Vision Document

Course Instructor

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Document Version

Version	Date	Description	Authors
V1.0	2/22/2024	Initial Vision Document	Aamina Bokhari Ahmad Javed Umama Saif

Introduction

Purpose:

The purpose of this document is to collect, analyze, and define high-level needs and features of the BloodFlow Pro Blood Management System. It focuses on the capabilities needed by the stakeholders, and the target users, and why these needs exist.

Scope:

This Vision Document pertains to the BloodFlow Pro Blood Management System, a software solution designed to modernize and improve the operations of blood banks and donation centers. The system intends to simplify the recording of blood donations, management of blood inventory, donor matching, and communication with donors and recipients. By providing a platform for managing blood-related activities, the system seeks to improve efficiency, accuracy, and accessibility in blood banking processes.

Definitions, Acronyms, and Abbreviations:

NA

References:

TBD

Business Opportunity & Target Audience

Business Opportunity

BloodFlow Pro seizes the opportunity to address the existing challenges in blood management systems by providing a comprehensive and user-friendly solution. The business opportunity lies in catering to the needs of healthcare institutions that require efficient blood donation and distribution processes. By streamlining donor registration, inventory management, and emergency response coordination, BloodFlow Pro aims to enhance the overall effectiveness of blood banks and healthcare facilities. The platform also presents an opportunity to engage with donors and volunteers through a rewards program, fostering a sense of community involvement.

Target Audience

The primary target audience for BloodFlow Pro includes healthcare institutions, blood banks, donors, and administrators involved in blood management processes. Additionally, the platform aims to engage with potential donors, volunteers, and emergency response coordinators.

Problem Statement

Current blood management systems face challenges such as paperwork, difficulties in gauging blood supplies, and the risk of shortages during critical situations. The manual processes involved in donor registration, blood donation recording, and inventory management contribute to inefficiencies in the system. There is a need for a more streamlined and technology-driven approach to enhance transparency, traceability, and accessibility in blood management.

Product Position Statement:

BloodFlow Pro positions itself as a revolutionary blood management system that leverages technology to address the shortcomings of existing systems. By automating processes such as donor registration, blood donation recording, and inventory management, BloodFlow Pro aims to provide a user-friendly and versatile platform. The platform's focus on real-time information, transparency, and donor engagement sets it apart, making it an essential tool for healthcare institutions and blood banks. BloodFlow Pro not only solves current challenges but also aligns with the growing reliance on digital platforms for healthcare solutions. It stands as a catalyst for efficient, transparent, and technology-driven blood management, ultimately contributing to the goal of saving lives through timely access to blood resources.

Stakeholders

Non-User Stakeholders:

1. Product Owner

Description: Responsible for establishing the system's vision and goals.

The roles:

Developing a roadmap for the product's future.

Managing and prioritizing features of system.

It Ensures that healthcare goals are met.

2. System Administrators

Description: he oversees the system's server infrastructure.

Roles:

managing servers and hosting environments.

Maintains server performance and security.

Implementing backup and disaster recovery plans.

3. Designers and Developers for Applications

Description: The group in responsibility of creating and designing the BloodFlow Pro app.

Roles:

Responsibilities include developing the system's interface and functions.

Ensuring convenience and efficiency.

Testing and updating.

4. Quality Assurance (QA) Team

Description: In charge of testing the system to verify correct functionality and compliance with healthcare standards.

Role:

Conduct rigorous testing for defects, usability, and performance.

Giving feedback on essential fixes and improvements

Ensuring trustworthiness and compliance.

5. Marketing and Business Development Team.

Description: In charge of promoting BloodFlow Pro, gaining users, and forming partnerships.

Roles: Creating marketing strategy.

Acquires medical facilities and blood donors.

Monitoring user 's acquisition data.

User Stakeholders:

1. Donors

Description: Individuals willing to donate blood.

Role:

Registering on the system.

Donations can be scheduled.

Update personal and medical information.

2. Blood Bank Employees

Description: Healthcare personnel are in charge of blood donations and inventory.

Roles: Record blood donations.

Maintains blood inventory.

search for donors.

3. Administrators for Blood Banks

Roles:

overseeing blood bank operations and managing the system.

Access and manage system data.

Create reports and analytics.

4. Medical Facilities

Description: Blood transfusion facilities at hospitals and clinics.

Role: Requesting blood transfusions.

Obtaining donor and blood inventory information.

5. Emergency Response Coordinator

Roles:

Professionals are in charge of coordinating emergency blood responses.

Responsibilities include initiating emergency blood requests.

Contacting blood banks for immediate supplies.

6. Administrators of the Donor Rewards Program

Roles:

Description: Managing donor incentive programs.

Responsibilities: Manage and update donor incentives programs.

Product Overview

Use Cases:

1. Register Donors:

System offers donor with a registration form where the donor enters his/her personal information, upon authentication of information the system adds the donor as a registered user.

2. Records Blood Donation:

The system validates the information of the donor who is eager to donate blood and keeps a record of important information including donor details, donation process and donated blood.

3. Inventory management:

The system lets the user manage blood inventory and provides options such as add, update or remove.

4. Donor matching algorithm:

Suggests matching donors based on blood type, location, and urgency of the request.

5. Blood Donation Reminders:

The system sends customized reminders to donors about upcoming donation appointments, which ensures a regular supply of blood and reducing appointment dropouts.

6. Collaboration with Healthcare Providers:

Establish partnerships with healthcare providers or hospitals to enable smooth incorporation of patient blood transfusion requirements with the app.

7. Personalized Blood Inventory Notifications:

Permits users to set preferences for blood type and location, informs when matching blood becomes available based on their preferences.

8. Donation history tracking:

Tracks user donation history, including the number of times they have donated, the type of blood donated.

9. Gamification Features:

Add gamification elements such as badges, rewards, and challenges to encourage regular blood donation.

10. Volunteer Management:

Allows users to sign up as volunteers for blood donation events, blood drives, or other related programs.

11. Blood Drive Organization:

Allows organizations, schools, and communities to organize blood drives through the app.

12. Emergency Alerts:

Facilitates users to subscribe to emergency alerts for urgent blood needs in their area.

13. Separate Blood components:

Users can select an item to separate the blood components (plasma, RBCs, etc.) and the system updates the inventory with the availability of the separated components.

14. Donor Loyalty Programs:

Implement loyalty programs for frequent donors, such as priority appointment scheduling, or recognition badges.

15. Feedback and Rating System:

A feedback and rating system for donors and recipients to provide feedback on their experiences.

Summary of Features

1. Register Donors

1.1 Provides donors with a form to get their personal information.

1.2 Authenticates the provided information.

1. 3 After successful completion of authentication, adds the user as a registered donor.

1.4 Creates a profile for the registered donor in the system.

1.5 Determines what actions and features can each donor access in the system.

1.6 Sends notification to the donor upon successful profile creation.

1.7 Controls and resolves errors in the registration process.

2. Records Blood Donation

2.1 Allows the registered users to create donation events by entering necessary information.

2.2 Identifies the donor participating in blood donation through donor ID.

2.3 Conducts health examination to make sure if the donor meets the eligibility criteria.

2.4 Records information about the blood donated.

2.5 Updates the inventory based on the donations received.

2.6 Generation of reports of blood donation activities.

2.7 Sends notifications to the donors regarding their donation, test results and other details.

3. Inventory Management

3.1 Provides a dashboard for viewing and managing the blood inventory.

3.2 Allows users to add more blood units in the inventory.

3.3 Allows users to update the existing inventory items.

3.4 Allows users to remove existing inventory items from the inventory.

3.5 Provides search and filter options to locate items quickly.

3. 6 Allows users to perform operations on multiple items simultaneously.

3.7 Tracks the expiration of the blood units in the inventory.

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4.1 Creates profiles of the blood recipients.

4.2 Provides access to the donor database for relevant information to facilitate matching.

4.3 Evaluates the compatibility based on the medical criteria.

4.4 Implements a donor matching algorithm to prioritize donors based on the likelihood of a successful transfusion.

4.5 Supports identification of multiple donors for a single recipient.

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5.4 Supports multiple communication channels for sending reminders.

5.5 Enables confirmation or rescheduling of appointments through the reminder itself.

5.6 Sends repeated reminders for the donors who have not responded.

5.7 Deals with cancellation requests and enables users to reschedule appointments.

6. Collaboration with Health Care Providers

6.1 Allows the system to establish partnerships with health care providers and hospitals.

6.2 Gets patient's blood transfusion requirements from healthcare providers.

6.3 Incorporates real-time exchange of patient blood transfusion requirements between the app and healthcare providers' systems.

6.4 Send notifications to healthcare providers regarding availability of matching blood products.

6.5 Manages orders for blood products placed by healthcare providers.

6.7 Provides healthcare providers with access to blood inventory levels and availability.

6.7 Gets feedback from the healthcare providers regarding the effectiveness and efficiency of the system.

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7.1 Enables users to set their preferences for blood type and location.

7.2 Provides users with the option to subscribe to personalized blood inventory according to their preferences.

7.3 Monitors the blood inventory in real time to identify the matching blood products.

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7.5 Sends notifications to the users when matching algorithm becomes available.

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8.1 Keeps a record of each donation made by user which includes information such as date, time, quantity and blood type.

8.2 Identifies and distinguishes the donated blood based on blood type.

8.3 Keeps a count of the total donations made by the user.

8.4 Display's the donation history of the user.

8.5 Generates reports and visualizations to summarize the donation history data.

8.6 Integrates donation history tracking with other modules of the system.

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9.1 Award donors with badges for various achievements such as reaching donation milestones (eg: 5 donations,10 donations).

9.2 Assigns points to donors based on their donations.

9.3 Display's leaderboard which shows top donors based on donation frequency, total donation or points earned.

9.4 Sets donation challenges and goals for donors.

9.5 Keeps track of the progress made by the user in achieving goals.

9.6 Enables users to share their donation achievements and progress on social media platforms.

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11.1 Allows organizations, schools, and communities to organize blood drive events through the app.

11.2 Enables registration as blood drive participants.

11.3 Provides support for promotional purposes of the events organized.

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12.1Enables users to subscribe to emergency alerts for urgent blood needs in their area.

12.2 Sends alert to donors if matching blood is needed urgently in their area.

12.3 Sends notifications to all registered users of urgent blood requests.

13. Separate Blood Components

13.1 Allows users to select blood components (Plasma, RBCs, etc.) for separation.

13.2 Updates the inventory with the availability of the components.

14. Donor Loyalty Program

14.1 Enrolls users in donor loyalty program upon reaching the eligibility criteria.

14.2 Offers rewards to frequent donors as part of the loyalty program.

15. Feedback & Rating System

15.1 Collects feedback from donors and recipients about their experiences with the blood donation process.

15.2 Implements a rating system to quantify user feedback and satisfaction levels.

Dependencies and Constraints

Dependencies:

Blood Bank Database:
BloodFlow Pro depends on a blood bank database containing information about available blood products, donors, recipients, and inventory levels.

Internet Connectivity:
BloodFlow Pro needs a stable internet connection for users to access its features, including donor registration, appointment scheduling, and inventory management.

Integration with Healthcare Systems:
Integration with healthcare systems is essential to interchange patient information, blood transfusion requirements, and donor data securely.

Mobile Device Compatibility:
The app's functionality depends on compatibility with various mobile devices and operating systems to guarantee a smooth user experience across different platforms.

Blood Collection Centers:
The availability and utilization of blood collection centers and donation drives are essential for maintaining a constant supply of blood products and aiding donation events.

Regulatory Compliance:
Compliance with regulations and guidelines, such as those set forth by health authorities and blood banking organizations, is essential for ensuring the legality and safety of blood banking operations.

Constraints:

Security and Privacy:
BloodFlow Pro must adhere to strict security measures and privacy guidelines to protect sensitive donor and patient information from unauthorized access, data breaches, and misuse.

Blood Shortages:
The availability of blood products may be influenced by factors such as seasonal fluctuations, emergencies, and donor shortages, resulting in the ability to fulfill transfusion requirements.

Resource Limitations:
Development and maintenance resources, including finances, personnel, and technology infrastructure, may be limited, and must be assigned effectively to support the app's operations.

Regulatory Compliance:
Compliance with regulatory standards and guidelines restricts the app's functionality, data handling practices, and operational procedures, requiring ongoing monitoring and compliance.

Geographic Reach:
BloodFlow Pro's availability and impact may be limited by its geographic reach and accessibility, necessitating strategic expansion efforts to reach underserved areas and communities.

User Education and Engagement:
The success of BloodFlow Pro depends on user awareness, engagement, and participation in blood donation activities, requiring effective communication strategies and outreach initiatives.

Healthcare Partnerships:
Collaborating with healthcare providers and institutions is essential for integrating blood transfusion requirements, patient data, and emergency alerts into the app's functionalities, but partnerships may be subject to negotiation and agreement terms.

User Adoption:
Achieving widespread adoption and use of BloodFlow Pro among donors, recipients, and healthcare professionals may require targeted marketing campaigns, user incentives, and community engagement initiatives.

Technological Advancements:
Rapid advancements in technology and healthcare practices may require continuous updates and enhancements to BloodFlow Pro to remain relevant and effective in addressing evolving needs and challenges in blood banking.

Cost and Pricing

Item	No. of items	Cost	Total
Developers	TBD	TBD	TBD
Printer	TBD	TBD	TBD
Others	-		

Licensing and Installation

BloodFlow Pro requires professional installation by licensed personnel to ensure the highest standards of service and security.