



**PROJECT  
REPORT**

# ACCESS SHARE

Connecting People with Healthcare Resources and Assistive Devices

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# EXECUTIVE SUMMARY

Access Share is a collaborative platform that aims to streamline the sharing and requesting of critical healthcare resources. Its primary objectives are to:

- Allow users to donate or share assistive devices.
- Enable recipients to find and request devices based on location or type.
- Provide a caregiving listing and request system where caregivers can advertise their
- services, and those seeking assistance can easily find them.
- Facilitate blood donation requests and responses, linking donors and recipients in real-time

The platform features a React-based front [\[2\]](#) styled with Tailwind CSS [\[3\]](#), and a FastAPI backend [\[1\]](#) employing SQLAlchemy Authors [\[5\]](#) and Alembic [\[6\]](#) for data modeling and migrations. By focusing on a clean user interface, robust API design, and careful data management, Access Share strives to improve community health and resource accessibility in a sustainable, user-friendly manner.

This report outlines the **system requirements**, **high-level design** and **architecture**, key **use cases** via diagrams, a few **visual snippets**, and **future enhancements** planned.

# REQUIREMENTS

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Key requirements for Access Share include:

- 1. Secure Registration and Login:** Store hashed passwords, handle user sessions, and protect sensitive actions.
- 2. Device Listings and Requests:** Donors post device details; recipients can browse and request them.
- 3. Caregiving Listings and Scheduling:** Caregivers list services; seekers can filter by location or expertise.
- 4. Blood Donation Requests:** Users specify blood type, location, and urgency; donors respond accordingly.
- 5. Status Updates:** Listings transition from "available" to "requested" to "taken," re-reflecting current availability.
- 6. Profile Management:** Users can edit their profile details including username, password, and contact number, or choose to permanently delete their account.

# DESIGN & ARCHITECTURE

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The Design & Architecture of Access Share emphasizes a layered approach:

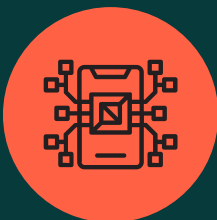
- **Client Layer:** A React + Tailwind UI for interactive, responsive user experiences.
- **Server Layer:** FastAPI endpoints to handle RESTful communication, containing business logic for device management, caregiving workflows, and blood donation coordination.
- **Data Layer:** A PostgreSQL database with SQLAlchemy and Alembic ensuring reliable data storage and versioned schema migrations

Following figures illustrates three aspects:



## a - System Architecture

Shows the interaction between users, the frontend, backend services, and the database. Each layer is clearly separated and communicates through API requests and responses.



## b- ER Diagram

Displays the main entities such as User, AssistiveDeviceListing, CaregiverListing, and BloodDonationRequest, along with how they relate through foreign keys and ownership.

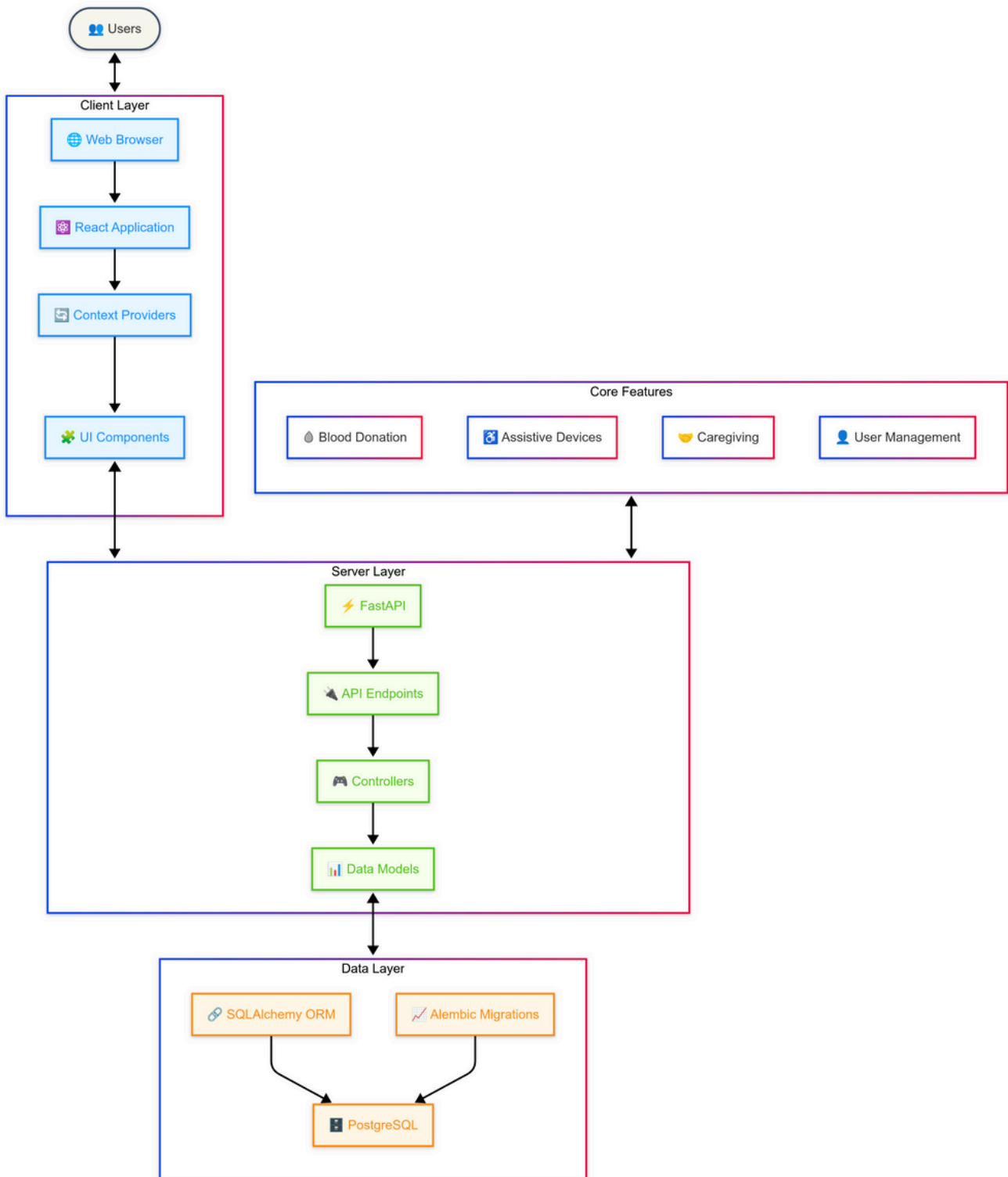


## c- Assisted Device Sequence Diagram

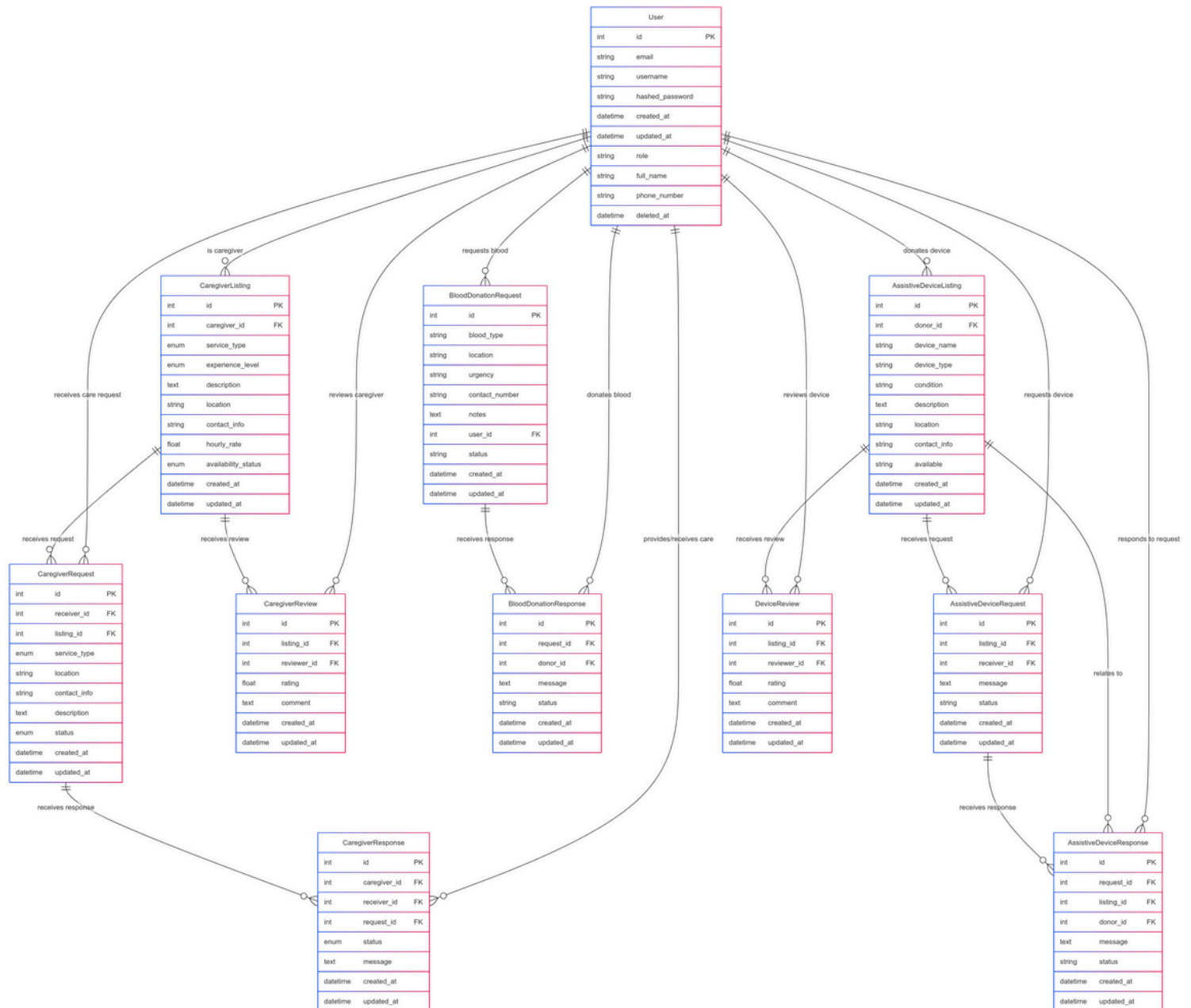
Outlines the step-by-step flow for assistive device interactions—from donor listing, recipient request, status updates, to confirmation—across the UI, API, and database.

# SYSTEM ARCHITECTURE

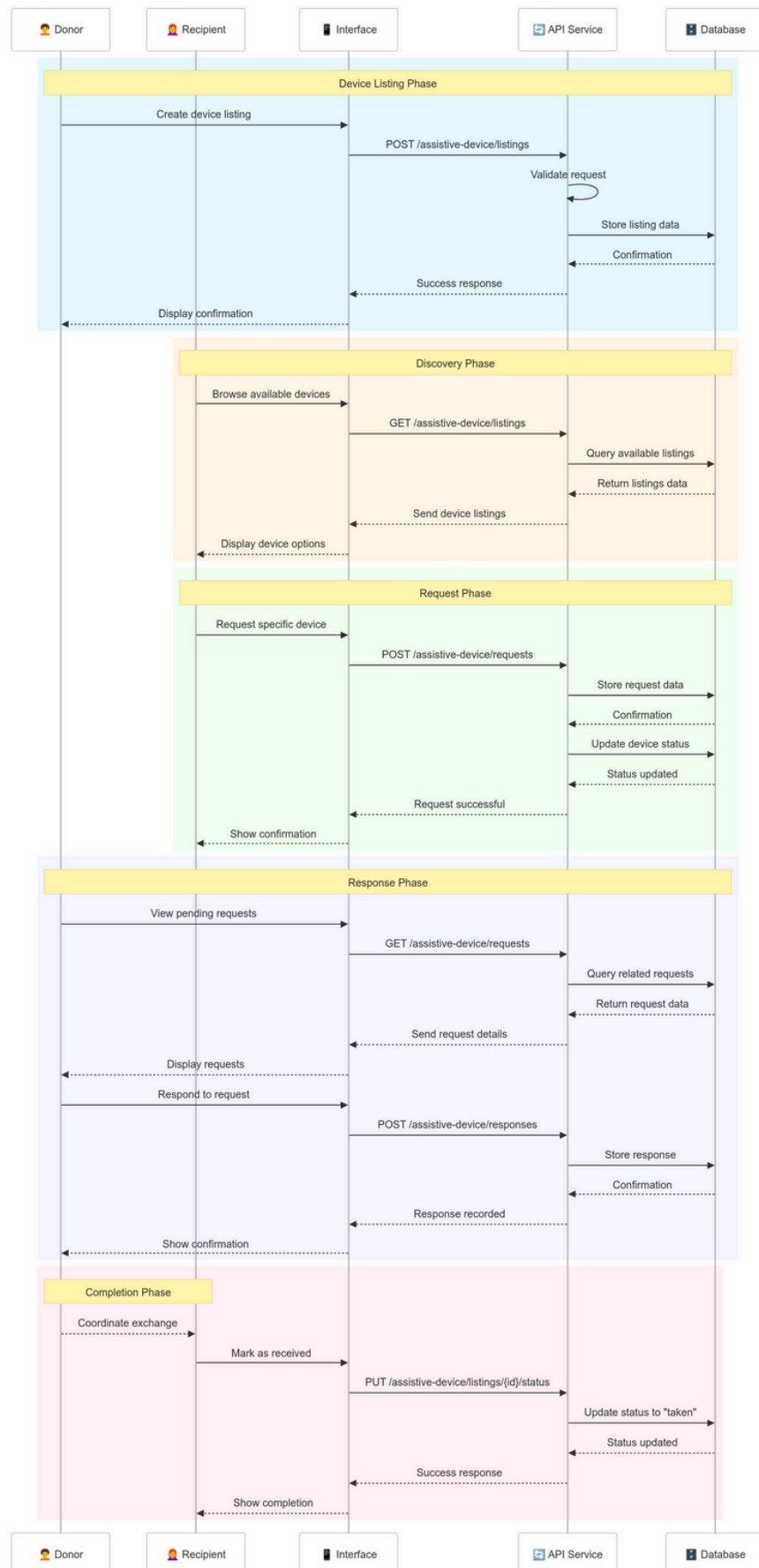
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# ER DIAGRAM

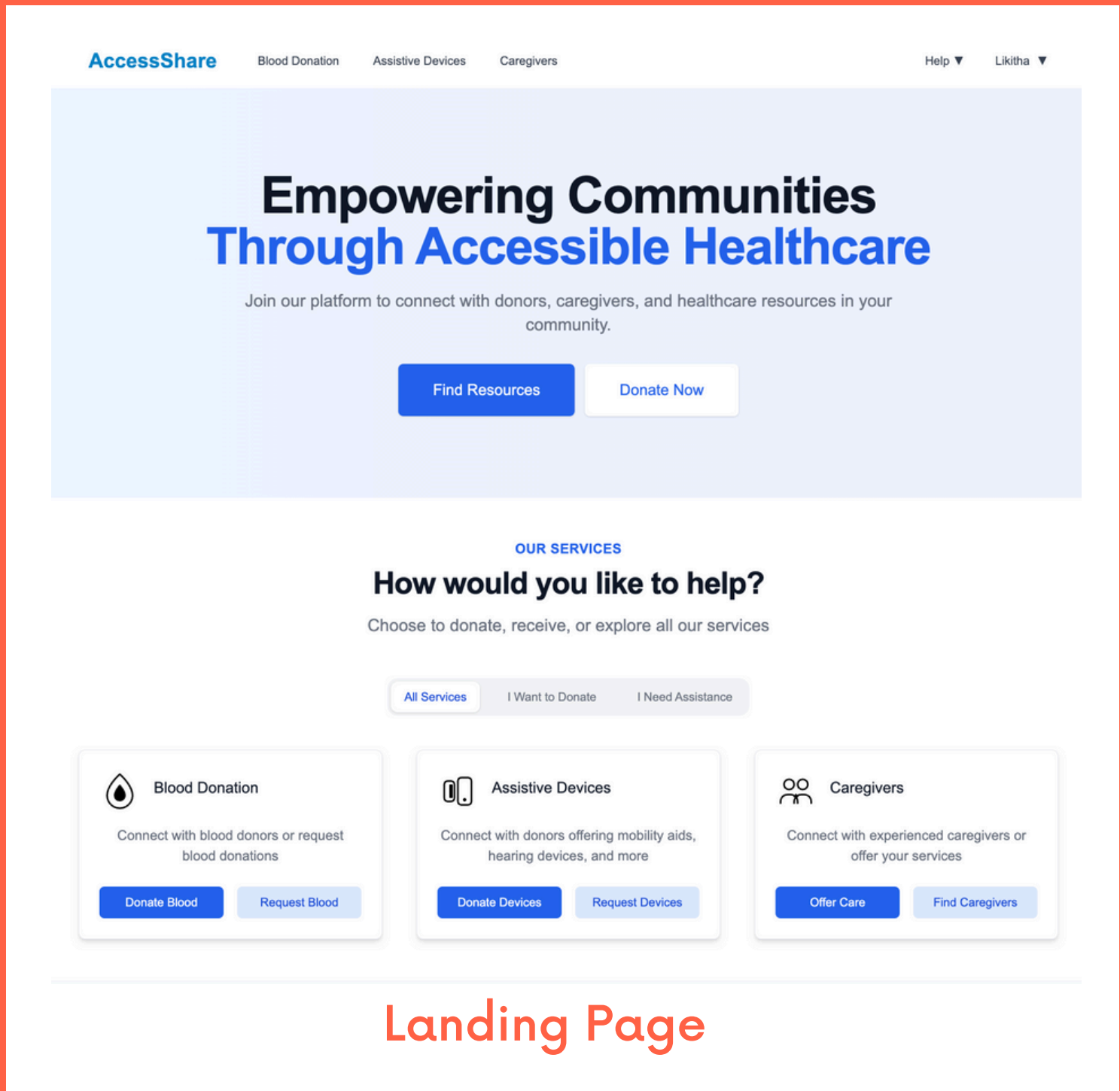


# ASSISTIVE DEVICE SEQUENCE DIAGRAM





# Snippets



AccessShare

Blood DonationAssistive DevicesCaregivers

Help ▾Likitha ▾

ASSISTIVE DEVICES

Donate Devices

Donate medical equipment and assistive devices to those in need

Donate a Device

Fill out this form to donate your assistive device to someone in need.

Device Name

Wheelchair

Device Type

Wheelchair ▾

Condition

Like New ▾

Location

Hyderabad

Contact Information

konamilikitha@gmail.com

Description

Gently used wheelchair in excellent condition. Foldable, lightweight, and easy to transport. Ideal for both indoor and outdoor use.

Submit Donation

## Device Donation Page

AccessShare

Blood DonationAssistive DevicesCaregivers

Help ▾Likitha ▾

BLOOD DONATION

Blood Listings

Find blood donors that match your requirements

Filter Blood Donations

Blood Type

All Blood Types ▾

Location

e.g. New York

Availability

All Statuses ▾

A+

My ListingAvailable

Hyderabad

Contact: 999999999

Available Until: 2025-03-22T09:19

Call Now

AB+

Reserved

Delhi

Contact: 974836638

Available Until: 2025-03-29T09:21

Call Now

B-

Unavailable

Banglore

Contact: 8843756382

Available Until: 2025-04-09T09:21

Call Now

## Blood Listings Page

# FUTURE SCOPE

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While the current implementation addresses key community needs, the platform can evolve further in functionality, accessibility, and reach. This section outlines the proposed enhancements that will strengthen its impact, improve user engagement, and support more comprehensive resource sharing across diverse user groups.

## 01 — Notification Engine

Introduce real-time notifications for listing updates, incoming requests, and approvals. This keeps users informed without needing to constantly check the platform, and ensures time-sensitive actions—like device handovers or caregiver responses—are not missed.

## 02 — Advanced Authentication

Implement OAuth 2.0 and JWT-based flows for improved account security and flexibility. Users will be able to log in using trusted services like Google or institutional email, and manage sessions securely from multiple devices.

## 03 — Wanted Requests

Enable users to post specific needs even when no listing is available. This feature allows the community to respond directly to unmet needs—encouraging donors to step forward with relevant resources and filling critical gaps in availability.

## 04 — Integrated Payments

For caregiving services that go beyond voluntary support, add payment integration via trusted gateways. This allows caregivers to be compensated where appropriate and helps standardize pricing, tracking, and verification.

## 05 — Analytics Dashboard

Develop role-based dashboards for admins, donors, and caregivers. Track usage metrics, resource impact, and user activity trends to measure performance, guide outreach, and support data-driven improvements across the platform.

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# REFERENCES

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1. Ramírez, S. (2025)

Documentation: <https://fastapi.tiangolo.com/>

2. React Team (2025)

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Documentation: <https://tailwindcss.com/docs>

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5. SQLAlchemy Authors (2025)

Documentation: <https://docs.sqlalchemy.org/>

6. Alembic Authors (2025)

Documentation: <https://alembic.sqlalchemy.org/>

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