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Crowdfunding using Blockchain

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Abstract: Our project aims to build a decentralised crowdfunding platform utilising blockchain technology, removing middlemen for improved efficiency and trust. Transparency allows backers to follow contributions in real-time, reducing fraud, and smart contracts automate crowdfunding rules, maintaining integrity. This study offers recommendations for practical application, redesigning crowdfunding for inclusive and safe support of creative ventures. Future goals include expanding investment options, assisting research projects, integrating support for many cryptocurrencies, and putting decentralised governance and due diligence systems in place. We picture a revolutionary platform that empowers global creators and backers.
Keywords: Blockchain, Web3, Solidity

I. INTRODUCTION

Blockchain technology brings several advantages to the traditional crowdfunding model. Firstly, it enhances transparency by providing a decentralized and immutable record of transactions. This means that all participants can view and verify transactions, reducing the risk of fraudulent activities and increasing trust between project creators and backers. Additionally, blockchain technology improves security by eliminating the need for a central authority or intermediary. Transactions on the blockchain are secured through cryptographic encryption, making them highly resistant to tampering and fraud. This ensures that funds contributed by backers are securely stored and distributed according to the predefined rules set in smart contracts. Furthermore, blockchain-based crowdfunding platforms reduce transaction costs by eliminating intermediaries and their associated fees. With direct peer-to-peer transactions enabled by blockchain, project creators can receive funds without the need for third-party involvement, making the crowdfunding process more cost-effective. The decentralized nature of blockchain also enables faster settlements. Unlike traditional crowdfunding platforms that require manual processing and verification, blockchain-based transactions are automated and executed programmatically. This eliminates delays and reduces the time required for backers to receive rewards or project updates. Moreover, blockchain-based crowdfunding platforms have the potential to increase global accessibility and inclusivity. Geographical barriers are eliminated, allowing individuals from anywhere in the world to participate in crowdfunding campaigns. This opens up new opportunities for project creators to reach a larger audience and attract diverse backers. Overall, blockchain technology addresses the limitations of traditional crowdfunding methods by providing enhanced transparency, improved security, lower transaction costs, faster settlements, and global accessibility. These advantages pave the way for a more efficient and inclusive crowdfunding ecosystem.

II. METHODOLOGY

The crowdfunding project utilized a combination of technologies and frameworks to create a robust and interactive platform. The development process involved different components, such as the backend, frontend, smart contracts, and real-time communication.

For the backend development, the project used Solidity, a programming language specifically designed for writing smart contracts on the Ethereum blockchain. Solidity allowed the team to define the rules and logic of the crowdfunding platform, manage funds, and handle project creation and backer contributions. With Solidity, they could implement the necessary functionalities to ensure a secure and transparent crowdfunding process. On the frontend side, the team leveraged HTML, CSS, and JavaScript to design visually appealing web pages. HTML provided the structure and layout of the pages, CSS was used for styling and visual enhancements, and JavaScript enabled dynamic and interactive elements on the frontend. By combining these technologies, the team could create an engaging user interface that showcased project initiatives and allowed backers to support projects easily.

To integrate the frontend and backend components seamlessly, the project utilized React.js. React.js is a popular JavaScript library for building user interfaces, particularly single-page applications. It allowed the team to create reusable UI components and efficiently manage state changes. By leveraging React.js, the frontend could interact with the deployed smart contracts on the blockchain, enabling real-time communication between the user interface and the backend logic.

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III. RESULTS AND DISCUSSIONS

The crowdfunding project utilized Solidity for backend development, HTML, CSS, and JavaScript for frontend design, and React.js for integrating the frontend and backend components. Smart contracts were designed using Solidity to define crowdfunding platform rules, manage funds, and handle project creation and backer contributions. Concurrently, the frontend team created visually appealing web pages with HTML, CSS, and JavaScript, enabling project creators to showcase their initiatives and backers to support projects. To establish real-time communication between the frontend and backend, React.js facilitated dynamic and interactive user interfaces that seamlessly interacted with the deployed smart contracts on the blockchain. Throughout the development process, extensive testing and debugging, including unit and integration testing, were conducted to ensure the platform's reliability and functionality. This comprehensive approach resulted in a robust crowdfunding platform that provided a user-friendly experience, while also handling project creation, backer contributions, and fund management securely and efficiently.

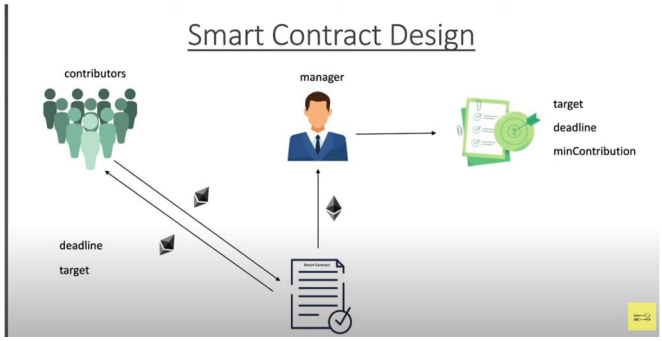

FIG 1: Smart Contract Design

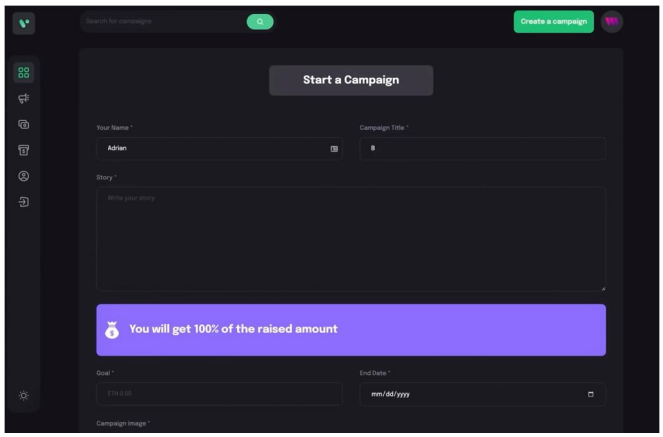

FIG 2: Screenshot of the website which enables the user to interact with the contract in the backend

The platform's elimination of intermediaries fosters trust and efficiency, attracting increased funding for projects. Smart contract automation maintains integrity and reduces disputes. Real-time transparency empowers backers, promoting accountability among project creators. This decentralized approach unlocks global inclusivity and mitigates fraud risks, creating a diverse innovation ecosystem. Regulatory considerations and collaboration are vital for sustaining this transformative crowdfunding model.

IV. FUTURE SCOPE

Expanding the platform to support funding for research initiatives and open-source projects can attract contributors from academic and developer communities, fostering innovation and collaboration.

Instead of focusing solely on crowdfunding, the platform can be repositioned as an investment forum which will enable entrepreneurs and business owners to present their investment proposals.

Currently, the platform may be limited to a specific blockchain or cryptocurrency. To cater to a broader audience, integrating multi-cryptocurrency support would enable backers to contribute using various cryptocurrencies, further enhancing inclusivity and accessibility.

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V. CONCLUSION

The crowdfunding project utilizing blockchain technology has demonstrated its potential to revolutionize traditional models by offering improved efficiency, trust, security, and transparency. The results and discussions have underscored the transformative impact of blockchain-based crowdfunding, paving the way for a more inclusive and secure environment for innovative projects.
By eliminating intermediaries and automating crowdfunding rules through smart contracts, the platform empowered project creators and backers, fostering direct peer-to-peer interaction. The transparency provided by blockchain ensured verifiability of fund allocation and project progress, enhancing trust among participants.

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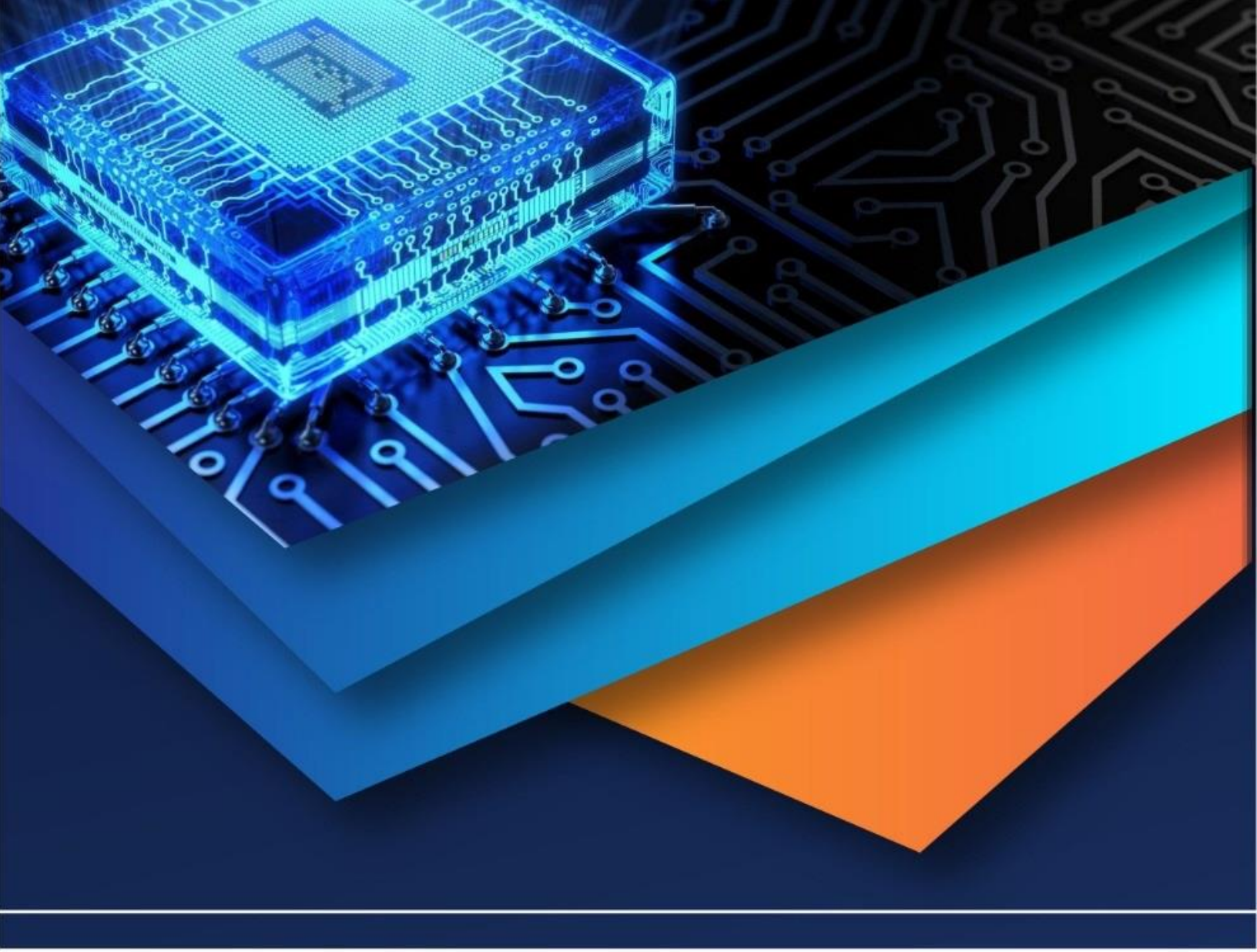

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