Project Design Phase

Solution Architecture

Date	4 Nov 2025
Team ID	NM2025TMID02156
Project Name	To supply leftover food to poor
Marks	4Marks

✅ Solution Architecture (High-Level Design)

Layers of the Architecture

1. User Layer (Front-End / Interfaces)

Users:

- **Food Donors** (restaurants, marriage halls, caterers, households)
- **Volunteers / Delivery partners**
- **NGOs / Shelters / Receiving points**
- **Admin (Management Backend)**

Interfaces:

- Mobile App (Android / iOS)
- Web Portal

- WhatsApp / Call-based request support (for non-technical donors)

2. Application Layer (Core Logic / Services)

Service	Function
Request Management Service	Captures donor request (food type, quantity, pickup time, location).
Volunteer Assignment Service	Assigns nearest volunteer using GPS and availability.
Food Safety Validation Module	Image proof + timestamp + checklist.
Tracking & Routing Service	Live tracking of pickup and drop route.
Notification Service	Push notifications, SMS, or WhatsApp alerts.
Reporting & CSR Module	Generates impact reports for donors and NGOs.

3. Data Layer (Database + Storage)

Database / Storage	Data Stored
User Database	Donor, NGO, volunteer details.
Request Database	Food donation requests, timestamps, status.
Geo-Location Data	Coordinates of pickup and drop points.
Media Storage	Photos of food quality, delivery proof.

4. Integration Layer (APIs & External Services)

Integration	Purpose
Google Maps API / OpenStreetMap	Location tracking, route optimization.
SMS/WhatsApp API (Twilio etc.)	Notifications.
CSR/Documentation API (optional)	Certificate / reporting automation.

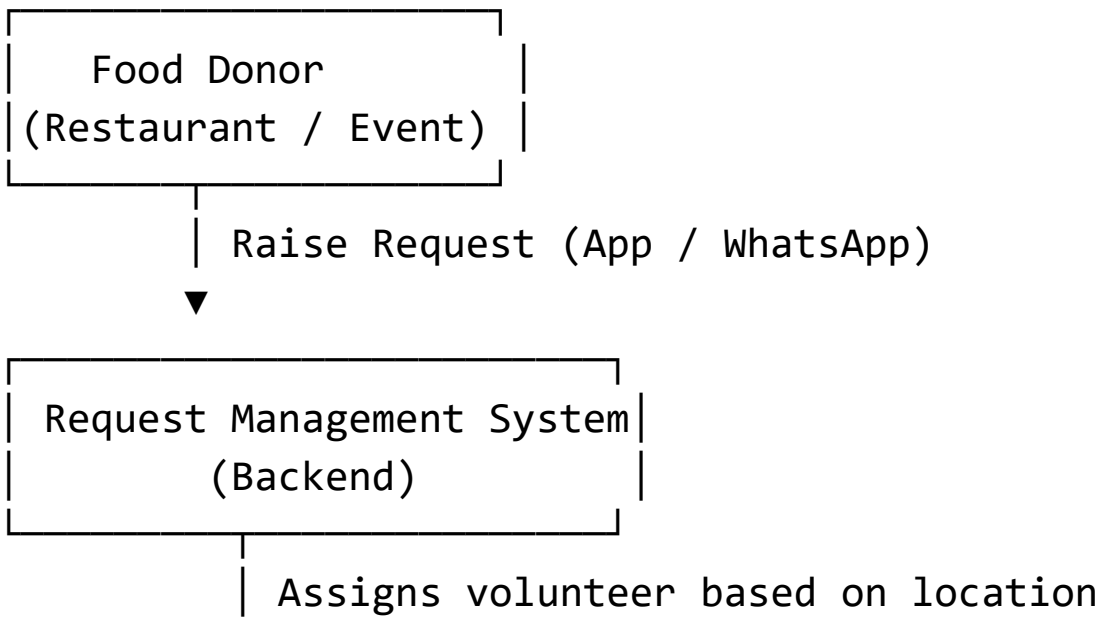
5. Security & Compliance Layer

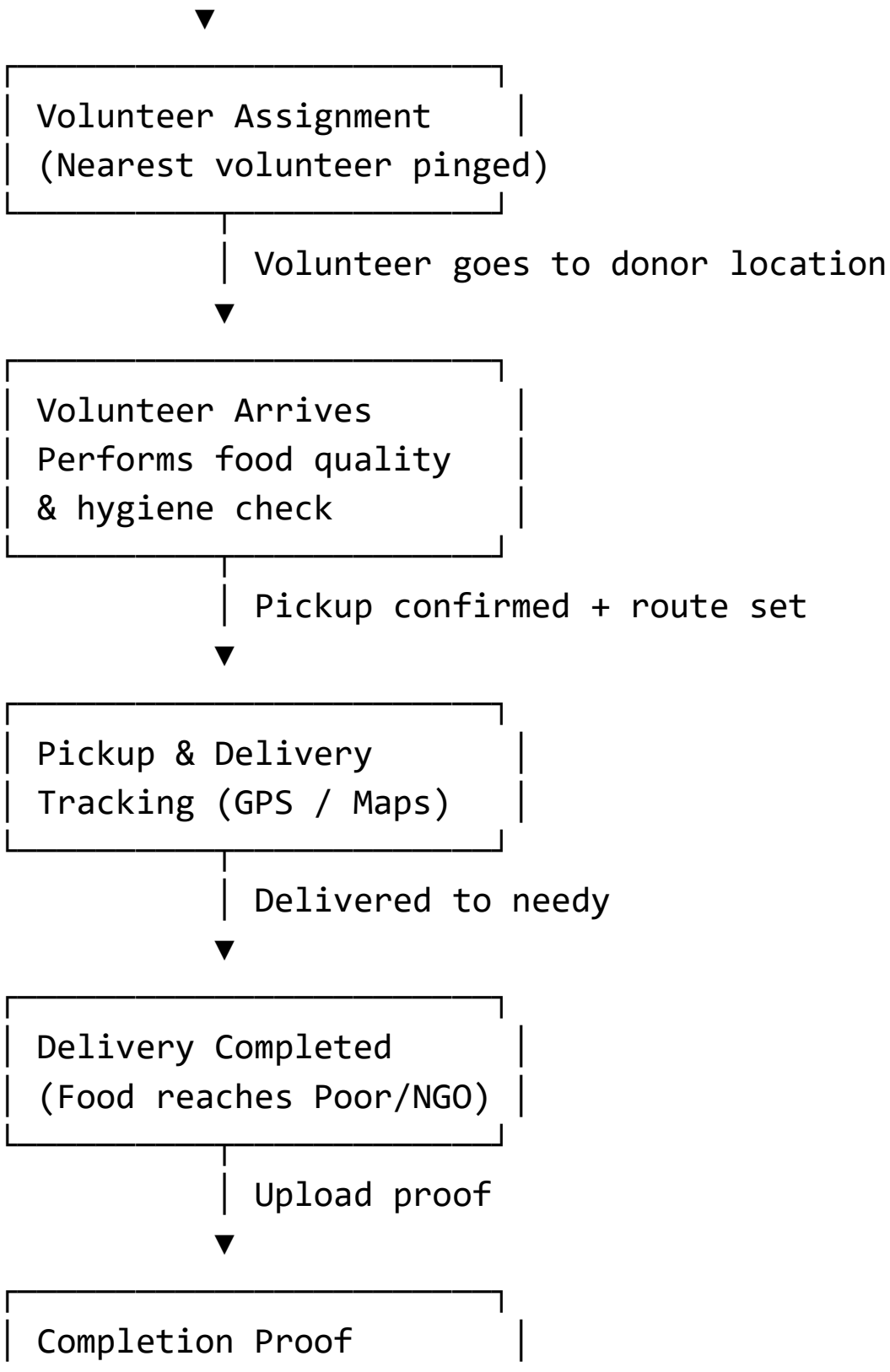
- Authentication (Signup/Login)
- Role-based Access Control (Donor/Volunteer/NGO/Admin)
- Data Privacy (No personal data misuse)
- Food safety compliance checklist

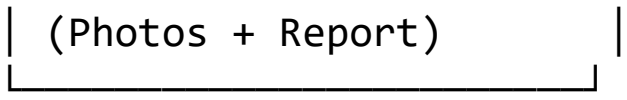
6. Deployment / Infrastructure Layer

- **Cloud Hosting (AWS / Azure / GCP)**
  - App deployment (web + backend services)
  - Database hosting
  - Storage buckets for photos and media

✅ Food Donation Flow (Process Flow Diagram – Text)




Volunteer Assignment
(Nearest volunteer pinged)
Volunteer goes to donor location
Volunteer Arrives
Performs food quality
& hygiene check
Pickup confirmed + route set
Pickup & Delivery
Tracking (GPS / Maps)
Delivered to needy
Delivery Completed
(Food reaches Poor/NGO)
Upload proof
Completion Proof


(Photos + Report)