



HackOrbit 2025

Tech Titans

THEME & PROBLEM STATEMENT

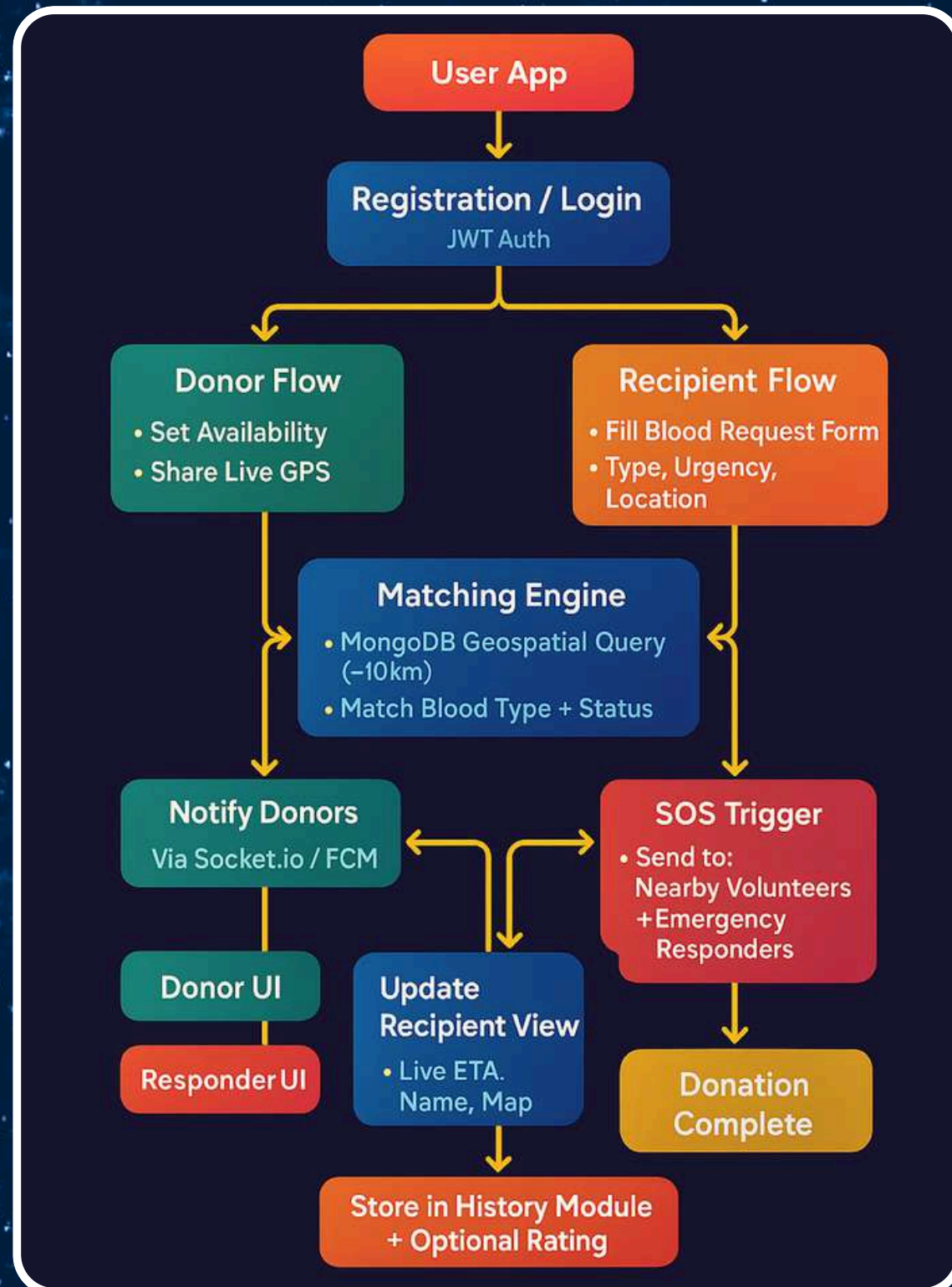
Theme :- Real-time Location-Based Blood Donation & Emergency Assistance System

Problem Statement :- During medical emergencies, finding a compatible blood donor or receiving immediate assistance can be a life-or-death situation. Many patients struggle to access blood due to shortages, delays, or reliance on middlemen. This platform aims to directly connect blood donors with recipients based on location, ensuring timely donations and emergency support without unnecessary delays.

PROPOSED SOLUTION

- We will develop a **web-based platform** for emergency assistance and **real-time** blood donation.
- Use **location-based** matching to link responders, donors, and recipients.
- Use **Socket.IO** to enable real-time blood request tracking and **immediate notifications**.
- Permit donors to share their real-time **GPS-location** and set their availability.
- For emergencies, incorporate a live location sharing feature with an **SOS alert system**.
- Establish a system of **rewards** whereby contributors accrue points, with **100 points** equated to a complimentary **one-free check-up**.
- For intelligent donor matching, use **MongoDB Geospatial Queries**.
- Use **JWT authentication** to guarantee safe access.
- **chat-bot** for donar/ recipient support using **Machine Learning** and **Open AI**

FLOWCHART / DIAGRAM



Our Tech Stack



FLOWCHART / DIAGRAM

- **User Onboarding:** New users sign up or log in, get their identity confirmed through a quick JWT token check, and then choose if they want to be a Donor or a Recipient.
- **Donor Setup:** Donors enter the days and hours they are free and turn on live GPS sharing; both the schedule and GPS data are stored securely in the MongoDB donor collection.
- **Recipient Request + SOS:** If a Recipient urgently needs blood or hits the SOS button the alert flies straight to the Matching Engine, which sends pings to helpers nearby.
- **Matching & Notification:** The Matching Engine sweeps the map for local donors with the right blood type and pushes real-time alerts to them using either Socket.io or standard FCM messages.
- **Live Updates & Closure:** Recipients can see Donors or Responders moving in real time, and when the job is finished a brief outcome note gets logged along with a simple star rating option.

FEATURES AND NOVELTY

- **JWT Authentication**
- **Donor Module:**
 - Donors can set availability, share live GPS
- **Matching Engine:**
 - Uses **MongoDB geospatial queries** to match donors within 10 km by blood type and status.
- **Real-Time Notifications:**
 - Donors receive instant alerts via Socket.IO and can accept or decline requests in real time.
- **SOS Button:**
 - Triggers alert to nearby volunteers and emergency responders with live location.
- **Live Tracking:**
 - Recipients view donor ETA, map location, and optional contact details.
- **Completion & Feedback:**
 - Post-donation, status is updated to “Donation Complete”; feedback is optionally collected.
- **Donor Rewards System:**
 - Donors earn points per donation; 100 points = 1 free health checkup at partner hospitals.
- **Downloadable Blood Donation Certificate**

DRAWBACK AND SHOWSTOPPERS

Drawbacks:

- Internet Dependency: Requires stable internet for real-time tracking and notifications
- Language Barrier: Chatbot and UI may not support regional languages by default

Showstoppers (Critical Risks):

- Data Privacy Risk: Improper handling of health/location data may violate privacy laws

TECH TITANS

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Thank
you.