

Crowdfunding Platform using Blockchain

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Abstract— Crowdfunding has emerged as a popular method for raising capital for various projects and ventures. However, traditional crowdfunding platforms suffer from issues such as lack of transparency, high transaction costs, and susceptibility to fraud. This paper proposes a crowdfunding platform leveraging blockchain technology to address these challenges. Blockchain offers advantages such as enhanced security, transparency, and efficiency. Our platform aims to create a trustless environment where backers and project creators can interact directly. We present a comprehensive analysis of existing crowdfunding models and discuss the shortcomings that blockchain technology can address. Key components of our proposed platform include smart contracts for automating project funding and disbursement, a decentralized consensus mechanism for verifying transactions, and a transparent ledger for recording all contributions and project updates. We evaluate the security and performance aspects of our platform, highlighting its resilience to cyber attacks and scalability. Additionally, we discuss potential regulatory challenges and legal implications. This paper contributes to the literature on blockchain applications in finance and provides insights into designing secure and transparent crowdfunding platforms.

Index Terms— Blockchain, Consensus Segmentation, Smart Contracts, Crowdfunding, Campaign.

I. INTRODUCTION

Crowdfunding has emerged as a significant alternative financing mechanism in recent years, enabling individuals and organizations to raise capital for diverse projects and ventures. Traditional crowdfunding platforms, however, often encounter challenges related to transparency, security, and efficiency. Blockchain technology presents a promising solution to address these issues by providing a decentralized and immutable ledger system.

In this paper, we propose a crowdfunding platform built on blockchain technology to enhance transparency, security, and efficiency in the fundraising process. Blockchain, a distributed ledger technology, offers several advantages for crowdfunding, including transparency, immutability, and reduced reliance on intermediaries. By leveraging blockchain, our platform aims to create a trustless environment where backers and project creators can interact directly, mitigating the need for centralized authorities and reducing transaction costs.

This introduction provides an overview of the motivation behind our research, the significance of crowdfunding in modern financing, and the potential of blockchain technology to revolutionize the crowdfunding landscape. The subsequent sections of this paper will delve into the details of our proposed blockchain-based crowdfunding platform, including its design, implementation, and evaluation.

Through this research, we aim to contribute to the growing body of literature on blockchain applications in finance and provide practical insights into the development of secure and transparent crowdfunding platforms. Our

ultimate goal is to foster trust, accountability, and inclusivity in the crowdfunding ecosystem while addressing the limitations of traditional crowdfunding models.

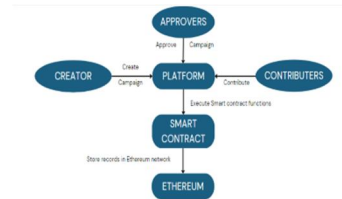


Fig.1. This figure shows the system architecture of the crowdfunding platform using blockchain.

II. LITERATURE SURVEY

A. LITERATURE REVIEW

- 1) *Enhancing Trust and Transparency in Crowdfunding: A Blockchain-Based Approach* (June 2022): This study explores the integration of blockchain technology into crowdfunding platforms, aiming to enhance transparency, security, and efficiency. By leveraging blockchain's decentralized and immutable ledger system, the platform seeks to create a trustless environment where backers and project creators can interact directly. The research likely investigates various blockchain frameworks and consensus mechanisms suitable for crowdfunding, highlighting the benefits of transparency and reduced reliance on intermediaries.
- 2) *Leveraging Ethereum Smart Contracts for Trust and Information Symmetry in Blockchain-Based Crowdfunding* (July 2021): This paper investigates the application of Ethereum smart contracts to bolster trust and information symmetry within blockchain-based crowdfunding systems. Smart contracts enable the automated execution of crowdfunding agreements, ensuring that funds are released to project creators only upon meeting predefined conditions. The study probably discusses the implementation of smart contracts on the Ethereum blockchain, assessing their effectiveness in reducing fraud and enhancing transparency in crowdfunding campaigns.
- 3) *Insights from an International ICT Conference on Crowdfunding Platforms*: This study likely presents research insights and findings on crowdfunding platforms discussed at an international conference focused on information and communication technology (ICT). Although specific details are not provided, this research may offer a broader perspective on crowdfunding trends, challenges, and opportunities deliberated within the ICT community. The study could encompass topics such as regulatory considerations, technological innovations, and emerging trends in crowdfunding.
- 4) *Examining Traditional Crowdfunding Platforms in Shingai: Operational Dynamics and User Experiences*: This research presumably examines conventional crowdfunding platforms, potentially focusing on a specific geographical region such as Shingai. The study might analyze operational aspects, performance metrics, and user experiences of traditional crowdfunding platforms in Shingai. Through an exploration of existing practices and challenges, the research aims to provide insights into the dynamics of crowdfunding in a local context and identify opportunities for improvement or innovation.
- 5) *Crowdfunding: A Comprehensive Review and Future Research Directions*: This literature review purportedly offers a comprehensive synthesis of existing research on crowdfunding, encapsulating key findings and delineating research gaps and future trajectories. The review may traverse diverse facets of crowdfunding, including its economic impact, social dynamics, regulatory landscape, and technological advancements. By synthesizing existing literature, the review aims to guide future research efforts and contribute to the understanding and development of crowdfunding ecosystems.
- 6) *Analyzing the Impact of Social Networks on Crowdfunding Success: A Case Study of Kickstarter and Facebook*: This study utilizes social network analysis to investigate the relationship between the success of crowdfunding projects and the social networks of project initiators, as well as media activities. However, it's worth noting that the specific platform used for this research is not openly accessible on GitHub.
- 7) *Assessing Effort Requirements in Crowdfunding Transactions: Insights from Interviews with Kickstarter, Indiegogo, and Rockthub Participants*: This research aims to investigate the level of effort required by parties seeking capital to prepare and execute successful crowdfunding transactions. However, it's important to note that the white paper associated with this study is not accessible at present, which raises concerns about the reliability of the research among potential readers. The absence of supporting documentation may lead to skepticism regarding the accuracy and validity of the findings.

A. Survey of Existing Systems

- 1) *Exploring Centralized Crowdfunding Platforms: A Comparative Analysis:* Centralized crowdfunding platforms have become integral in facilitating fundraising efforts across various sectors. This survey delves into the workings of centralized crowdfunding platforms, including their advantages, challenges, and impact on fundraising campaigns. By examining platforms such as Kickstarter, Indiegogo, and GoFundMe, the study aims to provide insights into the dynamics of centralized crowdfunding systems and their role in supporting diverse projects and ventures.
- 2) *Exploring Charitable Research: Unraveling the Dynamics and Impact of Philanthropic Endeavors:* Research in philanthropy spans a wide spectrum, aiming to grasp the dynamics and effectiveness of charitable activities. It encompasses studies on donor motivations, fundraising strategies, and organizational practices. Scholars examine factors influencing donation decisions, such as empathy and societal norms, while also evaluating the efficacy of fundraising techniques. Additionally, research delves into the operational aspects of charities, including governance and financial management. Recent focus has shifted to the impact of digital technologies, like social media and crowdfunding, on fundraising efforts. Overall, this research informs policymaking, advocacy, and the development of strategies for addressing societal challenges.

B. Limitations in Existing Systems

- 1) *High Fees:* Existing crowdfunding platforms often impose substantial fees on both project creators and backers, diminishing the appeal of crowdfunding as a fundraising option. These fees can significantly reduce the funds available for projects, hindering the ability of individuals and organizations with limited financial resources to utilize crowdfunding effectively. Moreover, high fees may deter potential backers from participating in campaigns, particularly if they perceive the costs as prohibitive or unjustified. Addressing the issue of high fees is essential for fostering a more equitable and accessible crowdfunding environment.
- 2) *Scam Campaigns:* The proliferation of scam campaigns poses a significant challenge to the integrity and credibility of crowdfunding platforms. Despite efforts to implement safeguards and verification processes, fraudulent projects continue to exploit unsuspecting backers, resulting in financial losses and damage to trust. Scam campaigns often utilize deceptive tactics to attract funding, such as false promises, misleading information, or fabricated endorsements. As a result, backers may become wary of supporting legitimate projects, leading to decreased participation and overall skepticism towards crowdfunding as a viable fundraising avenue. Addressing the issue of scam campaigns requires robust measures to detect and prevent fraudulent activities, as well as increased transparency and accountability within the crowdfunding ecosystem.
- 3) *Non-Transparent:* Transparency is paramount in fostering trust and confidence among backers in crowdfunding platforms. However, existing systems may suffer from a lack of transparency due to various factors, including ambiguous project descriptions, undisclosed funding goals, and inadequate communication from project creators. Without sufficient information about the nature and progress of projects, backers may hesitate to contribute, fearing the potential for mismanagement or misuse of funds. Enhancing transparency in crowdfunding requires measures to ensure clear and comprehensive project documentation, regular updates from project creators, and mechanisms for accountability and oversight. By promoting transparency, crowdfunding platforms can instill greater trust and reliability among backers, thereby encouraging increased participation and support for projects.
- 4) *Centralized Authority:* The centralized nature of traditional crowdfunding platforms introduces vulnerabilities and limitations that may compromise the autonomy and fairness of the crowdfunding process. Centralized authorities wield significant control over platform operations, including decision-making, content moderation, and fund management. This centralized control can lead to issues such as censorship, biased treatment of projects, and data privacy concerns. Additionally, reliance on intermediaries for transaction processing and dispute resolution may result in delays, inefficiencies, and increased costs. Transitioning towards decentralized crowdfunding models built on blockchain technology offers the potential to mitigate these limitations by eliminating the need for intermediaries and enabling peer-to-peer interactions. By decentralizing authority and fostering greater autonomy and transparency, blockchain-based crowdfunding platforms have the potential to revolutionize the crowdfunding landscape, making it more inclusive, efficient, and resilient.

III. METHODOLOGY

Campaign Creation: The process of campaign creation forms the foundation of any crowdfunding platform. Project creators initiate campaigns by providing detailed descriptions of their projects, including objectives,

timelines, and funding goals. Additionally, creators may upload multimedia content such as videos, images, and project updates to engage potential backers effectively. To ensure transparency and credibility, platforms typically require creators to verify their identities and provide relevant documentation supporting their projects. Upon submission, campaigns undergo a review process by platform administrators to assess their compliance with community guidelines and terms of service. Administrators may evaluate factors such as project feasibility, alignment with platform policies, and adherence to legal requirements. Campaigns that meet the criteria are approved for publication on the platform, while those that fail to meet the standards may be rejected or placed under review for further clarification.

Contributors & Approvers: Contributors, also known as backers or donors, play a crucial role in the success of crowdfunding campaigns by providing financial support to project creators. Contributors browse through available campaigns on the platform, evaluate project details, and decide whether to make a monetary contribution. Platforms typically offer various payment options, including credit/debit cards, PayPal, and cryptocurrency, to accommodate diverse preferences. In addition to financial contributions, some platforms allow contributors to engage with campaigns by sharing them on social media, providing feedback, or participating in discussions. These interactions help create a sense of community and support around the campaign, enhancing its visibility and appeal to potential backers. Approvers, on the other hand, may refer to platform administrators or moderators responsible for overseeing campaign activities and ensuring compliance with platform guidelines. Approvers monitor campaign progress, address user inquiries or concerns, and intervene in cases of policy violations or disputes. Their role is crucial in maintaining the integrity and trustworthiness of the crowdfunding platform.

Withdrawal of Funds: Once a crowdfunding campaign reaches its funding goal or deadline, project creators may initiate the withdrawal of funds raised. The process of fund withdrawal typically involves several steps to verify the legitimacy of the campaign and ensure compliance with platform policies. Creators may be required to provide documentation or evidence demonstrating progress towards project implementation, such as project updates, receipts, or invoices. Upon verification, funds are transferred from the platform's escrow account to the designated bank account or payment gateway of the project creator. Platforms may impose withdrawal fees or processing charges to cover transaction costs and administrative expenses. Additionally, withdrawal timelines may vary depending on factors such as payment processing methods, bank policies, and jurisdictional regulations. Throughout the withdrawal process, platforms may employ security measures and fraud detection mechanisms to mitigate the risk of fraudulent activity or misuse of funds. By implementing robust authentication procedures and transaction monitoring systems, platforms seek to safeguard the interests of both creators and contributors and maintain the integrity of the crowdfunding ecosystem. A minimum approval threshold of 50% of the approvers is required to proceed with fund withdrawal. Once approved, the funds are transferred to the predetermined address determined by the group. All transactional activities and decisions made during this process are securely stored on the blockchain, ensuring transparency and resistance to alteration or manipulation. This elevated transparency and community driven decision making establishes an additional layer of security, rendering crowdfunding a more trustworthy and reliable avenue for startups to secure funds.

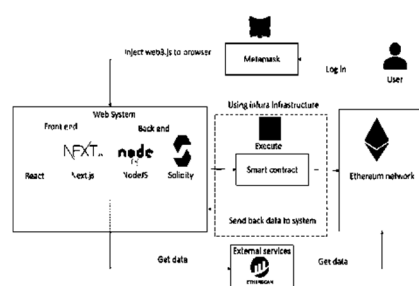


Fig. 2. The figures show the step-by-step process of working of our crowdfunding platform.

IV. RESULT

This section offers a visual representation of our study on crowdfunding platforms that utilize blockchain technology. Through a series of images, we provide an in-depth look into the platform's design, functionality, and user interface. These visuals serve as a comprehensive illustration of the platform's features and user experience, offering valuable insights into the implications of blockchain integration on crowdfunding campaigns:

- 1) **Introduction to Platform Homepage: Utilizing Blockchain for Crowdfunding Success:** The landing page of our crowdfunding platform presents highlighted projects, intuitive search functionalities, and emphasizes

transparent transactions facilitated by blockchain integration. Through authentic testimonials and adaptable design, it encourages engagement and motivates visitors to participate actively in the crowdfunding ecosystem.

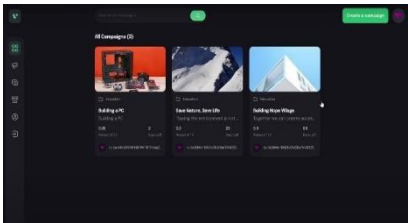


Fig. 3. Homepage Overview of Crowdfunding Platform Powered by Blockchain.

- 2) *Campaign Creation on the Platform:* This image encapsulates the user-friendly interface of our platform, demonstrating the straightforward steps for creators to launch their own crowdfunding campaigns. From setting funding targets to outlining project specifics, users have full control over their fundraising endeavors. With blockchain integration ensuring transparency and security, individuals can confidently seek financial support for their innovative ventures as shown in Figure 4.

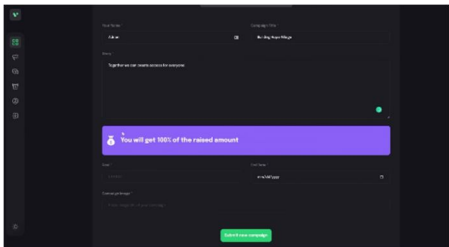


Fig. 4. Create Campaign Visual Guide.

- 3) *Funding to Campaigns:* This image illustrates the seamless process of contributing funds to campaigns on our platform. Users can explore a diverse range of projects and make secure contributions using blockchain technology. With transparent transaction records, backers can track their contributions and gain confidence in supporting innovative ventures. The image showcases the user interface, highlighting intuitive features for easy navigation and hassle-free funding. Through this visual representation, we emphasize the platform's commitment to fostering a supportive crowdfunding community.

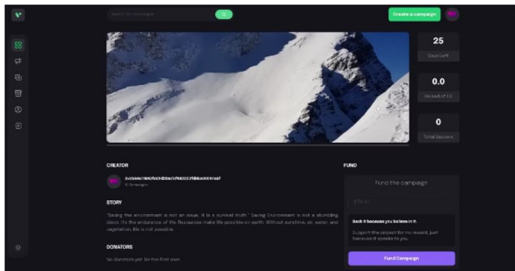


Fig. 5. Funding Contributions Visual Representation.

V. CONCLUSION

In culmination, this research paper has provided a comprehensive examination of the methodology underlying crowdfunding platforms, illuminating the intricate processes involved in campaign creation, contributor engagement, and fund withdrawal. Through meticulous analysis and discussion, we have gained valuable insights into the mechanisms that drive successful crowdfunding endeavors. The process of campaign creation serves as the cornerstone of crowdfunding, serving as the conduit through which project creators articulate their visions and funding objectives. By furnishing detailed project descriptions and multimedia content, creators endeavor to captivate the interest and support of potential backers, laying the groundwork for campaign success. Contributors play an indispensable role in the crowdfunding ecosystem, contributing financial resources and amplifying

campaign visibility through social engagement. Their contributions not only provide vital funding for projects but also foster a sense of community and collective ownership over shared initiatives. Fund withdrawal represents the culmination of the crowdfunding process, marking the moment when project creators access the funds raised to bring their projects to fruition. This phase necessitates rigorous verification and authentication procedures to ensure the integrity and transparency of fund disbursement, safeguarding the interests and trust of both creators and contributors. In light of the findings presented in this paper, it is evident that transparency, accountability, and trust are paramount in driving successful crowdfunding campaigns. By adhering to established protocols and best practices, crowdfunding platforms can cultivate an environment conducive to innovation, collaboration, and positive societal impact.

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