

# LIFE SAVER: ANDROID APPLICATION FOR BLOOD DONATION AND ORGAN DONATION AND AWARENESS

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**Abstract** - This study has been undertaken for reducing the gap in between Seeker and donor. Many people fail to know the process of transplantation whether it be blood or organ which causes many lives. There is a disparity exist between the supply and demand in both organ and blood leads to a loss of many lives. This application is useful for all seeker, donor or hospital whenever there is need as for hospital they can rise a request for demand which will be notified with all the details to all donors, blood banks and organ banks. help.

**Key Words:** Blood and Organ (B.I.O.) Donation, Android Platform, Transplantation, Hospital, patients.

## 1. INTRODUCTION

According to a survey, every year in India, about, 500,000 people die because of non-availability of organs. 200,000 people die due to liver disease, 50,000 people die because of heart disease. Moreover, 150,000 people await a kidney transplant but only 5,000 get among them. Despite India being the world's second-most populous country, it has a pathetic deceased organ donation rate of just 0.26 per million population compared to 26 in the US, 35 in Spain and 36.5 in Croatia.

More than half of all people on the transplant waiting list are from a racial or ethnic minority group. That is because some diseases that cause end-stage organ failure are more common in these populations than in the general population. For example, African Americans, Asians, Native Hawaiians and Pacific Islanders, and Hispanics/Latinos are three times more likely than Whites to suffer from end-stage renal (kidney) disease, often as the result of high blood pressure. Native Americans are four times more likely than Whites to suffer from diabetes. An organ transplant is sometimes the best or only-option for saving a life. Among the 530 donors, 436 (93%) were males and 36 (7%) were female donors. 273 (51.2%) donors knew about the interval of the donation and 421 (79.4%) donors knew about the age limit for the donation. 305 (57%) donors felt that creating an opportunity for the donation was an important factor for motivating the blood donation and 292 (55%).

donors felt that the fear of pain was the main reason for the hesitation of the donors in coming forward to donate blood.

India is struggling with an acute shortage of organs for transplantation. It is estimated that more than a million people suffer from end-stage organ failure, but only a handful of 3,500 transplants are performed annually. At least 15 patients die every day waiting for organs and every 10 minutes a new name is added to this waiting list. Undoubtedly, the demand far outstrips the availability of organs. And no one can escape the harsh reality. Awareness of organ donation is, therefore, the only way out of this depressing scenario. The more potential donors there are, the more the likelihood of organs becoming available to save lives.

## 2. PROBLEM STATEMENT

We have seen from past survey that post of time there is Unavailability of blood and organs during emergency. Due to manually work, awareness among people was less about blood and organ donation or transplantation. There are two types of process in the existing system which is the blood donation process by donors and the blood request process by the hospital in both methods the administrator is in charge of managing, updating or deleting the blood inventory or organ inventory in the bank. Near bank administrators or organization only have the authority to make changes in records since the Android application is only available within themselves this makes it difficult for the donors or seekers to make changes in the personal information within the system.

In India, many people are losing their life because they are suffering from lack of blood & organ; they are unable to receive the blood and organ in time. The relatives and friends of the victims start searching for a donor to help, but there is no guarantee about the Donor's Presence and Health Condition. , and also, there are a lot of people who are willing to help and donate others to save their life. There is a number of existing systems that have become increasingly tried to activate the blood and organ donation process. However, this is still not efficient up today.

We propose to use the latest technologies and the tools to find a system that fills the gap and provides an organized solution.

### 3. EXISTING SYSTEM

The existing blood banking and organ banking system contains a lot of manual work due to which it consumes a lot of time as well as a lot of hardcopy storage. The Major problem in old organ and blood banking system was that they don't follow the actual needs of user. Tracking and maintaining the database was complicated as the details were maintained manually. It was time consuming. Maintaining the stack of blood or various organs and daily transaction without any computerization also poses a challenge. In Existing system, it has highly chances of storage loss. The user whether it be donor or seeker they need to contact to organization, whenever there are any changes or updates in their profile.

Risk of management of data when the project is under development contains list security no proper coordination between different applications and less user friendly. Due to this long-time consuming process people tend to avoid blood or organ donation process. As well as it takes a lot of time in case of any emergency which can cause many lives. There are some existing Android applications used to minimize this problem statement but are not compatible to recent and upcoming Android technologies. This is the main drawback of existing Android applications that they don't support latest technologies as we all know that most of 90% of people have updated devices.

### 4. LITERATURE SURVEY

In latest survey we have found that there are several people who suffer from corneal blindness. Corneal donation is done on fastest rate and is useful to the person for restoring the vision. Although we have a huge amount of advance medicine and technology, most of people in all over worldwide are not aware of it, thus the gap among the supply and demand is getting higher and higher. On recent OPTN data approximately 21 to 30 people die each day while waiting for a transplant in US. According to recent OPTN data April 2021 there are 117,948 registration in waiting list for organ transplantation.

Asian Indians are more likely to have higher rates of having obesity and diabetes when compared with other Asian subgroups which make them at an increased risk of needing a donated organ. These conditions can lead one to develop coronary artery disease and hypertension which then can lead to chronic kidney disease and other chronic illnesses. Patients who suffer from chronic kidney disease need regular dialysis which can ultimately lead them to organ transplantation to improve one's quality of life.

Also, conditions such as diabetes and obesity can be detrimental to one's life and can lead to fatty liver disease which can lead to chronic liver disease requiring liver transplantation if the liver decompensates.

The development of organ transplantation in the second half of the 20th century has been a remarkable achievement. Recently; organ transplantation is one of the most effective options for those with an end-stage organ failure. Its success has been basically dependent on public awareness, support and active participation. Without these factors, the efficiency of organ transplantation and the consequent saving or extension of lives would have undoubtedly suffered adversely.

The number of patients in need of organ transplantation has increased at a rapid pace; while the number of available organs has increased only slightly. Expanded criteria for donor selection, such as older age, have resulted in more people who meet the criteria for brain death becoming organ donors although fewer organs are transplanted from each donor. Improvements in automobile and highway safety, as well as increased enforcement of gun control laws, have also contributed to a plateau in the number of young, healthy donors. Public education and knowledge efforts that encourage organ donation may be effective in getting more people to sign organ donor cards, but most individuals who do so will never be in a position to become organ donors.

Faced with increasing numbers of patients who need transplantation, deaths on the waiting list, and a fixed number of available organs, some transplant programs are working to increase the number of transplants from living donors. Although living donation has always been an option for some types of transplants, many programs have been reluctant to promote it, as living donation requires invasive surgery on a healthy person with associated risks of morbidity and mortality. For example, since dialysis is an option for patients with end-stage renal disease, surgery on a healthy donor may be difficult to justify, despite the dialysis patient's diminished quality of life.

India's need for blood is around 12 million. Blood donation by 1% of population can meet India's need for blood. "Statistics show that there are 234 million major operations in India, 63 million trauma-induced surgeries, 31 million cancer-related procedures and 10 million pregnancy related complications which require blood transfusions" (TOI, 2014). Percentage of voluntary blood donors in India is 80.5%. India has a supply of 6.82million. (NACO, 2016). Blood mobile can be useful to find a stable supply of blood products and blood. Availability of such blood mobiles can help in better and quick response. It can be used to reach donors who have issues in accessing convenient blood donation site and have time constraints. Efficiency of bloodmobiles can be increased by using shuttle vehicles. (Feyza Güliz S, ahinyazana, 2015) Third phase of NACO (National AIDS Control Programme) funds mobile blood collection centre in India. (Suchet Sachdev, 2016). Due to

voluntary blood donation programmes, number of voluntary blood donors has been increasing in India but there is a need to look into other options like apheresis donors and rare blood group donors. (Marwaha, 2014). From the literature review it is evident that India is running short of its need for blood. With a population of 1.25 billion India isn't able to bridge the gap between the demand and supply. So it is essential to find the motivating factors among the current donors and the deterrents towards blood donation among non-donors. There is also a need to retain and increase the frequency of existing donors. Addressing the concerns related to blood donation might help to bridge the gap between supply and demand. No study was done among Indian population covering all factors found by Timothy Colin Bednall, 2011. This study tries to find those dominant factors which negatively impacts or positively impacts the WtDB among blood donors. Organs that can be transplanted from the living donor includes one kidney, part of intestine, pancreas, islets of Langerhans, bone, part of liver, one testis, bone marrow and blood. The organ that can be transplanted from the deceased donor are heart, kidney, pancreas, stomach, hand, skin, blood vessels, lungs, liver, intestine, testis, cornea and heart valve.

### 5. PROPOSED SYSTEM

This Android application helps to reduce gap between seeker and donor. A application which supports current technology and is user friendly. Consumes less time and gives faster results as compare to other previous existing system. Readily upload the latest updates and alerts. This system makes the overall project management much easier and flexible. This application is build with the help of python and SQLite for database. The system's functionality would mainly include the following actors.

1. Seeker/Patient.
2. Donor/Normal People.
3. Hospitals.
4. Blood/Organ Banks.

### 5.1. WORKING

A seeker for organ/blood uses the application to raise a request for an organ/blood donor, then the request is broadcasted in the app for the users and also for the blood and organ bank facilities as well as to the hospitals. A seeker when signs up in the application, can register itself as a seeker/donor based on their requirement. While signing up, all the information needed about the donor/seeker will be updated in the database so that donors can have access to the required seeker's requests and their hospital's location along with patients' details. The details will be revealed once the seeker's organ/blood details match the donors' organ/blood details. Once the details match, donors will get the location of the hospital the patient is kept under the authorized doctor.

The seeker will have a list of probable candidates and allow the hospital to choose from it based on the patient's requirement. The application lets know other nearby users about a certain seeker's request or a donor's request to help when it registers in the application. The database developed using SQLite stores all the user's data such as their medical history, blood type, potential donors with their details, location of the particular hospital upon matching, doctors' certificate (in the case when someone wants to donate an organ, so they have to submit the details about the organ with the doctor's certificate). Once the hospital's request has been responded to, it also shows you the shortest distance to the hospital.

### 5.2 FLOWCHART

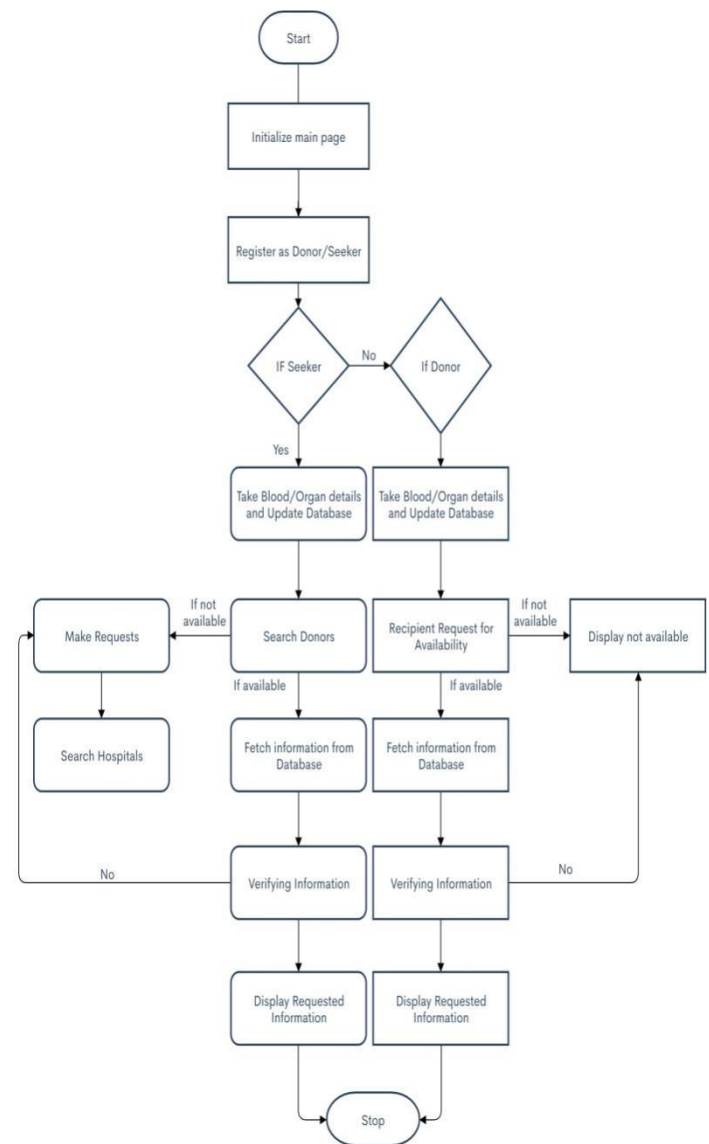


Fig - 1: Flowchart of system module.

## 6. SALIENT FEATURES

1. Anyone can become a donor on this application by creating their profiles with ease.
2. People who want to donate their blood can create a donor profile which will consists of all the essential information about the donor.
3. The profile information will include donor name, address, contact details and blood group, etc. So, that it can be easier for the recipients to contact the blood donors at the time of need with ease.
4. Recipients will be able to search the donors by blood group and distance with ease.
5. Holds Simplicity and Flexibility.
6. Scalability and user friendly.
7. Contains various Important contact list such as hospitals blood banks and organ banks across the area.

which will minimize the database lode.

## 7. CONCLUSION

We believe that with the help of this application would be useful and will also reduce the gap between donors and seeker in today's world. It also provides knowledge about the latest technology used in developing android application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

## 8. FUTURE SCOPE

In future further updates can be provided with the help of machine learning which can be useful by is automatic suggestions which are compatible with user's requirements. We can implement more flexibility by using cloud computing

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