

QuickBite

Online Food Delivery Application

HCI Design Report

Interactive Design Layout & Scheme

Mid-Semester Design Activity

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1. Introduction

QuickBite is a food delivery mobile application designed to provide a simple and intuitive food ordering experience. The design covers the complete user journey from onboarding to order tracking, with all decisions grounded in HCI principles.

- 12 core screens covering the full ordering flow
- Built as an interactive HTML/CSS/JS prototype
- Mobile-first layout (390 x 844px)
- Typography: Poppins (Google Fonts)
- Icons: Font Awesome 6

1.1 Screens Overview

| # | Screen | Purpose |
|----|-----------------------|--|
| 1 | Splash Screen | Brand identity and loading indicator |
| 2 | Onboarding (3 slides) | Feature introduction (Browse, Order, Enjoy) |
| 3 | Login / Sign Up | Phone OTP authentication with social login options |
| 4 | Home Dashboard | Main hub with categories and restaurants |
| 5 | Search Screen | Discovery with filters, sort, trending |
| 6 | Restaurant Listing | Menu browsing, customization, add to cart |
| 7 | Cart Screen | Order review, coupon, bill breakdown, checkout |
| 8 | Order Confirmation | Success screen with order details |
| 9 | Order Tracking | Real-time status, map, delivery partner info |
| 10 | Order History | Past orders, reorder, rate and review |
| 11 | Profile / Account | Settings, addresses, payments |
| 12 | Help & Support | FAQ, live chat, issue reporting |

Table 1: Complete list of designed screens

1.2 Color Palette

| Color | Hex Code | Role | Usage |
|------------|----------|-------------|--|
| Orange | #FF6B35 | Primary | Buttons, CTAs, branding |
| Red | #D63031 | Secondary | Errors, offers, non-veg indicator |
| White | #FFFFFF | Background | Screen backgrounds, cards |
| Light Gray | #F5F5F5 | Surface | Input fields, sections |
| Charcoal | #2D3436 | Text (dark) | Headings |
| Gray | #636E72 | Text (body) | Descriptions, meta info |
| Green | #00B894 | Accent | Success states, ratings, veg indicator |

Table 2: Color palette

2. 80-20 Rule (Pareto Principle)

The Pareto Principle states that roughly 80% of effects come from 20% of causes. In QuickBite, the critical 20% of features receive the most design attention.

2.1 Critical 20% (Primary Focus)

- **Browse Food (Home):** Categories, restaurant cards, and promotional banners placed front-and-center
- **Search:** Prominent search bar with filters, trending items, and recent searches
- **Menu & Add to Cart (Restaurant):** Clear menu items with one-tap add and customization popup
- **Cart & Checkout:** Price breakdown, coupon field, and prominent “Place Order” button
- **Order Tracking:** Step-by-step progress indicator, ETA, map, and delivery partner info

2.2 Supporting 80% (Secondary)

- Profile management, order history, help & support, notifications
- Accessed through bottom navigation or nested menus
- Organized but do not clutter the core ordering flow

The bottom navigation prioritizes core actions: Home, Search, Cart, Orders, Profile. The ordering flow (Browse → Select → Cart → Order → Track) is always within 1–2 taps.

3. Shneiderman's 8 Golden Rules

3.1 Rule 1: Strive for Consistency

- Same button styles, card patterns, corner radius, and color scheme across all 12 screens
- Bottom navigation maintains identical positioning and styling everywhere
- Poppins font used consistently for all text

3.2 Rule 2: Seek Universal Usability / Enable Shortcuts

- “Reorder” button on past orders for quick repeat ordering
- Saved addresses (Home, Work) for one-tap delivery selection
- Recent searches displayed for quick re-search
- Keyboard shortcuts (1–0 keys) in the prototype for direct screen access

3.3 Rule 3: Offer Informative Feedback

- Coupon applied shows green confirmation message
- Order placement shows a confirmation screen with confetti animation
- Adding items updates the cart badge with a scale animation
- Order tracking provides step-by-step updates with timestamps
- OTP input auto-advances between fields

3.4 Rule 4: Design Dialogs to Yield Closure

- Ordering flow concludes with a dedicated confirmation screen
- Shows Order ID, restaurant name, estimated time, and total paid
- Green checkmark with animation provides clear sense of completion

3.5 Rule 5: Prevent Errors / Simple Error Handling

- Phone number input validates 10-digit format in real time
- Invalid input shows clear error messages
- OTP boxes auto-advance to prevent misentry
- Full bill breakdown shown before placing order

3.6 Rule 6: Permit Easy Reversal of Actions

- Cart items have +/- quantity controls and remove option
- Delivery address changeable via “Change” button
- Orders cancellable from the tracking screen
- Back buttons on every sub-screen

3.7 Rule 7: Keep Users in Control

- Veg/Non-Veg filter toggles on search and restaurant screens
- Sort options (Rating, Cost, Time)
- Menu category navigation pills
- Customizable order options (size, toppings, special instructions)
- Notification preferences toggle in profile

3.8 Rule 8: Reduce Short-term Memory Load

- Cart badge on bottom nav always shows item count
- Floating cart summary bar on restaurant page shows items and total
- Progress indicator on tracking screen shows current status at a glance
- Price breakdown in cart eliminates the need to mentally calculate totals
- Food categories use emoji icons for instant recognition

4. Nielsen's 10 Usability Heuristics

4.1 H1: Visibility of System Status

- Order tracking shows a 4-step progress indicator (Order Placed → Preparing → Out for Delivery → Delivered) with timestamps and ETA
- Splash screen has loading animation
- Banner carousel shows progress dots
- Cart badge updates in real time

4.2 H2: Match Between System and Real World

- Food emoji for categories (pizza, biryani, burger, etc.)
- Star ratings for restaurants
- Map visualization for delivery tracking
- Natural language prompts (“What’s on your mind?”)
- Standard Veg (green dot) / Non-Veg (red triangle) symbols

4.3 H3: User Control and Freedom

- Back button on every screen
- Skip button on onboarding
- Cancel order from tracking screen
- Edit cart items and change address
- Close button on all popups

4.4 H4: Consistency and Standards

- Bottom tab navigation (standard mobile pattern)
- Search bar at top of relevant screens
- Card-based layouts throughout
- Industry-standard Font Awesome icons

4.5 H5: Error Prevention

- Input validation prevents invalid phone numbers before submission
- Auto-advancing OTP boxes reduce entry errors
- Full bill summary shown before checkout

- Coupon field provides instant validity feedback

4.6 H6: Recognition Rather Than Recall

- Visual food categories with emoji icons
- Recent searches displayed on search screen
- Restaurant cards show key info (rating, time, distance) at a glance
- Order history shows past orders for easy reordering
- Saved addresses labeled (Home, Work)

4.7 H7: Flexibility and Efficiency of Use

- Multiple paths to find food: browse categories, search, explore recommendations, or reorder
- Filters and sort for advanced users
- Quick reorder bypasses the entire browse-to-cart flow

4.8 H8: Aesthetic and Minimalist Design

- Clean white backgrounds with generous whitespace
- Each screen focuses on its primary task
- Information hierarchy: large headings, supporting details, then actions
- Consistent 8px grid spacing

4.9 H9: Help Users Recognize, Diagnose, and Recover from Errors

- Phone validation error states “Please enter a valid 10-digit phone number”
- Specific error messages for all failure states
- Clear retry options for failed operations

4.10 H10: Help and Documentation

- Dedicated Help & Support screen with searchable FAQ accordion
- Live chat, call, and email support options
- Issue reporting form with order dropdown
- Onboarding slides introduce key features to new users

5. Tesler's Law (Conservation of Complexity)

Tesler's Law states that every application has inherent complexity that cannot be removed — it can only be moved. Good design moves complexity from the user to the system.

- **Smart Defaults:** Default delivery address auto-selected (Home). Regular size pre-selected in customization popup. Default payment method remembered.
- **Step-by-step Checkout:** The cart screen breaks checkout into distinct sections (items → coupon → address → bill → place order) instead of showing everything at once.
- **Auto-computation:** Bill summary auto-calculates item total, delivery fee, taxes, discounts, and grand total. Users never need to do math.
- **Customization in Modal:** Item customization (size, toppings, instructions) is contained in a popup instead of cluttering the menu list.
- **Filter/Sort Defaults:** Filtering and sorting are available but optional — the default view works well for casual users.

6. Serial Position Effect

People remember the first (primacy) and last (recency) items in a series best.

6.1 Primacy Effect

- “Home” placed first (leftmost) in bottom navigation — the most-used screen
- Promotional banners and offers appear first on the Home screen
- “Recommended” category appears first in the restaurant menu

6.2 Recency Effect

- “Profile” placed last (rightmost) in bottom navigation
- “Place Order” button fixed at the bottom of the Cart screen — the last visible element is the key action
- Floating cart bar stays at the bottom of the Restaurant page

6.3 Bottom Navigation Layout

Home | Search | Cart | Orders | Profile

Home (primacy) and Profile (recency) bookend the navigation. Cart holds the center position with a badge for visual anchoring.

7. Learnability (Law of Learning)

The time to complete a task decreases with practice. QuickBite is designed to be instantly learnable.

- **Familiar Patterns:** Tab navigation, card-based content, search with filters, cart with quantity controls, map-based tracking — all patterns users already know.
- **Onboarding:** Three slides introduce core features: Browse → Order → Enjoy. Skip button available for returning users.
- **Consistent Interactions:** Once a user learns one pattern (e.g., tapping a card), it applies everywhere. All back buttons, toggles, and action buttons behave identically across screens.

8. Mental Models

Mental models are internal representations of how users expect systems to work.

- **Restaurant Menu Model:** The restaurant page is organized by categories (Starters, Main Course, Desserts, Beverages) with item name, description, and price — mimicking a real menu.
- **E-Commerce Cart Model:** Standard flow: add items → view cart → review → apply coupon → see total → place order. Matches the universal online shopping mental model.
- **Delivery Tracking Model:** Map-based tracking with a moving rider icon, ETA, delivery partner details, and contact options — mirrors Uber/Google Maps experience.

9. Closure

Closure refers to the user's need to experience a clear sense of completion after an action.

- **Order Confirmation Screen:** After placing an order, users see a large green checkmark, “Order Placed!” heading, confetti animation, order details (ID, restaurant, ETA, total), and “Track Your Order” / “Back to Home” buttons.
- **Tracking Steps:** Each step transitions from gray (upcoming) to green checkmark (completed). The progress line fills as steps complete.
- **Micro-closure:** Coupon applied → green success message. Item added → badge animation. OTP sent → timer revealed. Login complete → transitions to Home.

10. Inverted Pyramid

The most important information appears first, with details in decreasing order of importance.

10.1 Home Screen Hierarchy

1. Location and search bar (critical context and most-used action)
2. Promotional banners (time-sensitive, high impact)
3. Food categories (primary browsing method)
4. Restaurant cards (exploration content)
5. Popular picks (supporting discovery)

10.2 Restaurant Card Hierarchy

1. Restaurant name (identification)
2. Rating + delivery time (decision factors)
3. Cuisine type (categorization)
4. Location + price (supporting detail)

Users can make a go/no-go decision without reading past the second line.

11. Flexibility and Robustness

11.1 Multiple Paths to the Same Goal

- Browse: Home → Categories → Restaurant → Menu
- Search: Direct text search for dishes or restaurants
- Discover: Trending searches, popular near you, recommendations
- Reorder: One-tap reorder from order history

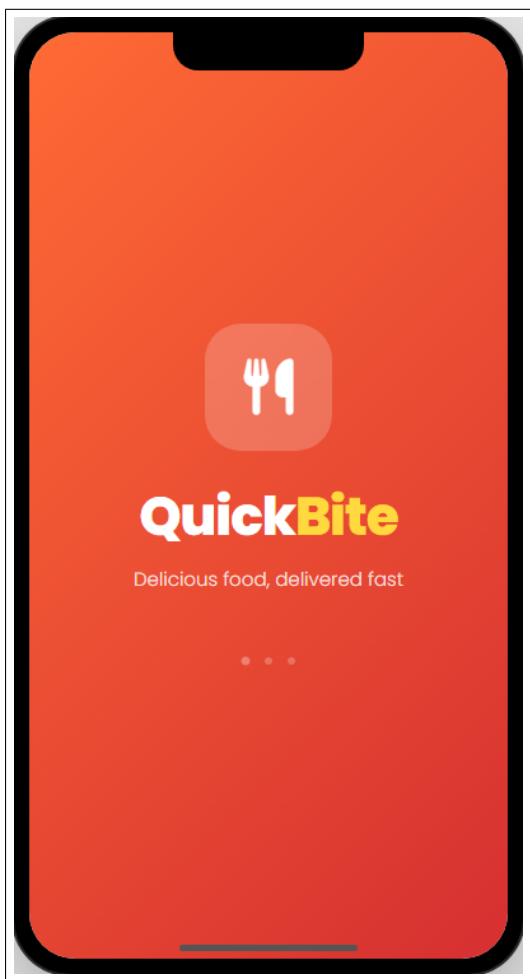
11.2 Robustness

- Multiple login methods (Phone OTP, Google, Apple)
- Saved addresses and payment methods reduce friction
- Veg/Non-Veg filter for dietary preferences
- Multiple sort and filter options
- Contact options for both restaurant and delivery partner

12. Screen-by-Screen Design with Screenshots

Each screen is shown with its screenshot and the key HCI concepts applied.

12.1 Screen 1: Splash Screen



HCI Concepts:

- Visibility of System Status (Nielsen H1): Loading animation provides feedback
- Aesthetic and Minimalist Design (Nielsen H8): Clean gradient with logo
- Auto-transitions to onboarding after 2.5 seconds

Figure 1: Splash Screen

12.2 Screen 2: Onboarding (3 Slides)

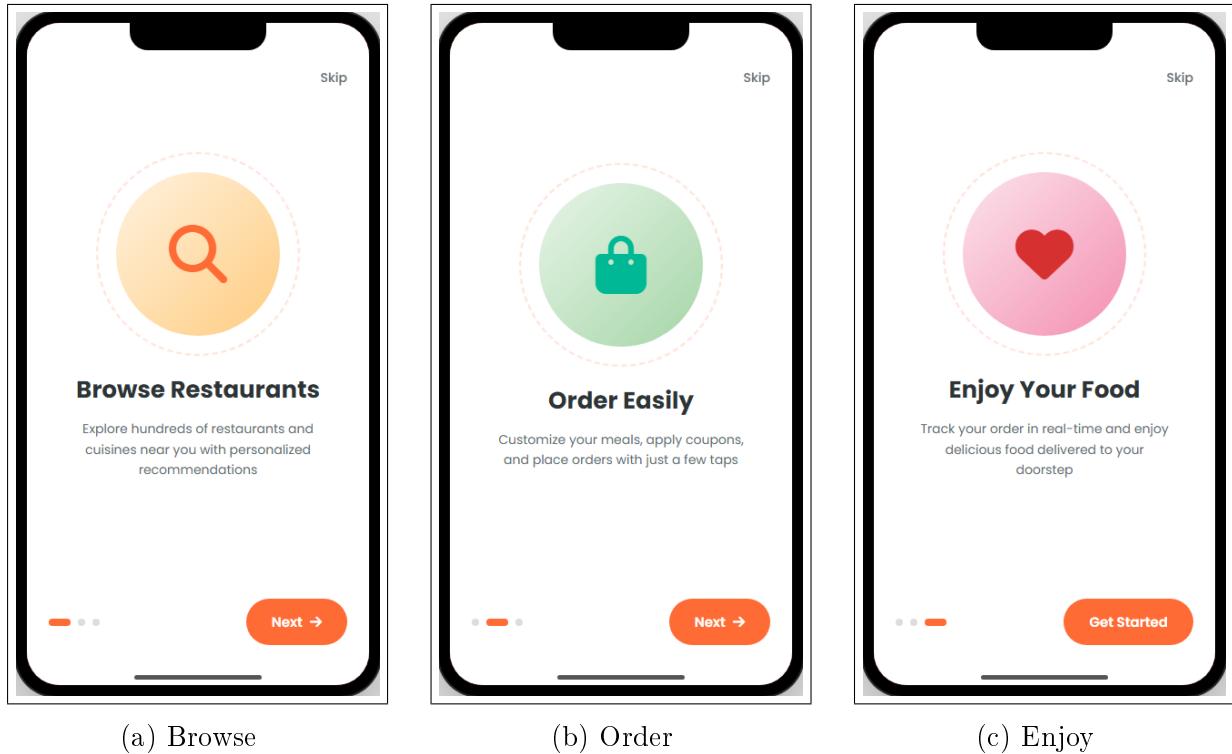
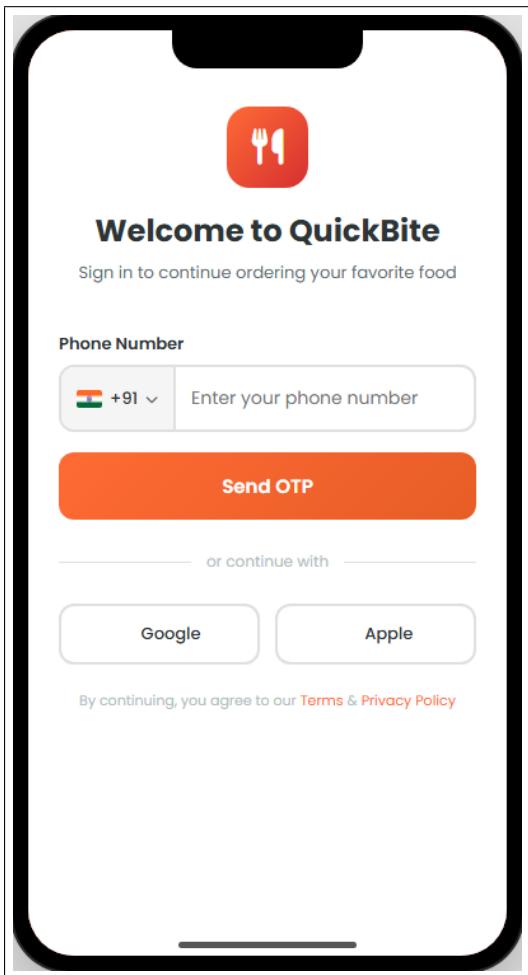


Figure 2: Onboarding Screens

- Learnability: Introduces app in 3 simple steps
- User Control (Nielsen H3): Skip button for returning users
- System Status (Nielsen H1): Progress dots show current position
- Closure: “Get Started” on final slide
- Serial Position: Most memorable content at start and end

12.3 Screen 3: Login / Sign Up



HCI Concepts:

- Error Prevention (Nielsen H5): Real-time phone validation
- Error Recovery (Nielsen H9): Specific error messages
- Flexibility (Nielsen H7): Phone OTP, Google, and Apple sign-in
- Feedback (Shneiderman R3): OTP auto-advance, focus states
- Consistency (Shneiderman R1): Same button/form patterns

Figure 3: Login Screen

12.4 Screen 4: Home Dashboard

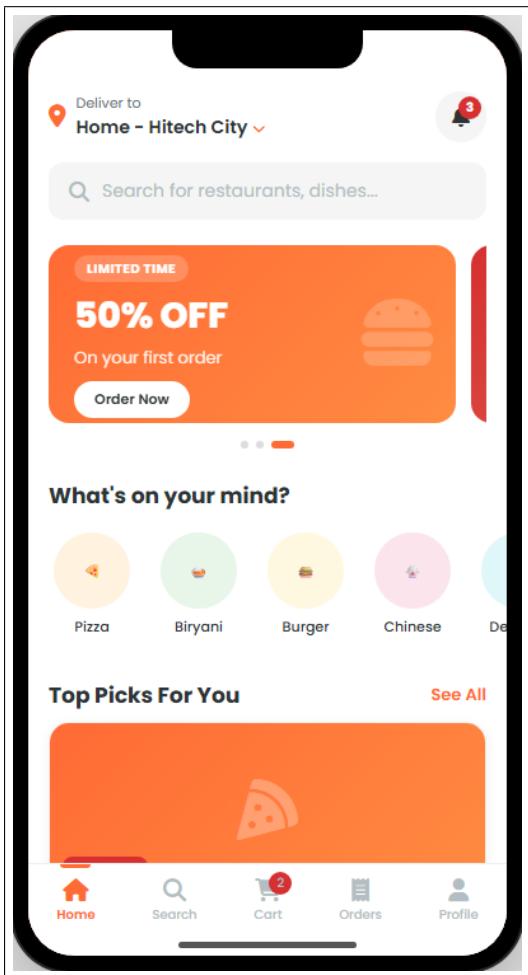
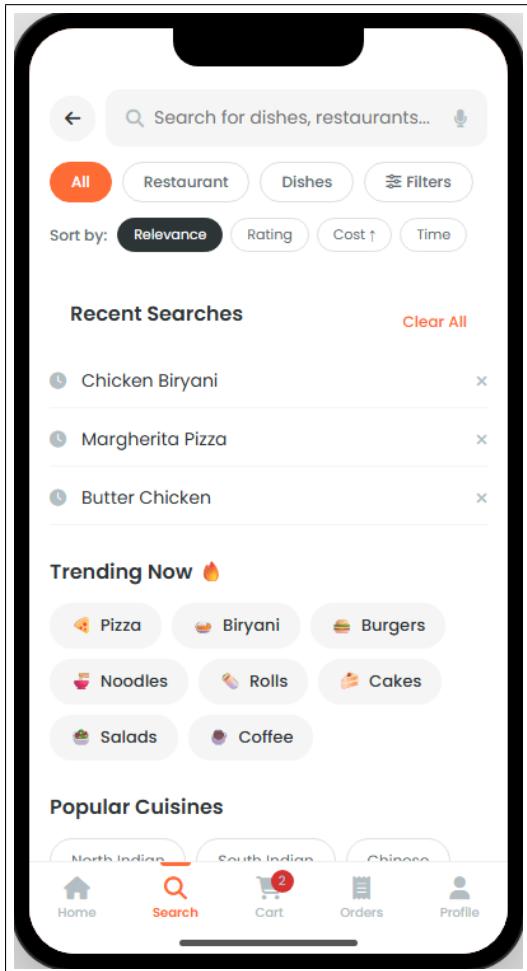


Figure 4: Home Screen

HCI Concepts:

- Inverted Pyramid: Location + search at top, then banners, categories, restaurants
- 80-20 Rule: Browse and search dominate the screen
- Recognition over Recall (Nielsen H6): Emoji categories, visual cards
- Real-world Match (Nielsen H2): Natural language, food imagery
- Memory Load (Shneiderman R8): Cart badge, notification badge
- Serial Position: Home is first in bottom nav

12.5 Screen 5: Search Screen

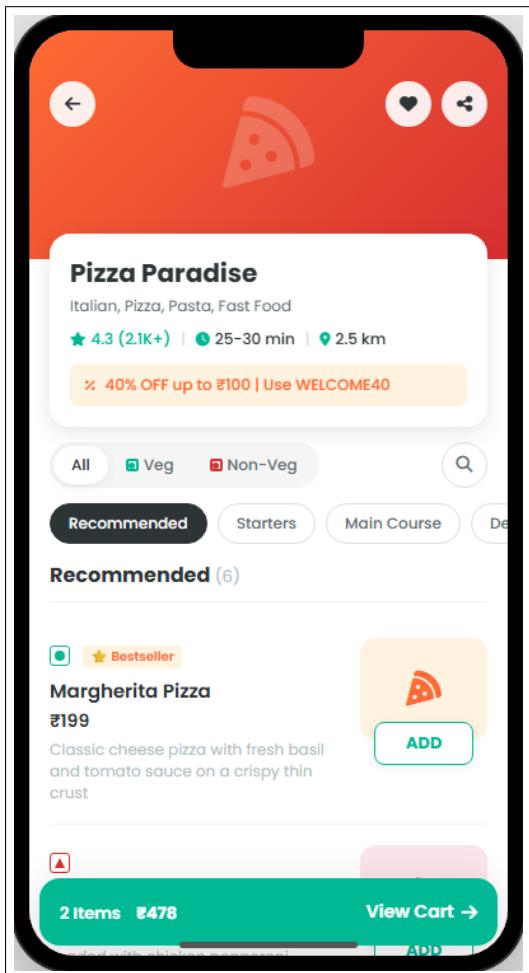


HCI Concepts:

- Recognition over Recall (Nielsen H6): Recent searches, trending items
- Flexibility (Nielsen H7): Filter pills, sort options, cuisine filters
- User Control (Shneiderman R7): Multiple filter/sort combinations
- Reversal (Shneiderman R6): Clear recent searches
- Consistency: Same pill/chip styling across app

Figure 5: Search Screen

12.6 Screen 6: Restaurant Listing and Menu



HCI Concepts:

- Mental Model: Menu organized like a real restaurant
- Real-world Match (Nielsen H2): Veg/Non-Veg standard symbols
- Memory Load (Shneiderman R8): Floating cart bar shows count + total
- Tesler's Law: Customization in popup, not inline
- User Control: Veg/Non-Veg toggle, category pills, Add buttons
- Inverted Pyramid: Restaurant info first, then menu

Figure 6: Restaurant Screen

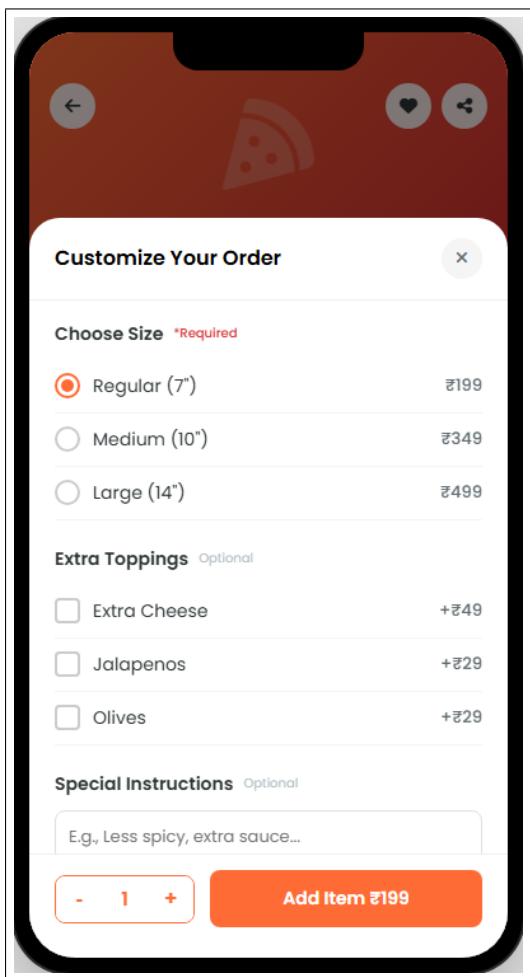
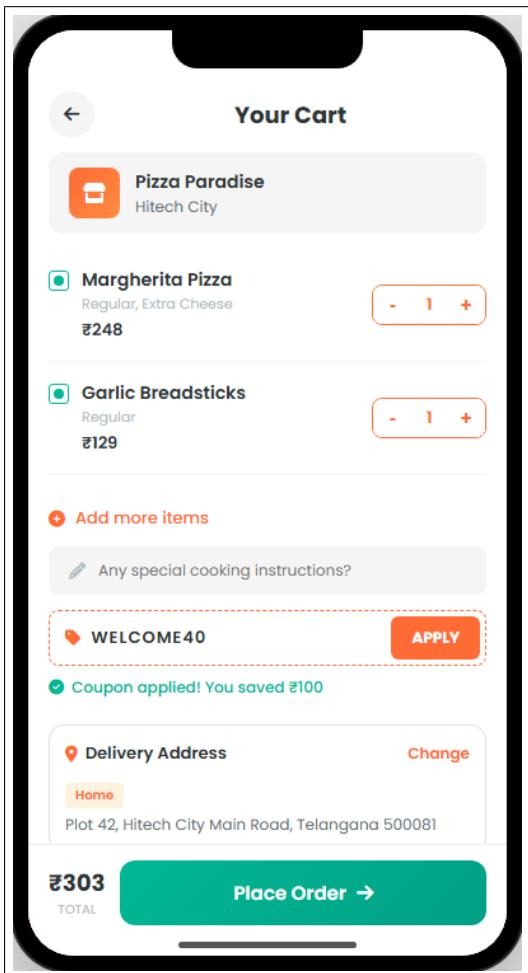


Figure 7: Item Customization Popup

HCI Concepts:

- Tesler's Law: Complex customization contained in bottom sheet
- Smart Defaults: Regular size pre-selected
- User Control: Size (radio), toppings (checkboxes), special instructions
- Freedom (Nielsen H3): Close button, quantity controls
- Closure: “Add Item” button confirms the action

12.7 Screen 7: Cart and Checkout

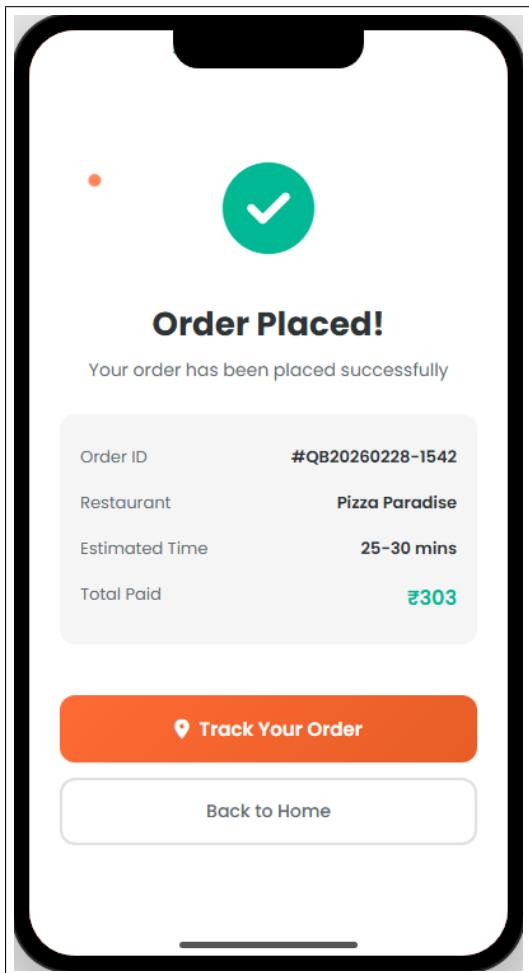


HCI Concepts:

- Tesler's Law: Bill auto-calculated by the system
- Reversal (Shneiderman R6): Quantity +/- controls, change address
- Feedback (Shneiderman R3): Coupon success message
- Error Prevention (Nielsen H5): Full breakdown before checkout
- Closure (Shneiderman R4): Prominent “Place Order” button
- Inverted Pyramid: Items, then billing, then action

Figure 8: Cart Screen

12.8 Screen 8: Order Confirmation

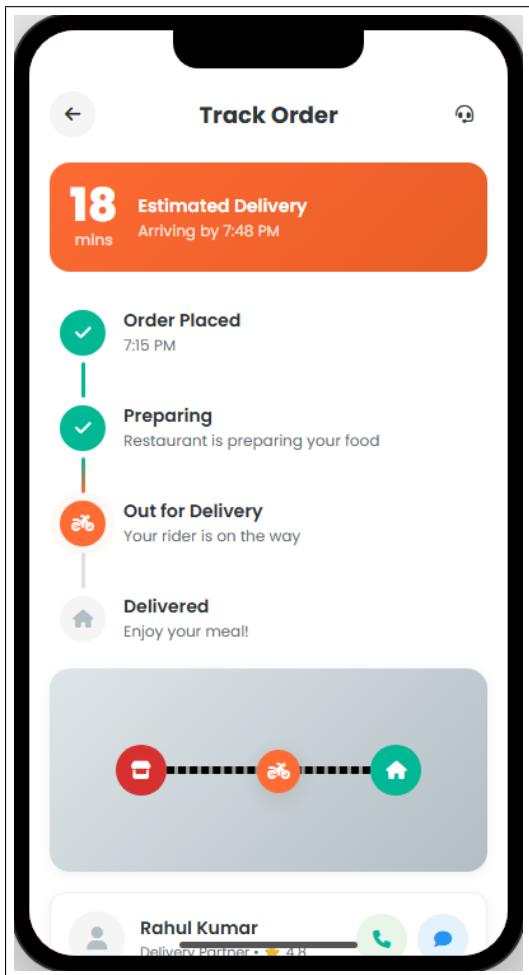


HCI Concepts:

- Closure: Green checkmark, confetti animation, “Order Placed!”
- Feedback (Shneiderman R3): Order ID, restaurant, ETA, total
- Dialog Yield Closure (Shneiderman R4): Clear end of ordering sequence
- Next steps: “Track Your Order” and “Back to Home” buttons

Figure 9: Order Confirmation

12.9 Screen 9: Order Tracking

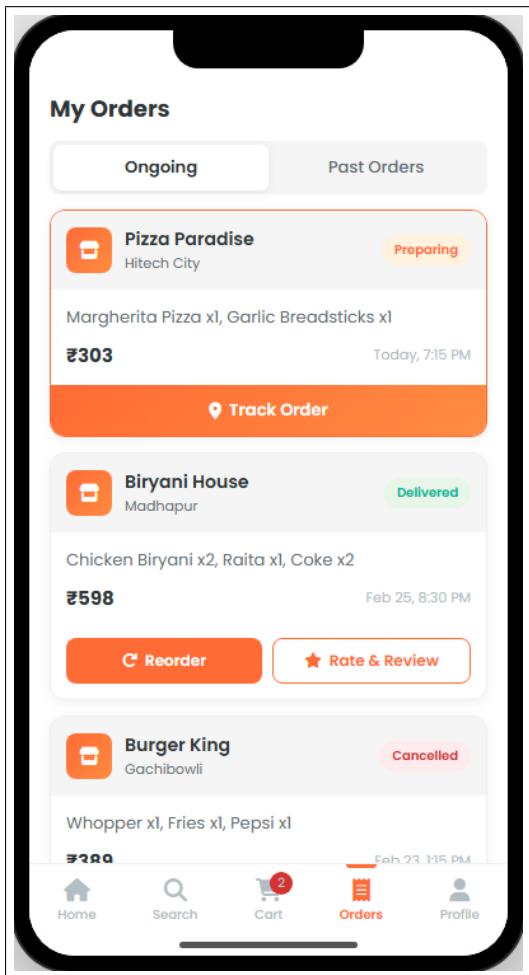


HCI Concepts:

- System Status (Nielsen H1): 4-step progress with ETA countdown
- Mental Model: Map tracking mirrors Uber/Google Maps
- Real-world Match (Nielsen H2): Rider icon, restaurant and home markers
- User Control (Shneiderman R7): Contact delivery partner, cancel order
- Closure: Steps complete with green checkmarks

Figure 10: Order Tracking

12.10 Screen 10: Order History

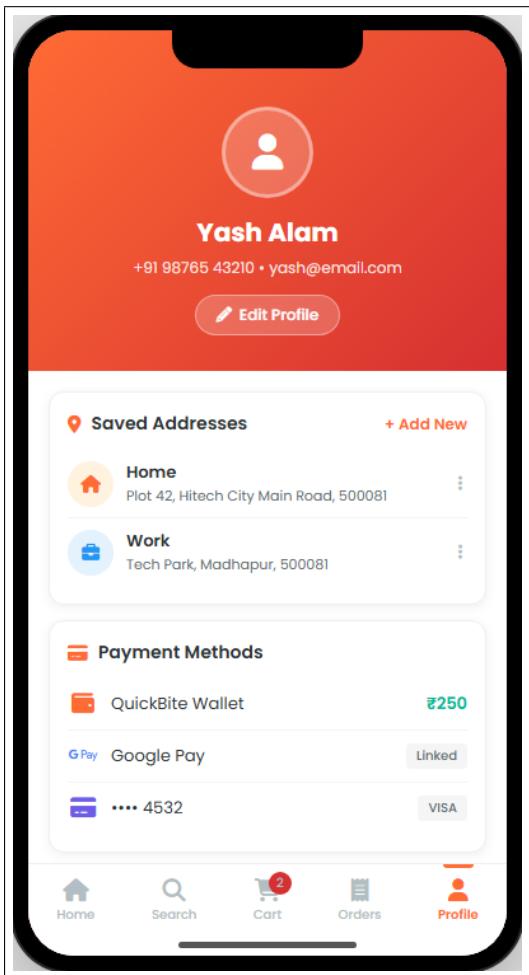


HCI Concepts:

- Shortcuts (Shneiderman R2): “Reorder” button for repeat ordering
- Recognition (Nielsen H6): Order cards show restaurant, items, status, date
- Closure: Status badges (Delivered, Cancelled, Preparing)
- Consistency: Same card pattern as rest of app
- Flexibility: Tabs for Ongoing/Past orders; rate and review option

Figure 11: Order History

12.11 Screen 11: Profile / Account

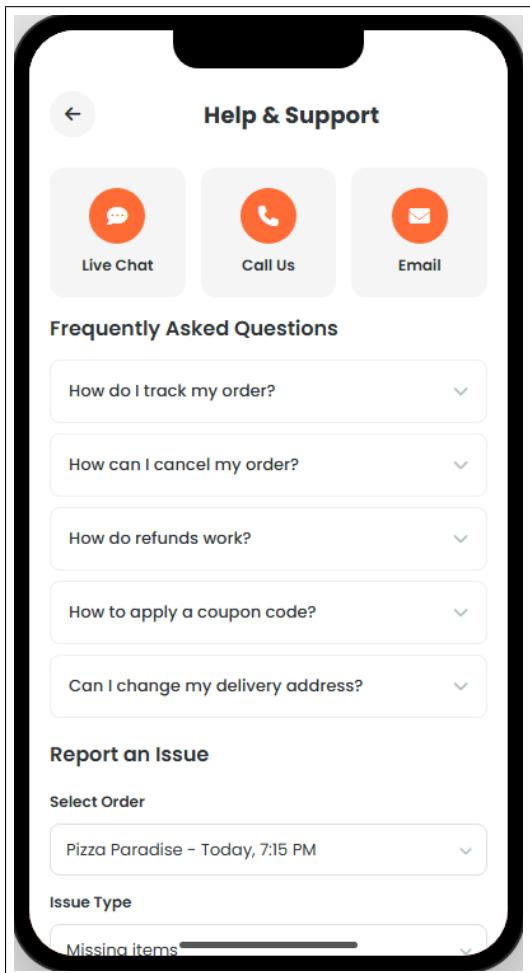


HCI Concepts:

- 80-20 Rule: Secondary features in a clear menu hierarchy
- Shortcuts: Saved addresses, linked payments, wallet balance
- User Control: Notification toggle, edit profile, manage payments
- Consistency: Card-based sections, same icon styling
- Serial Position (Recency): Profile at last position in bottom nav

Figure 12: Profile Screen

12.12 Screen 12: Help and Support

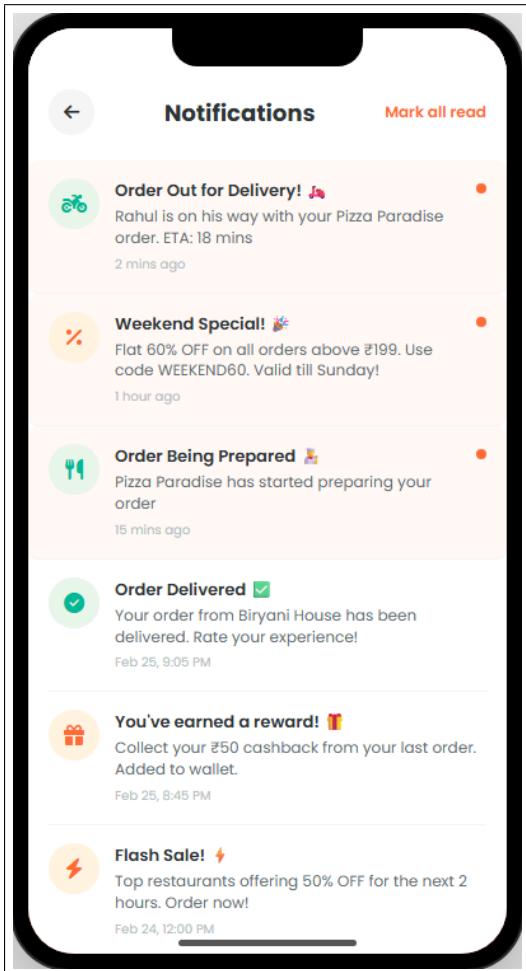


HCI Concepts:

- Help and Documentation (Nielsen H10): FAQ accordion, live chat, call, email
- Error Recovery: Issue reporting form with order dropdown
- Flexibility: Three contact methods for different preferences
- Recognition: Visual icons for quick actions
- 80-20: Help is accessible but secondary

Figure 13: Help and Support

12.13 Screen 13: Notifications



HCI Concepts:

- System Status (Nielsen H1): Order updates with timestamps
- Recognition: Visual distinction between read and unread
- Categorization: Distinct icons for order vs promotional notifications
- User Control: “Mark all read” button
- Consistency: Same list pattern and styling as rest of app

Figure 14: Notifications

13. User Flow

13.1 Primary Flow

Splash → Onboarding → Login → **Home** → Restaurant → Cart → Confirmation
→ Tracking

13.2 Alternative Flows

- **Search Flow:** Home → Search → Restaurant → Cart → Confirmation
- **Reorder Flow:** Orders → Reorder → Cart → Confirmation
- **Category Flow:** Home → Category → Restaurant → Cart → Confirmation

14. How to Test the Prototype

The QuickBite prototype is a fully interactive HTML/CSS/JS application. Follow the steps below to run and test it.

14.1 Prerequisites

- A modern web browser (Google Chrome, Firefox, or Microsoft Edge)
- No installation or server setup is required

14.2 Running the Prototype

1. Clone or download the repository from GitHub:

```
git clone https://github.com/Niranjan7771/HCI_MID.git
```

2. Open the folder `HCI_MID/`
3. Double-click `index.html` to open it in your default browser
4. The app will start with the Splash Screen and auto-transition to Onboarding

14.3 Navigating the Screens

- **Onboarding:** Swipe through 3 slides using Next/dots, or click Skip
- **Login:** Enter any 10-digit phone number, then fill the OTP boxes
- **Home:** Browse categories, scroll through restaurants, tap banners
- **Search:** Type in the search bar, use filter/sort pills
- **Restaurant:** Browse menu, toggle Veg/Non-Veg, tap Add to add items, tap an item for customization popup
- **Cart:** Adjust quantities, apply coupon code `WELCOME50`, tap Place Order
- **Confirmation:** View order details, tap Track Your Order
- **Tracking:** See live progress steps, map, and delivery partner info
- **Orders / Profile / Help / Notifications:** Accessible via bottom navigation or header icons

14.4 Keyboard Shortcuts (Quick Navigation)

The prototype includes keyboard shortcuts for direct screen access during testing:

| Key | Screen | Key | Screen |
|-----|------------|-----|--------------------|
| 1 | Splash | 6 | Restaurant |
| 2 | Onboarding | 7 | Cart |
| 3 | Login | 8 | Order Confirmation |
| 4 | Home | 9 | Order Tracking |
| 5 | Search | 0 | Orders / History |

Table 3: Keyboard shortcuts for quick screen navigation

A navigation guide panel is also available on the left side of the prototype for click-based direct access to any screen.

15. Conclusion

The QuickBite food delivery app demonstrates a comprehensive application of HCI principles:

- **80-20 Rule:** Core ordering flow receives primary design attention
- **Shneiderman's 8 Rules:** Consistency, feedback, closure, error handling, reversal, memory load reduction
- **Nielsen's 10 Heuristics:** System visibility, real-world match, user control, aesthetics, help
- **Tesler's Law:** Computation and decisions offloaded to the system
- **Serial Position:** Critical actions at start/end of navigation
- **Mental Models:** Design matches restaurant, e-commerce, and delivery tracking expectations
- **Closure:** Confirmation screens and success messages at every critical point
- **Inverted Pyramid:** Most important content first on every screen
- **Learnability:** Familiar patterns, consistent interactions, onboarding
- **Flexibility and Robustness:** Multiple paths, auth methods, filters, contact options

The interactive prototype (HTML/CSS/JS) provides a hands-on demonstration of all 12 screens with working navigation, animations, and interactive elements.