Donor Friend

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Abstract

Organ donation is the process when a person allows an organ of their own to be removed and transplanted to another person, legally, either by consent while the donor is alive or dead with the assent of the next of kin. Our aim to create an app which increases the donors and transplant faster without damaging the organs. The purpose of the app Donor Friend is to automate the existing manual system by the help of daily usable mobile, full filling their requirements, so the donations are done more easily and faster. Donor Friend android application, as described above, can lead to reliable and fast response system. Thus it will help in better utilization of resources. Donation affects more than the donors and recipients. It also affects the families, friends, colleagues, and acquaintances who love and support those in need of transplantation, and who benefit from their renewed life and improved health after transplant. Organ donation provides a life-giving, life-enhancing opportunity to those who are at the end of the line for hope. And the need for organ donors is growing.

1. Introduction

Now a days due to health issues many people end up with failure of organs be it a kidney failure, liver failure or eye blindness. Organ donation seems to be a noble way to help the organ recipients to improve their quality of life while fully utilizing the organs that are capable of being donated. Many people die because of not getting organs for their transplantations. Because of various reasons. Such as; availability, less knowledge of organ donations. And people also die because of organ trafficking. Also, another point to ponder over here is that all organs may not be in a condition to be recovered and passed on to the transplant recipient while in some cases it's a possibility that some of the organs transplanted may not function very well. Of course we can see that there is a mis match between the need for organ donations and supply of organs. Through our app we would like to save lives of many and solve problems while are currently affecting many lives.

We would like to achieve the following things with our app;
Increase the availability of organs
Promote others to do organ donations
Make people aware of organ donations
Save lives.

In this paper, section in section 2 we discuss the literature survey followed by methodology in section 3. Further in section 4 and 5, system design and requirements are elaborated followed by algorithms. In the last section we conclude the work with the need for an appropriate organ donation management to make sure that no patients donor and recipients suffer because of lack of information and delay in transplantation.

2. Literature Survey

For this project an both literature and real time survey is performed. From health resources and services administration the information gathered is as follows
1. The basic process that is carried out in for an organ donation.

Based on the study, we can describe the process of ***Living donation process*** as follows
Matching donors with recipients
Getting an organ transplant

Donation after brain stem death
Donation after circulatory death
2. Getting the necessary details from the donor.
3. Suitability for donation.
4. Decisions to donate.
5. Common factors.
6. Selection of organs to donate.

Title: The Power of Organ Donation to Save Lives Through Transplantation.
Author: Kenneth P. Moritsugu(2016)
In this article Mr. Kenneth P. Moritsugu has described on how important organ donations are. He also tells us about some cases which involved in organ donations which saves the lives people around him. And further adds on to how to improve and make organ donations better.

He then also clears some of the misconceptions on organ donation.
such as :- "*If I accept to donate my organs, the doctors do not care for me when in need as they want my organs*".
These type of negative thoughts and misconceptions have been cleared.
This article also spreads awareness on organ trafficking.
Title: Transportation through mobile application.
Source: adianteapps, developer.android.com
1. Transporting organs from A to B.
Static map.
2. Listing the routes (for reaching the endpoint hospital destination).
3. Geo locate the hospitals which facilitates organ donation.
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Source: adianteapps, developer.android.com
1. Transporting organs from A to B.
2. Static map.
3. Listing the routes (for reaching the endpoint hospital destination).
4. Geo locate the hospitals which facilitates organ donation.
5. 3. Storing organs in ice is the current efficient way to store organs
6. 4. Transportation of organs
7. 5. Super cooling which is under development can help to store organs for a much longer time.

3. Methodology

Important details to be taken of a person in the android application.
1. Body size
2. Blood type
3. Severity of patient's medical condition
4. Distance between the donor's hospital and the patient's hospital
5. The patient's waiting time
6. Whether the patient is available (for example, whether the patient can be contacted and has no current infection or other temporary reason that transplant cannot take place)

7. Type of donation
And this information is to be stored in database.

4. System Design

System Design is as show in figure 1: here in Step1 the user registers themselves either in the capacity of a donor or recipient to the Donor Friend App. This step receives the details from the donor user about donation when alive for liver, bone marrow, blood and plasma etc. If the user is a recipient, he provides details of his need for organ and his other details blood group.

In step II these details collected from the donor/recipient user is stored in the organ donor /organ recipient database.

Step 3: if the Donor is in critical stage say declared brain dead or dead then his a search in performed in the background to identify the potential recipients. A message is automatically generated and passes over to the waiting recipients about the availability of the organ along with its timelines. The recipient can then notify and start with the legal reception process, before the actual transplant can be followed
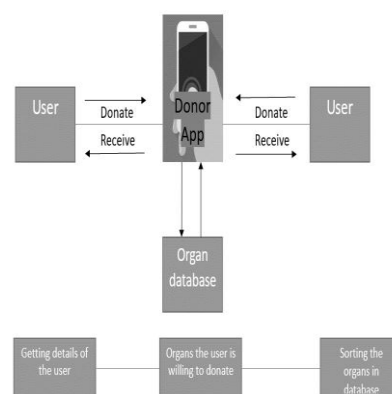

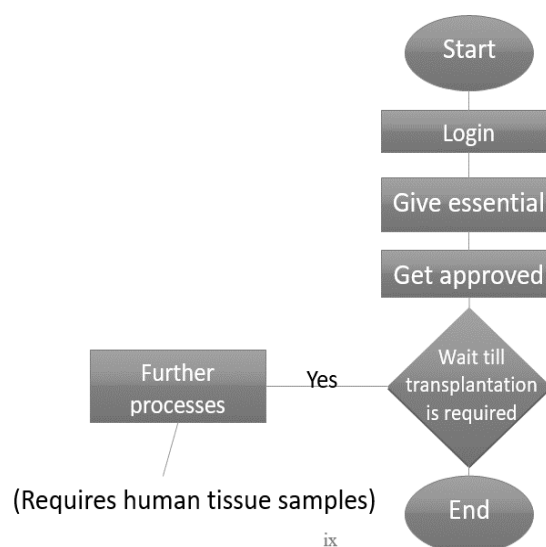
Figure 1: Donor Friend System design

Figure 2: Block Diagram Donor Friend

In the figure 2, the donor friend block diagram is given which helps us understand the nonces involved in the donation of organs.

5. System Requirements

The requirements of the project are as follows:
Software requirements:
Front-end: Java JDK, Android studio
Back-end: Any database (Fire base)
Hardware requirements:
OS: Windows 7+
RAM: 2 GB
ROM: 30GB
Browser: Google chrome, Firefox and any browser usable for online database
Android mobile(0S 4.2 or higher)

6. Algorithms Used

- Bubble sort algorithm
- Binary search algorithm

Both algorithms are used to store and extract the data from the database.

7. Conclusion

We can conclude that with the app storing and organizing the data of the user (donator and receiver) can fasten the transplantation and as our app reaches to more and more people many will start to donate their organs and makes organ donations easier. As this app deals with the sensitive information of the people, we would like to work on the security of the user data and their privacy.

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