

# Improving Transparency between Doner and Seeker in Blood Bank Management System Implementing on Cloud Computing

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**Abstract:** Blood bank is a central repository where blood as a result of blood collection and donation is stored and managed for future use in blood transfusions [1]. There are several online web-based blood bank management systems for data storage for blood center and hospitals to manage donor information, available blood, and transaction information. Recent research on this topic shows that manual systems consume time, tedious and expensive compared to the computerized information system [1]. This is also evident in praising computerization as a mechanism to achieve efficiency and effectiveness in this area and highlighting some critical issues that are left out such as the correct accountability of the system administration. In this paper, we are study about previous work on blood bank management system. No one offers the possibility of direct contact between the taxpayer and the beneficiary. This is tremendous damage, especially in conditions where blood is really needed. This document formed the development of the cloud architecture by giving a cloud database of the blood donation centre that contains entire sights and from various roots as the center of the blood donors, the systems of national service, non-governmental organizations, healing centers and through Webu.

**Keywords:** Doner, seeker, blood bank, cloud architecture, cloud database.

## INTRODUCTION:

Each hospital has its own framework, rules, standards and constraints. Coordination between hospitals and blood is virtually lacking due to their basic underlying conditions. In addition, the viability and nature of blood donation centres is low due to the low number of taxpayers and other blood donation concentrates. One explanation is the assumption of responsibility for the blood donation. This consequence is the waste of blood and parts of blood. The problems of the current situation are<sup>[4]</sup>:

1. In urban areas there are a large number of blood banks, but the number of donors is lower while in provincial (rural) areas there are not enough blood banks.
2. In rustic areas now no longer have an awesome facility for accumulation, processing and garage potential of blood lesion?
3. Some of the private treatment centres have unique blood donation canters.
4. Some public establishments do not have blood banks either.
5. Donors don't have any record of their donations, or information related to their blood illnesses.

In addition, in the current situation, some databases of blood donation centres are accessible; accessible for correspondence between the donation canter and medical structures. Regardless, no person provides the capability via prompt connection among the contributor and the seeker.

## LITERATURE SURVEY:

The current blood bank storage system is focused on files. This ensures that data and knowledge about blood, donors, and recipients are stored in documents and archives. Data and information processing becomes difficult and time-consuming as a result of this. All tests of blood donation and transfusion are recorded on physical papers as well. This leaves information vulnerable to gross and human error, which in turn endangers human life. Another underlying problem with this framework is the lack of productivity. Because recovery is such a time-consuming process, it is very difficult for hospitals to save lives at crucial moments. Information security and data backup is another point to consider as documents and records are easily lost or stolen. This makes it an unreliable framework.

The goal of our project was to provide a cloud platform containing all information about blood donations and registered donors, which in turn can contribute to fast blood delivery. We have endeavoured to research everything about blood management systems and practices and have used the knowledge to make our project as good as possible.

Every blood donation management system has to fulfil some basic tasks. You must have a mechanism in place to make the information sharing available to donors, recipients, and other interested parties. It should also ensure that information on the status of blood inventory is available from various stakeholders such as blood banks and hospitals. It was important for us to find the faults of the existing system so that we could find the solutions to the faults and implement them in our project. Following Table 1.1 shows previous work-related blood bank management system to improving transference between doner and seeker<sup>1</sup>

Sr No	Author	Study of Year	Details of work	Factor consider for study	Outcomes
1	Devanjan K. Srivastava	2022	Specific patterns of blood test results are associated with COVID-19 infection. The aim of this study was to identify which blood tests could be used to assist in diagnosing COVID-19.	Aware for covid-19 virus and boost immunity.	The primary outcome of interest was the combination of intubation and death. These events, along with admission to the hospital, admission to the intensive care unit (ICU), prone position during intubation, and initiation of extracorporeal Membrane oxygenation (ECMO), were determined by manual review of the records.
2	Al-Rashdi et al.	2018	Rating of blood donation factors affecting blood donation recruitment in Saudi Arabia.	Motivate doner to donate blood.	Few people intend to donate blood voluntarily, and most past donors have had to donate in unavoidable situations.
3	Finck et al.	2016	Factors of motivation and deterrents of blood donation inside excessive college blood donors.	Motivating factors such as prosocial, empathic, altruistic thoughts and beliefs. The deterrents were bloodletting.	Motivating factors such as empathic and altruistic thinking were rated higher, and bloodletting was a potential deterrent.
4	Ferguson	2015	Mechanism of altruism approach is used to recruit blood donors.	Mechanism of altruism.	MOA suggested that financial incentives in the form of gifts and movie tickets are efficient when donating blood.
5	Alfouzan N.	2014	Measure the level of knowledge about blood donation to identify positive and negative attitudes, find barriers and suggest some motivating factors.	It is a statistical study to find positive and negative attitudes towards blood donation.	The majority of the educated population aged between 31 and 50 are more likely to donate and therefore proposed an educational program to raise awareness of the diversity of people.

Table 1.1 shows previous work-related blood bank management system to improving transference between doner and seeker.

#### **FACTORS TO BE CONSIDERED TO BE BLOOD DONOR:**

These are some of the factors which are considered worldwide as parameters for recruitment of blood donor as follows [2]:

**1. Age:** Age between 18 and 65. In some countries national legislation permits 16–17 year of olds to donate provided that they fulfil the physical and haematological criteria required and that appropriate consent is obtained.

**2. Haemoglobin Count:** Females must have a minimum haemoglobin level of 12.5g/dL and males must have a minimum level of 13.0g/dL. A donor's haemoglobin level cannot be higher than 20.0g/dL to donate.

**3. Blood Pressure:** For blood donation blood pressure must be 90 to 180 for systolic and 50 to 100 for diastolic (The American National Red Cross, 2018). The reason is if the blood pressure is below normal then blood will not come out by syringe whereas if the blood pressure is above normal then the flow of blood pressure cannot be controlled.

**4. Diseases:** If the donor is affected by any kind of disease there is a possibility of transmission of the disease to other host bodies. In case of fatal diseases like AIDS it may dangerous. For this reason, donor must be free from any kind of diseases (Arif, 2012). Besides patient of hepatitis B is not allowed to donate blood because it may even be the reason of death of blood receiver.

**5. Drug Addiction:** Drug addicts are prone to fatal diseases. For this reason, drug addicts are not allowed to donate blood. Because their blood may transmit diseases.

**6. Last Date of Blood Donation:** The duration of last blood donation must be 12 weeks for males and 16 weeks for females (Give Blood, 2018). The reason is RBC needs 4 months to regenerate. In case of females the duration is more due to menstruation.

#### **CHALLENGES FACED IN BLOOD MANAGEMENT SYSTEM<sup>[3]</sup>:**

**1. Tackling fake donors:** During the registration phase, we ensure that you upload all supporting health and verification documents. The desired donor can only enter the registration phase if he meets the necessary blood donation requirements.

**2. Address Fake Requests:** To avoid the problem of fake calls asking you for blood, a password feature is provided. Donors can also check the profile of the person who requested blood.

**3. Database Update:** Registered donors must update their information every 35 days to show they are still disease free and clean to donate blood.

#### **DONOR'S PERSPECTIVES ON BLOOD DONATION DURING COVID-19 PANDEMIC**

The Covid19 pandemic has impacted transfusion services, including donor recruitment and blood camp activities<sup>[7]</sup>. Blood donors may have concerns, confusion and misleading rumours about donating blood during the pandemic. People's blood donation priorities may change due to scarce supplies. It is important to identify the factors preventing or motivating blood donations during the pandemic<sup>[7]</sup>. This study was designed to understand the knowledge, attitudes and perceptions of blood donors during the Covid19 pandemic. The duration of the study was 4 months. A total of 503 whole blood donors participated. The fear of infection and the decreased motivation of blood donors were found to be the main obstacles to blood donation activities. The environment of the blood donation area and the journey to the blood donation site were perceived by the participants as two main sources of Covid19 infection. The top 3 motivators for blood donation were the patient's direct request to donate (30%), followed by the need for family/friends and social media campaigns (26ch). Most donors (70.6%) were aware of the importance of appropriate Covid19 behaviour during the current pandemic<sup>[7]</sup>. 67% of donors considered that the staff involved in the blood collection had followed the appropriate Covid19 prevention measures. The survey results indicate that fears of contamination and concerns about their safety are factors that discourage donors from donating blood. The direct request of a relative of the patient to donate blood or a need in the family/friends and calls in social networks prove

to be important motivation factors for donors. Facility arrangements for travel can help with blood donation. Transfusion services if symptoms of Covid19 appear after donation. Donors were happy with steps taken to reduce Covid19 infection<sup>[7]</sup>.

#### **FUTURE SCOPE:**

In our future work, we plan to explore the generic mathematical model with different donor groups using data mining and analysis tools. We are also focusing on implementing a website-based application which will further contribute in connectivity to wider masses.

#### **CONCLUSION:**

The proposed system provides an extremely useful web application for emergency services. It will be very useful in times of emergency by providing donors with information filtered by area and blood group. It allows donors to communicate with other donors using our Chatbot API to notify them of emergencies <sup>[4]</sup>. The machine includes a well-maintained database to maintain all of the registered records. It additionally gives information and facts approximately the continued coronavirus pandemic. Donor address can be automatically updated from the external device. GPS technology can be used for this purpose.

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