

Person 1: Yatin Vij, yatinvij@buffalo.edu, 50362158

Person 2: Samreet Chhina, sauravji@buffalo.edu, 50374941

Blockchain Project

Approved By: Baibhav Thapa

Title: OrganLedger

Issues Addressed:

- Transparency in Organ Transplants: Blockchain will allow us to put vital organ / surgery details on the blockchain which provides an immutable ledger, hence the name of our application, OrganLedger. This will offer transparency into the organ transplant process. This will also reduce fraud and make the process more secure and efficient, making organ transplants faster for critical patients.
- Financial Support: Our Blockchain-Based donation system will offer hospitals to receive money through the blockchain for recipients who cannot meet the financial requirement.

Abstract:

- The issue of organ donation is a vital humanitarian problem in modern society. Over 20,000 donations occur in a year, but there are shortages across the world and a not very transparent method of conducting these transplants. Our usage of the blockchain, will allow for transparency in these transplants and eliminate the potential for data tampering and fraud. By doing so, it ensures that the data of the donor and recipient stays secure and readily available throughout the whole process. Specifically, we will integrate aspects such as organ donor commitments, donor availability, and surgeries into the OrganLedger through blockchain.

Digital Asset & Token:

- ERC 1155 - Using the combination of both ERC-20 & ERC-721. The usage of ERC-1155 is the most preferred token since it allows flexibility for two tokens by only using one token. The digital assets for this application will be the organ availability, number of organ donors, organ commitments, and transplant surgeries. The Fungible Token utilizing ERC-20 will be public donations to OrganLedger for money to provide to the needy recipients, and the Non-Fungible Token utilizing ERC-721 will be used by putting important organ information on the blockchain, to show the immutable nature of the blockchain. For Phase 2, our ERC-20 & ERC-721 will be integrated into an ERC-1155 token for simplicity and requirements; one token will cover both aspects. Once the transplant surgery is successfully completed, a token / certificate will be given back to the donor as an appreciation token, which will be the ERC1155 implementation

DEPLOYMENT:

- The frontend has been deployed by using Vercel. Vercel has allowed us to create this website seamlessly. Attached is the link to the Organ Ledger website.
<https://organledger.vercel.app>

Using the provided link allows users to access the website anywhere. The smart contract is already deployed on the Blockchain, as we can tell by filling out the address (0x6B65fA135c849edcbc37d3bE1E80FE5e3F46fF9) on Etherscan to monitor our smart contract's activity. Any type of donation of Ether to the hospital or registration of important details regarding the organ will be recorded on this. Whenever we go to our website and make a public donation the smart contract balance will be updated, or we choose to mint a NFT that will also be recorded, which shows that this smart contract is successfully deployed.

UI WIREFRAME

Organ Ledger

Donate to the Hospital

Donate to the hospital for organ donors. Payments will be taken via Etherscan!

[Donate](#)

Donate an Organ for Transplant

For Medical Professional Use, register important details regarding the organ utilizing Blockchain.

[Donate Organ](#)

Become an Organ Donor!

Become an Organ Donor. Save a Life!

[Learn More](#)

View Organ NFT's

Our collection of Organ NFT's!

[Learn More](#)

Donate Organ For Transplant

Enter Organ Details

Organ Type:

Blood Type:

Condition of Organ:

Hospital:

Extra Info:

[Donate](#)

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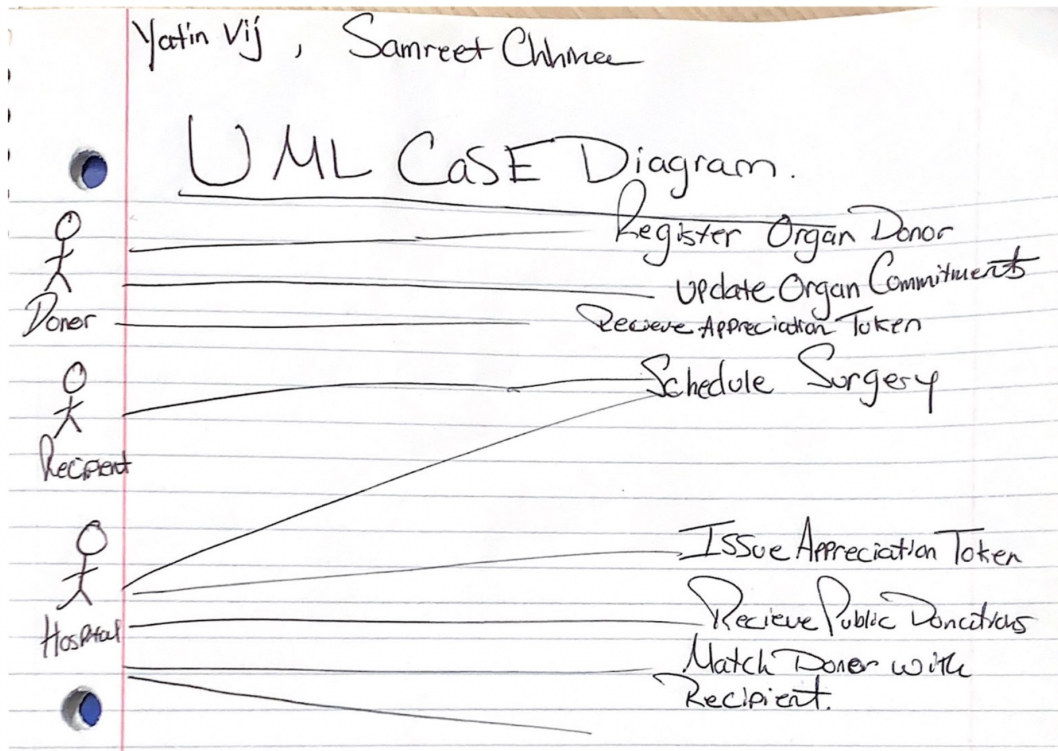
[Learn More](#)

Become an Organ Donor

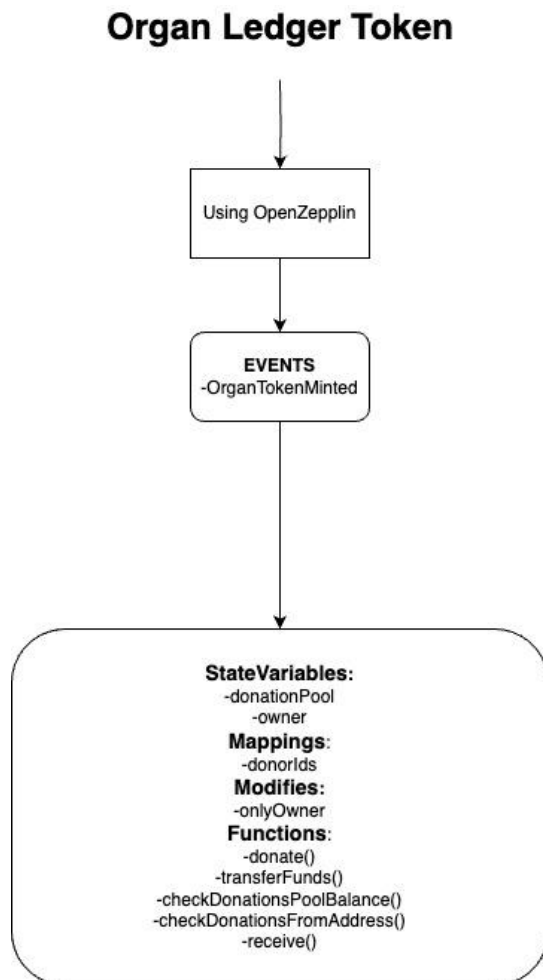
Why you should become an Organ Donor?
Becoming an Organ Donor saves many lives. Many people, old and young are reliant on someone else organs to facilitate in them functioning normally. Below is the link to sign up.

<https://www.organdonor.gov/sign-up>

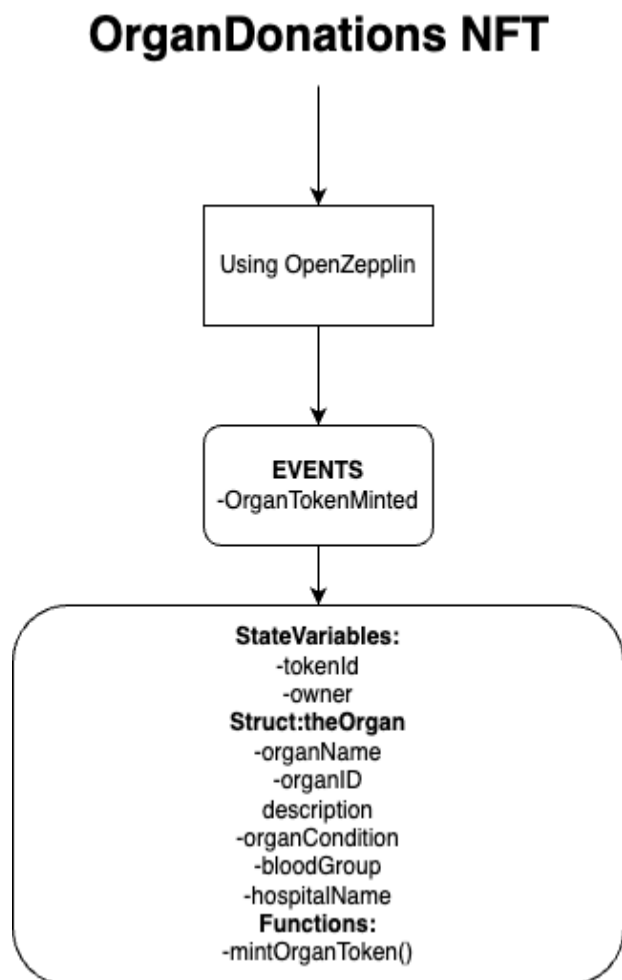
UML CASE DIAGRAM

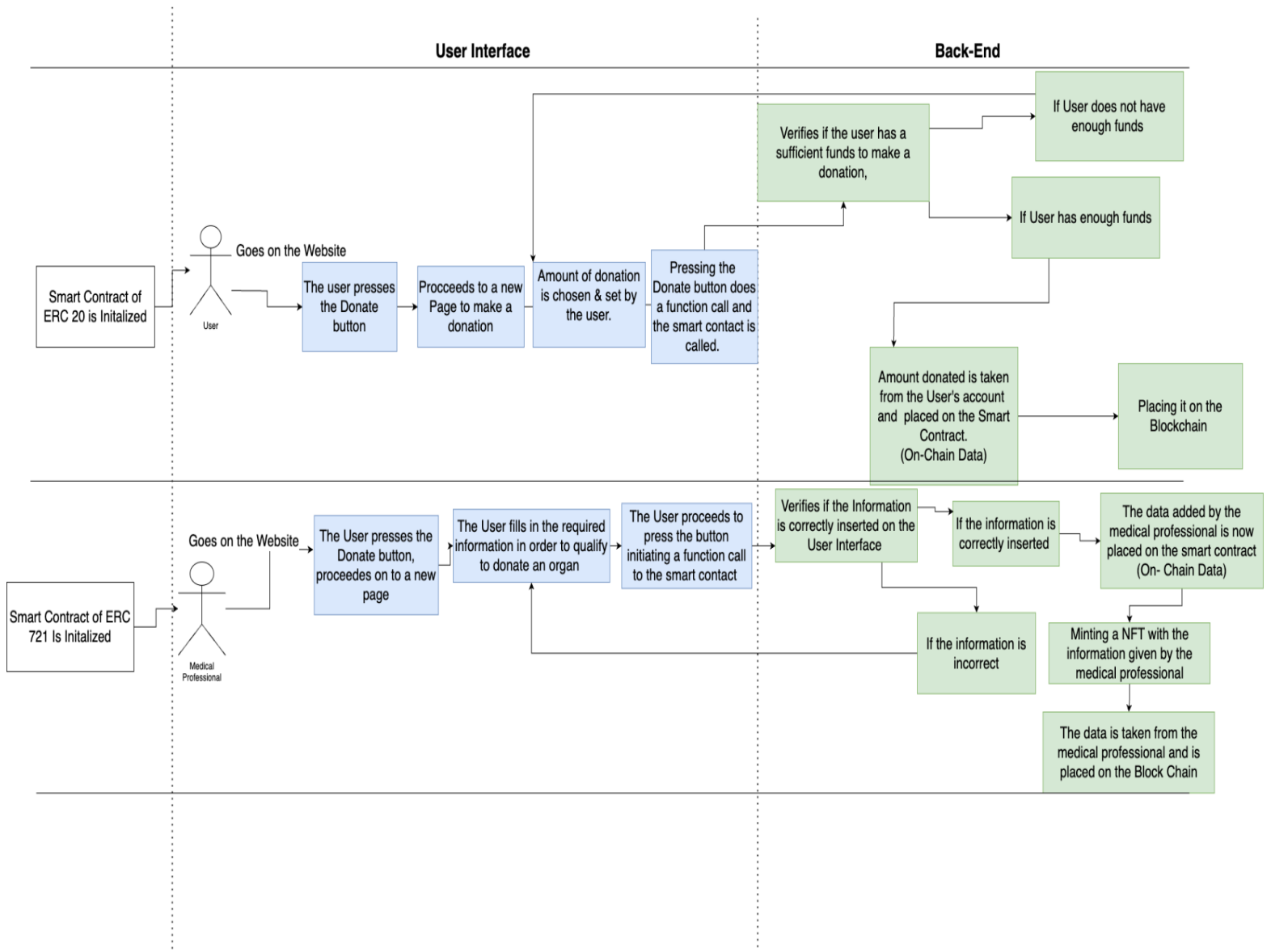


ERC- 721 Contract Diagram With Event



ERC - 20 Contract Diagram with Events





References:

<https://eips.ethereum.org/EIPS/eip-1155>

<https://ethereum.org/en/developers/docs/standards/tokens/erc-20/>

<https://eips.ethereum.org/EIPS/eip-721>
<https://www.openzeppelin.com/contracts>