

Blockchain Based Covid and Humanitarian Aid Fund Manager

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ABSTRACT

Donors have no hope of how money is utilised that they have donated. Currently, blockchain technology is in use in various fields. Blockchain technology lets you process the donation and transparent financial transactions. It's a single donation tracking platform that will track every information about donations, transactions and sponsors. This paper is processing the definition of implementation of a donation tracking platform based on blockchain technology. The program provides transparency calculation of service providers, service bases and recipients based on blockchain technology, it's a free platform which provide for public offering, empowering public users and sponsors to track and monitor where, when and to whom the financial aid is being provided.

I. INTRODUCTION

The increase in corruption and apathy in various organizations has led to a decline in public confidence in these organizations. One of these organizations is charitable organizations that are intended to help others but have the same problem. Here the blockchain is introduced to create a digital online donation platform where all donors can easily donate and can track where donations are available and know how to use them at a lower level. This will increase people's faith in these organizations. Here the user has the auditing options and a smart contract system is presented here which is intended to automate, control or document events that are legally relevant in terms of the agreement. The primary objectives are to reduce

mediation, mediation and enforcement measures, fraud losses and the reduction of risk and risk variations.

II. METHODOLOGY

A. Proposed System:

In the current system, the problem is that. No tracking of financial records, making things public

- Taxpayers do not know how their money is spent
- Fraudulent authorities exploit corruption
- Corruption by financial management and mediators.

These problems prevent taxpayers from paying due taxes or contributing to the campaign, as they are unsure of the legitimacy of the authorities in this series.

In the proposed program, the creators of the campaign will submit their donation campaign to the campaign and interested people will donate a fund to the campaign. Where it is postponed with the old Aid donation platform that all the money is now in digital currencies like ether, dai. All ether currencies will be recorded and stored on the blockchain. When the blockchain is an unbreakable ladder. The donor has a prepaid fee. A donor has full control over the money they donate. By giving control over the money donated trust is built.

B. Flow Chart:

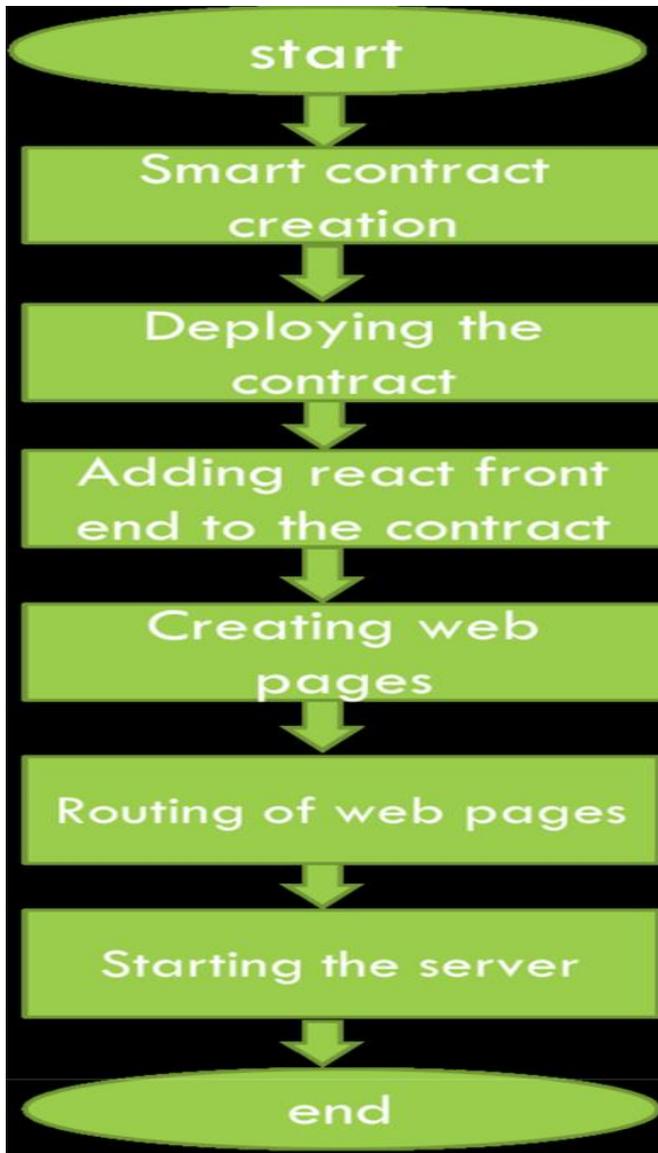


Fig.1: Flow chart of the project

Fig.1 represents the full flow of project implementation. The first smart contract is created according to our needs. The ABI code (Application Binary Interface) and the contract interface are then used to communicate with the contractor. The frontend is then inserted into the contract using reaction.js. In this way all web pages are created and next.js are used as a way to navigate these pages and provide them with a link. Finally the server has started. At localhost: 3000 we will find our web application running.

C. Implementation:

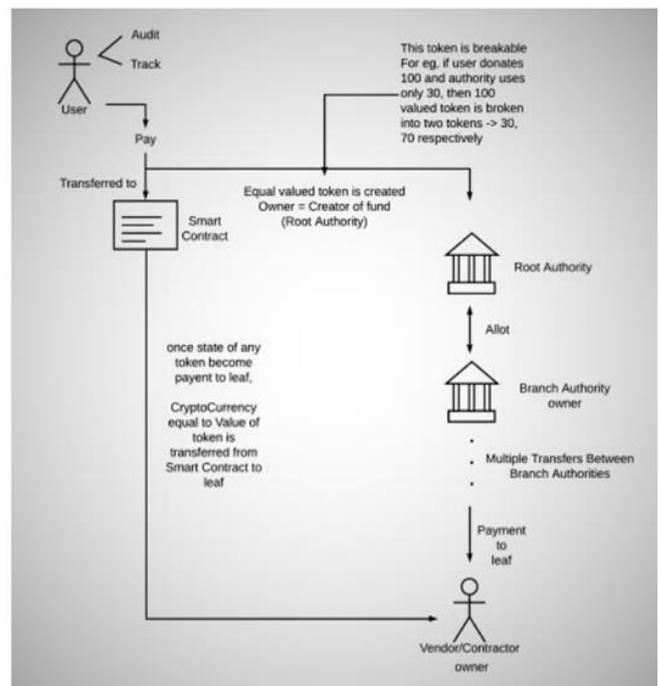


Fig.1: Flow of Aid Donation Tracking System

In order to use and operate a project there are certain software requirements that need to be installed and repaired as outlined below:

➤ **Metamask Wallet**

Metamask allows Ethereum applications to be used in the browser itself without the use of the full Ethereum node and is a wallet that automatically manages to

store, send, and receive Ethereum or ERC20 tokens. Allows you to create a number of accounts similar to bank accounts. The Metamask wallet should be installed in the chrome browser and the network should be set up in the Matic test network located in the options above the wallet. Then in order to test and run the project some fake Ethereum(currency) is transferred from Matic faucet to the account being used in the project by giving its address.

➤ **Infura key**

This key can be found on the infura.io website directly connected to the Matic test network to establish the Ethereum environment.

➤ **Matic**

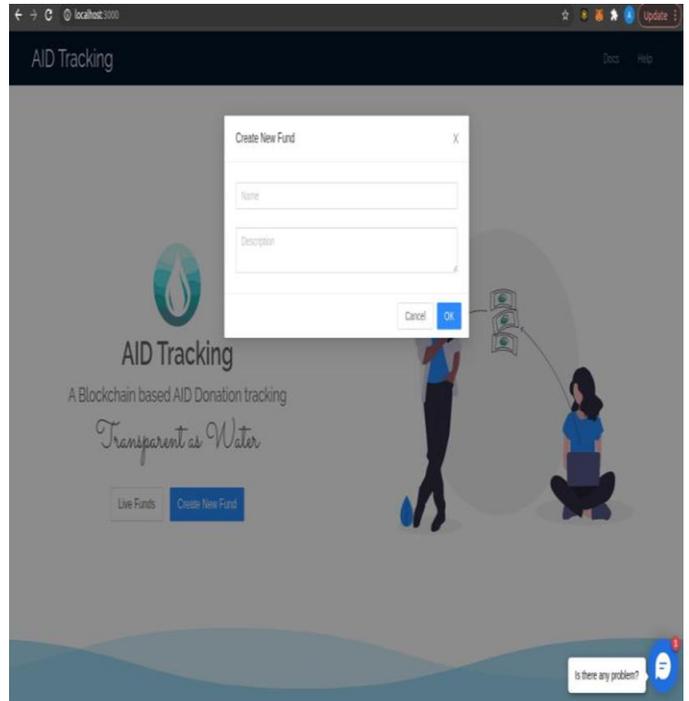
Matic Network provides scalable, secure and instant Ethereum transactions using Plasma side chains and a Proof-of-Stake network.

➤ **Matic Blockchain Key Features:**

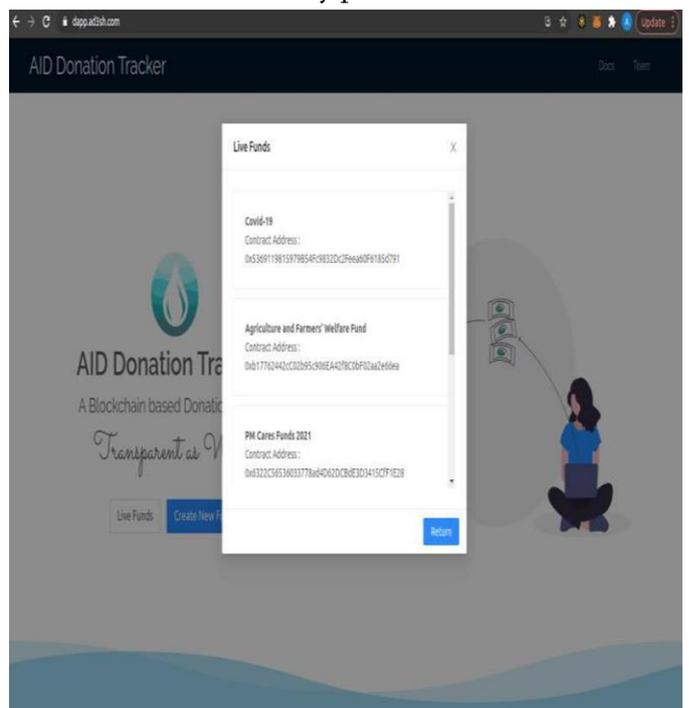
- Scalability: Fast, low-cost and secure transactions on Matic sidechains with finality achieved on mainchain and Ethereum as the first compatible Layer 1 basechain
- High Throughput: Achieved up to 10,000 TPS on a single sidechain on internal testnet; Multiple chains to be added for horizontal scaling
- User Experience: Smooth UX and developer abstraction from mainchain to Matic chain; native mobile apps and SDK with WalletConnect support
- Security: Matic chain operators are themselves stakers in the PoS system
- Public Sidechains: Matic sidechains are public in nature (vs. individual DApp chains), permissionless and capable of supporting multiple protocols

- Solidity: Solidity is a high-level, formal programming language that's used to author Ethereum smart contracts.

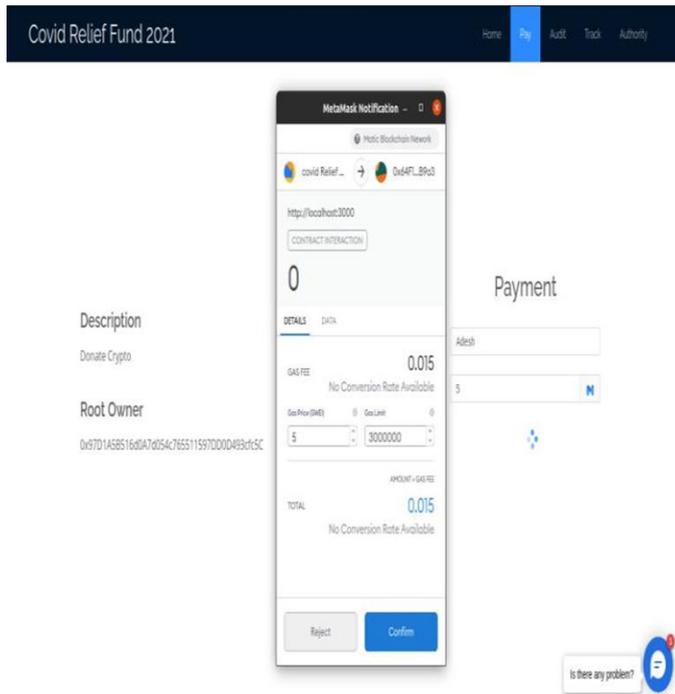
D. Results:



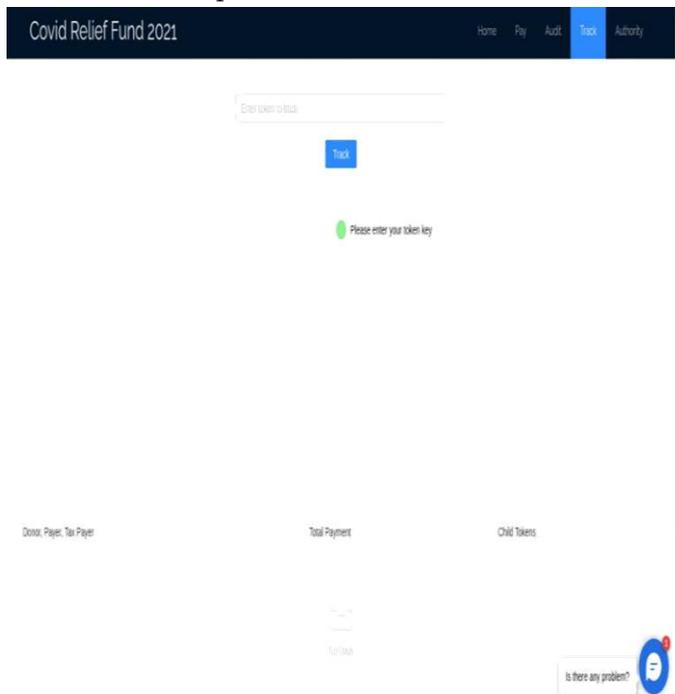
It is a first module of project where anyone can create new fund with using Metamask wallet and later it can receive donation from any person who want to donate.



This module helps user to select Live funds where user wants to donate AID with the help of metamask wallet.



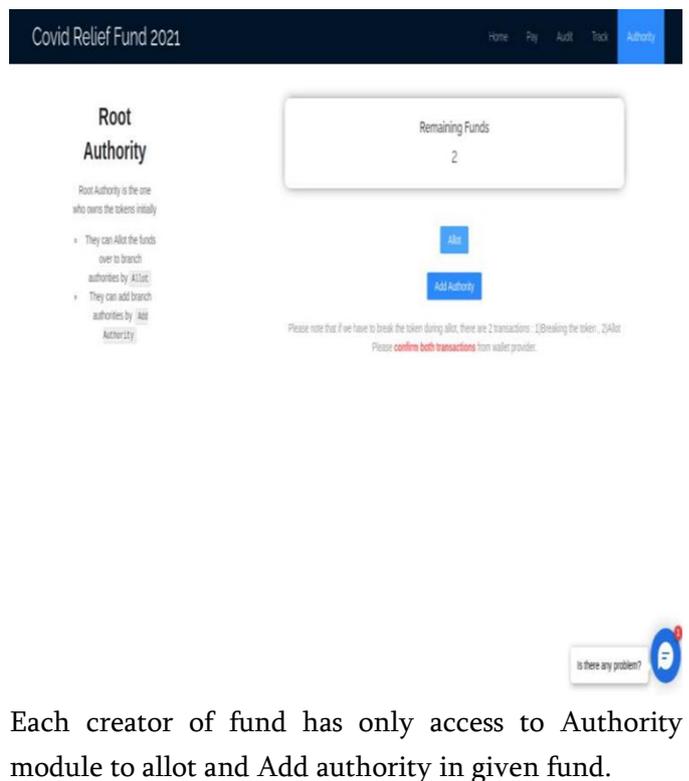
User can donate funds through Pay Module with the help of web3 metamask wallet with gas fees which further can be transferred to other institutions or wherever it is required.



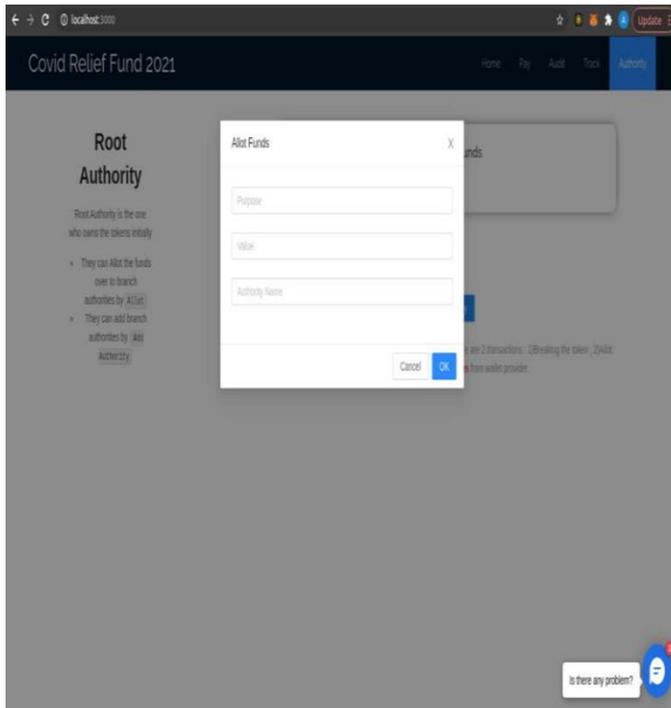
After donation user will get token key which user can use to track his funds through track module and know about their funds where it is being utilized.



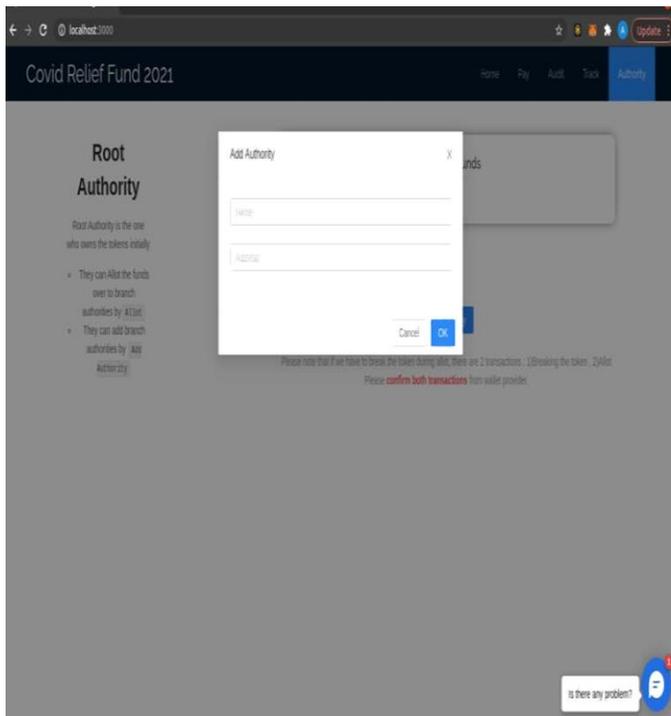
Anyone who have donated or have the token key generated after the fund donation can keep track of their funds and know about the spending of there funds.



Each creator of fund has only access to Authority module to allot and Add authority in given fund.



Authority can allot funds to other added authorities wherever donation is required and further the funds can be utilized.



Authority can add other Authorities to transfer the funds or to provide them donation funds.

E. Algorithm

The proposed system is a web system and smart contracts are used using the language of the robust system. Solc is a dynamic connector used to integrate smart contracts and contract files in bytecode and abi. Bytecode will be used on the blockchain where abi is in JSON format and used

III. CONCLUSION

Platform development for the handling and tracking of donations for financial assistance objectives using distributed registration technology. This work dedicated to one of the most important technologies - blockchain. Meanwhile, blockchain technology still exists, it is done in many places. There is one need, a platform for organizations that help sponsors to increase transparency as well easy to report. Analysis has shown that the use of blockchain technology in local charities, both individually and at the state level, have increased the effectiveness and reliability, and also have lead to make it more attractive to donors. It will also help increase revenue, or at least reducing the for front-end communication. The front-end is built using React Js, Next Js, and Semantic-UI. The user interface will be used for easy donation. Creator or campaign manager or authority to request donation money. In addition, the donor or payer can easily track; research the donations or the campaign. The authority then provides the donation to the seller. This will be recorded and stored in the blockchain.

Let's Assume input as a

{t}= token,

{N}: as amount of money (Cryptocurrency for eg: ether) user donates,

{T}: as a required amount allotted by authority to a vendor /contractor / owner Input: {N}

{N} is amount in Cryptocurrency donated by donor

{T}= {N-t}

(The token is breakable if user donates $\{N\}$ and authority uses only $\{N\}-\{t\}$ amount $\{N\}$ valued token is broken into two parts) First Part: $\{T\}=\{N\}-\{t\}$

Second Part: $\{t\}=\{N\}-\{T\}$ respectively.

amount of criticism from those who respond negatively toward donation taking organisations. Ethereum is currently used as a blockchain platform. Smart contracts are implemented using Solidity language. Server part in the platform is developed using JavaScript language on Node.js platform.

IV. REFERENCES

- [1]. Singh, A., Rajak, R., Mistry, H. and Raut, P., 2020, June. "Aid, Charity and donation tracking system using blockchain.", In 2020 4th International Conference on Trends in Electronics and Informatics (ICOEI)(48184) (pp. 457-462). IEEE.
- [2]. de Vrij, Anna. "Blockchain in humanitarian aid: a way out of poverty and famine". Diss. Ph. D. thesis, 2018
- [3]. Reinsberg, Bernhard. "Blockchain technology and the governance of foreign aid.", *Journal of Institutional Economics* 15, no. 3 (2019): 413-429.
- [4]. Kumar, Randhir & Marchang, Ningrinla & Tripathi, Rakesh. (2020). "Distributed Off-Chain Storage of Patient Diagnostic Reports in Healthcare System Using IPFS and Blockchain." 1-5. 10.1109/COMSNETS48256.2020.9027313.
- [5]. Saleh, Hadi & Avdoshin, Sergey & Dzhonov, Azamat. (2019). "Platform for Tracking Donations of Charitable Foundations Based on Blockchain Technology.", 182-187. 10.1109/APSSE47353.2019.00031.
- [6]. Singh, Aashutosh & Rajak, Rohan & Mistry, Harsh & Raut, Prachi. (2020). "Aid, Charity and Donation Tracking System Using Blockchain." 457-462. 10.1109/ICOEI48184.2020.9143001
- [7]. Nizamuddin, Nishara & Salah, Khaled & Azad, Muhammad & Arshad, Junaid & Habib ur Rehman, Muhammad. (2019). "Decentralized Document Version Control using Ethereum Blockchain and IPFS. *Computers & Electrical Engineering.*" 76.10.1016/j.compeleceng.2019.03.014.
- [8]. Lin, Chao & He, Debiao & Huang, Xinyi & Khan, Khurram & Choo, Kim-Kwang Raymond. (2020). "DCAP: A Secure and Efficient Decentralized Conditional Anonymous Payment System Based on Blockchain. *IEEE Transactions on Information Forensics and Security.* PP." 1-1. 10.1109/TIFS.2020.2969565.
- [9]. I. Sukhodolskiy and S. Zapechnikov, "A blockchain-based access control system for cloud storage," 2018 IEEE Conference of Russian Young Researchers in Electrical and Electronic Engineering (EIConRus), Moscow, 2018, pp. 1575-1578, doi: 10.1109/EIConRus.2018.8317400.
- [10]. C. V. N. U. B. Murthy, M. L. Shri, S. Kadry and S. Lim, "Blockchain Based Cloud Computing: Architecture and Research Challenges," in *IEEE Access*, vol. 8, pp. 205190-205205, 2020, doi: 10.1109/ACCESS.2020.3036812.
- [11]. M. D. Karumanchi, J. I. Sheeba and S. P. Devaneyan, "Cloud Based Supply Chain Management System Using Blockchain," 2019 4th International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT), Mysuru, India, 2019, pp. 390-395, doi: 10.1109/ICEECCOT46775.2019.9114692.