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CROWD FUNDING APPLICATION IN WEB 3 USING BLOCK CHAIN TECHNOLOGY

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Abstract— Crowd funding serves as a funding avenue for diverse ventures, allowing founders to request funds for profit, non-profit, or social causes, often exchanged for future products or equity. In the digital age, social media platforms connect investors with entrepreneurs, fostering capital rising for various projects. Current Crowdfunding methods lack control for fundraisers and contributors, leading to issues like scam startups, intellectual property risks, and high fees. This project introduces a Blockchain-based Crowdfunding network, leveraging smart contracts to offer a private, secure, and decentralized funding approach. By automating contract execution, the platform aims to prevent fraud and establish a robust relationship between fundraisers, contributors, and the platform. This application stands out by assuring backers of guaranteed returns, going beyond traditional investment platforms. With a commitment to transparency, backers can stay informed about the progress of their invested funds in respective startups, addressing concerns and enhancing the Crowd funding experience.

I. INTRODUCTION

Blockchain - A Blockchain is a type of distributed ledger technology (DLT) that consists of growing lists of records called blocks that are securely linked together using cryptography. Crowdfunding - The practice of funding a project or a start-up through raising money from various individual. Blockchain Crowdfunding Application–Stakeholders (donators) would like to keep track of the way the organization is functioning, whether it is achieving its goal and guide accordingly. This requires 100% transparency, and authentic financial information of the related project activity. A Crowdfunding application based on Blockchain has the purpose of providing a decentralized and transparent platform for individuals and organizations to raise funds for their projects or initiatives. By leveraging Block chain technology, the platform can offer several benefits such as increased security, immutability, and transparency. The elimination of in term has bank scan reduce costs and increase efficiency, while the decentralized nature of Blockchain allows for all transactions to be recorded and publicly accessible, which can help build trust among contributors and ensure that funds are being used as intended. Additionally, the distributed ledger technology of Blockchain can help prevent fraudulent activities and hacking attempts, creating a more secure environment for Crowdfunding. ABlockchain-based Crowdfunding platform can also enable anyone with an internet connection and a digital wallet to contribute to projects, regardless of their location or financial background. Overall, a Crowdfunding application based on Blockchain can offer a more efficient, transparent, and secure way for separate are Organizations to raise funds for their projects. These are another type of four main concepts in (i) To give an assurance to the backers that returns will be guaranteed. To Provide transparency between the backers and the start ups so that the backer can stay updated the progress.

1) WHAT IS CROWD FUNDING?

Crowd funding is basically the practice of funding a projector a start-up through raising money from various individuals. It is usually done using the internet, as it is easily accessible to gather contacts and determine the stakeholder soft the project. Crowdfunding can be a suitable method for personal use, for real estate, loans, start-ups, and other businesses. Crowdfunding is emerging as one of the most affordable and viable options for young entrepreneurs in the country. “In the recent times, India has witnessed a massive growth in the start-up industry. It is because people want to break out of

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the barrier of working 9-5 and our government supports it. The government has a significant role to play in this, as they're offering some advantages for start-ups such as relief from paying tax for the first three years and much more. Start-up soften lookout for investors and try to approach VCs to get funding. Sometimes it gets tedious. Start-ups can try using Crowdfunding as it increases the brand reach and it's easier than approaching a VC."

Some of the best examples of Crowdfunding platforms are Kick starter, Indigo go, Start engine, Ketto, etc. These platforms encourage entrepreneurship and are most-commonly used for creative projects, everything from music, art, films as well as technology. They usually charge a fee of around 4%-5%. Sometimes, the rewards are in the form of products or even being a part of the designing activity.

2) TYPES OF CROWD FUNDING

The type of Crowdfunding to be used usually depends on the kind of business or activity that is being set up. The goals and objective soft the business influence the type as well .There are three basic types of Crowdfunding. They are:

- **Debt form of Crowd funding**: In this medium, the investors or rather contributors are paid them one back along with interest. It is also known as "peer to peer' lending and usually does not involve the traditional banking methods.
- **Equity based Crowd funding**: In this method, the investors become partially the owners of the business project. They are also accredited with dividends. This is in a way kind of gamble because, if the project is successful, the share value will group, other wised own.
- **Donations: In** this medium, the investors don't look for any kind of financial returns.

II. LITERATURE SURVEY

Hassija, V., Chamola,V.,&Zeadally,S.[1] has proposed Crowdfunding is a new area of finance that boosts a nation's economic competitiveness by assisting numerous small firms and entrepreneurs. The platform grows the client base by enabling the collection of a little sum of money from a big number of customers. By2025, Crowdfunding investments are predicted to generate $100 billion in revenue, according to a recent World Bank analysis (World Bank, 2019). By 2020, there will be 2,260,230 entrepreneurs (campaigns) operating worldwide (World Bank, 2019).

Ashari, F., Catonsukmoro, T., Bad, W. M., & Sfenranto, W. [2] has proposed based smart contract technology. On this, the author attempts to analyze the procedures that are typically used in this fundraising organization using Blockchain technology, which can be a substitute solution to raise funders' trust, which will undoubtedly have an impact on the amount of money the fundraising organization will be able to raise. If all requirements are satisfied, beneficiaries can easily get these payments thanks to smart contract technology. According to prior studies, this technology can be applied to the telecommunications and medical fields.

Saadat, M.N., Halim, S.A., Osman.H. [3] has proposed a distributed database of transaction records that are shared among involved parties might be referred to as a Blockchain. Decentralization of data, persistence, anonymity, and audit ability are some of the traits of Blockchain. The transaction and block are the two main parts of the Blockchain technology. The block is a group of data that records the transaction and any accompanying information, such as the correct order, timestamp of creation, etc., where as the transaction represents the participant's action. A block chain's blocks, which serve as transaction records, are linked together cryptographically to prevent tampering. This means that no block that has been added can be changed or eliminated. Blockchain relies on consensus methods to be reliable.

Gebert, M. [4] has presented a distributed database that can keep a continuously growing list of ordered compound data (records or groups of fields) known as blocks can be created using the Blockchain technology. The time stamps and links to the preceding blocks for each block are specific to that block. As a result of the chain's blocks' inherent resistance to modification, it is impossible to change blockchain data in the past. A node crash would result from abnormal changes in one block because

other blocks in the network wouldn't be able to detect and confirm the anomaly. Due to the absence of coherence, this causes systemic dysfunction, which can be quickly identified as a sign of an external danger like hacking.

Hartmann, Felix, et al [5] has proposed an idea that it would be beneficial for regulators and market participants to comprehend how the current regulatory system relates to Blockchain-based Crowdfunding. Because Blockchain-based Crowdfunding has certain characteristics, regulatory frameworks may need to be reinterpreted for legislation to be applied effectively. We have examined a range of pertinent literature on success criteria for traditional and Blockchain-based Crowdfunding to close this knowledge gap. This literature review's findings provide guidance for where future research and development should go.

Rashid, Mahmood A., etc [6]has proposed make and store contracts between students and their higher education sponsors using a Blockchain-based platform that is enabled through middle men referred to as fund raisers. Any type of sponsorship is possible, including a scholarship, gift, or loan. A group of aggressive fund-raisers who will holds the distributed ledgers and serve as the Blockchain network's miners will organize and manage the fund.

Gebert .M.[7] has presented the technology that is a ground-breaking and disruptive innovation that aims to reduce bureaucracy and regulation without undermining legal guidelines for conducting business. With the distributed public ledger that the Blockchain technology offers, participants can conduct business without worrying about censorship online. Most crucially, Blockchain technology eliminates information asymmetry, meeting the demand for authenticity evidence from every stakeholder.

Cai.C.W. [8] has proposed this article, which combines ever all perspectives on the development and evolution of fintech and focuses on Blockchain and Crowdfunding, the two most significant developments in the field in the last ten years. FinTech has emerged as one of the "hot" topics in the finance sector, on social media, and in academic study, yet we still know very little about its uses and effects. The major goal of this study is to improve understanding of FinTech by highlighting knowledge gaps and knowledge development in pertinent finance research. This article identifies publications on FinTech in Economics and Finance research and its inter relations using the HistCite TM-generated bibliographic map as a guide. The literature on Crowdfunding and Blockchain is therefore thoroughly reviewed in this study.

Vakilinia, I., Badsha, S., & Sengupta, S [9] has suggested a brand-new system that makes use of Blockchain technology to insure a cyber-product. To ensure a cyber-product, a vendor must first make the request, after which interested insurers must engage in a sealed-bid auction by offering their desired premium for the insurance service. The insurers will be chosen from among the auction winners, and in exchange for their responsibilities, they will be given tokens. among the instance of an in demnity request, the auditor verifies there quest's legitimacy before calling the claim function to locate the appropriate sum among the money received from the insurers.

Roth, J., Schär, F., & Schöpfer, A. [10] has proposed as a potential strategy to make it easier for companies to obtain money, we discuss to kenization of equity Crowdfunding on a Blockchain in this chapter. They suggest classifying token standards into UTXO-based, layer-based, and tokens based on smart contracts. In a further stage, they examine the benefits that tokenization can offer, including increased share dilution, cryptographically secured ownership, programmability of assets, access to the Blockchain ecosystem, and the emergence of a viable secondary market. By allowing the ledger of assets to bese parated from the Crowdfunding platform throught tokenization, the cost of secondary market trade and the influence of the middleman are reduced. They finish by listing several disadvantages, such as knowledge gaps between campaign designers and investors, legal complications, and the high energy consumption of Proof-of-Work-secured Blockchain.

III. EXISTING SYSTEM

Kickstarter, which is a popular Crowdfunding platform that enables project creators to seek

funding from the public for their creative projects or business ventures. However, Kickstarter does not currently use Blockchain technology for its platform.

Additionally, it charges a fee for successful campaigns, which can range from 5% to 8%, and may also charge payment processing fees, which can reduce the amount of funds that creators receive.

It only accepts payment in fiat currency, which means that investors cannot participate using crypto currencies or other digital assets. This can limit the accessibility and inclusivity of the crowdfunding campaigns, especially for individuals who prefer to use digital assets for investment.

Usually, Crowdfunding platforms take a certain amount of fee for every project that is listed. Sometimes, it's a specific amount, and other times, it is taken as a percentage of the contribution made by the contributors. This is a drawback for the availability of the funds since start-ups are literally looking for every rupee to help themselves.

A. DISADVANTAGES

1) Transparency and Scam start-ups:

In some cases, start-ups turn out to be scams and leave the investors with no option but to suffer the loss of the investment. There is no proper transparency of the entire flow of funds.

2) Global contribution:

With some of the platforms being country specific, it becomes hard for people from other countries to contribute to various campaigns. Using Blockchain, anyone in the world can contribute to the campaign. Transactions are quick and convenient.

3) DIY marketing:

sometimes, its aggressive advertising and marketing that the start-ups need, rather than spreading the word. And this kind of marketing requires a huge expenditure which again falls as a challenge on the funds for the start-ups.

IV. PROPOSED SYSTEM

This system is aimed to overcome the above major short comings with current Crowdfunding platforms. Crowdfund rising involves many transactions, it is necessary to manage and document them legally. As a result, a smart contract is utilized, which is a transaction protocol that automatically executes, controls, and documents transactions on behalf of project creators and investors in accordance with the agreement.

Any web-based application is a centralized application which means that everything done on the platform is controlled by a single company server. Decentralized application is offered based on the Ethereum Blockchain, in which all campaign information, contributions, withdrawal requests, and fundsarestoredonablockchainnetworkthatisopentoall .Theconceptiscalled"*Distributedledger technology*."The distributed ledger and its contents are available to all network participants. Here, the transaction uses *PoS* in which it is more fast and secure than existing *POW*. It is energy efficient in which the nodes are not competing against each other to attach a new block to the Blockchain, energy is saved. Also, no problem has to be solved (as in the case of Proof-of-Work system) thus saving energy. Proof of stake cuts out the need for complex computations. So, it beats proof of work when it comes to energy efficiency.A transactional record that cannot be changed. Transactions are recorded only once with this shared ledger, reducing the duplication of effort. After a transaction is recorded to the shared ledger, no participant can edit or tamper with it. If a mistake is found in a transaction record, a new transaction must be entered to correct the problem, and both transactions are then visible. This means that all nodesontheblockchainmayseeandstorefundsandtransactionspreventingdata from being held on a single or centralized server.

As a result, safeguarding the funds from falling into the wrong hands and being misused is an elegant and practical solution to the situation at hand.

A. ADVANTAGES

1) Excess availability:

Any individual who has an internet connection will be able to contribute to funding projects. To individuals who invest in Crowdfunding using

Blockchain technology, it is beneficial in a way that "fraud" will be absent in such cases because the investors will receive their ownership or a fraction of the enterprise immediately.

2) Decentralization:

Any project that has the capability of gaining exposure can get funds and therefore can also omit the requirement of paying the fees to the platforms. Thus, this makes crowd funding cheap and affordable to the investors and contributors.

3) Anti-Fraud:

A transactional record that cannot be changed. Transactions are recorded only once with this shared ledger, reducing the duplication of effort. After a transaction is recorded to the shared ledger, no participant can edit or tamper with it.

4)Assurance for Donators :

If a funding campaign is aborted without reaching its goal amount and if the Fund raiser ends the campaign with the limited amount of money with out the knowledge of the backers (donators), the donators get back their invested money automatically in their respective wallets.

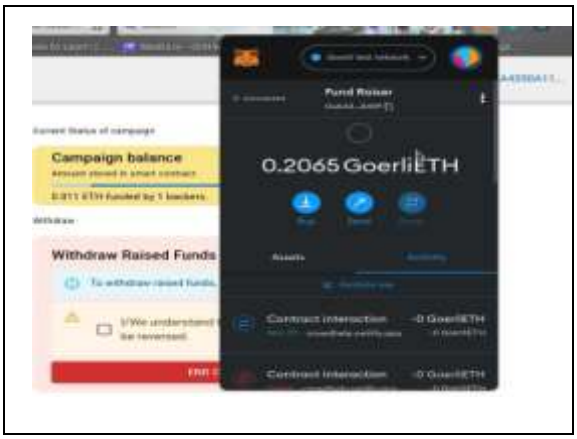
B. SYSTEM ARCHITECTURE

The smart contract which is the core of the application is written in Solid it language, which is tested locally and deployed remotely to Infura platform on Goerli test network via hardhat. The user will be able to access the platform through deployed web application, which is built with modern JS libraries like React JS, Vite JS (for fast bundling of libraries & local server while developing) & Material UI (for ready-made UI components). The platform interacts with the deployed smart contract on Infura using web3.js and ethers.js libraries depending upon user interactions– like creating campaigns, displaying campaigns, ending campaigns, aborting campaigns, etc. To perform each interaction with the Blockchain (except listing out deployed campaigns) requires wallet authentication and authorization. All the transactions which take place are completely transparent and User can verify the authenticity of the Transaction via ether scans.

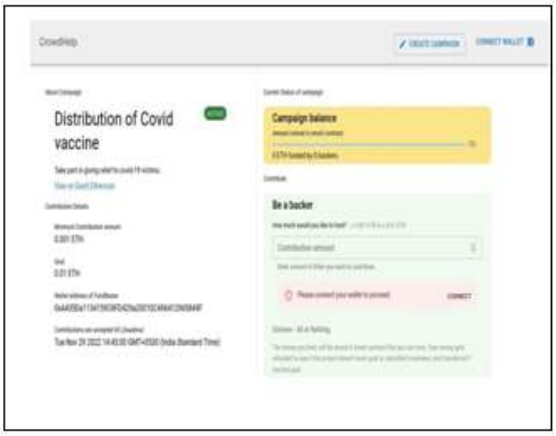
V. SCREENSHOTS

1) CAMPAIGN CREATION

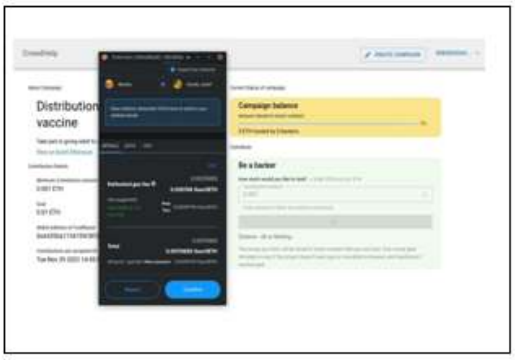
2) CAMPAIGN PAGE FOR FOUND RAISER



3) CAMPAIGN PAGE FOR PUBLIC

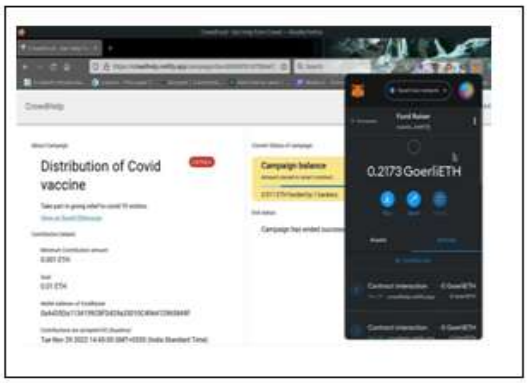


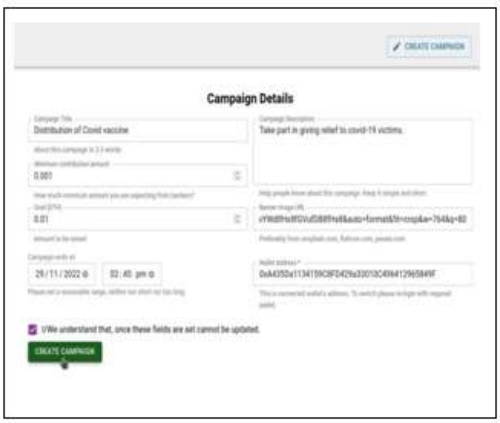
4) CAMPAIGN PAGE FOR PRIVATE



VI. CONCLUSION AND FUTURE ENHANCEMENT

It is quite evident that Crowd funding has huge potential in present times as well as in the future. Even though it comes with its own drawbacks and challenges, this form of funding is helping new start-ups and innovators, entrepreneurs, and other creators. In the future, when Blockchain will the backbone of major investor contributions, it will make Crowdfunding .





VII. CONTRIBUTING TO CAMPAIGNS ENDING CAMPAIGN

It is only a matter of time before creating, fund, abort & end a campaign.In order to conclude we would like to affirm that the potential and influence that the emerging technologies possess, for Crowdfunding, is immense. The current solutions for the challenges that the usual Crowdfunding platforms pose are now able to transform the society for better. Crowdfunding platforms using Blockchain technology hold more credibility and therefore, we believe are the future for the right investment for investors.

VIII. FUTURE ENHANCEMENT

- Raising Withdraw requests: Are quest with amount needed and reason. Why? The funds raised by backers. The request will be approved only if > 50% of contributors accepts it.
- Approving withdraw requests: Depending on the progress achieved by campaign & amount needed, he can approve requests. NOTE: Any backer who has contributed >= Minimum amount will be considered as approver.

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