



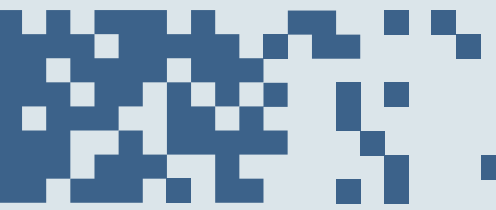
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Canteen Digitization Proposal

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Team Members



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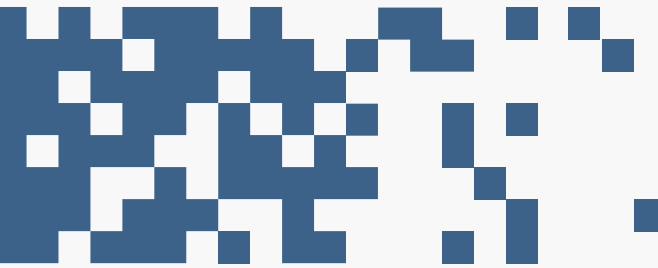
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Project Overview



- Core System: Mobile app for students + staff dashboard for management
- Features: QR-based pickup, floor-wise delivery services
- Staffing: 8-9 additional staff (delivery, cooking, counter)

Benefits

- Reduced waiting times
- Better crowd management
- Digital payment convenience
- Streamlined operations
- Enhanced campus dining experience

Implementation Options:

- Full digital menu system (all items available)
- Hybrid system (digital for low-demand, direct pickup for high-demand)

Analysis of Student Issues:

1. Key Issues Identified:

- *Long Queues: Many students experience delays in getting food due to overcrowding.*
- *Limited Break Time: Short breaks make it difficult to wait in queues and get food on time.*
- *Missed Meals: Some students skip meals due to the time-consuming process.*
- *External Purchases: Some students prefer to buy food from outside due to inefficiency.*

2. Student Feedback on Current System:

- *Majority are dissatisfied with the current ordering process.*
- *Most spend 5-10 minutes or more waiting in queues.*
- *Many agree that an app would save time and improve accessibility.*

3. Interest in a Canteen Food Ordering App:

- *High Demand: Most students support the idea of a food ordering app.*
- *Preferred Features:*
 - *Pre-ordering for break times*
 - *Digital payment options*
 - *Real-time order tracking*
- *Likelihood of Use: Majority would actively use the app if available.*

4. Challenges & Concerns:

- *Possible technical issues (e.g., app crashes).*
- *Delays in food preparation if not managed well.*
- *Some students are unsure about paying a small convenience fee.*

5. Expected Benefits of an App:

- *Saves time during breaks.*
- *Provides easier access to food options.*
- *Reduces overcrowding and improves efficiency.*

Order Flow Process

For Students:

Starts Placing the order on the portal



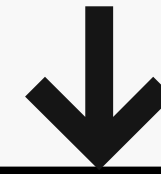
Make the Payment



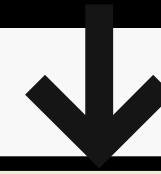
Bill is received with a barcode

For Canteen Staff:

Order is displayed on the dashboard with all the details



Order is prepared in batches



After order is prepared, floor-wise breakup would be done



Student gets Barcode Scanned to Receive Order



Effectiveness - Order Receiving System

A. STREAMLINED PROCESSES

B. ERROR REDUCTION

C. AUTOMATED ORDER CONFIRMATION

D. CENTRALIZED DASHBOARD

E. ACCOUNTING AND BILLING



Effectiveness - Order Delivery System

- A. DEMAND FORECASTING & ORDER BATCHING
- B. REDUCED LEAD TIME & IMPROVED SERVICE FLOW
- C. DECENTRALIZED LAST-MILE DELIVERY MODEL
- D. CAPACITY OPTIMIZATION & STAFF EFFICIENCY
- E. SCALABILITY & SUSTAINABLE IMPLEMENTATION



Interview with Canteen Manager

Canteen Details and Current Logistics

- Current workforce : 13-15 staff
- Orders/day :
Normal : 700 - 1000 per day
Exam season : 300 - 400 per day
- Current supply chain framework is based on partial supply from NMIMS canteen and remaining as in-house production
- Delivery service currently available only to staff
- Number of delivery personnel allotted based on demand of staff only (1-2 people)
- Extra Packaging charges - None

Interview with Canteen Manager

Key Takeaways

- It is a necessity to charge a nominally high fee to provide for the packaging and technical requirements of the platform.
- The canteen management could raise the number of delivery personnel to 3-4 persons based on the demand for floor-wise delivery.
- Manager insists on incorporating online pre-payments on all orders to avoid any complications or false order problems later.
- The manager initially was quite concerned with the lead time for the order - time of receiving order to time of fulfilment.

This issue is solved by our model by switching the portal to 'offline' mode.

Technical Specifications

Backend Development with Flask (Python)

- The system is built using Flask, a lightweight and powerful web framework in Python.
- Flask enables the development of a scalable and efficient web application to handle canteen orders.
- The framework ensures fast response times and is capable of handling multiple user requests concurrently.

Database Management with SQLite

- SQLite is used as the database for storing order details, menu items, user information, and transaction records.
- It is a lightweight and serverless database, making it an ideal choice for quick and efficient operations.
- With SQL queries, the system efficiently fetches and updates records in real time, ensuring smooth order processing.

Technical Specifications

Frontend Development with Bootstrap, CSS, and HTML

- The user interface is designed using:
 1. HTML for webpage structure.
 2. CSS for styling and layout customization.
 3. Bootstrap for a responsive and mobile-friendly design.
- Ensures an intuitive and visually appealing user experience.
- Responsive design adapts to different screen sizes (desktop, mobile, tablet).
- Enhances usability with structured navigation and clear call-to-action buttons.

Secure Payment Processing via Razorpay

- Razorpay is integrated to handle online transactions securely and efficiently.
- Users can pay via multiple methods, including UPI, credit/debit cards, and net banking.
- It provides real-time payment status updates, ensuring seamless order confirmation and reducing delays in processing.

Limitations & Further Steps

Limitations

- The mock app needs enterprise server to run at scale.
- Training for canteen staff to operate the order system and IT.
- Hardware and packaging requirements for transferring orders to floors not covered

Further Steps

- Deploy to secure server
- Connect payment portal to canteen bank account
- Connect to canteen inventory systems and SAP system
- Expected costs: INR 5000 per month

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Model Testing

Give it a go yourself!



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Thank you :)



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