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Blockchain Based Crowdfunding Platform

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Abstract: ***Through the world, donating to charity is seen as a moral obligation, and a lot of money is distributed through its name. The majority of the time, the methods for raising funds for charities are transparent, and as a result, nonprofits struggle to win the trust and attention of contributors. This highlights the need for a solution to these issues so that the grantmakers can see how much money is being spent and how it is being used. A blockchain-based solution might be able to meet this need. The purpose of this project is to fix the problems with the current distribution system. We describe a blockchain-based system for crowdfunding that seeks to be efficient, secure, and transparent. This system helps charities in listing their identities so that investors, who may have already invested, may confirm the integrity of the charities in order to avoid fraudulent or fake charities. The donations will only be available to the parties who hosted the charity, and only they will be permitted to withdraw them. This will only be available after a specific period of time, with limitations on the number of transactions and approval.***
Index Terms: Blockchain, Crowdfunding, Charities, Donation.

Domain Explaination **- Blockchain,** Blockchain Technology is a drilling database system that enables open information exchange within a business network. Data is kept in blocks that are linked together in a chain and stored in a blockchain database. Because to the difficulty to delete or amend the chain without network consensus, the data remains chronologically consistent. In order to manage orders, payments, accounts, and other transactions, you can utilise blockchain technology to establish an unchangeable or immutable ledger. A built-in mechanism within the system protects against unauthorised transaction entries and maintains consistency in the common view of these transactions.

I. INTRODUCTION

A decentralised platform crowdfunding and charity, built on the Ethereum blockchain, enables people to donate money to causes that appeal to them. By utilising blockchain, we can ensure that investors support new initiatives at low risk and that venture creators may find more global supporters, making it simple for them to raise significant funds in a short length of time. There are many projects developed by individuals or small distributed teams who wish to generate money by issuing tokens to the investors right now, especially in the blockchain sector. The concept of raising money with the aid of a global public that might be engaged in the campaign for an incentive that is advantageous to the investment is made simpler by fundraising and charity platforms.

Based on the blockchain technology invented by Bitcoin, Ethereum is a free and open-source operating system and public distributed computing platform. Ethereum makes the blockchain programmable in accordance with developer needs, extending its value far beyond money. According to the report, Ethereum aims to offer "a blockchain with an integrated full functioning Actually turning programming language that can be used to generate "contracts" used to encode arbitrary state transition functions." Due to these characteristics, it is the best option for creating true decentralised applications, including this project and numerous other decentralised applications .The Ethereum blockchain is founded on the same fundamental ideas as Bitcoin's, but being much more sophisticated and detailed.

To achieve agreement on the system's current state, Ethereum uses a proof-of-work method supported by a peer-to-peer distributed network, much like Bitcoin. Miners are rewarded with Ether (crypto currency used by Ethereum network). The proof of work algorithm frequently chooses a sequence of those transactions to be included in the next block on the blockchain after receiving transactions from users located out across the world. The state of the system is determined by each new block that is introduced to chain 9. The average block creation time for Bitcoin and Ethereum, which both follow the same fundamental blockchain ideas, is about 10 minutes on average.

The problems with the current technique of fundraising can be resolved through fundraising and charitable giving. A person or group with a solution to a problem can raise money for charity or fundraising from a large number of people who are interested in funding the project. Anyone with an idea can present it to investors who are willing to invest money on a platform provided by fundraising and charitable organisations.

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The major benefits of fundraising and charity are:

Access to a huge market of authorised investors who can view the campaign and engage with it. Get a high-level understanding of the idea's value proposition, addressable market, and traction. The startup founder can validate and improve his offers by presenting the concept to a large number of investors. The best aspect of online fundraising and charitable giving is its capacity to concentrate and streamline the campaign creator's fundraising efforts by creating a single, thorough overview that targets all possible investors, negating the need to approach each one of them separately.

Also through crowdfunding, creators can promote their projects and then ask a community of potential donors for financial support. If the funding is successful, it will reward the supporters with tokens relevant to the campaign; otherwise, it will return the investor's investment. Blockchain, an immutable distributed ledger, tracks and accounts for each of these numerous transactions, making it difficult to counterfeit. Blockchain also eliminates the centralised charity and fundraising platforms' capacity to have overriding effect over and control the campaigns that are operating on those platforms.

1) *Open Access* - Voting is accessible to everyone on the network.
2) *Security* - Due to the usage of Ethereum Blockchain technology, all activities (transactions) will be securely stored on the network (hashing).
3) *Anonymity* – A participant can take part without disclosing his identify. Here, an address will be used to represent each and every person.
4) *Accuracy* - By using smart contracts, errors brought on by manually filling out several forms are eliminated.
5) *Verified Transactions* - The network will verify and validate transactions.

II. EXISTING SYSTEM

In the previously, bankers and entrepreneurs with venture capital have been the primary means of overcoming the funding gap. When a startup entrepreneur submits his product to a bank or venture capitalist, if they show interest in it, the bank or capitalist would fund it in exchange for a return. If a bank loan is the preferred method of financing a project, the bank may become a project bottleneck since banks require hard evidence of the project's ability to generate revenue. For a bank loan, the founder must offer security for the loaned amount.

Limitation of Existing Platform

A. Centralized platforms work flow

The well-known centralised crowdfunding websites include GoFundMe, Indiegogo, and Kickstarter. A user can view lists of ongoing projects on all of these platforms, and if they want to solicit funding for their own project, they can submit the necessary details. Any time there are investors interested in supporting the initiative, they will contribute the appropriate sum. The money will be deposited into the fund raiser account if the funding is successful. The investors will be given their rewards in accordance with the project's completion.

B. Lack of Security

There is no assurance that users' personal information won't be compromised or disclosed, and there is no money security offered. Due to occurrences like this, which resulted in the exposure of consumer data on the well-known crowdfunding platform Kickstarter in February 2014, faith in centralised systems was significantly diminished. There have also been allegations that crowdfunding websites are being utilised as venues for money laundering, and as a result, users' trust has not been properly established.

III. PROPOSED SYSTEM

All conversations between a campaign creator (someone who comes to the platform to launch a fundraising effort) and a campaign investor (someone who comes to the platform to place an ether investment) are handled by the. The user interface was created with the ease with which a campaign creator could start a new campaign and an investor could contribute to that campaign in mind. Based on the category to which each campaign belongs, users can sort the campaigns. Also, the customer is given a search option to narrow down campaigns based on a variety of search parameters. The campaign details page, which includes videos, pictures, documents, and in-depth descriptions of the campaign, is presented when a user clicks on a campaign image.

The user is shown with a button to donate to the cause, and then they can choose their wallet information from Metamask. The user is then given a slider to change how much ether he wishes to donate to the cause.

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After entering his desired donation amount, he proceeds to a confirmation page to view his final contribution information. In Metamask, a user transaction is initiated, sending the transaction to the Ethereum network. The confirmation page switches to a transaction investment success page to display a success message whenever a campaign confirmation is received. Using the campaign investor button on the landing page, a campaign investor can access the investor details page to keep track of his investments. He can find out all the information about the campaigns he has invested in and whether he needs to return his investment or claim the tokens if a campaign is failed.

IV. RESEARCH METHOD

ReactJs is used as the front-end of the system, and NodeJS is used as the back-end. Solidity language is employed for contract development. Using the solc npm package, the contract is converted into ABI code in JSON format. After that, the ABI interface is parsed to a Web3 provider instance for contract deployment. We connected to the Ethereum network using Infura, a remote node, as opposed to a local node. We must set up a cryptocurrency wallet called Metamask in order to use the system. Users of the browser extension Metamask can communicate with any decentralised application . The user can transfer Ethereum to his account after creating a Metamask account. The user can begin engaging with the system once he has some Ethereum in his account because Metamask has injected a Web3 instance in the web browser.

After that, campaign can begin generating campaign and get contributions from other people. Apart from that, campaign manager also can create requests to show how the money gathered will be used. Only the Ether will be delivered to the vendors once the contributors decide whether or not the expenses are appropriated, and if they are, a majority of the supporters must agree. Using Infura technology, the system is linked to the Ethereum network. We chose the testnet, which performs similarly to the main Ethereum network, rather than the main Ethereum network because this system only serves as a prototype. To encourage user transactions in this system, we employ a proof-of-authority blockchain called the Rinkeby network for this project. We cannot mine Ether because we are using the Rinkeby network; instead, we must make a request through the Rinkeby Test Faucet at https://faucet.rinkeby.io/. By using the Etherscan API, it is possible to view the specifics of user transactions, whether they were successful or unsuccessful.

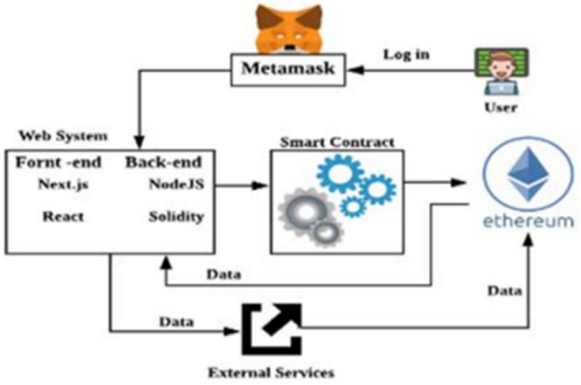


Figure 1.System Architecture

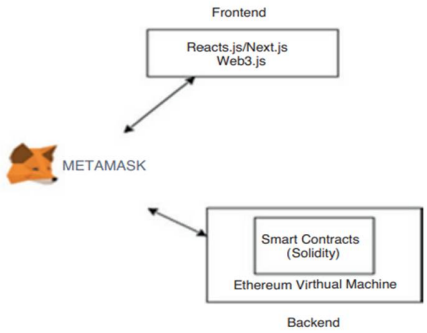


Figure 2: Metamask interconnected with Web3 Application Framework

Project Flow

1) A campaign is created by the campaign manager. He must fill out the campaign details in order to create the campaign. He could also upload the plan in PDF format to persuade contributors. The proposal will be kept in the peer-to-peer file sharing system InterPlanetary File System (IPFS).
2) The campaign will then be shown on the campaign page. Contributors may give to the campaign if they are interested in it.
3) The items required to carry out the campaign are listed in the expense request that the campaign manager creates.
4) Contributors were informed when a new spending request was added.
5) Contributors evaluate whether the campaign manager's suggestion is appropriate or not, and if it is, they might choose to vote in favour of the item.
6) A smart contract will transmit the money gathered to the appropriate suppliers if the majority of contributors agree.
7) The negotiated item is finally sent to the campaign manager by the appropriate vendor. Every transaction is documented in the blockchain and visible to everyone on the Etherscan website.

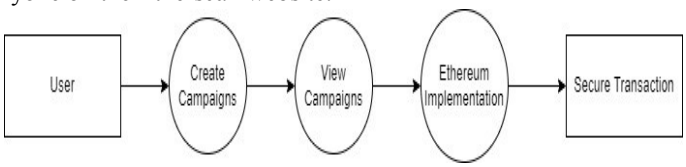


Figure 3:Flow Of Project

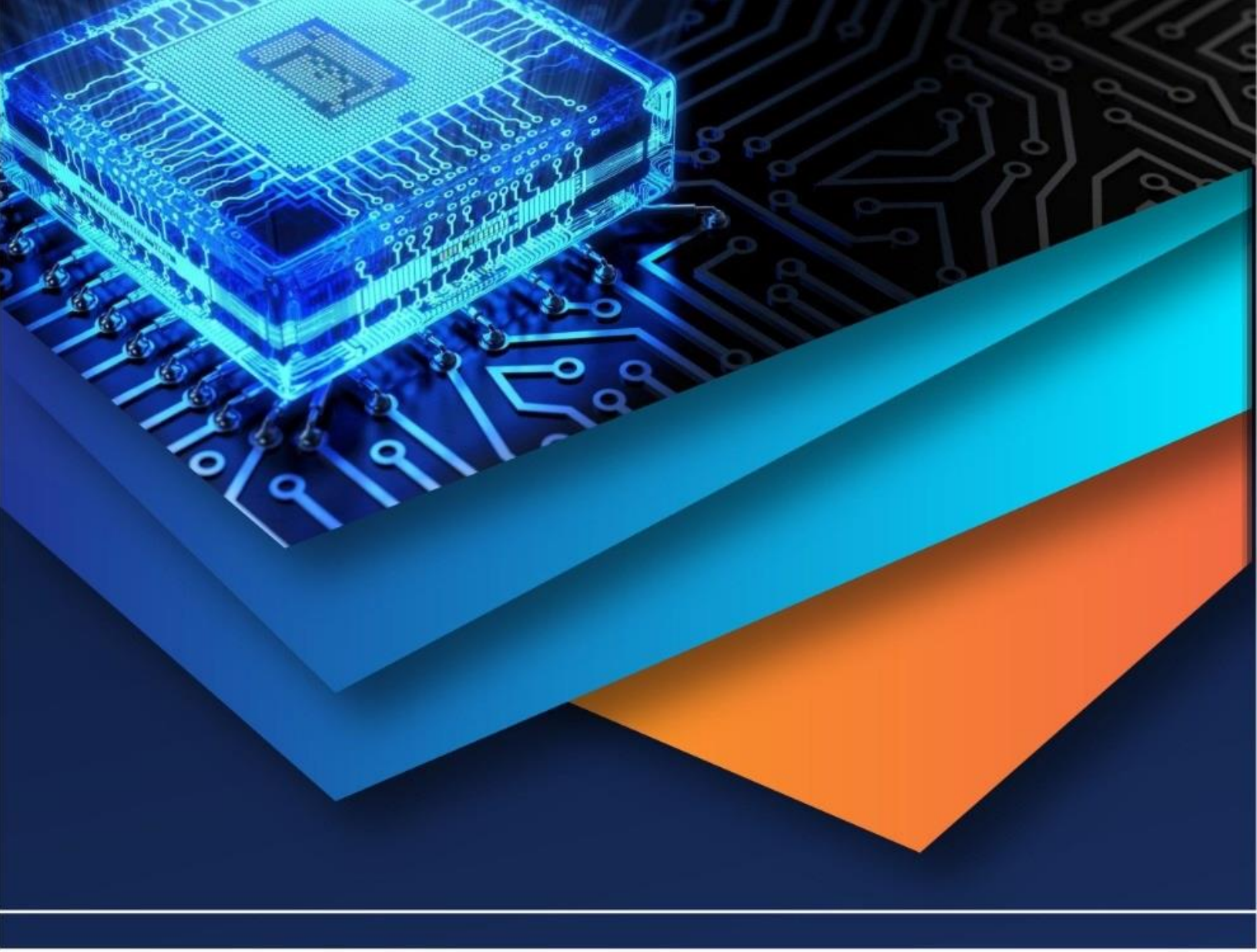
V. CONCLUSION AND FUTURE ENHANCEMENTS

Though the development of a blockchain platform focused on charitable giving, our system combines blockchain technology and philanthropy. Donors will be able to track exactly where their contributions go and when they are used by using blockchain to record charity gifts. Blockchain will increase transparency surrounding charitable organisations and increase responsibility for how donations are used for both donors and operators. Blockchain-based charities reduce the number of intermediaries between donors and the people they want to aid, allowing a larger percentage of gifts to go to those in need. The usage of blockchain to track these funds and their expenditures also produces an unchangeable digital receipt of funds and raises the reputation of organisations.

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