



Google Developer Group  
On Campus

# TechSprint



Leveraging the power of AI



## Team Details

- Team name: A<sup>2</sup>
- Team leader name: Buddha Gosh Sakyang Rahula
- Problem Statement: Open Innovation

## Brief about your solution and problem statement addressing

- **The Issue:** Long queues during peak college hours and tedious manual payment verification at canteen counters.
- **Current Friction:** Reliance on physical tokens or manual record-keeping leads to slow service and potential revenue leaks.
- **The Goal:** Streamline the "browsing to serving" flow using a hybrid model of food delivery and event ticketing logic.

## Opportunities

- a. How different is it from any of the other existing ideas?
- b. How will it be able to solve the problem?

Unlike standard delivery apps that focus only on remote ordering, this system is a **hybrid solution** specifically built for the high-traffic, closed-loop environment of a college campus. It combines the real-time menu browsing of a food delivery platform with the **secure, color-coded ticketing logic** of event management software. This allows for instant digital verification at the counter while still accommodating offline cash payments through a specialized "Pay at Counter" workflow.

The system eliminates the two biggest bottlenecks in college dining: **queues and verification friction**. By allowing students to order and generate "Digital Passes" remotely, it prevents crowding at the menu board. For the canteen staff, the **QR scanner module** replaces manual ledger-keeping with a one-tap verification process that instantly confirms payment and prevents fraudulent double-scanning of tokens.

## List of features offered by the solution

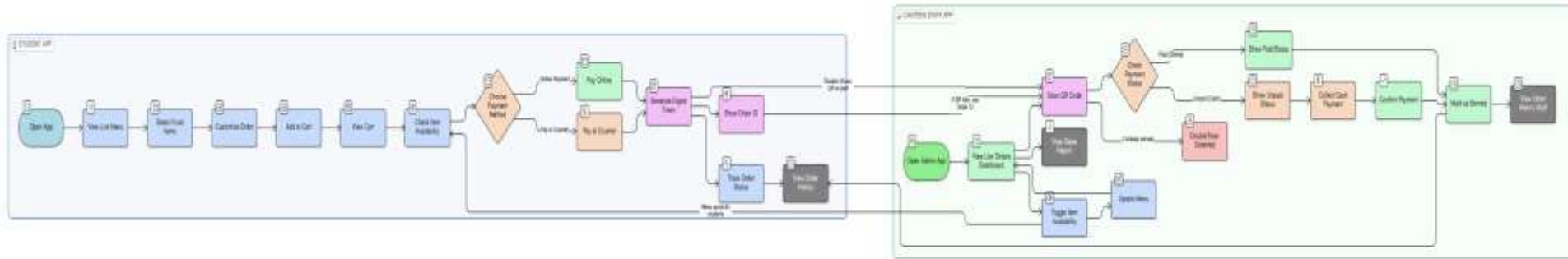
### Key Features

- **Live menu and availability:** Real-time visibility of items (Lunch, Snacks, Drinks) with "Sold Out" status indicators.
- **Flexible Payments:** Support for online UPI/Cards and a "Pay at Counter" offline mode.
- **Color-Coded QR Tokens:** Instant digital passes; Green for paid, Orange for payment pending.

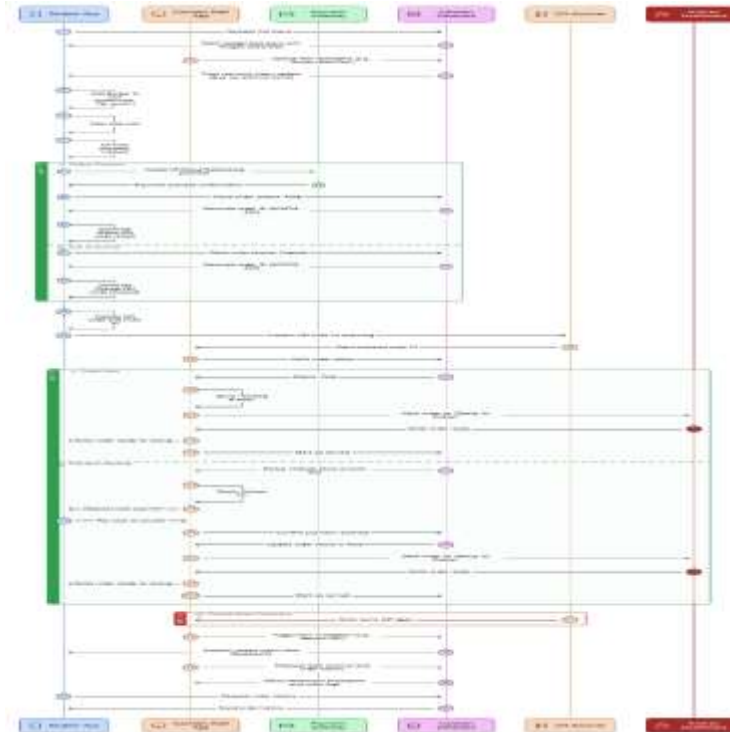
## Google Technologies used in the solution

- **Firestore Database:** Used for instant synchronization of menu availability and order statuses between students and canteen staff.
- **Firestore Cloud Messaging (FCM):** Enables real-time push notifications to alert students when their food is "Ready for Pickup".
- **Google Pay (GPay) API (via RazorPay):** Facilitates secure, one-tap UPI transactions directly within the student application.
- **ML Kit (Barcode Scanning):** Powers the high-speed QR code scanning module in the staff app for instant token verification.
- **Google Sheets API:** (Optional) Can be used as a lightweight administrative backend for the canteen manager to update prices and view daily sales reports.

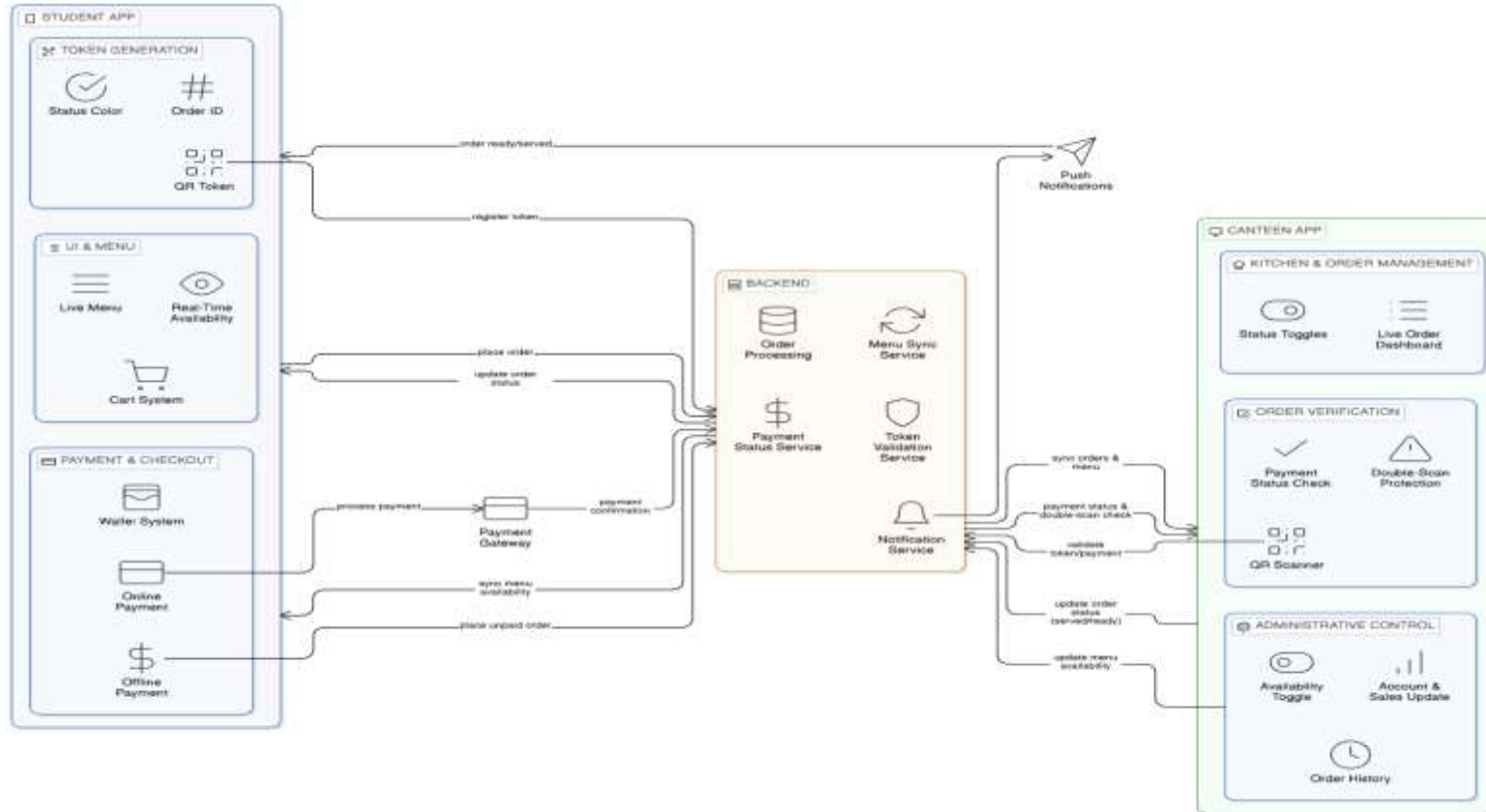
## Process flow diagram or Use-case diagram



## Wireframes/Mock diagrams of the proposed solution (optional)

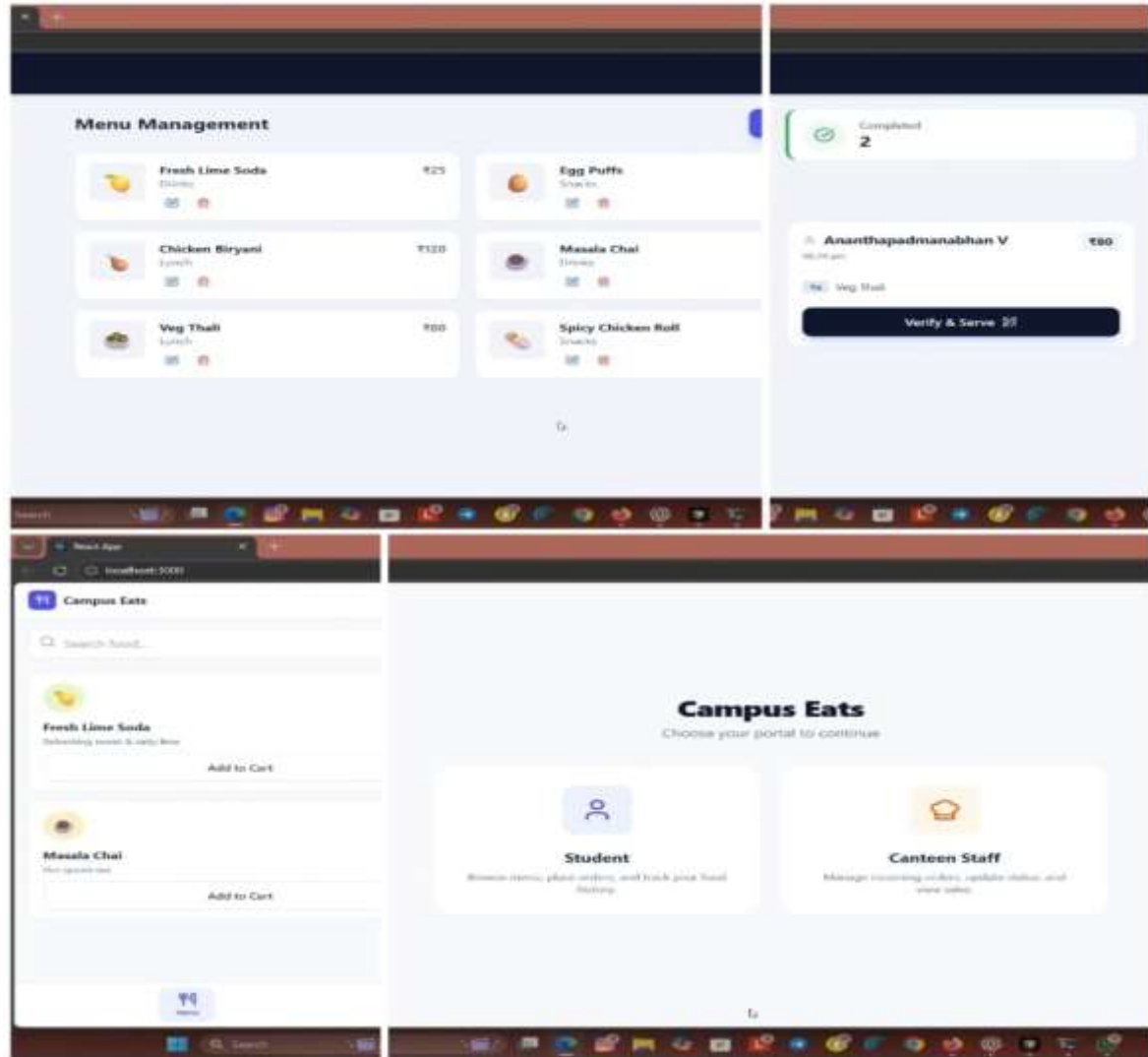


# Architecture diagram of the proposed solution





## Snapshots of the MVP



## Additional Details/Future Development (if any)

### Short-Term Enhancements (Optional Features)

- Integrated Wallet System:** A dedicated student wallet within the app to allow for faster checkouts and pre-loaded credits, reducing dependency on external payment gateways during peak hours.
- Backup Order Verification:** Implementation of text-based "Order IDs" (e.g., #CNTN-452) as a secondary verification method for the canteen staff if a student's phone screen is damaged or the QR scanner fails.
- Order Ready Notifications:** Automatic push notifications (via Firebase) to the student's phone the moment the kitchen staff marks an order as "Ready for Pickup".

### Long-Term Future Developments

- AI-Powered Demand Forecasting:** Using historical sales data to predict high-demand days (e.g., Biryani specials), helping the canteen staff optimize ingredient purchasing and reduce food waste.
- Pre-Ordering & Scheduling:** Allowing students to schedule their meal pickups in advance (e.g., ordering at 10:00 AM for a 1:00 PM lunch) to better distribute the kitchen workload.
- Loyalty & Reward Program:** Automated reward points for frequent users or "Combo Deals" suggested by the system based on the student's previous ordering habits.
- Nutritional Tracking:** Integration with health APIs to show the calorie count and nutritional value of each meal, promoting healthier eating habits on campus.

## Provide links to your:

1. GitHub Public Repository: [ajinjoan/CampusEats](https://github.com/ajinjoan/CampusEats)
2. Demo Video Link (3 Minutes):  
<https://drive.google.com/drive/folders/10J9nYhp70RM3nMG9EO4fYRznGmy-l6dL?usp=sharing>
3. MVP Link: [ajinjoan.github.io/CampusEats](https://ajinjoan.github.io/CampusEats)



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# Thank you!

