CSE 408 Software Engineering

Group 4
Project Profile

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Group Members

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Project Definition: An online platform that serves as a bridge between NGOs and donors

Project Title:

NGO Resource & Donation Management System (NRDMS)

Project Team Members and Roles:

- AU2340018 - Rena Malhotra (Documentation)
- AU2340115 - Charmi Goyal (Frontend)
- AU2340247- Aaryan Sheth (Project Manager)
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Part – 1

1. Project Overview

The NGO Resource & Donation Management System (NRDMS) is a software application that serves as a bridge between donors who want to donate commodities such as food, clothing, books, etc, and NGOs with specific requirements. Through this application, NGOs and donors can register, and NGOs can then list their requirements. Donors can view NGOs' real-time requirements and select one that suits them.

The requirements are updated and removed as and when they are fulfilled. The system provides transparency to both donors and NGOs by providing detailed information on the usage and donations. The system focuses on real-time coordination and user convenience by integrating live delivery tracking, notifications, cost estimation, and responsive design for all stakeholders. The objective is to reduce manual coordination efforts and improve the reliability and accountability of donation delivery processes.

2. Problem Statement

Existing donation processes face several challenges, including:

1. **Lack of Coordination:** Donors, NGOs and Service providers often struggle on phone calls to fulfil each other's requirements
2. **Poor cost estimation:** Service providers' cost estimates are generally unclear and higher than usual.
3. **Poor Transparency:** Donors cannot track deliveries.

4. **Manual Tracking:** NGOs rely on manual or spreadsheet-based records, increasing the risk of errors and inconsistencies.
5. **Trust Issues:** Absence of proper reporting reduces donor confidence and accountability.
6. **Inefficient Matching:** Donors find it difficult to locate NGOs on different platforms.

3. Proposed Solution

Our proposed solution is to create a web application that digitally connects NGOs, donors and intermediary service providers all on a single platform, such that NGOs can post their customised requirements, donors can search NGOs based on needs and location, and the service provider can manage the delivery logistics with real-time tracking.

4. System Features (Functional Requirements)

- **NGO Interface**
    1. Registration and login
    2. Flexibility of customised requirements
    3. Notification for needs fulfilled
    4. Selection of drop-off time
    5. Live tracking of donations
    6. Responsive User interface
- **Donor Interface**
    1. Registration and login
    2. Search for specific needs by NGOs
    3. Cost calculation for transport services
    4. Transport service provider interface
    5. Responsive user interface
    6. Acknowledgement proof
- **Service Provider Interface**

    Notification for the request for transport service

    Donor and NGO contact details

    Selecting drop-off and pick-up time.

    Delivery tracking with live updates

5. Non-Functional Requirements

- **Usability:** Simple and friendly UI for users.

- **Performance:** Prompt search and cost estimation responses.

- **Reliability:** Accurate tracking and delivery notifications without data loss.

- **Scalability:** Ability to support a growing number of NGOs, donors, and deliveries.

- **Security:** Secure authentication for NGOs and donors through logins and registrations.

- **Responsiveness:** Optimised performance on desktops, tablets, and mobile devices.

6. Technical Stack

- **Frontend:** HTML5, CSS3, JavaScript (React.js), Typescript

- **Backend:** Node.js with Express / Java Spring Boot

- **Database:** MySQL / PostgreSQL

- **Maps & Tracking:** Google Maps API (for live tracking)

- **Tools:** Git, GitHub, VS Code, Postman

7. Entity-Relationship (ER) Overview

The system will consist of the following key entities:

- **User** (UserID, Name, Email, Password, Role)

- **NGO** (NGOID, OrganizationName, Location, Requirements)

- **Donor** (DonorID, OrganizationType, ContactDetails)

- **ServiceProvider** (ProviderID, VehicleDetails, Availability)

● **DonationRequest** (RequestID, NGOID, DonorID, Status)

● **Delivery** (DeliveryID, PickupTime, DropTime, Cost, LiveStatus)

Relationships:

● A Donor can fulfil multiple NGO requirements.

● A Service Provider handles multiple deliveries.

● Each Delivery is linked to one Donation Request.

8. Project Timeline

1. Requirement Analysis – Week 1–2

2. System Design (UML, ERD) – Week 3–4

3. Backend & Database Development – Week 5–6

4. Frontend Development – Week 7–9

5. Integration & Live Tracking – Week 10–11

6. Testing & Debugging – Week 12

7. Final Documentation & Submission – Week 13