



**Ghulam Ishaq Khan Institute of Engineering Sciences & Technology**  
**Faculty of Computer Science & Engineering**  
**Human Computer Interaction-HCI**  
**Project Milestone 1: GIKI Food Ordering System**

**Course Code: CS-372**

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# GIKI Food Ordering System

## 1. Introduction

### 1.1. Problem Statement

GIKI is in Topi, an area far from major cities, where food options are limited and traditional delivery systems are inefficient. Students, faculty, and residents face difficulties in ordering meals, groceries, drinks, or baked items conveniently. Current food ordering on campus relies mainly on phone calls or physical visits to vendors. Desi (traditional) meals are prepared for lunch and dinner (menu changes daily) and fast food becomes available after 12:30 PM. This manual ordering system suffers from incorrect orders, poor visibility of daily availability, network coverage problems inside hostels, and lack of in-app payment and tracking. Riders, vendors, and customers often rely on repeated phone calls to coordinate delivery which increases delays and errors.

The GIKI Food Ordering System aims to provide a centralized, easy to use, and efficient platform like Foodpanda, connecting users with all available on campus and nearby vendors such as Raju, Ayan, Hot & Spicy, general stores, fruit/vegetable shops, drink stalls, and external eateries like Karachi Biryani, Family Resort, Sharjah, and Tahir Khan. This system will solve problems of delayed deliveries, lack of menu visibility, limited payment options, and poor communication between customers and vendors.

### 1.2. Analysis

#### 1.2.1. User Analysis

##### User Classes:

1. **Students (Primary Users):** Age 17–25, tech savvy, want quick, affordable food delivery, face issues with long queues and limited variety.
2. **Faculty & Staff:** Prefer convenience and quality over price; often order lunch/dinner from offices.
3. **Vendors (Hotel & Shop Owners):** Need a digital way to manage orders, want visibility and increased sales, limited digital literacy.
4. **Delivery Riders:** Need a simple, trackable order system.

##### Interviewed participants:

- Student: Momina Jamil (Cyber Security)
- Faculty: Ms. Laraib Afzal (FSCE)

- Vendor: Ayan Lala (Ayan Hotel)
- Rider: Shahid Lala

### **Observed behaviors and interview findings (summarized):**

#### **A. Students (primary users)**

- Pain points from interviews:
  1. "I don't like to call for orders. Sometimes they deliver wrong items and don't ask for delivery location which delays orders and creates a fuss."
  2. Network issues inside hostel rooms force students to step outside to place calls; this adds friction.
  3. Students want in-app card/online payment so they can order and pay without cash interactions.
  4. They want live visibility of food availability (items should be shown as available / sold out).
  5. They want quick deliveries and the ability to track orders because deliveries often take too long and are untrackable.
- Observations: Students repeatedly call or ask friends to confirm item availability before leaving to collect food; many step outside to get signal before placing orders.

#### **B. Faculty & Staff**

- Concerns overlap with students: need for quick, reliable delivery and a Foodpanda style experience that lets them order without interrupting work/lectures.
- Observations: Faculty prefer scheduled / pre-ordered deliveries to fit between classes.

#### **C. Vendors (Ayan Hotel)**

- Pain points from interview/observation:
  1. Staff repeat menu information constantly for each phone order; leads to inefficiency and mistakes.
  2. Handling multiple phone orders simultaneously causes order mix-ups.
  3. Rider shift and payment reconciliation is a concerns, vendors need to ensure the correct amounts are passed to the right rider.

- Observations: Vendor staff juggle phones and kitchen tasks during peaks, leading to delays and errors.

#### **D. Riders**

- Pain points:
  1. Online payment issues: customers sometimes don't pay on time; riders end up collecting cash.
  2. Difficulty locating customers: riders sometimes wait at the wrong place or customers don't come out.
- Observations: Frequent phone calls to confirm locations and payment status; riders prefer clear navigation and in-app confirmations.

#### **Cross-cutting Problems (evidence-based conclusions):**

- Manual phone-based ordering is error-prone and inefficient (observed repeated confirmations and mismatches).
- Lack of live menu/availability visibility causes user frustration and additional calls.
- Network signal gaps in hostels create friction; users often must move location to place orders.
- Lack of digital payment options and inconsistent on-the-spot cash handling complicate rider/vendor reconciliation.
- Delivery coordination is weak: no tracking; riders and customers make repeated calls.

#### **Design Implications (derived from the above):**

1. A digital menu with real-time availability (available / sold out flags).
2. Secure in-app payments (card / wallets) with a cash-on-delivery fallback and clear reconciliation flows for riders/vendors.
3. Real-time order status + map-based tracking and ETA for customers and riders.
4. Vendor dashboard for an order queue, quick availability updates, rider assignment, and shift/commission handling.
5. Lightweight/offline-capable UI patterns (retry, minimal data, SMS fallback) to handle weak network areas.
6. Scheduled/pre-order option for faculty and busy users to reduce peak congestion.

7. Simple re-order, ratings/feedback, and order history for convenience and quality control.

### 1.2.2. Task Analysis

#### **Task 1: Browse & Order Food (Primary user task)**

**Goal:** Find vendor & item, place an order, and pay/deliver smoothly.

**Subtasks:**

- Select vendor (on-campus or nearby)
- View menu with availability & prep times
- Add/remove items to cart; apply coupons/discounts
- Choose delivery or pickup, enter address or use saved address
- Select payment method (card/wallet/COD)
- Confirm order and receive order status/ETA

**Preconditions:** User account (or guest checkout), basic connectivity.

**Frequency:** Multiple times daily; peaks: lunch (12:30–14:30) and dinner (18:30–21:00).

**Exceptions:** Network drop; item sold out after placing order; vendor rejects.

#### **Task 2: Vendor Order Management (Vendor task)**

**Goal:** Receive, process, and manage orders with minimal disruption to kitchen workflow.

**Subtasks:**

- View incoming order queue & payment type
- Confirm/accept order or mark unavailable
- Update preparation ETA & assign rider (consider rider shift)
- Mark order ready / out for delivery / delivered
- Reconcile payments (online vs COD) and review metrics

**Preconditions:** Vendor account and staff access control.

**Frequency:** High during meal peaks; ongoing off-peak.

#### **Task 3: Rider Coordination & Delivery (Operational task)**

**Goal:** Collect and deliver orders accurately and timely.

**Subtasks:**

- Receive assigned order with pickup details and payment type
- Navigate to vendor (in-app navigation) and confirm pickup
- Navigate to customer using saved GPS routes and notes

- Confirm delivery & collect payment if COD
- Mark delivered and update order status

**Exceptions:** Incorrect address, customer not at location, payment refusal, network loss.

**Frequency:** For each delivery order.

### 1.2.3. Domain Analysis

**Entities:** User, Vendor, Menu Item, Order, Payment, Delivery, Review.

**Relationships:**

- One User can place many Orders.
- One Order can contain multiple MenuItems
- One Vendor offers multiple MenuItems
- One Order generates one Payment and one Delivery record.

