

Design and Development of Blood Donation Management Information System (MIS)

Dr. Mrunal Pathak, Aditya Mote, Viraj Zalke, Manish Morale

AISSMS Institute of Information Technology, Pune, India

adimote4321@gmail.com

Abstract: *Blood donation is a vital healthcare service, yet many regions face challenges in organizing donor data, managing blood inventory, and scheduling donation camps. This research presents the design and development of a Management Information System (MIS) tailored for blood donation. The system integrates donor registration, inventory management, and camp scheduling using PHP and MySQL. A prototype demonstrates how MIS can streamline operations, improve efficiency, and enhance accessibility for hospitals and NGOs. Experimental evaluation shows that the system improves donor tracking, reduces inefficiencies, and supports better healthcare decision-making.*

Keywords: Blood Donation, Management Information System, Healthcare IT, PHP, MySQL, ERP

1. INTRODUCTION

1.1 Background of the Study

Blood donation plays a critical role in saving lives, but manual systems often lead to inefficiencies in donor tracking and inventory management. A Management Information System (MIS) provides a structured approach to collect, process, and report data, enabling better decision-making. This paper explores the development of a Blood Donation MIS that addresses these challenges and supports societal needs.

1.2 Statement of the Problem

Despite the importance of blood donation, many organizations still rely on manual methods for donor registration and inventory tracking. These methods are prone to errors, delays, and inefficiencies. There is a need for a simple, intelligent, and user-friendly MIS that allows organizations to manage donor data, monitor inventory, and schedule donation camps effectively.

1.3 Objectives of the Study

The objectives of this study are as follows:

- To develop a user-friendly platform for efficient donor registration and management, ensuring accurate and accessible donor information.
- To implement an effective inventory tracking system for blood units categorized by blood type, enhancing availability and management.
- To provide a comprehensive camp scheduling feature that facilitates the organization and management of blood donation camps.
- To generate detailed reports and analytical insights that support healthcare decision-making and improve operational efficiency.

1.4 Scope of the Study

The scope of this research encompasses the design and development of a comprehensive Blood Donation Management Information System (MIS) aimed at streamlining the processes involved in blood donation management. This system will enable organizations to



- efficiently register donors.
- maintain detailed records.
- track blood inventory by blood group.
- schedule and manage donation camps.
- generate insightful reports to aid in decision-making.

The study focuses on creating a user-friendly, reliable, and scalable platform that can be adopted by hospitals, NGOs, and blood banks to improve operational efficiency and ensure timely availability of blood supplies.

1.5 Contribution of the Study

This study contributes to the field of healthcare information systems by developing a prototype Management Information System (MIS) specifically tailored for blood donation management. The system enhances donor registration processes, improves accuracy and efficiency in blood inventory tracking, and facilitates effective scheduling and management of blood donation camps. By providing real-time data and comprehensive reporting features, the MIS supports healthcare organizations, NGOs, and blood banks in making informed decisions, optimizing resource allocation, and ultimately saving more lives. Furthermore, the study demonstrates the feasibility of using PHP and MySQL to build a scalable and user-friendly platform that can be adapted and expanded for broader healthcare applications.

II. LITERATURE REVIEW

Healthcare MIS solutions have been widely studied, focusing on hospital management and patient records. However, few systems emphasize community-driven donor management. Existing research highlights the importance of ERP integration in healthcare, yet gaps remain in donor-centric solutions. This project bridges that gap by designing a lightweight MIS prototype for blood donation.

III. METHODOLOGY

A. System Architecture

The system architecture consists of three core modules:

Donor Registration: Collects donor details including blood group, contact information, and last donation date.

Inventory Management: Tracks available blood units by type.

Camp Scheduling: Records upcoming donation camps with location and organizer details.

B. Tools and Technologies

Frontend: PHP for dynamic web pages.

Backend: MySQL database for storing donor, inventory, and camp data.

Server: XAMPP environment with Apache and MySQL.

C. Workflow

Donor submits registration form.

Data stored in MySQL via PHP scripts.

Admin views donor list and inventory reports.

Camp details managed through a scheduling module.



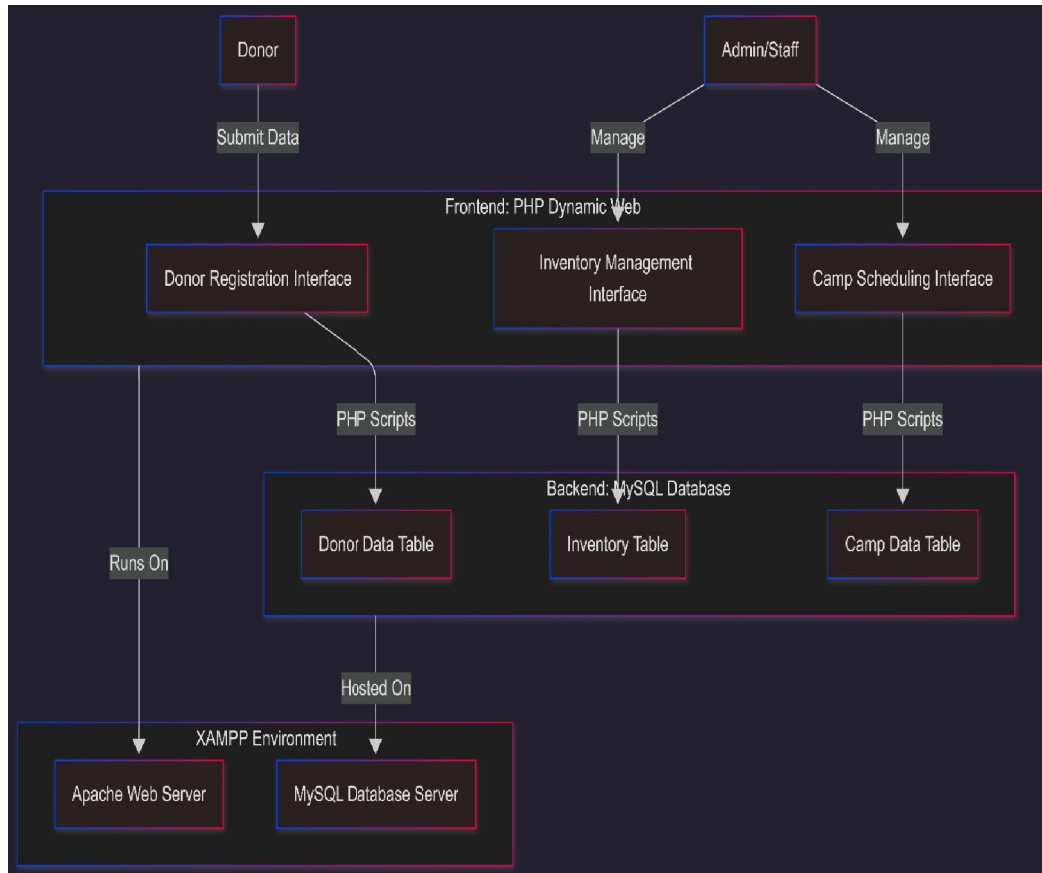


Fig 1: System Architecture of the Proposed of Blood Donation Management Information System (MIS)

IV. IMPLEMENTATION

A prototype was developed using PHP and MySQL:

Donor Registration Form: Captures donor details.

Database Tables: Donors, Inventory, Camps.

Admin Dashboard: Displays donor list and inventory status.

Screenshots of forms and dashboards demonstrate usability and functionality. The system was tested locally using XAMPP.

V. RESULTS AND DISCUSSION

The MIS prototype successfully registered donors, tracked inventory, and scheduled camps. Compared to manual systems, the MIS reduced data retrieval time and improved accuracy. The project demonstrates how even a simple MIS can enhance healthcare efficiency and support societal needs.

VI. CONCLUSION AND FUTURE SCOPE

This paper presented a Blood Donation MIS prototype using PHP and MySQL. The system improves donor management, inventory tracking, and camp scheduling. Future work includes integrating role-based access, mobile app support, and advanced analytics for predicting demand. The project highlights the potential for scaling into a full ERP solution for healthcare organizations.



REFERENCES

- [1]. O'Brien James, "Management Information Systems", 7th Edition, Tata McGraw-Hill Publishing Company Limited.
- [2]. Rober Schultheiss, Mary Sumner, "Management Information System", Tata McGraw-Hill Publishing Company Limited.
- [3]. Relevant articles on healthcare MIS and ERP integration.

