Blood and Organ Donation System

Nikhil Kadam, Akshay Kaware, Vivek Gaikwad

Department Name: Computer Engineering
College Name: Dr.D.Y.Patil Institute of Technology Pimpri,Pune.

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Abstract:

During organ transplantation, injuries, cancer treatment etc., blood donation is required. For blood donation, a donation camp must be checked or a blood bank must be visited. The Manual Blood Donation and Organ Donation process has many drawbacks that include, it is too time consuming, sometimes leads to error-prone outcomes, consumes a lot of resources, lacks donor information, it takes a lot of time to retrieve data, less accuracy rate. It becomes difficult to approach the correct donor in an emergency. Rare organs and blood types are not accessible at all blood banks all the time and it is difficult for patients to trace the correct source of blood and organs. New Projects has proposed a project to address this problem. There are many systems for managing blood donation, but these systems only maintain blood bank and donor information .Yet New Projects also suggested a program that not only protects blood bank information, but also retains organ information that promotes the process of organ transfusion. This electronic donation system manages the database of blood donors and organs and also lets patients quickly monitor and search for the correct donor.

Keywords **—**Blood Donation, Donor, Massage Digest, Organ Transplantation, Blood Group.

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I.   INTRODUCTION

Organ transplantation has become very important in the context of healthcare over the past few years. Improvements in medical techniques and anti-reject pharmacology treatments have made transplantation an effective and legitimate way of treating disease. Due to this, and to the importance that the mass media put on it, the number of donors across Europe is constantly increasing. The decision to transfer an organ to a specific recipient from a particular donor is a very complex process that can be broken down in the following activities:

- Collect,store and manage a mandatory set of personal and medical information about each recipient and donor (e.g. blood group, weight, height, tissue characteristics,..)

- In the presence of a donor, identify a group of potential recipients that are compatible with the donor with the mandatory sets of information stored. Consider the one that best fits the donor among the group of potential recipients. This decision is made not only on the basis of medical parameters (such as the patient's current state of health), but also on the basis of logistical considerations (such as the possibility of transportation of the organ from the donor to the hospital of the recipient and the availability of medical teams to carry out the operation).

In fact, there is a very strict time constraint. Donors are usually people involved in serious incidents and are kept alive artificially because neurological death has been confirmed. In such cases, maintaining appropriate vital parameters for a long time is extremely difficult, and any

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difference for them can result in the loss of organs. In fact, they can be preserved for very few hours after the organs have been removed from the body and the transplant will take place in the shortest possible time.

The tasks mentioned above are actually carried out almost exclusively by humans, with weak support for processing large amounts of data and communicating with each other. Organizing and storing information in lightweight, reusable ways and incorporating software support systems in the matching process will speed up and simplify organ assignment.

Donating an organ or tissue is one of humanity's most charitable deeds, saving the lives of those suffering from serious diseases needing organ transplantation. When the human body is infected with disease-critical organs in the body, such as the kidney, lungs, heart, pancreas, liver, or intestines, becomes non-functional and typically leads to death.

For donate, every living person must be perfectl y healthy, and donation is allowed only for organs t hat do not affect their healthe, such as a kidney, live r. To organ donation, there are no total or minimum age limits, but the organ must be in good condition.

II.   Existing System:

In this System, only providing the blood donation system is exist. System proving only available blood bank name .
Disadvantages:
1. Security weakness.
2. The easiness of obtaining donor and patient is complicated .

The compatibility issues to devices etc

III.   Literature Survey:

1. Title: Graph-Based Optimization Algorithm and Software on Kidney Exchanges Author: Yanhua Chen*, *Member, IEEE*, Yijiang Li, John D. Kalbfleisch, Yan Zhou, Alan Leichtman,and Peter X.-K

Description: Patients with end-stage renal disease. However, the supply of kidneys is far short of the fast-growing demand. Kidney paired donation (KPD) programs provide an innovative approach for increasing the number of available kidneys. In a KPD program, willing but incompatible donor–candidate pairs may exchange donor organs to achieve mutual benefit. Recently, research on exchanges initiated by altruistic donors (ADs) has attracted great attention because the resultant organ exchange mechanisms offer advantages that increase the effectiveness of KPD programs. Currently, most KPD programs focus on rule-based strategies of prioritizing kidney donation. In this paper, we consider and compare two graph-based organ allocation algorithms to optimize an outcome-based strategy defined by the overall expected utility of kidney exchanges in a KPD program with both incompatible pairs and ADs. We develop an interactive software-based decision support system to model, monitor, and visualize a conceptual KPD program, which aims to assist clinicians in the evaluation of different kidney allocation strategies. Using this system, we demonstrate empirically that an outcome-based strategy for kidney exchanges leads to improvement in both the quantity and quality of kidney transplantation through comprehensive simulation experiments.

2. Title: Blood Bag: A Web Application to Manage All Blood Donation and Transfusion Processes. Author: Rehab S. Ali,1 Tamer F. Hafez,2 Ali Badawey Ali3 and Nadia Abd-Alsabour4

Description: Many lives could be lost due to the difficulty in obtaining a proper blood bag, Therefore, this work aims to help citizens fulfill their needs for a safe and reliable blood group by searching for and locating a specific blood group. In this paper, we illustrate the problem of the blood bags shortage which is represented in the uncontrolled blood banks and parallel markets, lack of awareness and confidence, disappearance of the rare blood groups, and the difficulty in finding a specific blood group. Hence, we proposed the Blood Bag web-based application that is connected to a centralized database to gather and organize the

data from all blood banks and blood donation campaigns. The proposed application organizes and controls the whole critical processes related to blood donation, testing and storage of bloodbags, and delivering it to the patient.

3. Predictive Modeling for Organ Transplantation Outcomes Author: Dr. Vinaya Rao. M.D. Dr. Ankur Agarwal, Ph.D Dr. Ravi S. Behara, Ph.D.

Description: The prevalence of end-stage renal disease in the U.S. has grown significantly, and continues to do so. Organ transplantation generally has better overall patient outcomes than dialysis. But there is a significant shortage of kidneys. This shortage is exacerbated by the need for kidneys for patients with dual organ transplantations. So the kidney allocation problem is a significant challenge. Predictive analytics based clinical decision support systems need to be developed to help physicians make difficult organ allocation decisions. In this paper, we investigate two different classifiers to predict the outcomes of kidney-liver dual transplant patients. The models were evaluated on the basis of overall accuracy, root mean squared error and Area under ROC. UNOS data was used to develop the models.

4. A Data Science Approach for Quantifying Spatio-Temporal Effects to Graft Failures in Organ Transplantation Author: Diego Pinheiroz, Farag Hamady, Martin Cadeirasx, Ronaldo Menezesz, NezamoddinNezamoddini-Kachouiey.

Description: The transplantation of solid organs is one of the most important accomplishments of modern medicine. Yet, organ shortage is a major public health issue; 8,000 people died while waiting for an organ in 2014. Meanwhile, the allocation system currently implemented can lead to organs being discarded and the medical community still investigates factors that affects early graft failure such as distance and schemic time. In this paper, we investigate early graft failure under a spatio-temporal perspective using a data science uni_ed approach for all six organs that is based on complementary cumulative analysis of both distance and ischemic time. Interestingly, although distance seems to highly affect some organs (e.g.

liver), it appears to have no effect on others (e.g. kidney). Similarly, the results on ischemic time con_rm it affects early graft failure with higher in_uence for some organs such as (e.g. heart) and lower in_uence for others such as (e.g. kidney). This poses the question whether the allocation policies should be individually designed for each organ in order to account for their particularities as shown in this work.

5. An Efficient Data Security in Medical Report using Block Chain Technology Author: Mary Subaja Christo, AnigoMerjora A, ParthaSarathy G, Priyanka C and Raj Kumari M

Description: The health care services industry is always showing signs of change and supporting new advancements and advances. One of the predominant requirements in today's health care systems is to protect the patient's medical report against potential attackers. Hence, it is basic to have secure information that can just approve people can get to the patient's medical report. So, We have proposed Block chain technology aa disbursed approach to grant security in accessing the medical report of a patient. It's composed of three phases 1. Authentication, 2.Encryption and 3.Data Retrieval using Block Chain technology. For authentication – Quantum Cryptography, for Encryption – AES and for Data Retrieval – SHA algorithms are used to resist the frequent attacks. This proposed framework may likewise ensure the protection of the patients and moreover keeps up the security and trustworthiness of the health care system.

In this paper, the principle center is to verify and effective information get to instrument for present day social insurance frameworks utilizing square chain innovation. Moreover, we investigated that our proposed plan can satisfy the prerequisites of trustworthiness, secrecy and validation in this medicinal services situation.

IV. Prapose System:

Modules
Patient:
A Patient is one of the module to get any if he/she wants BLOOD AND ORGAN respected matches

then inform to organization and search online in system. System will gives the related matches donor information and availability status of that donor and a plantation details

Donor:

Donor is module which gives the information regarding to blood and organ donation to respected organization by using submission donation form**.**

System/Organization:

System will gives the result with in minute to users request as per the searches. Provide perfect matches of patient and donor to respected patient and donor. System will suggest hospital for plantation surgery.

V. Architecture Diagram:
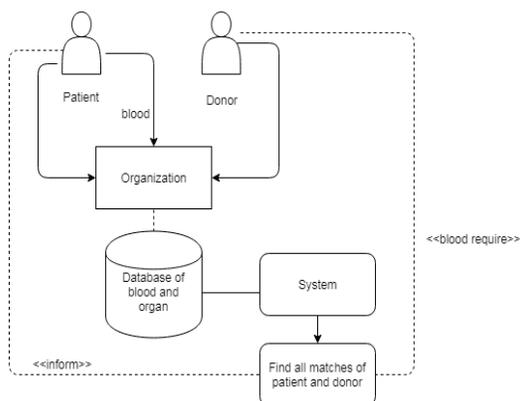
Advantages:

- Increase network lifetime.
- Decrease energy consumption.
- Low computational cost.

VI. Algorithm Of Praposed system:

- Message Digest Algorithm.
- Advanced encryption Algorithm

VII. Conclusion And Future Work:

The decision to donate organs is a complex one, strongly based on personal beliefs. There are certain causes that are apparently intractable, such as religious and cultural values, and are often given as explanations for reluctance to donate. It is shown in this chapter that these have often been found to be linked to more complex issues such as a misunderstanding of the medical system about religious positions and ignorance of the donation process.Interventions to increase community involvement, particularly vulnerable and minority groups, to build trust and provide knowledge are promising ways to encourage organ donation in the future.

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