Project Design Phase-II
Technology Stack

Date	27 OCT 2025
Team ID	NM2025TMID00743
Project Name	To Supply Leftover Food To Poor
Maximum Mark	4 Marks

TECHNICAL ARCHITECTURE

Layer	Technology Used	Purpose
Presentation Layer	Android Mobile App / Web App	Donors upload leftover food details and Volunteers accept pickup
Application Layer (Backend)	Node.js / Java / Python API	Handles business logic like volunteer assignment, time validation, food expiry logic
Database Layer	MySQL / MongoDB Firebase / Cloud DB	Stores donor details, volunteer data, food details, delivery proof and completion time
Notification Layer	Firebase Cloud Messaging (FCM) or Push Notification Service	Sends real-time alerts to volunteers when donor uploads food
Maps & Routing Layer	Google Maps API	Helps volunteers to find shortest route to donor and poor location
Security Layer	Authentication + Authorization	Only registered donors/volunteers can use app
Monitoring & Analytics Layer	Admin Dashboard (Web)	Tracks number of food pickups, deliveries, wastage reduced and people served

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[Donor App / Web] <---> [API Gateway] <---> [Backend Services
(microservices)]

    |              |              |

    |              |              +--> Auth Service

    |              |              +--> Donor Service

    |              |              +--> Volunteer Service

    |              |              +--> Matching & Queue Service

    |              |              +--> Notification Service (FCM / APNs / SMS)

    |              |              +--> Media Service (photos)

    v              v              +--> Monitoring & Logging

[Volunteer App / Web] <---> [Realtime / Push (WebSocket / MQTT)]

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    [Database Cluster]

    [Blob Storage]

    [Maps & Routing Service (3rd party)]

    [Analytics / Dashboard]
```
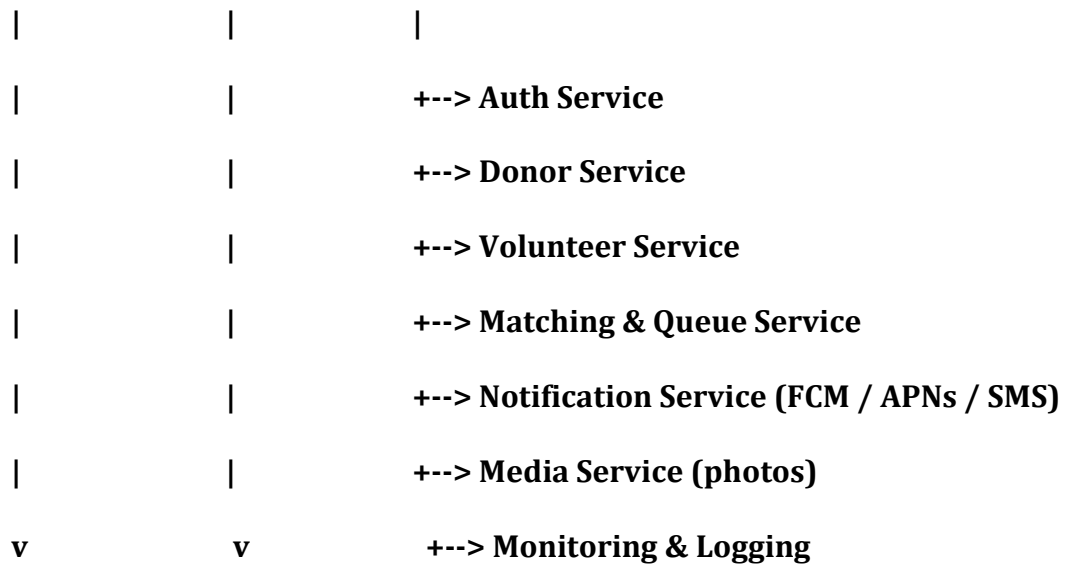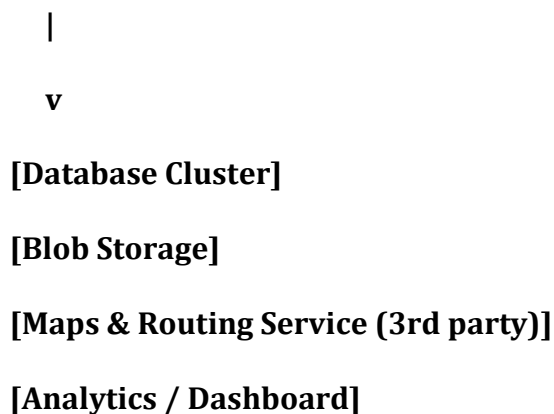
COMPONENTS

Component	Description
Donor Module	Hotels / Restaurants / Function Halls upload leftover food details like food type, quantity, time, location
Volunteer Module	Volunteers get notification, accept task, collect food and deliver to poor people
Backend Server	Manages data storage, notifications, volunteer assignment logic

Component	Description
Map & Routing Module	Shows shortest route to volunteer for pickup and delivery
Notification Module	Sends alerts to volunteers when new food is posted
Delivery Proof Module	Volunteer uploads photo proof and marks delivery completed
Admin Dashboard	NGO / Admin can view reports, track requests and monitor total meals served

TECHNOLOGIES

Technology Area	Options
Frontend (Mobile App)	Flutter / React Native / Android Kotlin
Backend (API Development)	Node.js / Spring Boot (Java) / Python Django
Database	MySQL / PostgreSQL / Firebase Firestore
Cloud Hosting	AWS / Google Cloud / Microsoft Azure
Maps & Location Services	Google Maps API
Notifications	Firebase Cloud Messaging (FCM)
Authentication	JWT Token / OAuth 2.0
Storage for Photos	AWS S3 / Cloud Storage Bucket
Analytics / Reporting	PowerBI / Google Data Studio / Tableau