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HELPING MINDS – CROWDFUNDING PLATFORM POWERED BY BLOCKCHAIN

[1]Paranthaman P, [2]Shakthy Balan D, [3]Sukumar G, [4]Brinda P

[1]Student, [2]Student, [3]Student, [4]Assistant Professor
Computer Science and Engineering,
Vel Tech High Tech Dr Rangarajan Dr Sakunthala Engineering College , Chennai, India

Abstract : This paper introduces a crowdfunding application built on a blockchain-based platform, offering a transformative solution to the challenges faced by the current crowdfunding ecosystem. By leveraging blockchain technology and smart contracts, the proposed application aims to streamline the crowdfunding process, reduce transaction costs, and mitigate the risk of fraud. Through the transparent and decentralized nature of the platform, entrepreneurs can access a global pool of investors, while investors gain real-time updates on their investments. This application has the potential to revolutionize crowdfunding by providing a secure and transparent platform for entrepreneurs and investors to interact, exchange value, and foster innovation.

I. INTRODUCTION

Crowdfunding has gained significant popularity as an alternative method for entrepreneurs and startups to secure funding for their groundbreaking projects, circumventing the traditional avenues of financial intermediaries like banks and venture capitalists. Nonetheless, the current crowdfunding landscape faces various challenges, including exorbitant transaction costs, limited transparency, and the persistent threat of fraudulent activities. These challenges often dissuade potential investors and impede the overall growth of the crowdfunding market. Fortunately, the emergence of blockchain technology offers a promising solution to tackle these issues head-on. By providing a decentralized and secure platform, blockchain technology has the potential to revolutionize crowdfunding, making it more accessible, transparent, and efficient. Leveraging blockchain, crowdfunding can transcend barriers and attract a broader range of investors and entrepreneurs, with significantly reduced transaction costs and enhanced transparency. One key element of blockchain technology that can enhance the crowdfunding experience is the implementation of smart contracts. These self-executing programs, operating on the blockchain, automate the crowdfunding process, guaranteeing a fair and transparent distribution of funds. Through smart contracts, the proposed crowdfunding application harnesses the advantages of blockchain to create an ecosystem that is not only more efficient and secure but also fosters inclusivity and transparency. This unique paper presents an innovative crowdfunding application that leverages blockchain technology to overcome the limitations of the current crowdfunding landscape. By offering a transparent and accessible platform, this application empowers entrepreneurs to secure capital and allows investors to contribute to groundbreaking projects while mitigating the risks associated with fraud. With the potential to transform the crowdfunding industry, this proposed application promises to usher in a new era of financial inclusivity and transparency.

II. RELATED WORKS:

LITERATURE VIEW:

[1] Several studies have been conducted on the application of blockchain technology in crowdfunding. For instance, Liang and Chen (2020) conducted a systematic review of the literature on blockchain-based crowdfunding and identified key benefits and challenges associated with this approach. They concluded that blockchain-based crowdfunding has the potential to revolutionize the traditional crowdfunding industry, but several challenges such as regulatory concerns, scalability, and interoperability need to be addressed.

[2] Similarly, Gupta et al. (2020) investigated the potential of blockchain-based crowdfunding for small and medium-sized enterprises (SMEs) and concluded that it could be an effective way to raise funds and improve access to capital for these businesses. They also highlighted the need for proper governance structures and regulation to ensure the integrity and stability of the crowdfunding platform.

[3] In another study, Kshetri (2018) analysed the potential of blockchain technology for crowdfunding in developing countries. The study concluded that blockchain-based crowdfunding could help address the lack of access to finance and transparency issues in developing countries, but there are several challenges related to the regulatory framework, technical infrastructure, and adoption of the technology.

[4] Furthermore, Ermolaeva et al. (2021))conducted a literature review on blockchain-based crowdfunding for social impact projects. The study highlighted the potential of blockchain technology for improving transparency, trust, and accountability in crowdfunding for social impact projects. However, the authors also noted the need for further research to explore the potential of blockchain technology for scaling up social impact projects.

III. EXISTING AND PROPOSED SOLUTION:

3.1 EXISTING SYSTEM:

The existing solution highlighted the limitations of the current crowdfunding landscape. It emphasised the need for a decentralised and transparent platform that bypasses traditional financial intermediaries. The shortcomings addressed were high transaction costs, lack of transparency, and the risk of fraud, which can discourage potential investors and restrict the growth of crowdfunding..

3.2 PROPOSED SYSTEM:

In the proposed solution, blockchain technology is utilised to bring transparency, security, and efficiency to the crowdfunding process. Transactions and interactions are recorded on the blockchain, ensuring an immutable and transparent ledger. Smart contracts automate and enforce campaign rules, including funding targets, deadlines, and fund distribution. Funds are transferred instantly and securely, once a campaign reaches its goal or deadline it will be disabled, thanks to the automated execution of smart contracts. This eliminates the need for intermediaries and enables prompt access to funds for project creators. Overall, the proposed solution leverages blockchain to streamline and enhance the crowdfunding experience, providing immediate fund transfers and eliminating unnecessary delays.

3.2.1 ADVANTAGES:

- Decentralization: Crowdfunding websites that use Ethereum blockchain are decentralized, meaning that there is no single entity controlling the platform. This increases the security and transparency of the platform.
- Smart Contracts: Blockchain-based crowdfunding platforms often employ smart contracts, which are self-executing contracts with the terms of the agreement directly written into code. These smart contracts automatically enforce the conditions of the crowdfunding campaign, ensuring transparency and trust between the project creators and the investors.
- Global Accessibility: Blockchain-based crowdfunding platforms eliminate geographical
- barriers, enabling investors from around the world to participate in crowdfunding campaigns. The use of blockchain technology allows for seamless and secure cross- border transactions without the need for intermediaries, such as banks or payment processors.
- Instant Settlements: With blockchain, transactions can be processed and settled in near real-time, eliminating the need for intermediaries to facilitate transactions or validate ownership. This enables quicker and more efficient distribution of funds to project creators and faster liquidity for investors.
- Investor Protection: Blockchain-based crowdfunding platforms can implement features such as escrow services and multi-signature wallets to enhance investor protection. These mechanisms ensure that funds are held securely until predefined conditions are met, reducing the risk of misappropriation or misuse of funds.

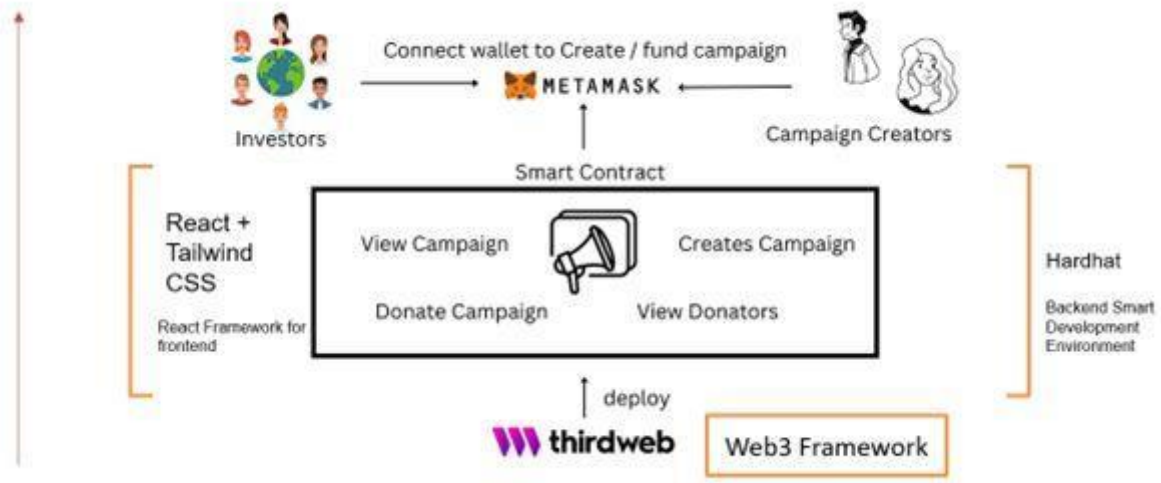
3.2.2 DISADVANTAGES:

- Technical Complexity: Implementing a crowdfunding solution based on blockchain technology requires technical expertise and understanding of smart contract development. This may pose a challenge for individuals or organizations without sufficient knowledge or resources to navigate the complexities of blockchain technology.
- Scalability Limitations: Blockchain technology, particularly public blockchains, may face scalability limitations due to the consensus mechanisms and transaction processing capacities. As the number of crowdfunding campaigns and participants increases, the blockchain network may experience congestion and slower transaction times, potentially impacting the user experience.
- Limited Adoption and Familiarity: Blockchain technology is still relatively new and not widely understood or adopted by the general public. The requirement for users to have a blockchain wallet and interact with smart contracts may create barriers to entry for some potential campaign creators and investors who are unfamiliar with these technologies.
- Irreversibility of Transactions: While the immutability of blockchain is a strength in terms of security, it can also be a drawback in cases of accidental or fraudulent transactions. Once a transaction is recorded on the blockchain, it cannot be easily reversed, potentially leading to irreversible loss of funds in the event of a mistake or malicious activity.
- Regulatory and Legal Challenges: The use of blockchain technology in crowdfunding may raise regulatory and legal challenges in certain jurisdictions. Existing financial regulations and securities laws may not have clear guidelines or frameworks to accommodate crowdfunding on the blockchain, leading to uncertainty and potential compliance issues.

IV. METHODOLOGY:

4.1 SELECTION OF FRAMEWORKS AND TOOLS:

The development of the crowdfunding application involved the careful selection of various frameworks and tools. Third Web, a Web3 Framework, was chosen as the platform for deploying the smart contract. Hardhat, a smart contract development environment, was utilized for the development process. Vite, a React framework, was selected for designing the front end. Additionally, MetaMask Wallet was used for facilitating transactions, while the Goreli Test Network with GoreliETH served as the wallet for Ethereum transactions.



4.2 CAMPAIGN CREATOR FUNCTIONALITY:

The functionality for campaign creators was designed to provide a seamless experience while ensuring the security and transparency of the process. Campaign creators were able to view existing campaigns and were required to connect their wallets in order to create new campaigns. The creation process allowed them to provide essential details such as their stories, the amount of Ethereum needed to be collected, and the number of days the campaign would run. Once the campaign was submitted, it became listed on the home page. Furthermore, campaign creators were given access to a dashboard where they could view the campaigns they had created.

4.3 INVESTOR FUNCTIONALITY:

The crowdfunding application also catered to the needs of investors, providing them with a user-friendly interface to explore and contribute to campaigns. Investors could view campaigns on the home page and, if they wished to fund a campaign, were required to connect their wallets. This enabled them to contribute funds and set the desired amount in Ethereum. The application provided investors with essential information, including the number of days remaining, the total number of donations, the list of donors, and the amount of Ethereum needed to be collected.

The methodology followed a systematic approach, employing the selected frameworks and tools to build a secure and efficient crowdfunding application. By integrating ThirdWeb for smart contract deployment, Hardhat for development, Vite for front-end design, and the Goreli Test Network and MetaMask Wallet for Ethereum transactions, the application ensured the smooth functioning of campaign creation and investment processes. The provided functionalities empowered campaign creators and investors alike, fostering transparency, security, and accessibility within the crowdfunding ecosystem.

V. EVALUATION MATRICES:

- Transparency: high transparency achieved, with all campaign-related activities recorded and visible on the blockchain ledger.
- Security: strong security measures in place, ensuring the integrity and safety of funds throughout the crowdfunding process.
- Efficiency: efficient execution of crowdfunding processes, minimizing time and effort required from campaign creators and investors.
- User experience: positive user feedback on ease of use, clear navigation, and seamless integration with blockchain wallets

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VI. CONCLUSION:

In conclusion, blockchain technology has the potential to revolutionize the crowdfunding industry by providing a more secure, transparent, and efficient platform for entrepreneurs and investors. By leveraging the advantages of blockchain technology, such as decentralization, immutability, and transparency, crowdfunding applications can eliminate intermediaries, reduce transaction costs, and increase accessibility. With the increasing adoption of blockchain technology and the growing

demand for alternative financing solutions, the future of crowdfunding applications using blockchain technology is promising, with numerous opportunities for growth and innovation. As blockchain technology continues to mature, we can expect to see more innovative solutions for crowdfunding that provide greater transparency, efficiency, and accessibility to entrepreneurs and investors around the world

VII. FUTURE SCOPE:

- Multiple Blockchain Integration: Expand to support diverse blockchain networks, offering users flexibility and interoperability.
- Asset Tokenization: Enable fractional ownership and liquidity of traditionally illiquid assets, unlocking new investment avenues.
- Decentralized Governance: Incorporate decentralized governance models for transparent decision-making and community engagement.
- Cross-Border Crowdfunding: Facilitate global fundraising by eliminating geographical barriers and providing a secure platform.
- Enhanced Investor Protection: Utilize advanced blockchain technology to enhance security measures and safeguard investor interests.
- AI and Data Analytics Integration: Harness AI and data analytics to gain valuable insights, optimize campaigns, and personalize recommendations.
- Social Impact Crowdfunding: Support crowdfunding campaigns dedicated to social causes and sustainable development goals.
- Collaboration with Financial Institutions: Forge partnerships with traditional financial institutions to bridge the gap between blockchain and existing financial infrastructure.
- Scalability Enhancement: Continuously improve scalability to accommodate growing numbers of campaigns and participants.
- Regulatory Compliance: Stay abreast of evolving regulations and ensure compliance with financial and securities laws.
- User Experience Optimization: Focus on enhancing the platform's usability, accessibility, and overall user experience.
- These future directions offer significant opportunities for innovation, expansion, and collaboration, allowing the platform to evolve into a more inclusive, transparent, and efficient crowdfunding ecosystem.

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