

- User can view past 30 days of orders with details.
- One-click reorder adds items to cart instantly.
- Order history stored securely per user account.

User Story 5 – Staff Dashboard

- **As a** canteen staff member,
- **I want to** see incoming orders and mark them as “Preparing” or “Ready,”
- **So that** I can manage kitchen workflow and update customers accurately.

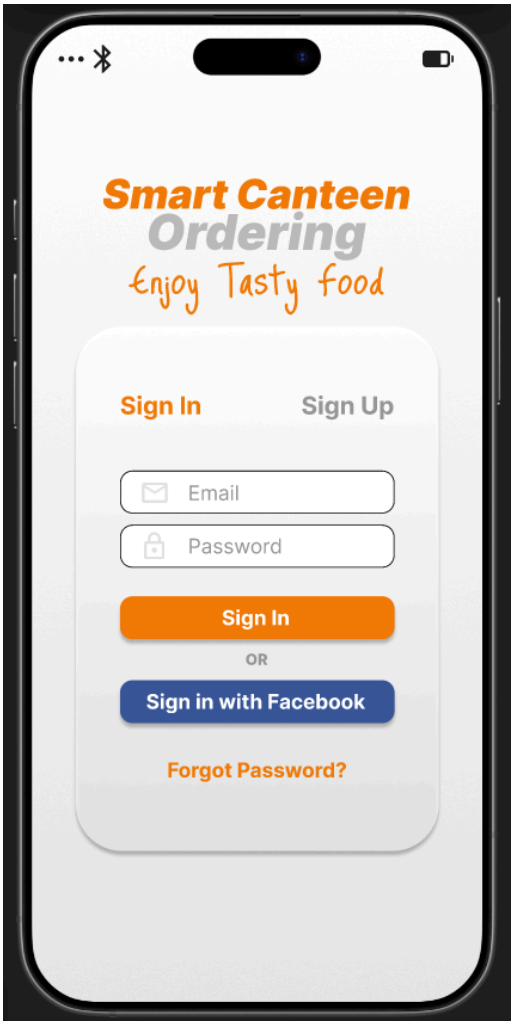
Acceptance Criteria:

- Staff dashboard lists all new orders with item details.
- Staff can update status with one tap.
- When status changes, users receive instant notification.

Wireframes

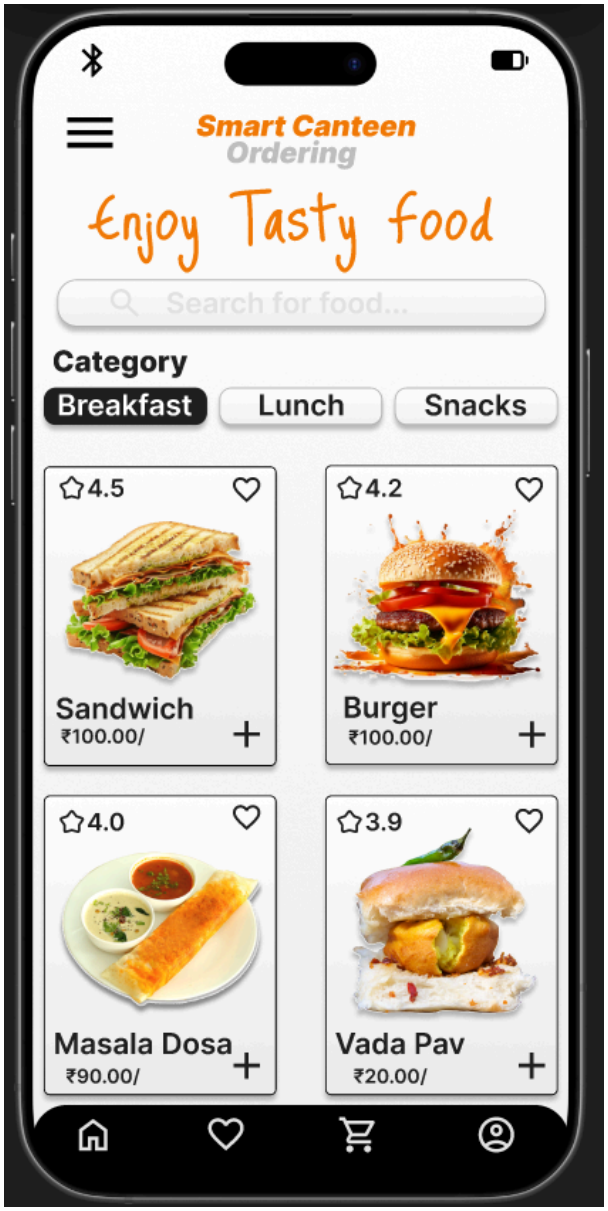
To visualize the Smart Canteen Ordering experience, we created a set of wireframes covering the end-to-end user flow, from login to browsing the menu, viewing items, making payments, and tracking order status. These mockups demonstrate how the MVP features translate into an actual app interface.

1. Login / Sign-Up Screen



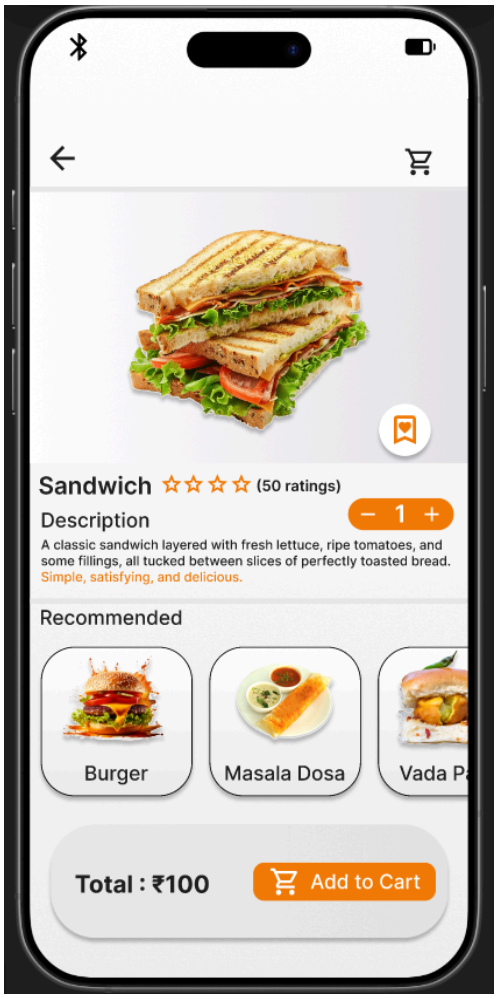
- Allows users to sign in with email/password or social login.
- Includes “Forgot Password” for easy recovery.
- Ensures secure access to user accounts.

2. Home / Menu Browsing Screen



- Displays categories (Breakfast, Lunch, Snacks) and real-time menu items with prices and ratings.
- Search bar and quick add-to-cart button reduce ordering friction.
- Mirrors MVP feature “Browse Digital Menu.”

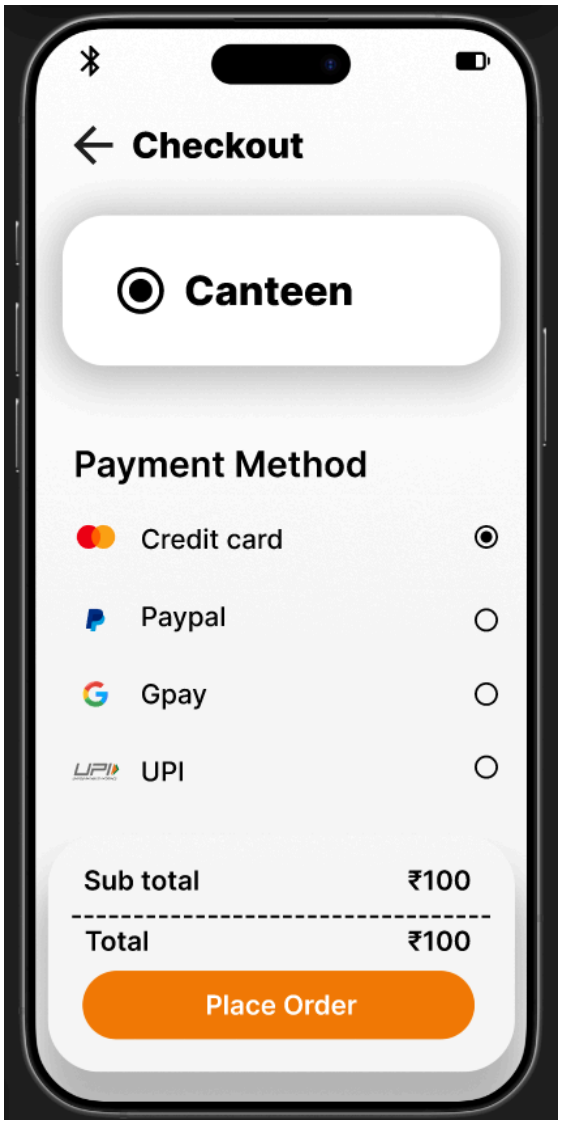
3. Item Details Screen



- Shows product photo, description, ratings, recommended items, quantity selector, and “Add to Cart” button.

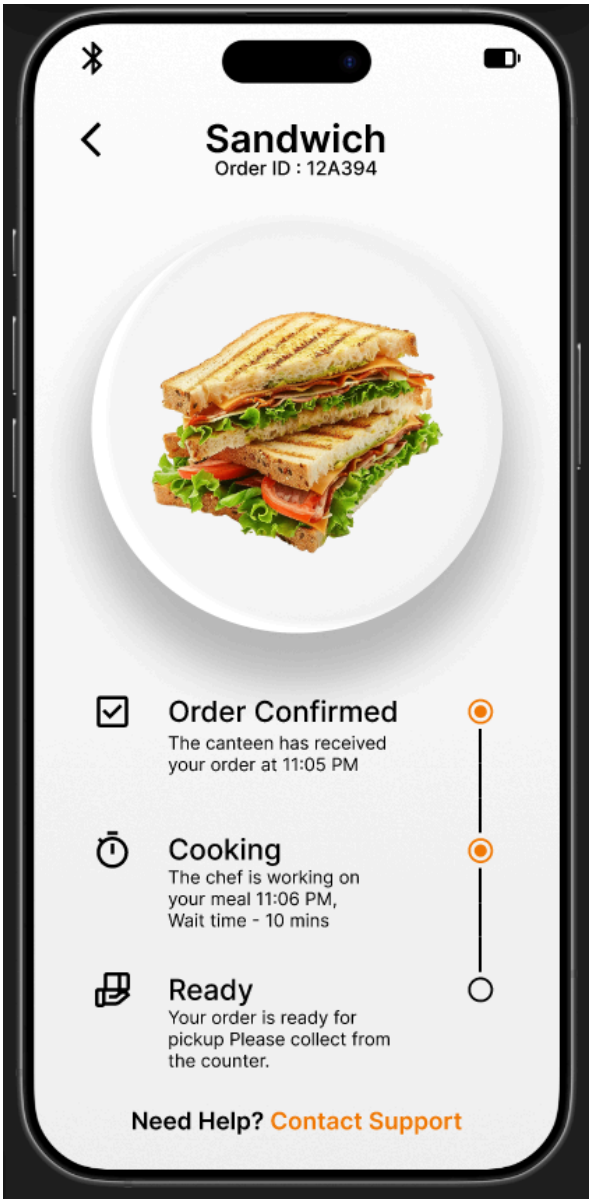
- Gives transparency on what the user is ordering before checkout.

4. Checkout & Payment Screen



- Displays selected items, subtotal, and total.
- Allows multiple payment methods (Credit Card, PayPal, GPay, UPI).
- Matches MVP feature “Place Order & Pay.”

5. Order Status Screen



- Shows order ID and real-time status updates (Confirmed → Cooking → Ready).

- Gives users a clear expectation of wait time and pickup instructions.

- Directly addresses pain point “lack of order tracking.”

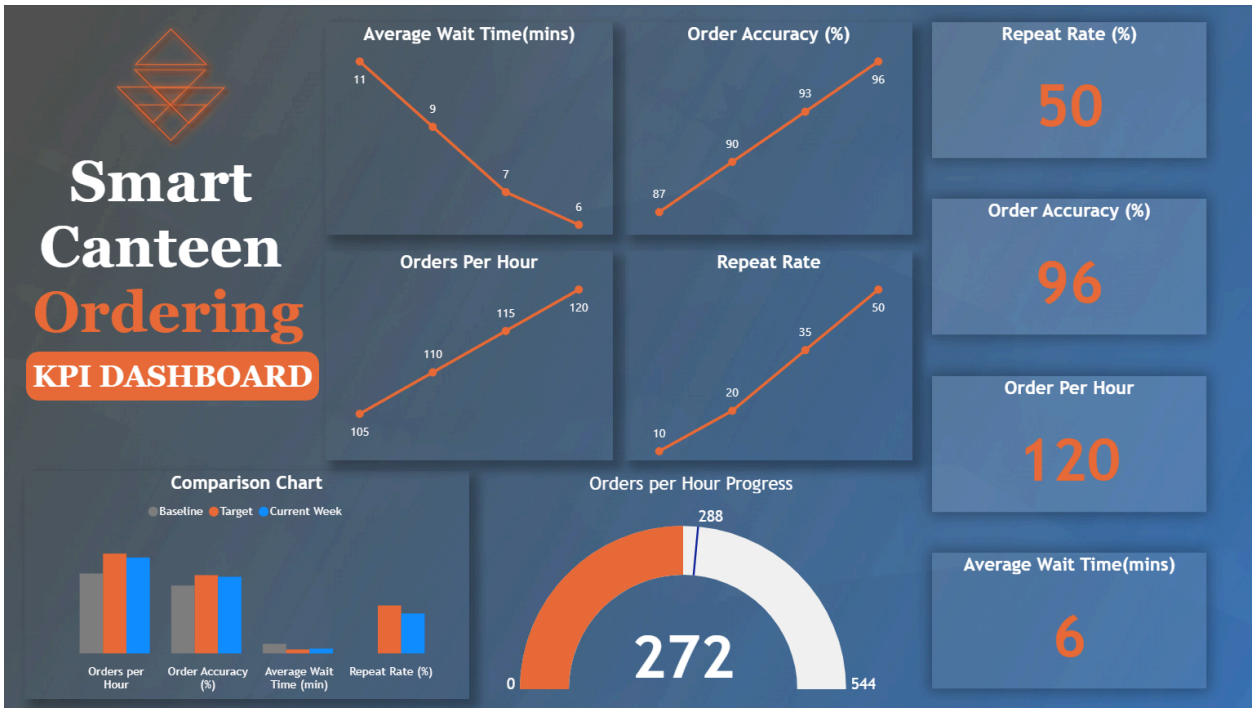
Key Performance Indicators (KPIs)

These KPIs will measure whether Smart Canteen Ordering achieves its primary goals of reducing wait times, increasing throughput, improving order accuracy, and encouraging repeat usage.

KPI	DEFINITION	BASELINE (CURRENT)	TARGET AFTER IMPLEMENTATION
Average Wait Time	The average time (in minutes) from placing an order to pickup during peak hours.	10–15 minutes	< 5 minutes
Orders per Hour (Throughput)	Number of orders fulfilled per hour by the canteen.	Baseline X orders/hour	+25% (X × 1.25)
Order Accuracy	Percentage of orders fulfilled without errors or mix-ups.	85%	≥ 98%
Repeat Rate	Percentage of users placing at least one repeat order within 30 days.	Baseline not tracked	≥ 60% repeat users per month

Dashboard & Analytics Tracking

To monitor the performance of the Smart Canteen Ordering system, a KPI dashboard was created in Power BI.



This dashboard tracks the core success metrics defined in the PRD:

- Average Wait Time (mins)
- Orders per Hour
- Order Accuracy (%)

- Repeat Rate (%)

The dashboard displays:

- Trend Lines showing improvements over four weeks.
- KPI Cards with the latest performance values.
- Comparison Charts showing Baseline vs Target vs Current.
- Gauge Visuals showing progress toward targets.

This dashboard provides a clear, data-driven view of how the canteen system is performing against its objectives.

Conclusion & Next Steps

This project demonstrates an end-to-end product thinking process, covering:

- Identifying user pain points through surveys and interviews
- Writing a PRD with clear objectives, requirements, MVP features, and KPIs
- Creating personas, user journeys, and wireframes
- Designing a live KPI dashboard in Power BI to track performance

By approaching the **Smart Canteen Ordering** system as a complete product case study, the project showcases skills in research, prioritization, wireframing, and data-driven measurement.

Next Steps

- **Prototype Testing:** Build an interactive Figma prototype and conduct usability testing with 10–15 students and staff.

- **Pilot Implementation:** Deploy a limited pilot of the ordering system in a real campus canteen to validate assumptions.

- **Continuous Improvement:** Use dashboard data to iterate on the product, focusing on reducing wait times and increasing order accuracy.

- **Expansion Opportunities:** Explore partnerships with multiple canteens or integrate with campus payment systems.

Impact Goal:

Reduce average wait time by more than 60%, improve order accuracy above 98%, and boost repeat usage by making canteen ordering seamless and transparent.