

DECENTRALIZED AUTONOMOUS ORGANIZATION FOR HUMANITARIAN CRISIS

B. Arunmozhi, Assistant Professor of Computer Science and Engineering,
A. Pavithra, Student of Computer Science and Engineering,
St. Joseph College of Engineering, Sriperumbudur, Chennai

Abstract

DAO- Decentralized Autonomous Organization is an open-source blockchain protocol governed by elected member's rules that automatically execute the action without intermediaries. The primary aim of the paper is to implement DAO for Humanitarian crises. Traditional companies are governed by corporate laws, and DAO has its own governance structures. A DAO allows everyone to make decisions as partners and users of the protocol as long as you are a stakeholder. There are different types of DAO. Here, the main operation is based on the Humanitarian crisis, operations, structures, and even technology. It is a generalized emergency situation that affects a community. Here, a stakeholder plays an important role in the transaction of money through blockchain protocol.

Decentralized applications are often based on tokens, they are cryptographic tokens issued by blockchain for all transactions made using the dapp. They are connected to financial infrastructure for digital assets and tokens. Decentralized, with computing power spread by nodes. They are immutable and transparent systems. Censorship-resistant applications. DAO is a peer-to-peer (p2p) network. Tokens are used for all transactions.

Key Terms

Smart contracts, Solidity – Object-Oriented Programming Language, javascript, Remix Ethereum ide, vs code, node js.

1. Introduction

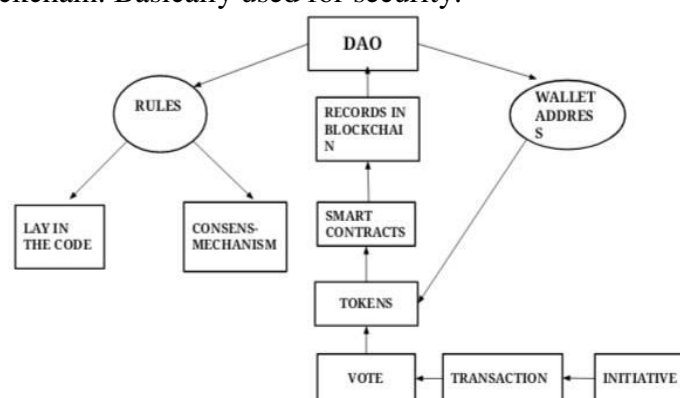
A Humanitarian crisis is considered to be an event that threatens the health, safety, or wellbeing of a large group of people. Today's main humanitarian crises occur in numerous countries as civil war etc. Due to countries' wars, the people suffer on basic needs. This creates a number of problems personally and socially. Supporting families within countries, including people staying in places and internally displaced persons. Providing assistance in receiving countries across the world that take hundreds and thousands of refugees. This may include host communities in other areas, as the crisis continues. Responding to the global economic fallout, especially world hunger, given the impact on the exportation of food products from other countries. DAO helps in the transaction of money through blockchain technology, where there cannot be any hacking or theft of money. The transaction is a peer-to-peer network where represented stakeholders cannot change the protocol without permission. This helps with hunger, basic living needs, shelter, medicine, education, or else migrating as a refugee to another country in terms of living. Many physical and mental problems are faced by normal people and this DAO helps with digital money to the country's government for recovery.

2. Literature Survey

The paper “A Formal specification smart contract language for legally binding Decentralized Autonomous Organizations” by Vimal Dwivedi, Alex Norta , Alexander Wulf, Benjamin Leiding, Sandeep Saxena, Chibuzor Udokwu in 2021, proposes the blockchain and smart contract technology for DAO implementation for legal binding for DAO. The paper “ DESPRO : Decentralizedbusiness platform for students non-profit organizations” by MateaVasilj, Sven Skender, Mia Jurdana, and Marko Horvat. in 2021, proposes that DESPRO is a web-based platform that fully supports the principle for a use case for students. DESPRO allows such organizations to begin with the principles of operations practically. They are a lightweight and streamlined deployment process, with minimal required remote maintenance, pre-defined functionalities, user anonymity, and voting without prior user registration

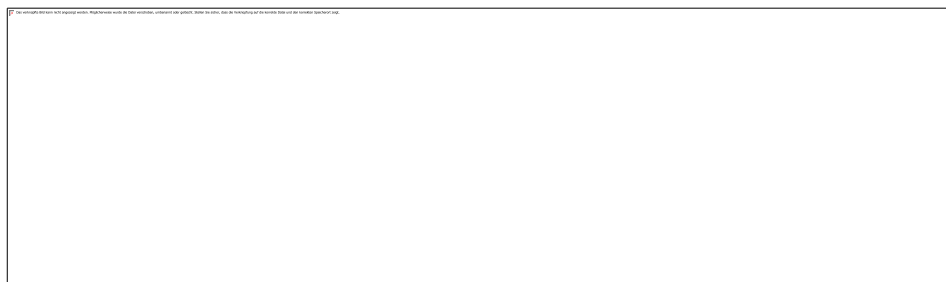
3. System Design

The proposed system solves the drawbacks based on the existing system, here I proposed a model of DAO where the major drawback of the existing system is security. Security is the primary key to blockchain technology and smart contracts. Building up security with the base system is required for the main implementation. Here, I ensure that I am creating Decentralized Autonomous Organization for Humanitarian crises. Smart contracts are contracts that can execute code by themselves. Governance tokens are blockchain tokens for grand voting and managing powers. Governance contract approach to ensure the outcome. DAO is basically defined by its set of rules. The main aim of the architectural diagram represents to be initiated by the stakeholders, where they come up with crypto for implementation. After the discussion, transactions are made through tokens in the wallet. The transaction is secured using blockchain protocol and no other external member can access the progress. After the transaction, voting comes into performing their task. Voting is processed through tokens and the pool is set for assigning which project has more priority. If the voting number is 7 on 10 then the respected project’s game is on. Other than that, the process continues till the end. Tokens are the digital assets defined by projects or smart contracts and build on a specific blockchain. Basically used for security.



Tokens are verified and processed to Smart contract. Smart contracts are simply programs stored on a blockchain that runs when predetermined conditions are met. A network of computers executes the action when predefined conditions have been met. The major benefit is speed, efficiency, accuracy, and transparency. In this paper, DAO for Humanitarian crisis

smart contracts are made using Solidity. Solidity is an object-oriented programming language for implementing the smart contract. This is used to construct and design smart contracts using Ethereum on a blockchain. It records the transaction clearly without any leakage of data. And the final process is to implement in DAO. DAO has its own set of rules to perform on the blockchain. The first step is to lay on code. Code is the major key to implementation. This can be javascript, solidity in the blockchain. A wallet is a digital wallet that allows us to store and manage cryptocurrencies. The tokens are transmitted only if there are cryptocurrencies in the wallet. Users can initialize the project and ensure the process of DAO for Humanitarian crises. Contribution of tokens to access DAO with other stakeholders. DAO voting is the key process for implementing the process. Voting is based on the poll with a number of other projects. These are stored in the DAO database and this can be implemented further. Documenting the record is done using a smart contract.



The process of the proposed system is to ensure security using a smart contract. Due to the international transaction, there are possibilities for leakage of data. But the main aim is to focus on security and get implemented successfully. This may pave the way for many other DAO operations with other advanced technology through blockchain.

4. Implementation

Users should install the Metamask extension on chrome in a web browser from the web store. Create an account. Set a password, it will show a private key. Create an account and fill in the details. Add Polygon testnetmetamask network. Then comes Polygon testnet faucet, which gives an address to access the wallet. After the submission, the wallet gets the required testnet tokens. The matic token is used to vote. After the voting process, with majority votes, the process continues.

HUMANITARIAN CRISIS:

Select Authenticate. Access the account through the wallet. The poll is used to access questions on what crisis the organization members vote for? The maximum voting will proceed to the next level. And the money is accessed through a wallet. The money is transferred to the respected country's wallet.

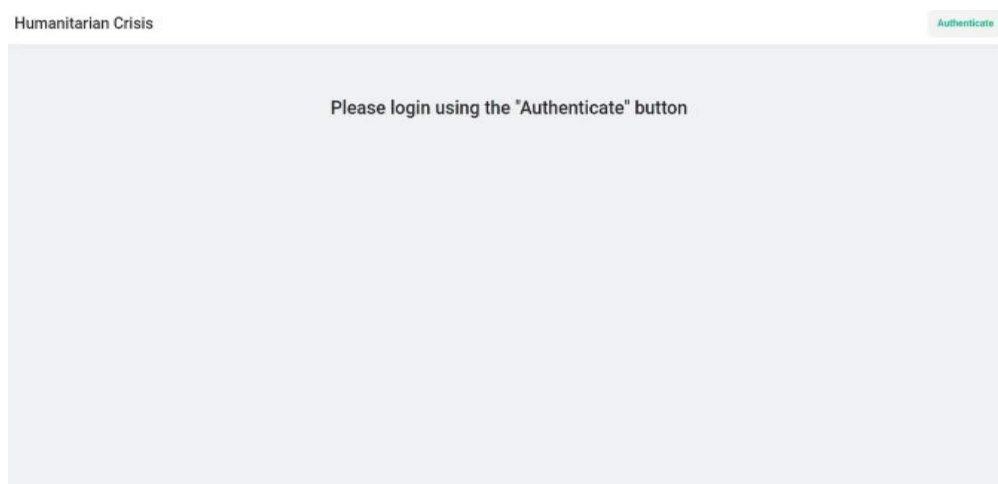
```
import React from "react";
import ReactDOM from "react-dom";
import App from "./App";
import { MoralisProvider } from "react-moralis";
import "./index.css";
import { MoralisDappProvider } from
"./providers/MoralisDappProvider/MoralisDappProvider";
```

```
const APP_ID = process.env.REACT_APP_MORALIS_APPLICATION_ID;
const SERVER_URL = process.env.REACT_APP_MORALIS_SERVER_URL;

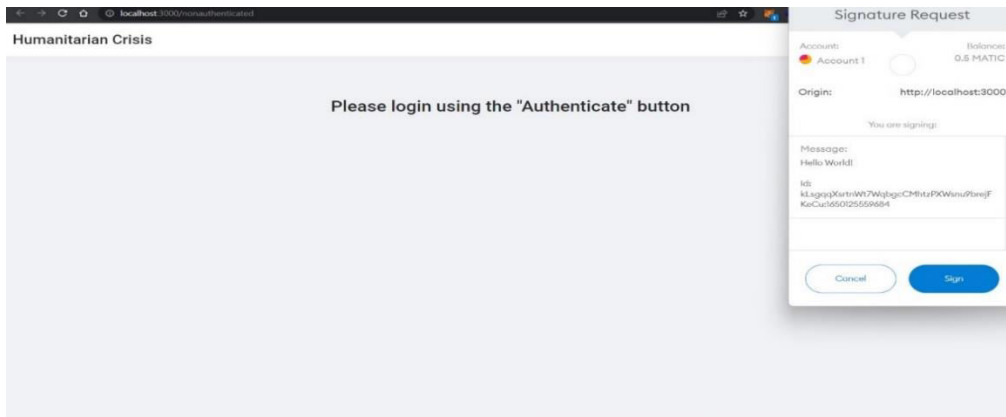
const Application = () => {
  const isServerInfo = APP_ID && SERVER_URL ? true : false;
  if (isServerInfo)
    return (
      <MoralisProviderappId={APP_ID} serverUrl={SERVER_URL}>
      <MoralisDappProvider>
      <App isServerInfo />
      </MoralisDappProvider>
      </MoralisProvider>
    );
};

ReactDOM.render(
  // <React.StrictMode>
  <Application />,
  // </React.StrictMode>,
  document.getElementById("root")
);
```

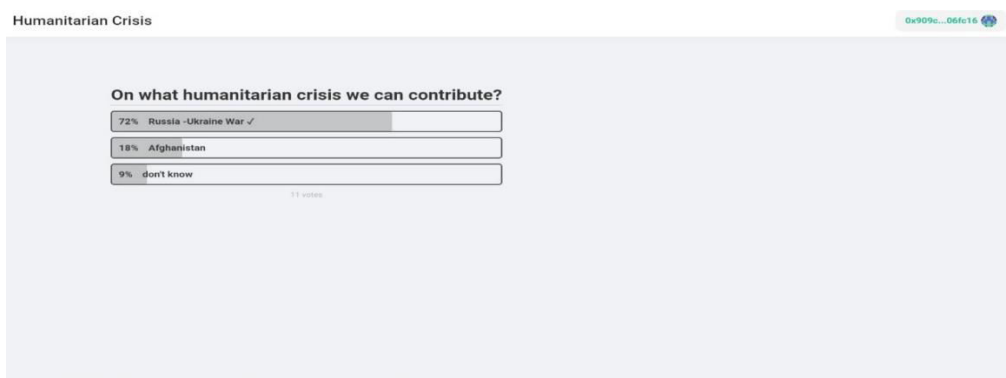
LOGIN AND SIGN UP



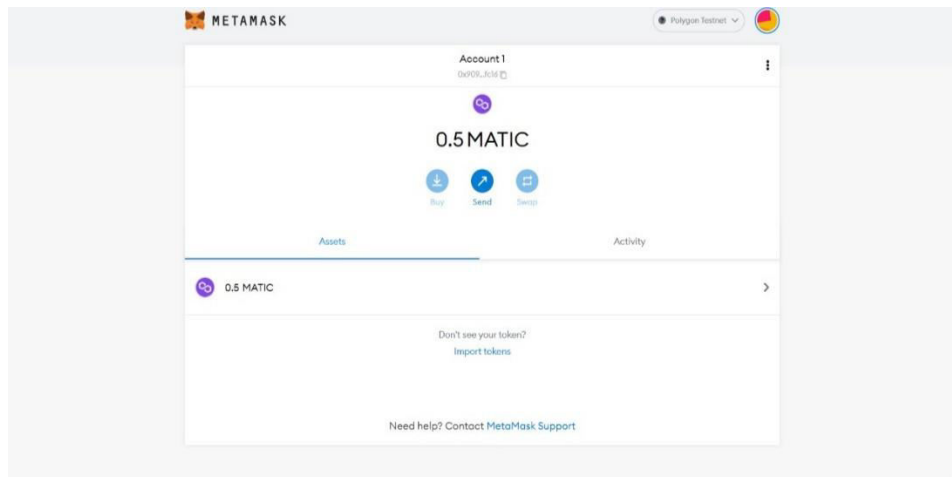
REGISTRATION:



CONTRIBUTION POLL:



WALLET:



5. Conclusion

I have proposed an advanced version of DAO for Humanitarian crises. In this paper, security is improved and tested. Security has been improved and the patch has been closed by the audit process. Using this Blockchain technology, the improved version of other DAO can be implemented. Security plays a major role in the advancement of technologies.

6. Future Enhancements

The concept of DAO is basically the alternative source for a centralized organization that has a centralized authority. A DAO is created by a group of crypto wallets controlled by individuals and other organizations that executes all its movements through code, making it possible to manage assets and votes safely without the need for underlying legal or traditional banking setups.

Reference

1. Vimal Dwivedi, Alex Norta, Alexander Wulf, Benjamin Leiding, Sandeep Saxena: “ A Formal specification smart contract language for legally binding Decentralized Autonomous Organizations”
IEEE TPDS, 2021.
2. Mateavasilj, Sven Skender, MiaJurdana: “ DESPRO Decentralized business platform for student non-profit organizations”
IEEE TPDS, 2021.
3. Lu Liu, Sicong Zhou, Huawei Huang: “ From technology to society: An overview of blockchain-based DAO”
IEEE TPDS, 2021.



Mr.B.Arunmozhi M.E., is an Assistant Professor in the department of computer science and engineering at St.Joseph College of Engineering, Sriperumbudur, Chennai, Tamil Nadu. He completed his M.E, CSE under Anna University Affiliation College in the year 2011. He has done his B.E, CSE under Anna University Affiliation College in the year 2007. Mr.B.Arunmozhi has 11 years of teaching experience and has 12 publications in International Journals and Conferences. His area of interest includes Network Security, Computer Networks, Data Science, and Machine Learning. He is an active member of CSI and IEANG. He has organized various International Conferences, Workshops, and Seminars in the area of Computer Networks, Cloud Computing & Machine Learning respectively.



Ms.Pavithra. A, B.E., Student of Computer Science and Engineering at St. Joseph College of Engineering, Sriperumbudur, Chennai, Tamil Nadu. I have attended various Conferences, Workshops, and Seminars in the area of Digital Marketing and Graphic Design.