**Sahyog – Smart Donation & Volunteer Management Platform**

**1. Project Aim**

To develop a centralized, user-friendly web platform that streamlines and optimizes the coordination between NGOs, donors (restaurants and individuals), and volunteers to ensure effective management and distribution of donations (food, clothes, money) and volunteer activities. The platform aims to reduce resource wastage, improve transparency, and increase social impact through automation, real-time tracking, and intelligent matching.

**2. Problem Statement**

* Fragmented and inefficient management of donations and volunteer resources.
* Surplus food and clothes often go to waste or mismatch the actual needs.
* NGOs struggle to discover and connect with nearby donors and volunteers.
* Lack of real-time communication leads to poor coordination.
* Manual scheduling and matching waste time and reduce efficiency.
* NGOs have limited visibility and engagement with potential donors and volunteers.

**3. Proposed Solution**

Develop **Sahyog**, a centralized smart donation and volunteer management platform with features including:

* Volunteer and donation management portals.
* Waste food donation tracker with GPS and status updates.
* Nearest restaurant finder for NGOs with route optimization.
* Clothes donation module with smart filtering.
* AI-powered demand forecasting for resources.
* Smart geo-fencing-based donor-NGO matching.
* Real-time chat and notifications.
* Social media style NGO profile pages to increase visibility.

This platform automates and optimizes donation flows, volunteer scheduling, and communication to maximize social impact.

**4. Key Features & Modules**

**4.1 Volunteer & Donation Management**

* Volunteer sign-up, availability input, shift scheduling.
* Donation dashboard with cash/item tracking and payment gateway integration (Razorpay/PayPal).
* Impact visualizer with real-time charts.

**4.2 Smart Scheduler for NGOs & Volunteers**

* Automated shift assignments based on volunteer availability and NGO needs.
* Alerts and reminders for scheduled tasks.

**4.3 AI-Powered Demand Forecasting**

* Machine learning predicts demand zones based on historical data and location.
* Donors get suggestions to maximize impact.

**4.4 Reputation & Credibility Score System**

* Ratings, badges, and verification to build trust among stakeholders.

**4.5 Waste Food Donation Tracker**

* Restaurants list leftover food with type, expiry, and quantity.
* NGOs track nearby available food and status updates (Available → Accepted → Picked Up → Delivered).

**4.6 Nearest Restaurant Finder for NGOs**

* Map and filter-based discovery of nearby food donors.
* Route optimization for efficient pickups.

**4.7 Clothes Donation Module**

* Donors specify clothes type, season, and condition.
* NGOs claim donations with filters.
* Optional third-party pickup integration.

**4.8 Smart Matching System**

* Geo-fencing to auto-match donors and NGOs.
* Optimized pickup time and routes suggested.

**4.9 Real-Time Communication**

* Live chat between donors, NGOs, and volunteers.
* Quick alerts and task acceptance.

**4.10 NGO Profile Pages**

* Social media-like pages with banners, mission statements, posts, media gallery, followers, likes, and donation CTA.

**5. Bonus Features**

* Admin dashboard with detailed analytics.
* Gamification: points and badges for frequent donors and volunteers.
* Auto-generated donation receipts (with 80G tax compliance support).
* Blockchain-based verified donation ledger (optional).
* Emergency mode for instant resource mobilization.
* Progressive Web App (PWA) support with offline capabilities.

**6. Technology Stack**

| **Layer** | **Technology Stack** |
| --- | --- |
| Frontend | React (Vite) + Tailwind CSS |
| Backend | Node.js + Express |
| Database | MongoDB Atlas (Geospatial indexing enabled) |
| Hosting | Vercel (Frontend), Render/Heroku (Backend) |
| Media Storage | Cloudinary |
| Authentication | JWT + Google OAuth |
| Real-Time | Socket.io + Firebase |
| Payment Gateway | Razorpay, PayPal |
| Mapping | Leaflet.js + OpenStreetMap / Google Maps API |

**7. System Architecture Overview**

* **Frontend:** Responsive React app with dynamic maps, dashboards, and profile pages.
* **Backend:** REST APIs with Express.js handling business logic, payment integrations, and AI forecasting endpoints.
* **Database:** MongoDB with geospatial indexing for location-based queries.
* **Real-Time:** Socket.io for chat and notifications; Firebase as fallback.
* **Third-Party Integrations:** Payment gateways (Razorpay/PayPal), third-party delivery APIs (Delhivery), Google Calendar API (optional).

**8. Expected Impact**

* Drastically reduce food and clothing wastage by matching surplus with demand.
* Increase volunteer engagement and simplify scheduling.
* Improve transparency and trust with rating and verification systems.
* Help NGOs expand their outreach and donor base via social media-like profiles.
* Provide donors with insights to maximize the social impact of their contributions.
* Foster community-driven support during emergencies.

**9. Team Roles (Example)**

* Frontend Developer: UI/UX with React, Tailwind CSS.
* Backend Developer: APIs, DB design, AI integration.
* Data Scientist: ML model for demand forecasting.
* DevOps: Deployment and cloud infrastructure.
* Project Manager: Coordination and documentation.

**10. Future Enhancements**

* Mobile apps for iOS/Android.
* Integration with local government welfare schemes.
* AI chatbot for FAQs and donation guidance.
* Advanced analytics dashboard for impact reporting.
* Multi-language support.