

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 for 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 on without any problem data with respect to accessibility of blood classifications in different blood donation centers. Our framework 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.

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 systems have emerged as a vital 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

1.INTRODUCTION

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

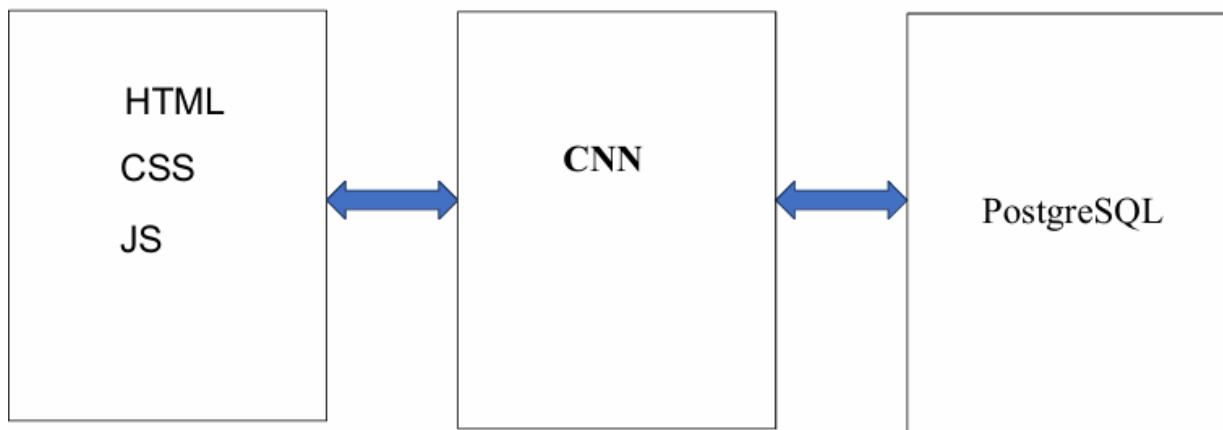
1. **Operating System:** Windows 7 or higher
2. **Coding Language:** Python
3. **Tools:** Pandas, Numpy
4. **Other Tools :** HTML, CSS, SQL

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

5-SCREENSHOTS

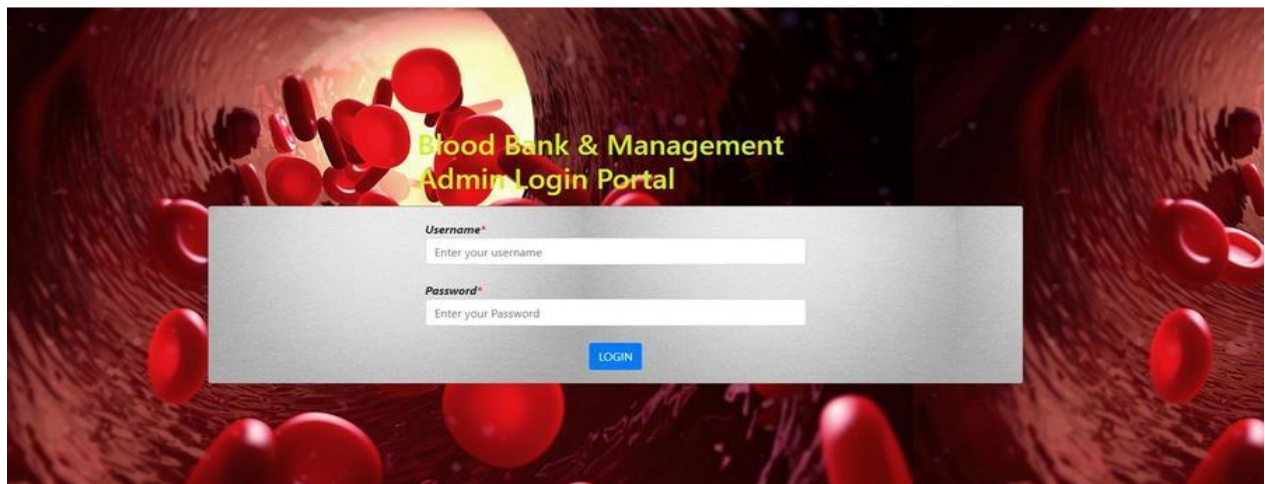


Fig 1 Admin Login



Fig 2 Admin Dashboard

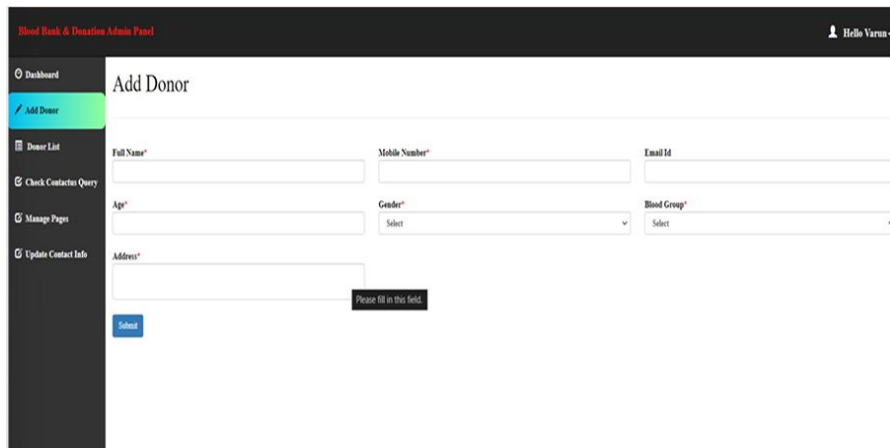
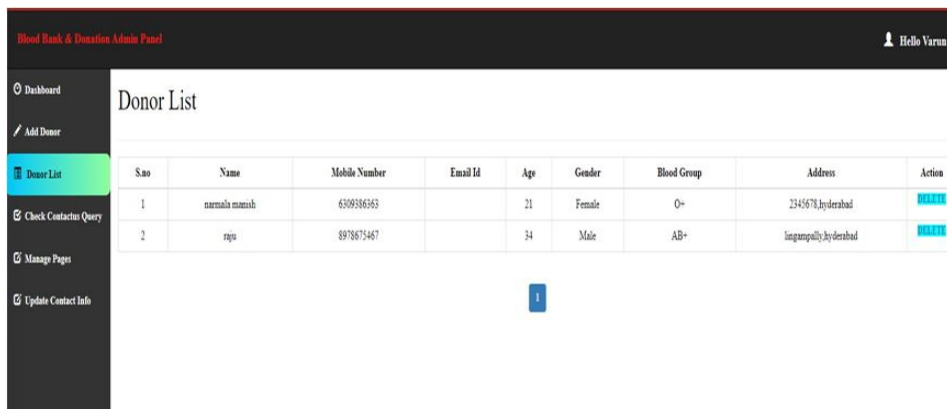
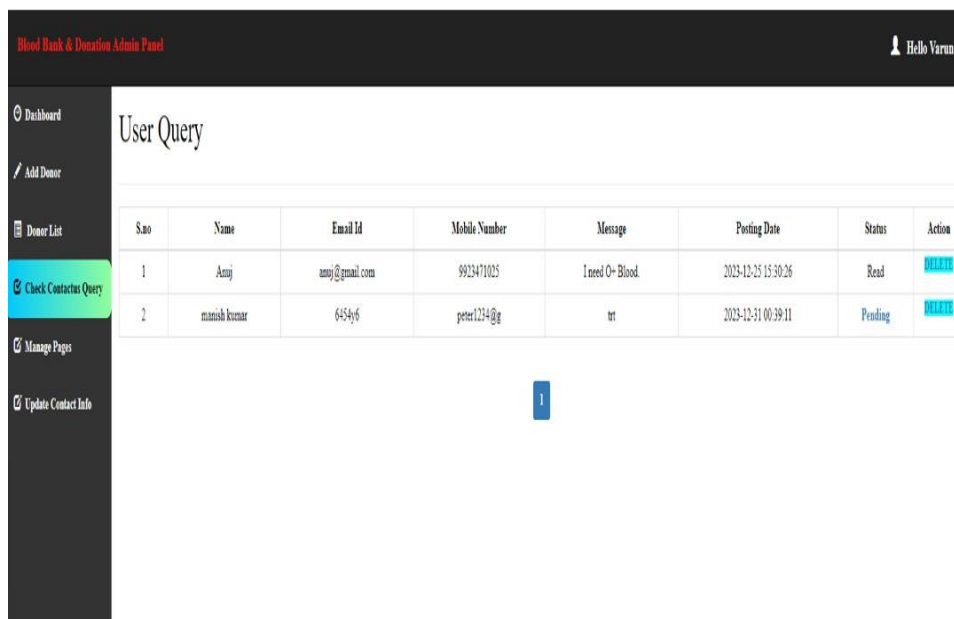


Fig 3 Add Donar



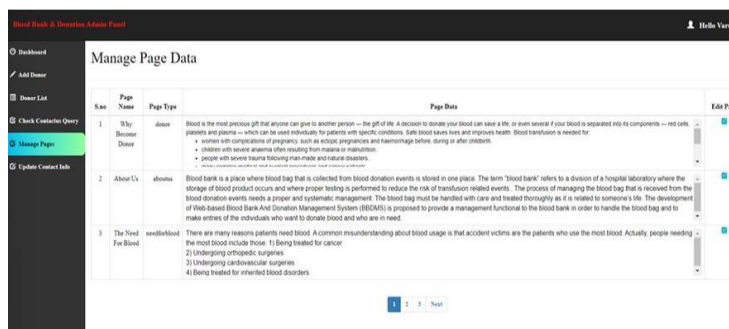
S.no	Name	Mobile Number	Email Id	Age	Gender	Blood Group	Address	Action
1	namrula mamish	6509386363		21	Female	O+	2345678,hyderabad	DELETE
2	raju	8978675467		34	Male	AB+	lingampally,hyderabad	DELETE

Fig 4 Donar List



S.no	Name	Email Id	Mobile Number	Message	Posting Date	Status	Action
1	Arunj	arun@gmail.com	9923471025	I need O+ Blood.	2023-12-25 15:50:26	Read	DELETE
2	manish kumar	6454y6	peter1234@g	ttt	2023-12-31 00:39:11	Pending	DELETE

Fig 5 Check Contact Us Query



S.No	Page Name	Page Type	Page Data	Edit Page
1	Why Donate	donor	Blood is the most precious gift that anyone can give to another person — the gift of life. A decision to donate your blood can save a life, or even several if your blood is separated into its components — red cells, platelets and plasma — which can be used individually for patients with specific conditions. Safe blood saves lives and improves health. Blood transfusion is needed for: • women with complications of pregnancy, such as ectopic pregnancies and haemorrhage before, during or after childbirth. • children with severe anaemia (often resulting from malaria or malnutrition). • people with severe trauma following man-made and natural disasters. • severe, sometimes life-threatening conditions such as heart disease or cancer.	
2	About Us	aboutus	Blood bank is a place where blood bag that is collected from blood donation events is stored in one place. The term "blood bank" refers to a division of a hospital laboratory where the storage of blood product occurs and where proper testing is performed to reduce the risk of transfusion related events. The process of managing the blood bag that is received from the blood donation events needs a proper and systematic management. The blood bag must be handled with care and treated thoroughly as it is related to someone's life. The development of Web-based Blood Bank And Donation Management System (BDBMS) is proposed to provide a management functional to the blood bank in order to handle the blood bag and to make entries of the individuals who want to donate blood and who are in need.	
3	The Need For Blood	needforblood	There are many reasons patients need blood. A common misunderstanding about blood usage is that accident victims are the patients who use the most blood. Actually, people needing the most blood include those: 1) Being treated for cancer 2) Undergoing orthopedic surgeries 3) Undergoing cardiovascular surgeries 4) Being treated for inherited blood disorders	

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 **Smart Agriculture Using Machine Learning** MySQL and PHP.

REFERENCES

1. 2019,10th International Conference on Computing, Communication and Networking

Technologies, “Low-cost IOT+ML design for smart farming with multiple applications”, Fahad Kamraan Syed, Agniswar Paul, Ajay Kumar, Jaideep Cherukuri.

2. 2019 IEEE “ Smart Management of Crop Cultivation using IoT and Machine Learning” Archana Gupta, Dharmil Nagda, Pratiksha Nikhare, Atharva Sandbhor
3. Radhika, Narendiran, “Kind of Crops and Small Plants Prediction using IoT with Machine Learning,” International Journal of Computer & Mathematical Sciences, 2018.
4. “Crop Recommendation on Analyzing Soil Using Machine Learning” Anguraj.Ka, Thiyaneswaran.Bb, Megashree.Gc, Preetha Shri.J.Gd, Navya.Se, Jayanthi. Jf, 2020.
5. “Classification of Soil and Crop Suggestion using Machine Learning Techniques”, A. Mythili , IEEE 2019.
6. Mehta, P., Shah, H., Kori, V., Vikani, V., Shukla, S., & Shenoy, M.,2018. “Survey of unsupervised machine learning algorithms on precision agricultural data”, IEEE
7. “IOT based Crop Recommendation, Crop Disease Prediction and Its Solution” Rani Holambe, Pooja Patil, Padmaja Pawar, Saurabh Salunkhe , Mr. Hrushikesh Joshi, 2019 IRJET