

DECENTRALIZED CROWDFUNDING USING BLOCKCHAIN TECHNOLOGY

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ABSTRACT

The method through which individuals and firms raise capital for their projects has changed thanks to crowdfunding. Due to the growth of social media and internet platforms, entrepreneurs and non-profit organizations can now raise money by engaging with a global network of possible investors and donors. Credibility which is necessary for crowdfunding, are now most important than other thanks to the use of blockchain technology. Fundraising procedures now have a higher level of democracy because of blockchain technology's decentralized nature and the more freedom, transparency, and incentives it offers donors and receivers. As more money is invested in blockchain-based crowdfunding campaigns, the advent of distributed autonomous organizations has further disrupted traditional fundraising strategies.

Keywords: Blockchain, Decentralized, Ethereum, exchanges.

I. INTRODUCTION

Through the use of crowdfunding, cash can be raised from a large number of contributors or businesses. This enables them to support initiatives that interest them and in the event that the project is successful to profit from their investment. Both individuals and organizations can propose their project ideas and those who perceive the ideas as viable will make investments.

The decentralised application built on the Ethereum blockchain saves all campaign, donation, and transaction-related data on a secure, decentralised network that is open to all users. Typically, people need to develop strategies, conduct statistical tests, and present compelling ideas to attract support. These sources of support can include investors, banks, and large companies. Crowdfunding allows investors to choose from a wide range of available projects and invest as little as \$50. It serves as an alternative means of financing projects. Crowdfunding is experiencing rapid growth. As a result, there is no longer a need for centralised servers, and the procedure is more effective and less prone to fraud.

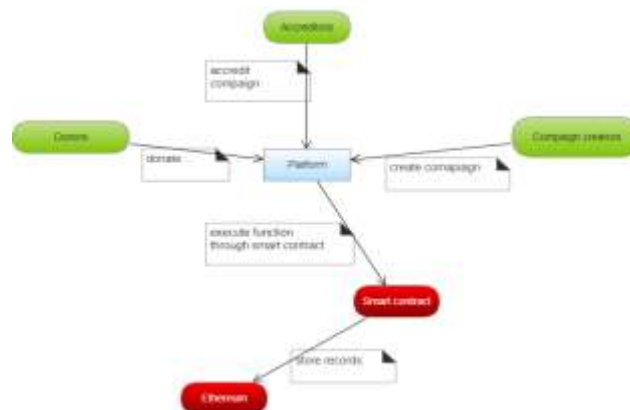


Fig-1: System Architecture

II. LITERATURE REVIEW

1. "Blockchain-Based Crowdfunding- A Comprehensive Review and Research Agenda" - This thorough review article gives an outline of how blockchain technology is being used in crowdfunding. It examines a number of topics, such as the advantages of blockchain in crowdfunding, difficulties and restrictions, and prospective research avenues.
2. "Crowdfunding on the Blockchain: Potential Opportunities and Challenges" - The possible benefits and drawbacks of employing blockchain technology in crowdfunding are covered in this article. It investigates how blockchain will affect several types of crowdfunding, including reward-based and equity-based models.
3. "Blockchain Crowdfunding" - An Investor Perspective"-Focusing on the interest of investors, this paper

explores the potential benefits and risks associated with blockchain-based crowdfunding. It discusses facts that motivates investor decisions, such as transparency, security, and smart contract functionality, and provides insights into the evolving landscape of blockchain crowdfunding platforms.

4. "Lemmings in the Crowd: Success and failure of crowdfunding platforms"- In this essay, the author attempts to assess the factors, particularly the crowdfunding platforms, that determine whether a firm succeeds or fails.
5. "How Blockchain is Revolutionizing Crowdfunding" - In this essay, the author discusses the drawbacks of crowdfunding platforms and the advantages of blockchain technology, impacting how this technique will eventually replace crowdfunding due to its simplicity and transparency.

III. OBJECTIVES

Our project's design has a strong smart contract that will help with campaign creation and the assignment of metrics like name, description, and minimum donation. to construct a smart contract with the ability to efficiently use project cash by allowing for the establishment of spending requests. and to design the voting procedure and set it up such that only investors in that specific project have the authority to accept or reject the project managers' requests for expenditures.

IV. METHODOLOGY

Creation of Campaign

Users can create plans by linking their Metamask wallet to the website. After connecting to their wallets, customers can create a unique campaign by entering the name, image, details and fundraising goals of the campaign. All contracts written in Solidity must be sent over the blockchain network. Make a new challenge by starting a new instance of the Challenge Factory. Each operation requires a certain amount of fuel. The fuel price is the price required to complete the transaction. When the user clicks on the "Create campaign" button, a new campaign will be created with the appropriate fuel price. After the transaction is complete, a new block will be added to the blockchain with the address of the contract. Once created, the event will appear on the site's home page. Other users can communicate with it when a match is live and broadcast on the blockchain, transaction management requires an e-wallet like Metamask.

Donators & Approvers

Users who donate to the campaign are called Contributors. After connecting their Metamask wallets to the program, they can search for causes they want to support. This strategy will be more effective and prevent fraud, as the money will be paid to the event venue and not to the event organizer. Participants who exceed the minimum contribution fee are deemed approved and have the right to request cancellation.

Fund Withdrawal

Contributors who have exceeded a certain level are granted the authority to approve or reject a request these individuals are referred to as approvers. This method make sure that the money is being invested in a way that is acceptable to the investing community. You must receive the consent of at least 50% of the approvers with respect to the withdraw the funds. The money will be transferred to the address the group has provided once it have been approved. Every decision and transaction made during this process is safely recorded on the blockchain, confirming that they are obvious and cannot be changed. This degree of openness and participation in group decision-making raises the security of the crowdfunding process. increasing its trustworthiness and credibility for businesses seeking funding.

V. ANALYSIS

When we think back to the past, traditional methods of collecting money included providing small loans to low-income people and later microcredits to small business owners who couldn't secure bank loans. People and society are always significantly impacted by innovation and new technology. Without a doubt, emerging technologies will affect those presently in use. Crowdfunding is a definite way to watch this transition. There are now a lot more initiatives being launched using crowdfunding portals. Stakeholders often wish to observe how the organization is working and participate in it if financial information is entirely available. Therefore, business owners and other stakeholders must retain their credibility and understanding of the legal and regulatory environment surrounding the project.

VI. PROPOSED WORK

Since crowdfunding involves a lot of transactions, it is crucial to manage and record those transactions legally. Smart contracts produce payment protocols that, on behalf of developers and venture capitalists, automatically carry out, control, and monitor transaction-based activities. The method suggested in this paper consists of two contracts: one to keep track of all projects, and the other to handle payments for each investment. program managers, sponsors, suppliers, smart contracts, spending orders and voting mechanisms are all important components of a crowdfunding site. The process of crowdfunding is consisted of 3 stages:

Creating a Project

The program manager creates a new project in the initial step by giving it a name, a description, and a minimum project commitment. Backers then review all the campaigns on the crowdfunding site and select the ones they want to support. To be classified as responsive, you need to have a certain level of involvement in the project as determined by the management team. As mentioned in Figure 2, the funds are placed in a wallet that can be utilized by program administrators.

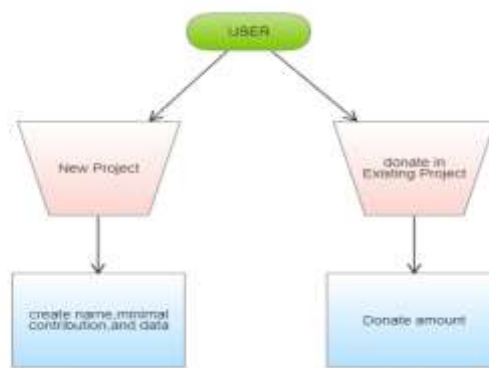


Fig-2: Creating project

Sending a request

If the program manager wants to spend money provided by donors during this process, create a spending request that explains where the money will be spent, the total amount, and the address of the product supplier. As mentioned in Figure 3, it is a end-to-end framework that works with inter-process communication between nodes to verify new blocks at the request of the program manager, ensuring that no one can receive blocks without confirming other users to change. It is safe and stable because it occupies more than 50% of the blockchain nodes.

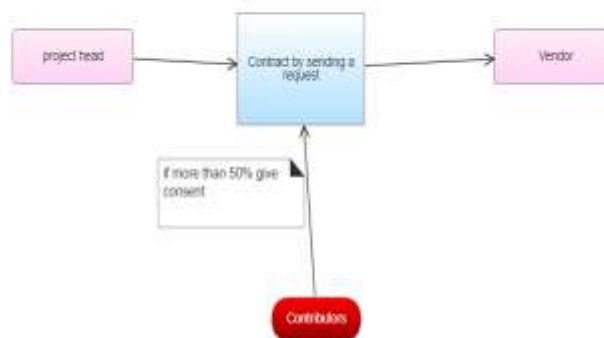


Fig-3 : The voting mechanism guarantees that the money expended remains under the ownership of the donors.

System of Voting

A voting mechanism has been established to ensure that only donors who have invested in the project approve or reject funding requests submitted by program managers. This voting mechanism also means that donors cannot vote again. In order for the vendor to provide the products that the programme manager has requested, the funds must receive the approval of more than half of the campaign's donors.

VII. IMPLEMENTATION

The platform implementation of crowdfunding involves utilizing a smart contract written in the Solidity language. This smart contract is then compiled and deployed on the Ethereum Network. All transactions within the platform are conducted through MetaMask.

Smart Contract Development

To initiate the process, the smart contract is developed using the Solidity compiler, generating bytecode and an application binary interface (ABI) as the resulting output. The bytecode, represented in hexadecimal form, is then implemented on the Ethereum Blockchain, adhering to the Ethereum Virtual Machine (EVM) standards. The ABI facilitates communication and interaction with the smart contracts. Deployment of the bytecode can occur on the Ethereum Mainnet or different test platform like Rinkeby. Once the smart contract is deployed, its address is disclosed, enabling users to make payments to that address. However, the release of funds to the vendor's address is subject to agreement from over 50% of the vendors, serving as payment for their rendered services

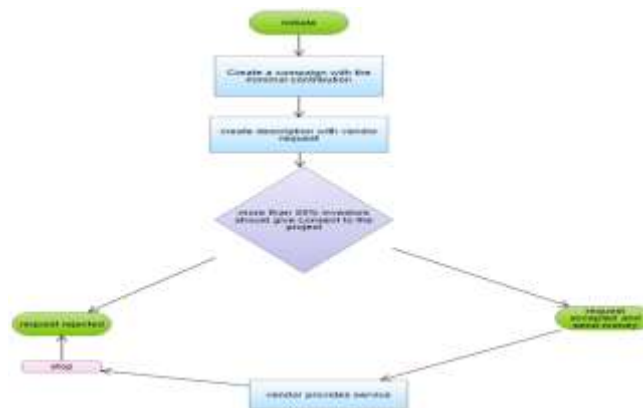


Fig. 4: Project Manager Flow Map



Fig. 5: Investor Flow Map

In Figure 4, it illustrates that an investor must join the project by making a minimum contribution specified by the project management during its inception. The contributed funds are then transferred to a designated wallet assigned to the respective project. Consequently, the contributor holds the option to approve or reject the project manager's expenditure proposal.

Compilation and Deployment

The first step involves using the solidity compiler to create the smart contract, which produces bytecode and an application binary interface (ABI). The bytecode is then applied to the Ethereum Blockchain, where it could be interpreted by the Ethereum Virtual Machine (EVM). Interactions with the smart contracts are facilitated through the application binary interface (ABI). The bytecodes can be deployed on the Mainnet, and once the smart contract is deployed, its address is made known, allowing clients to make payments to that specific address.

VIII. RESULTS



Fig. 6: Home Page



Fig. 7: contributor & approver

IX. CONCLUSION

It is obvious that crowdfunding holds great scope for the now and the future. Despite the reality that it has its own drawbacks and challenges, this type of finance helps new businesses, entrepreneurs, and other manufacturers. When blockchain become the basis for substantial investment contributions in the future, crowdfunding will become easier, more transparent, and more accessible. It's only a question of time. In conclusion, I'd like to reiterate that latest technology has highly increased the potential and impact of crowdfunding. The issues that the conventional crowdfunding platforms bring can now be resolved in ways that benefit society. Due to the increased trustworthiness of blockchain-based crowdfunding platforms, the best investments for investors will occur in the future.

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