

# Functional Requirements

## 1. User Authentication Module

### 1. User Signup (Manual + Google Sign-in)

- Users can register manually using email and password or instantly via **Google Sign-in (OAuth 2.0)** for faster access.
- Google users' names, emails, and profile pictures are fetched securely.
- First-time Google users must confirm their role as "Customer."
- Passwordless experience for Google-authenticated users.

### 2. Restaurant & NGO Signup (Manual Only)

- Partners (restaurants, NGOs) must sign up manually to undergo verification.
- Upload official documents such as trade licenses, NGO registration certificates, etc.
- Admin approval is required before accessing dashboards.

### 3. Login/Logout System

- Secure login using JWT-based authentication.
- Google-authenticated users bypass password entry.
- Logout removes the session token and clears local data.

### 4. Forgot Password / Reset Password

- Users who signed up manually can reset via OTP or email link.
  - Google Sign-In users are redirected to their Google account recovery.
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## 2. Food Ordering System

### 5. Restaurant Menu Display

- Shows restaurant name, cuisine type, ratings, and food availability.
- The menu dynamically updates based on the restaurant's real-time input.
- Tags like "Popular," "New," or "Discounted" are automatically generated.

### 6. Smart Search & Advanced Filters

- Search by dish, restaurant name, or ingredient.
- Filters by distance, price range, dietary preference, and rating.
- "Sort by" option for delivery time, lowest cost, or popularity.

### 7. Add to Cart & Customisation

- Quantity control, add-ons (extra toppings, sauces).
- Auto-updated cart summary with live price calculation.

### 8. Order Checkout & Payment Gateway

- Integrated with **SSLCommerz** like and **Stripe**.
- Two modes: "Order for Me" or "Donate a Meal."

### 9. Real-time Order Tracking (HOLD)

- Interactive map powered by Google Maps API.
  - Status: "Preparing," "Picked Up," "On the Way," "Delivered."
  - Push notifications and sound alerts for updates.
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### **3. Food Donation & Sharing System**

#### **10. Donate Surplus Food (User or Restaurant)**

- Users/restaurants can list extra food as “Available for Donation.”
- Add details: type, quantity, freshness, expiry time, and pickup address.
- Expired or unsafe listings auto-expire.

#### **11. Nearby NGO / Collection Point Map (HOLD)**

- Displays verified NGOs and food banks.
- Filter by distance or category (children, shelters, animal rescues).
- Option to book donation pickup.

#### **12. Smart Expiry Management**

- Restaurants can log food production and expiry time.
- The system sends notifications when food is nearing expiry for timely donation.

#### **13. Scheduled Donation Pickups (HOLD)**

- Users and restaurants can schedule recurring donations (e.g., every Friday).
- NGOs receive a route-optimized pickup schedule.

#### **14. Community Campaigns & Drives (BAD FEATURE)**

- The platform runs “Zero Hunger Week” or “Donate 1 Meal” events.
  - Users can join and share campaign progress on social media.
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### **4. Restaurant and NGO/Volunteer Dashboard**

### **15. Menu Management System**

- Add, update, or remove food items with price and availability.
- Upload images and set discounts.
- “Duplicate Item” option for efficiency.

### **16. Donation Tracker**

- Restaurants can monitor how much food they’ve donated and its impact.
- Display of total meals donated and the number of NGO beneficiaries.

### **17. Order Analytics Dashboard**

- Shows weekly/monthly order trends, customer feedback, and profit breakdown.
- Visual graphs for easy analysis.

### **18. NGO Verification & Profile Management**

- Admin verification is mandatory before activation.
- NGOs can add logos, missions, and service area info.

### **19. Volunteer Assignment Panel**

- NGOs can assign volunteers to pick up or distribute food.
- Volunteers get in-app notifications and navigation support.

### **20. Donation Tracking & Acknowledgement (New)**

- NGOs log donation receipts with photos or short notes.
- Donors get confirmation updates and appreciation messages.

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## **5. Community-Driven Delivery Logistics**

### **21. Donation History & Impact Overview**

- Users can view all donations (date, type, and NGO served).
- Adds transparency and personal satisfaction.

### **22. Leaderboards & Recognition**

- Lists top individual donors and restaurants.
- The leaderboard resets monthly to maintain active engagement.

### **23. Achievement Badges & Rewards**

- Earn digital badges like “Monthly Hero” and “100 Meals Shared.”
- Visible on user profiles and shareable on social media.

### **24. Rider Live Tracking Dashboard**

- Riders see the delivery queue, customer location, and route maps.
- Users and NGOs can track rider progress in real time.

### **25. Delivery Confirmation & Feedback**

- Once completed, both the user and the restaurants confirm receipt digitally.
- The rider receives a rating and an optional tip.

# Non-functional Requirements

## 1. Performance Requirements

### 1.1 Response Time

- All pages must load within 2–3 seconds under normal network conditions.
- Search results (restaurants, dishes, NGOs) should appear within <1 second after user input.
- Real-time features (live tracking, donation expiry timers) should update within 10–12 seconds.

### 1.2 Scalability

- The system must support:
- 10,000+ concurrent users during peak donation campaigns.
- Scaling through load balancers and microservices (if needed in the future).
- The database should handle the growth of thousands of orders/donations without major performance drops.

## 2. Security Requirements

### 2.1 Authentication & Authorization

- JWT-based access control must be enforced for all user types (Customer, Restaurant, NGO, Rider, Admin).

- OAuth 2.0 must be secured with proper callback validation for Google Sign-In.

## 2.2 Data Protection

- Passwords must be hashed using bcrypt with strong salt rounds.
- Sensitive partner documents (trade license, registration certificates) must be stored encrypted.

## 2.3 Payment Security

- All payments must comply with PCI DSS guidelines through certified payment gateways (e.g., SSLCommerz or Stripe).

# 3. Reliability & Availability

## 3.1 System Availability

- The platform should have 98% uptime annually.
- Essential modules (order placement, donation listing, payments) must remain available even during maintenance mode.

## 3.2 Fault Tolerance

- If a microservice fails (e.g., tracking service), the system should degrade gracefully without full app failure.

# 4. Usability Requirements

## 4.1 User-Friendly Interface

- Minimalistic UI designed for rural communities with clear icons, Bengali support, and simple navigation.
- All important actions (order, donate, track rider) must be accessible in 3 clicks or fewer.

## 4.2 Accessibility

- The website must follow basic WCAG AA accessibility standards:
- High-contrast text
- Screen reader compatibility

# 5. Maintainability & Extensibility

## 5.1 Modular Architecture

- MERN modules must be structured in reusable service layers (auth, order, donation, payment).
- Adding new features (e.g., medicine delivery, clothing donation) should require minimal code modification.

## 5.2 Documentation

Internal documentation must include:

- Architecture overview
- Deployment guide

# 6. Interoperability Requirements

## 6.1 Third-Party Integration

- Google Maps API, Google OAuth, and SSLCommerz/Stripe must interface smoothly via standardized REST APIs.
- The system should support future integrations with logistics APIs (e.g., Pathao courier)



## **7. Legal & Compliance Requirements**

### 7.1 Food Safety Compliance

The donation module must follow basic food safety rules:

- Auto-expire unsafe listings
- Mark expired food as “Not Available.”

### 7.2 Transparency

- Donation histories must remain tamper-proof and traceable.