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

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(2023-2024)

DECLARATION

We hereby declare that the Report entitled **Blockchain Based Management for Organ Donation and Transplantation** submitted for the award of Bachelor of technology Degree is our 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.

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CERTIFICATE

This is to certify that the project report entitled **"Blockchain Based Management for Organ Donation and Transplantation"** is being submitted by **Mr. AMBATI NARESH** bearing the Hall Ticket number **21EG505801**, **Mr. K. SAI ACHYUTH** bearing the Hall Ticket number **21EG505839,** and **Ms. VASEEMA SAMREEN** bearing the Hall Ticket number **21EG505867** in partial fulfillment of the requirements for the award of the degree of the **Bachelor of Technology** in **computer Science and Engineering** to **Anurag University** is a record of bonafide work carried out by them 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.

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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.

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