

ORGAN DONATION- AN ANDROID APPLICATION

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ABSTRACT

Organ donation as we all know is a good cause and can save many lives but in a developing country like India it is still not that popular. Although, the rate of donation has been increasing from the past few years but it is still not enough as only 0.01% of people donate their organs after death [1]. The main reason is lack of awareness and this android application is to create awareness among people. This Android application aims at linking the donors or wanting to be donors to the seekers. The donors and the seekers will register through the app by filling the details about themselves and by uploading their medical reports. The donor will have to upload the donor card as well. The phone number will be verified by One Time Password (OTP). All the data is being stored in the Database. Our application mainly fulfils the purpose of urgency of an organ when required by the patient and puts all the functionality and connection between our donor and recipient.

KEYWORDS: Organ donation, One Time Password, Database, Android application, Donor card.

INTRODUCTION

It is known that India has performed the second largest transplants in the year 2019 (first being United States), but India still lags a lot. Only 0.01% of people donate their organs after death and the number of live donors is more in India [1]. Cadaver donations are only about five percent of the total donations that take place. Some of the main causes are lack of awareness, religious and superstitious beliefs and strict laws. Some people are interested in this social cause but don't have enough knowledge as to what to do and how to donate. Another factor is, people are not literate enough to know the importance of this cause. So, we are providing our nation with an **Organ Donation Android Application** to spread awareness and give an easy facility to our people to save life.

DESCRIPTION OF PROBLEM

Over 5 lakh people in our country face death due to lack of organs, this is due to lack of awareness and connection between the donors and seekers [2]. In India the rate of organ donation per million is comparatively very low than other countries around the globe. People are not ready to donate due to misconceptions and there are very less donors as compared to seekers in our country. There is no such market opportunity in this application, it's an application which is meant for the lifesaving purpose and will be a revolutionary step for saving the lives of our people.

BRIEF DESCRIPTION OF INNOVATIVE SOLUTION

People are allowed to donate organs but this application can be used by the people of age group of more than 18 years, who are ready to make their own decision that they want to be a part and be a donor or not [3]. Any citizen of our country who carries an android smart phone can use this application, irrespective of their location.

While referring to the other applications on organ donation we found a drawback that they were providing the details of the donor and recipient to each other which can result in dangerous crimes like killing for the need of an organ. This application aims at linking the donors or wanting to be donors to the seekers without telling the details of each other just by passing the urgent message requests from recipients to the donors. The donors and the seekers will register through the app by filling the details about themselves and by

uploading their medical reports. The donor will have to upload the donor card as well. This application will be held under an authorized organization which will look after the database clearance and every report of it.

OTHER REFERENCE APPLICATIONS IN INDIA

1. Organ secure Application

Organ Secure is an android application that is still in the development stage. This application is an AI-powered application that uses AI which makes this app unique. It also solves the problem of lack of awareness. This application focuses on the recipients who have less time and who need the organ first irrespective of the thing that he/she applied late for the organ. This application also tells the users about the nearest organ banks, expected costs and many more. This application uses machine learning to match the right recipients to the donors.

2. Mohan foundation Application

Mohan foundation is an organization that carries out the process of organ donation. This Mohan foundation app is made by the organization so that the process of organ donation can become easy and also the awareness amongst the people can increase. This application takes basic details like name, contact details, email and medical history of the donors. There is also an option called “any part of my body”, in which users can donate any part and every part of their body. Information regarding pre-existing conditions like Cancer, TB, AIDS is also required to be filled in the registration form itself. Although the organs of an AIDS person can't be used for a healthy person, it can be used for another AIDS person.

ORGAN DONATION-ANDROID APPLICATION

In India, not many android applications are available. There are hardly 2 to 3 apps that are currently being used or being made but still not available for the users on any app store. The android application named “Donate Life” will have the technologies like OTP and GPS location which will verify the user's phone number and will save the GPS location of both the donor and seeker, which will help the donor to know that someone around him is in need of an organ or not. The genuineness of the seeker and the donor will be checked by the admin or a group of people. All the details and the uploaded reports of the users will be saved in the real time database. We are using the Firebase Real-time Database because it allows a secure access to the database directly from the client-side code.

For about 160,000 patients who need organs, there are only 12,000 donors available. While there are no exact figures but while researching, we get to know that there is a need of about 1.5 to 2 lakh kidney transplants a year, but only about 8,000 transplants happen. Also, as about 40,000-50,000 liver transplants require a year, about 1,700-1,800 happen each year. Estimates also say that about 15,000 heart transplants are required a year but only about 250 heart transplants happen every year. These figures are so heartbreaking to see. Due to existing myths surrounding brain death and lack of awareness, people tend to waste the opportunity of saving the life of others, due to which there is a waste of organ donation.

Table -1: Organ transplantation table of India

S No.	Year	Total Transplant Sum
1	2014	6916
2	2015	8348
3	2016	9022
4	2017	9539
5	2018	10340
6	2019	12666

Our application will be on the research which will follow all the government guidelines and rules which are necessary for the process of organ donation. For example, the Recipient should not know anything about donors or their details as it can also cause the crime like killing of Donors for organs so we will also keep it hidden from the recipients' side, everything about the donors' side.

Our main motive is to increase the rate of organ donation per million in our country which is stated in the below table [4]-

Table-2: Organ Donation Rate per million in India

Year	No. of Deceased Organ Donors in India	Organ Donation Rate per million population
2014	408	0.32
2015	666	0.51
2016	930	0.7
2017	773	0.58
2018	875	0.65
2019	715	0.52

WORKING AND METHODOLOGY OF APPLICATION

At first after installing the application a splash screen will appear and then there will be a series of three intro sliders introducing and creating awareness about the concept of organ donation. Then it comes to the home screen where we divide our application in two modules that is donor and recipient where both will register themselves in their respective module and then after verification of contact numbers and donor.

In this application we are adding the features in which we are taking input from recipients and donors as well in form of their personal details mainly including blood type and organs to donate and organ in seek off and their location. In accordance with our research, we found that fulfilling the urgency organs required is a must, though there is a waiting list procedure.

This application will provide the recipient a chat button which is mainly used to request for the urgency of the organs required, and in its evidence the recipient has to upload its medical urgency prescription after which depending on the organs required the message request will be sent to Live Donors with matching criteria of blood group and the locality as well.

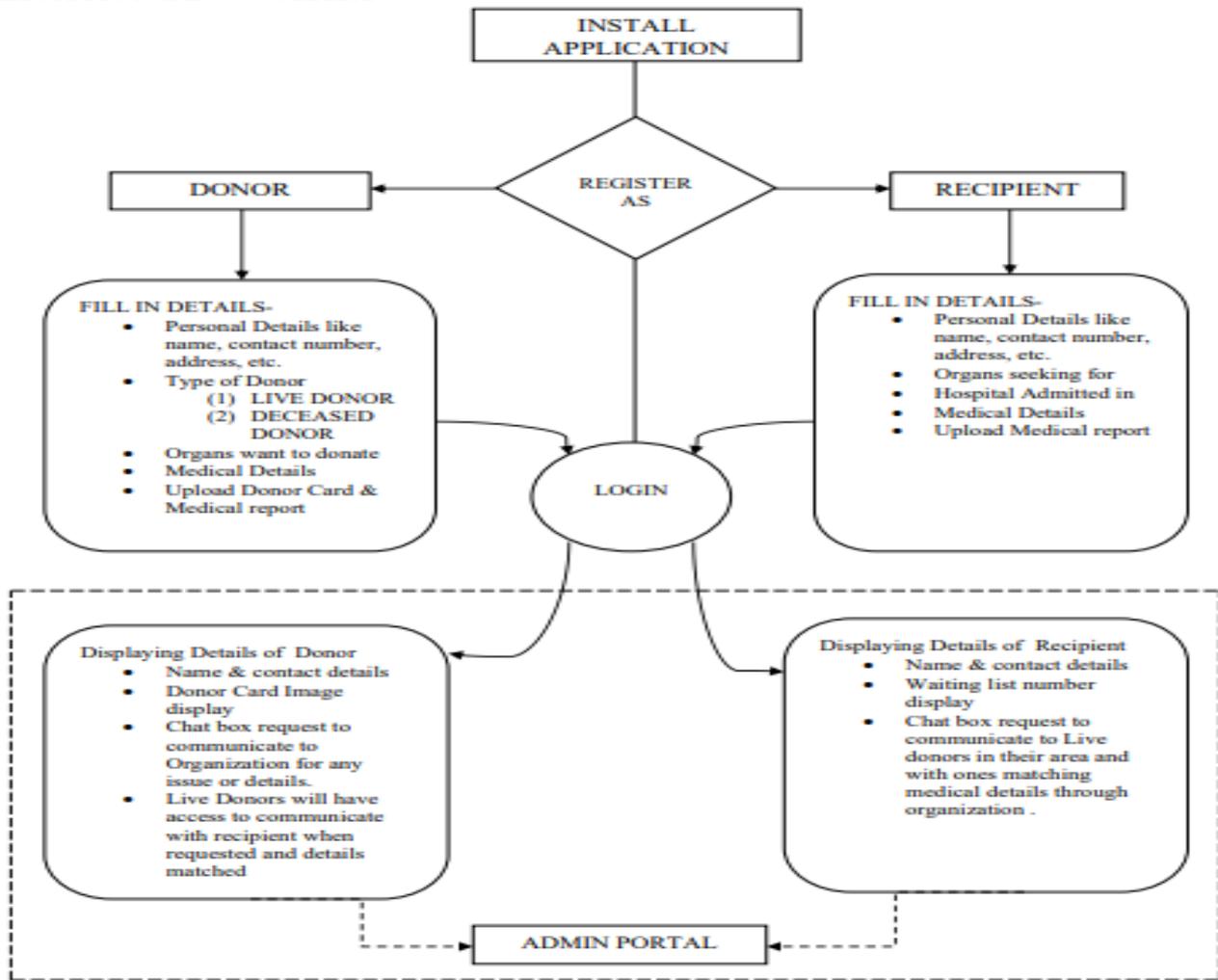
The GPS (Global Positioning System) for both the donor side and recipient side so that we can get the location of them and then send messages regarding the need of organ to the donor according to the location (i.e. the donors near the recipient location will be sent message regarding the need of organ).

An organization side of application/admin part in which the data of the donor and recipient will be shown and the admin can also manage the waiting list shown to the recipient and can pass on the further details.

And a message portal which will connect both the application so that the donor as well as the recipient can send a message to the admin app or can make contact to the organization directly.

With the references of other applications, we are providing the combination of both the applications as mentioned above with filling details of diseases that someone is diabetic, a cancer patient or might have AIDS every kind of person is welcome for their donation as the seeker might have one of those problem specially for AIDS can have their organ needs fulfill. We also provide the donors to donate their whole body with a whole body option.

APPLICATION FLOW CHART-



FUTURE SCOPE

In future we can use the technique of machine learning and artificial intelligence for reading the medical prescription and reports and carry out the major matching between donor and recipient through the application itself. It can be the most self evolved application which can read the medical report and can find matches by specially taking time of requirement as a major consideration.

CONCLUSIONS

This application will be the most user-friendly platform to enroll people in such good activity and will save many lives of the people who are dying due to lack of organ donation. It will create a long-term lifesaving role for every citizen in our country. Our prime target is to provide organs to the seeker when they are in need and make it a life saver platform for those who are dying due to the lack of organs and also targets the human race and spreads the concept of saving life after one's death.

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