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Automated Blood Bank Management System

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ABSTRACT

This is a web-based project that can be used to handle the blood donation management of a blood bank. Blood management system is designed for the blood bank to gather blood from various sources and distribute it to the needy people who have high requirements fo r it. The software is designed to handle the daily transactions of the blood bank and search the details when required. It also helps to register the details of donors, blood collections details as well as blood issue reports. The software application is designed in such a manner that it can suit the needs of all the blood bank requirements in the course of future. An online blood bank management system can be utilized in any center, clinic, lab, or crisis circumstance which requires blood units for endurance. The online blood bank site is a true exertion of facilitating all cycles rotating around getting and giving blood. The site empowers the client to get o without any problem data with respect to accessibility of blood classifications in different blood donation centers. Our frame work can be utilized to track down the required measures of blood in crisis circumstances from either blood donation centers or even blood benefactors. The goals of proposing such a framework are to annul the frenzy made during a crisis due to inaccessibility of blood. The objective of this undertaking is to give individuals a solitary answer for all the blood giving and getting issues all at one place in a solitary snap.

1. INTRODUCTION

The efficient and safe management of blood supplies is crucial for any healthcare system. Traditional, manual blood banking processes are often prone to errors, delays, and inefficiencies, impacting patient safety and resource utilization. To address these challenges, automated blood bank management system shave emerged as avital technological solution. These systems leverage digital technology to streamline and enhance every aspect of blood banking, from donor management and inventory control to blood processing and transfusion. By automating key tasks and providing real-time data, these systems significantly improve accuracy, reduce errors, and ensure the timely availability of safe blood products, ultimately contributing to better patient outcomes.

Existing System

At the present there is no software to keep any records in blood bank. It becomes difficult to provide any record immediately at times of emergency. Required more human efforts in maintaining the branch related information. Manually to keep the accounts is also tedious & risky job & to maintain those accounts in ledgers for a long period is also very difficult. Difficult to manage and maintain the files. Chance of damage of files, if the data is stored in the files for duration of time. Privacy is difficult, Time consuming is retrieving, storing and updating the data. It is difficult to keep track the record about the donor & receiver he has donated or received the blood at the last time.

Proposed System

The proposed system (Blood Bank Management System) is designed to help the Blood Bank

administrator to meet the demand of Blood by sending and/or serving the request for Blood as when required. The proposed system gives the procedural approach of how to bridge the gap between Receiver, Donor, and Blood Banks. This Application will provide a common ground for all the three parties (i.e. Receiver, Donor, and Blood Banks) and will ensure the fulfillment of demand for Blood requested by Receiver and/or Blood Bank. The features of proposed system are ease of data entry, system should provide user friendly interfaces, no need to maintain any manual register and form , immediate data retrieval and so on.

2. REQUIREMENT ANALYSIS

Functional Requirements

MODULES:

- **Admin Module:**
  - Login
  - User Authentication
  - Manage User Accounts
  - Logout
- **User Module:**
  - Registration
  - Login
  - Logout

Non-Functional Requirements

1. **Scalability:** The system should be designed to scale effectively without compromising performance.
2. **Security:** Robust security measures must be implemented to protect user data, ensuring the system is secure from unauthorized access or data breaches**.**
3. **Reliability:** The system must be highly reliable, ensuring consistent and accurate sign gesture recognition with minimal downtime.
4. **Portability:** The system should be able to run on various operating systems (Windows, macOS, Linux) without requiring significant changes to the codebase or user interface.
5. **Usability:** The system must feature an intuitive and user-friendly interface, allowing smooth interaction for both novice and expert users

Hardware Requirements

1. **Processor:** 2 gigahertz (GHz) or faster processor.
2. **RAM:** 4 gigabyte (GB) for 32-bit or 4 GB for 64-bit.
3. **Hard disk space:** 400 GB.

Software Requirements

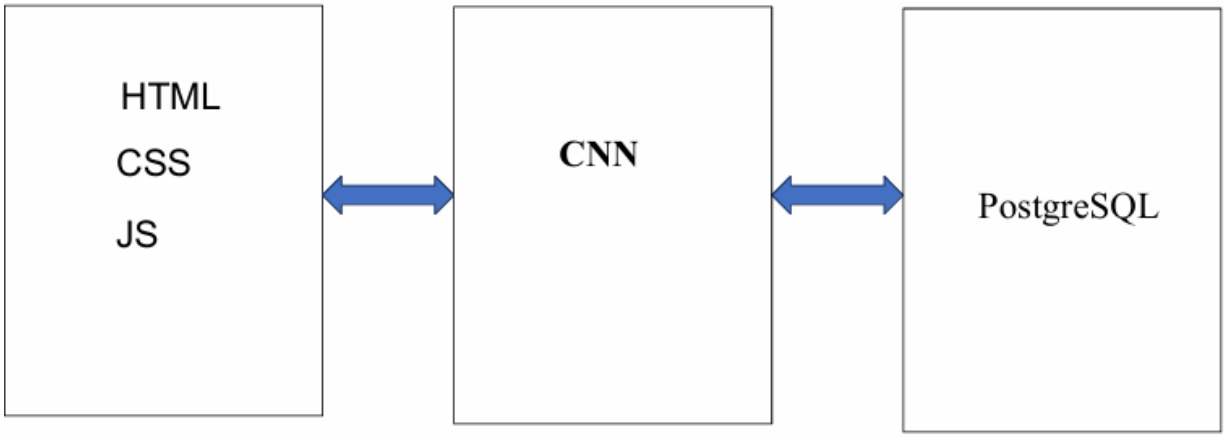
1. **Operating System:** Windows 7 or higher
2. **Coding Language:** Python
3. **Tools:** Pandas, Numpy
4. **Other Tools :** HTML, CSS, SQL

3. DESIGN

Design represents the number of components we are using as a part of the project and the flow of request processing i.e., what components in processing the request and in which order.

An architecture description is a formal description and representation of a system organized in a way that supports reasoning about the structure of the system.

System Architecture



Software Process Model

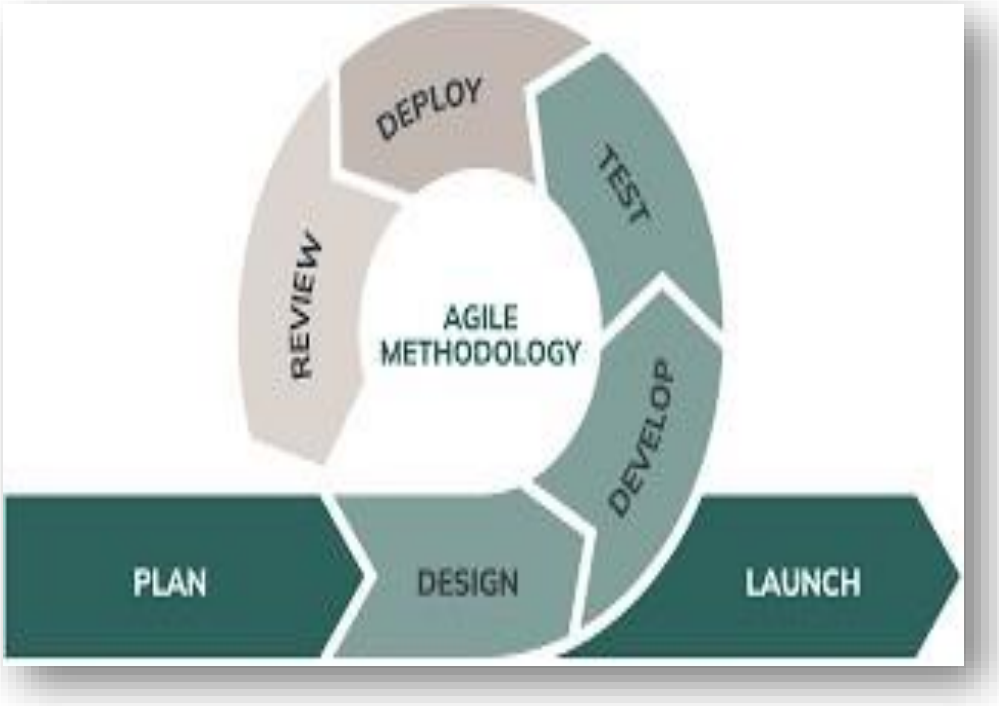


Fig 3.2 Software Process Model

4-IMPLEMENTATION

Python

Python is a high-level, interpreted programming language known for its simplicity, readability, and versatility. Created by Guido van Rossum and first released in 1991, Python is widely used for tasks ranging from web development and data analysis to artificial intelligence and automation.

Features of Python

1. Easy to Learn and Uses: Python has a clean and straight forward syntax, making it accessible to beginners.
2. **Interpreted:** Code is executed line-by-line, enabling quick testing and debugging.

3. **Versatile:** Supports multiple programming paradigms like object-oriented, procedural, and functional programming.
4. **Extensive Libraries:** Python has a vast standard library and ariche-co-system of third- party packages.
5. **Cross-Platform:** Runs on various operating systems ,such as Windows, mac ,OS, and Linux.

5-SCREENSHOTS

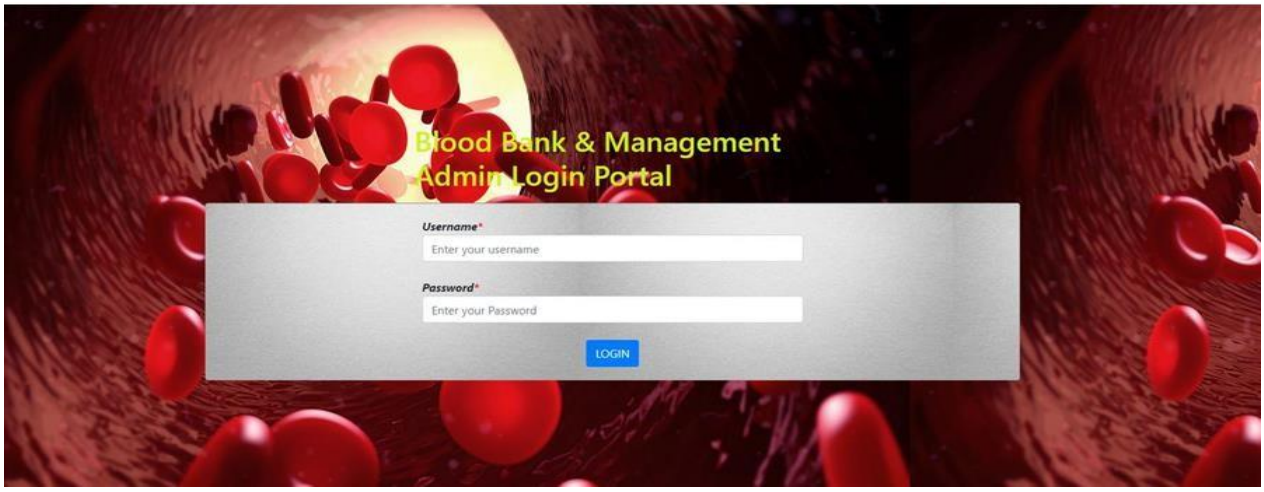


Fig 1 Admin Login

Fig 2 Admin Dashboard

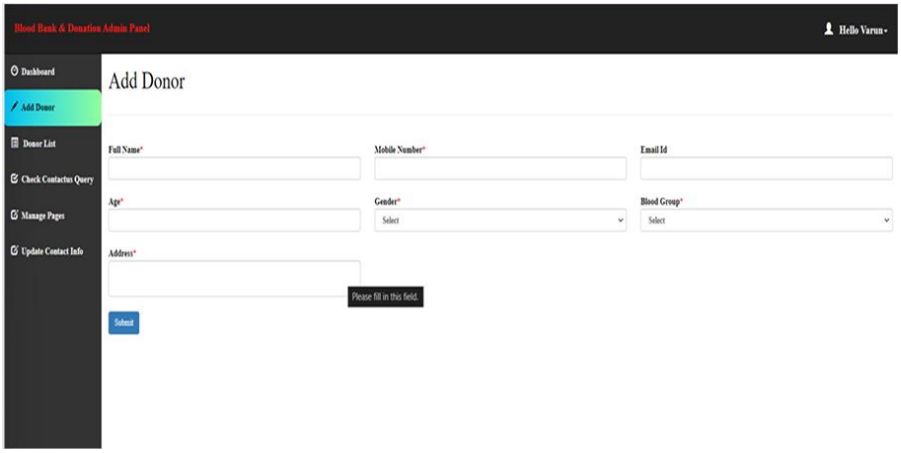


Fig 3 Add Donar

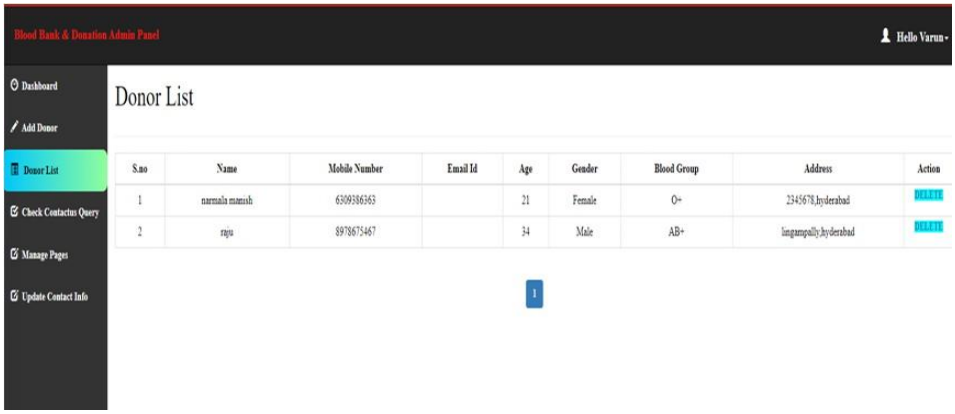


Fig 4 Donar List

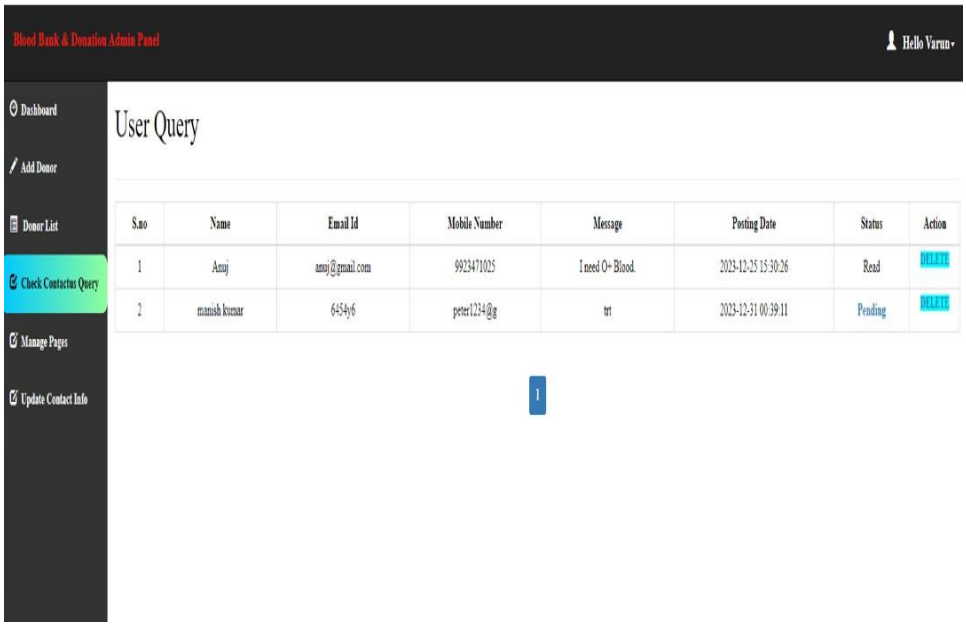


Fig 5 Check Contact Us Query

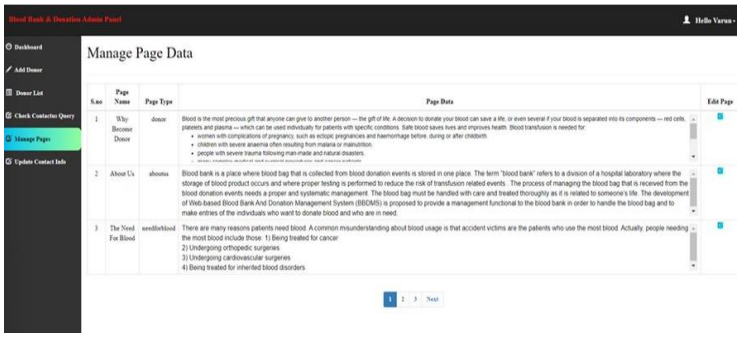


Fig 6 Manage Page Data

6-CONCLUSION

We have successfully designed and developed a proven website to make it easy for any user or person in need of blood to request the blood they need. Those who wish to donate blood can also register to donate blood on the website. Blood Bank management system will provide an effective way of managing the different types of blood available. It manages all the information about the donors in a systematic way so there is no data redundancy. Web based blood bank management system provides convenience, efficiency and security to the users and blood bank compared to manual system. It was found out that manual system has many disadvantages that disappoint and dissatisfy the users. Indeed, online blood bank management system make work easy, and ensure fast retrieval of data when needed. The system will eliminate all the problems encountered in the manual way which will help the hospital or the blood banks to work on a better way. The system was implemented using web-based technologies which include HTML, CSS, JS, Bootstrap for frontend and for backend I have used MySQL and PHP.

Smart Agriculture Using Machine Learning

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