

# **Blockchain Based Management for Organ Donation and Transplantation**

A Report submitted in partial fulfillment of the requirements for the award of the degree  
of **Bachelor of Technology**

in

**Computer Science and Engineering**

By

**VASEEMA SAMREEN**

**21EG505867**

Under the Guidance of

Mrs. J. Himabindu Priyanka

Asst. Professor, Department of CSE



**Department of Computer Science and Engineering**

**ANURAG UNIVERSITY**

Venkatapur(v) Ghatkesar(M) Medchal(D) T.S-500088

(2023-2024)

## **DECLARATION**

I hereby declare that the Report entitled “**Blockchain Based Management for Organ Donation and Transplantation**” submitted for the award of Bachelor of technology Degree is my original work and the Report has not formed the basis for the award of any degree, diploma, associate ship or fellowship of similar other titles. It has not been submitted to any other University or Institution for the award of any degree or diploma.

Place: Anurag University, Hyderabad

**VASEEMA SAMREEN**

Date:

**(21EG505867)**



## **CERTIFICATE**

This is to certify that the project report entitled **“Blockchain Based Management for Organ Donation and Transplantation”** is being submitted by **Ms. VASEEMA SAMREEN** bearing the Hall Ticket number **21EG505867** in partial fulfillment for the award of B.Tech. into Anurag University is a record of bonafide work carried out by her under my guidance and supervision for the academic year 2023-2024

The results embodied in this Report have not been submitted to any other University or Institute for the award of any degree or diploma.

### **Signature of Supervisor**

Mr. J. Himabindu Priyanka  
Assistant Professor  
Department of CSE

### **Signature of Dean**

Dr. G. Vishnu Murthy  
Dean, CSE

### **External Examiner**

## ACKNOWLEDGEMENT

I would like to express my sincere thanks and deep sense of gratitude to project supervisor **Mrs. J. Himabindu Priyanka** for her constant encouragement and inspiring guidance without which this project could not have been completed. Her critical reviews and constructive comments improved my grasp of the subject and steered to the fruitful completion of the work. Her patience, guidance and encouragement made this project possible.

I would like to express my special thanks to **Dr. V. Vijaya Kumar**, Dean School of Engineering, Anurag University, for their encouragement and timely support in my B. Tech program.

I would like to acknowledge my sincere gratitude for the support extended by **Dr. G. Vishnu Murthy**, Dean, Dept. of CSE, Anurag University. I also express my deep sense of gratitude to **Dr. V V S S S Balaram**, Academic coordinator, **Dr. Pallam Ravi**, Project Coordinator and Project review committee members, whose research expertise and commitment to the highest standards continuously motivated me during the crucial stage of my project work.

**VASEEMA SAMREEN**  
**(21EG505867)**

## **ABSTRACT**

Today's organ donation and transplantation systems pose different requirements and challenges in terms of registration, donor-recipient matching, organ removal, organ delivery, and transplantation with legal, clinical, ethical, and technical constraints. Therefore, an end-to-end organ donation and transplantation system is required to guarantee a fair and efficient process to enhance patient experience and trust.

In this paper, we propose a private Ethereum blockchain-based solution to enable organ donation and transplantation management in a manner that is fully decentralized, secure, traceable, auditable, private, and trustworthy. We develop smart contracts and present algorithms along with their implementation, testing, and validation details. We evaluate the performance of the proposed solution by performing privacy, security, and confidentiality analyses as well as comparing our solution with the existing solutions.