Blood Management System

Md. Maksudul Haque ID: 221002127

Pranto Bapary ID: 221002113

01 ABSTRACT

Blood Management System, a web-based platform developed using PHP, MySQL, HTML, CSS, and Bootstrap. It aims to streamline the blood donation process, enabling users to request or donate blood and hospitals to manage stock efficiently. The system bridges the gap between donors and recipients, ensuring timely and life-saving blood availability.

02 INTRODUCTION

Blood donation is vital for saving lives, but finding matching donors and available stock is challenging. Our system offers a centralized portal where hospitals manage blood stocks and users can request or donate blood with ease. This platform modernizes the existing manual processes into a digital, real-time solution.

03 PROBLEM STATEMENT

Blood shortages, miscommunication, and outdated manual systems cause delays and loss of life. There is an urgent need for an automated platform that connects hospitals, donors, and recipients in real-time, ensuring quick access to available blood resources.

04 OBJECTIVES & MOTIVATION

- Build a centralized blood management web application.
- Enable real-time blood stock updates.
- Simplify blood donation and request processes.
- Promote voluntary blood donation.
- Inspired by real-world cases of delayed blood availability in emergencies.

05 TOOLS & TECHNOLOGIES

- Frontend: HTML, CSS, Bootstrap
- Backend: PHP
- Database: MySQL
- Tools Used: XAMPP, Visual Studio Code
- Version Control: Git & Github

06 LITERATURE REVIEW

Name	Contribution	Limitation
Red Cross Blood Donor App	Enables donors to schedule appointments, track donations, and view health vitals.	Limited hospital stock management features.
SpotnRides Blood Donor Finder	Connects donors with recipients during emergencies.	Lacks real-time request status tracking.
Blood Bank Management System	Manages donor records and blood stock data.	Lacks user-friendly web access for individuals.
Blood4Life Platform	Provides real-time updates on blood stocks and appointment scheduling.	Limited real-time stock update support.

07 METHODOLOGY

Priority	Criteria	Waterfall	V-shape	Iterative	Spiral	Agile	Prototype
7	Well Known Requirement	No	Yes	Yes	Yes	Yes	Yes
6	Technological Knowledge	Yes	No	Yes	Yes	Yes	Yes
5	Efficiency	No	No	Yes	Yes	Yes	Yes
2	Risk Analysis	No	No	No	Yes	Yes	Yes
2	User testing ability	No	No	Yes	Yes	Yes	Yes
5	Dependability and Security	Yes	Yes	Yes	Yes	Yes	No
3	Time Consuming	Yes	Yes	No	No	Yes	No
Total 30	Overall	14	15	25	27	30	22

Figure: SDLC Model Selection

Figure: Agile Methodology

7.1 HIGHER LEVEL DESIGN

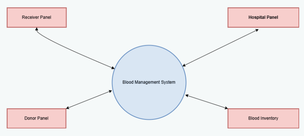
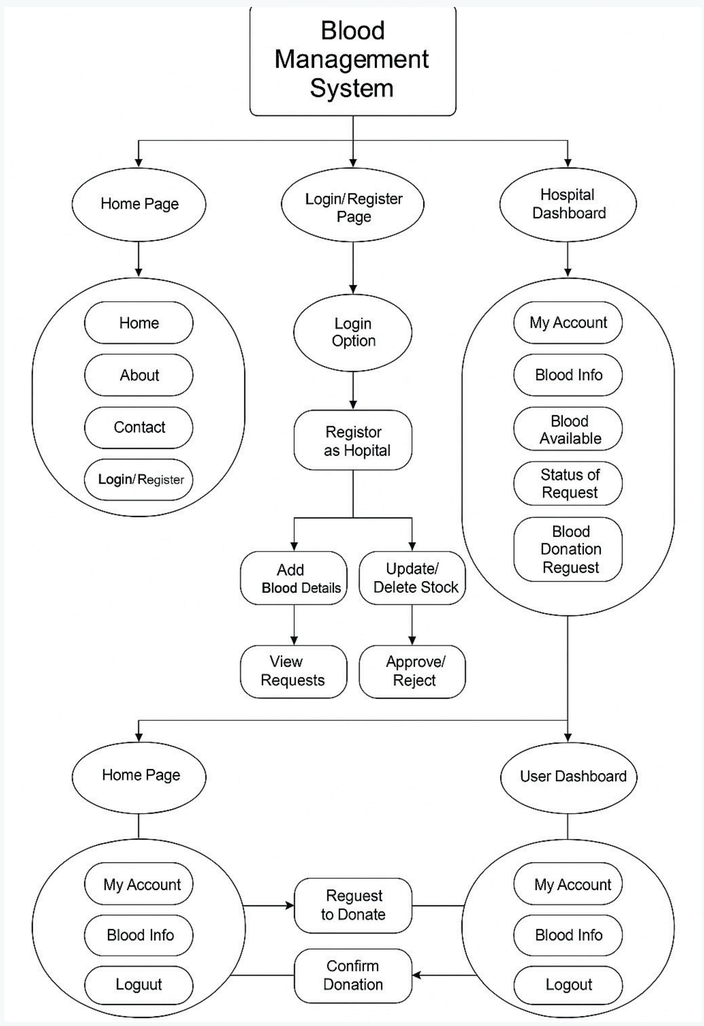


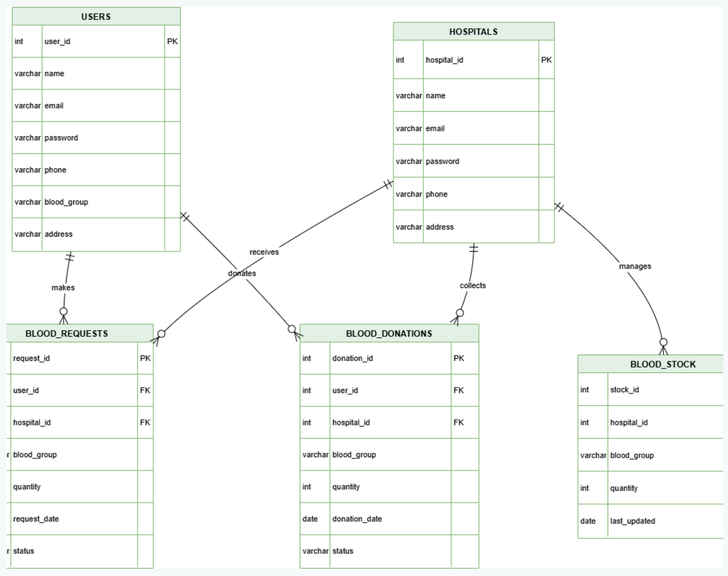
Figure: High Level System Architecture

Figure: High Level View of the System Architecture

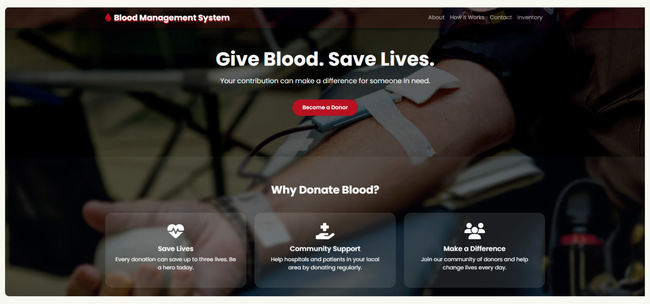
7.2 LOWER LEVEL DESIGN

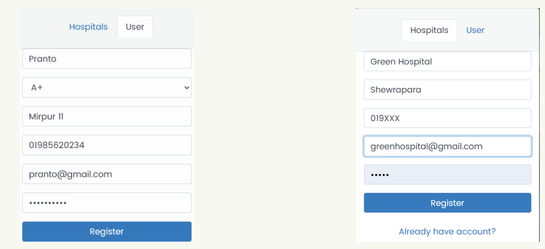


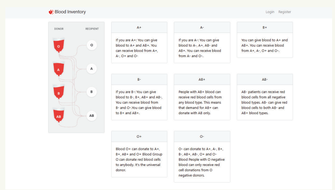
7.3 ER DIAGRAM



08 USER INTERFACE







09 TEST CASE

TC ID	Scenario	Test Case	Pre-Condition	Test Steps	Test Data	Expect Result	Actual Result	Status
TC_001	User Registration	Ensure valid user can register	Registration page accessible	Fill registration form and submit	maksud@gmail.com, 018xxxx, pass@123	Registration successful → redirect to login	Redirected to login	Pass
TC_002	Hospital Registration	Ensure valid hospital can register	Registration page accessible	Fill registration form and submit	Green Hospital, hospital@gmail.com, 017xxxx, pass@123	Registration successful → redirect to login	Redirected to login	Pass
TC_003	Hospital Login	Login with correct hospital credentials	Hospital must be registered	Enter email and password, click login	popular@gmail.com, pass@123	Dashboard visible after login	Dashboard displayed	Pass
TC_004	View Available Blood	User can view blood availability	User logged in	Navigate to Blood Available page	N/A	Blood stock listed properly	Blood info displayed in table	Pass
TC_005	Invalid Login	Login fails with wrong credentials	Login page accessible	Enter wrong email or password	pranto@gmail.com, wrongpass	Show error: invalid credentials	Error message shown	Pass

10 SOCIAL IMPACT

- Saves lives by reducing delays in blood availability.
- Promotes voluntary donation.
- Builds a connected ecosystem between hospitals, donors, and recipients.
- Modernizes healthcare infrastructure with digital tools.

11 CONCLUSION

The Blood Management System offers a digital, efficient, and user-friendly solution for blood donation and management. It ensures faster processing, real-time updates, and transparency, contributing to saving lives and strengthening healthcare services.

REFERENCES

1. WHO - Blood Safety and Availability(2024)
   - https://www.who.int/news-room/fact-sheets/detail/blood-safety-and-availability2.
2. Red Cross - Blood Donation Facts
   - https://www.redcrossblood.org/donate-blood/blood-donation-process/blood-donation-facts.html
3. W3Schools - PHP & MySQL Tutorial
   - https://www.w3schools.com/php/php_mysql_intro.asp