

Project Proposal

1. Idea

Blood Bond : A smart blood donation platform that connects blood donors with hospitals and patients in real-time. The system ensures safe and efficient blood matching using AI and provides incentives to encourage more donations.

2. Problem

- Blood shortage in hospitals is a **critical issue**, especially in emergencies.
- Patients and families face difficulty in quickly finding the right blood type donor.
- Donors lack motivation and rarely know when their blood type is needed.
- No centralized, smart system exists to connect **donors ↔ hospitals ↔ patients** efficiently.

3. Solution

- A **web-based platform** where donors can register their blood type and availability.
- Hospitals can post requests for specific blood types.
- The system uses **AI-powered matching + real-time notifications** to connect donors and hospitals quickly.
- Donors are motivated through **health benefits, medical check-ups, and priority help in emergencies**.

4. Target Users

1. **Donors** – individuals willing to donate blood.
2. **Hospitals** – request and verify blood donations.
3. **Patients/Families** – benefit from faster and safer access to blood.
4. **Admins** – manage the platform, monitor requests, ensure compliance and safety.

5. Key Features

1. **Donor Registration & Profiles** – blood type, location, last donation date.
2. **Hospital Requests** – hospitals can request specific blood types.
3. **AI-Powered Matching** – system automatically finds the best donor nearby.
4. **Real-Time Notifications** – donors get instant alerts when their blood type is needed.
5. **Interactive Map** – shows nearest donors & donation centers.
6. **Admin Dashboard** – manage users, requests, and monitor platform health.
7. **Verification & Safety** – hospitals confirm blood type and donation details.
8. **Incentives** – discounts from pharmacies/labs, free health check-ups, and priority help.

6. Roles in the Team

- **Frontend Developer (React.js):**
 - Build user-friendly interfaces (donor registration, hospital dashboard, maps).
 - Handle notifications and responsive design.
- **Backend Developer (.NET Core):**
 - Build secure APIs for authentication, donor/hospital management.
 - Handle database (SQL Server) and integration with external services.
- **AI/ML Developer (Python – FastAPI):**
 - Build AI matching model for donors ↔ hospitals.
 - Implement OCR for scanning medical documents & donor cards.
 - Smart notifications system (predictive matching).

7.Expected Impact

The platform ensures faster and safer blood access, promotes donation culture, and supports hospitals with reliable real-time management.