

Crowdfunding Decentralized Application

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Abstract - The crowdfunding decentralized application (Dapp) for this initiative is utilizing blockchain technology to transform conventional fundraising techniques. The Dapp, which is based on a decentralized network, offers people and organizations looking for funding for their projects an effective, secure, and public platform. Contributors can participate in trustless transactions via smart contracts, which guarantee that payments are released only after certain milestones are met. Because the Dapp is decentralized, there is no need for middlemen, which lowers costs and improves accessibility for supporters and fundraisers alike. This Dapp for crowdsourcing is an innovative way to democratize fundraising and encourage creativity in the digital age. It has features that are intended to protect against fraud, foster community involvement, and improve the user experience.

Key Words: Blockchain, Decentralized Application (Dapp), Decentralized Crowdfunding, Blockchain Crowdfunding, Smart Contracts, Trustless Transactions, Transparent Fundraising, Cryptocurrency, Crowdfunding, Intermediary-Free

1. INTRODUCTION

The advent of blockchain technology starting from the very first white paper of bitcoin[1] has brought about a revolutionary change in the constantly changing realm of fundraising, leading to the creation of innovative platforms that surpass the limitations of conventional crowdfunding. The field of decentralized applications (Dapps) for crowdfunding is examined in this paper, along with how they can drastically change the fundraising environment. As blockchain technology upends established financial paradigms, the inherent characteristics of decentralization, transparency, and smart contract capabilities come together to redefine how individuals and businesses obtain financing. The goal of this research is to investigate the intricacies of an emerging ecosystem that has enormous promise for democratizing finance access and fostering a new wave of cooperative innovation. It accomplishes this by carefully analyzing the benefits, drawbacks, and features of blockchain-based crowdfunding Dapps.

1.1 AIM AND OBJECTIVE

This research project aims to investigate and clarify the groundbreaking potential of DApps for crowdsourcing. Our primary objective is to examine the internal workings of these platforms and find out how they employ blockchain technology to build a decentralized, transparent, and secure fundraising environment. We will examine the distinct advantages they offer over traditional models, including trustless transactions facilitated by smart contracts, governance systems governed by the community, and inventive incentive structures offered by tokenization. Our study's ultimate goal is to assess the broader impacts of crowdfunding DApps, such as how well they can empower creators, engage and recompense communities, and create entirely new avenues for easy and secure fundraising. Our mission is to shed light on the crowdfunding industry's paradigm shift and the impact it has on creators and backers, opening the door for a more empowered and cooperative future for collective financing. In order to do this, we will assess the DApp ecosystem's present state and project its future course.

1.2 PROBLEM STATEMENT

Traditional crowdfunding systems have intrinsic limitations, despite the fact that they offer access to cash. Risks that impact both authors and backers include lack of financial management, centralized authority, and uncertainty about costs. While creators deal with platform limits, exorbitant costs, and a limited audience, funders worry about responsibility, transparency, and possible fraud. In addition, financial constraints or geographical isolation are common reasons why traditional institutions fall short of involving individuals and communities. These restrictions erode confidence, inhibit creativity, and create an uneven playing field. Crowdfunding DApps then present decentralization, security, and transparency as possible solutions. This article looks into how crowdsourcing DApps could help address these current problems and create a more powerful, fair, and efficient crowdsourcing finance environment.

2. RELATED WORK

Following are some works related to decentralized crowdfunding.

2.1 Gitcoin:

Focus: Open-source software development

Differentiator: Grants and bounties directly distributed to developers based on community votes, fostering collaboration and transparency.

2.2 DAOStarter:

Focus: Decentralized Autonomous Organizations (DAOs).

Differentiator: Enables fundraising for DAOs through token launches and community governance features, empowering DAO development.

2.3 MakerDAO:

Focus: Stablecoin lending and borrowing

Differentiator: Leverages the DAI stablecoin for crowdfunding campaigns, offering stability and reduced volatility compared to other cryptocurrencies.

2.4 DAOSquare:

Focus: Social impact projects

Differentiator: Curates projects with a positive social or environmental impact, attracting socially conscious investors and fostering community-driven change.

2.5 Aragon:

Focus: Decentralized governance and infrastructure.

Differentiator: Provides tools for creating and managing DAOs, enabling crowdfunding campaigns with built-in community governance mechanisms

2.6 KICKICO:

Focus: ICO & STO offerings.

Differentiator: Supports fundraising through Initial Coin Offerings (ICOs) and Security Token Offerings (STOs), providing wider funding options for projects.

2.7 QuantmRE:

Focus: Real estate fractional ownership

Differentiator: Enables fractional ownership of real estate through tokenization, opening up the market to smaller investors and offering new crowdfunding models.

2.8 WeFunder:

Focus: Equity crowdfunding (hybrid model)

Differentiator: Combines blockchain elements with traditional equity crowdfunding, offering investors ownership stakes in projects

3. METHODOLOGY

The methodology governing our crowdfunding decentralized application (Dapp) revolves around simplicity, user empowerment, and transparency. Through the integration of the Metamask wallet, users can seamlessly connect to the Dapp, gaining the ability to explore ongoing campaigns, back projects of interest, or initiate their own fundraising initiatives. The process for creating a campaign is user-centric, allowing campaign creators to upload essential details such as the title, description, image, and fundraising goal. The smart contract architecture ensures that campaigns automatically cease once their funding objectives are met or if the designated campaign duration concludes. This dynamic feature not only streamlines the user experience but also instills confidence in contributors by guaranteeing that their funds are deployed only when predetermined criteria are fulfilled. Importantly, every transaction within the Dapp is recorded on the blockchain, upholding a transparent ledger that is open for scrutiny by all users. This commitment to transparency is fundamental to the methodology, fostering trust and accountability throughout the crowdfunding process.

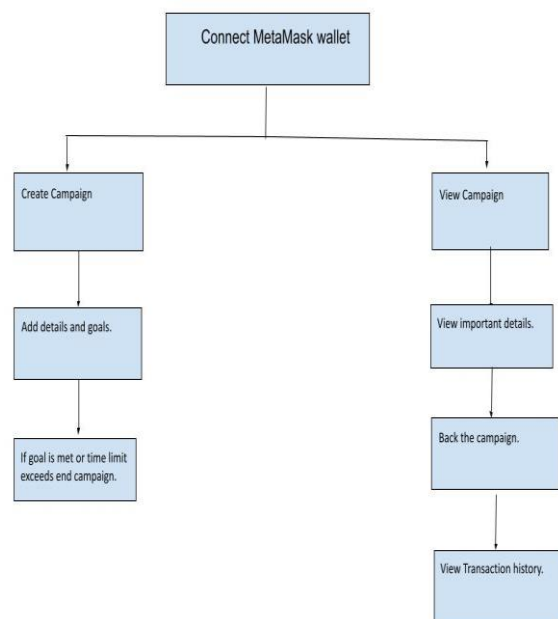


Fig -1: Flowchar of Crowdfunding Dapp

4. IMPLEMENTATION

A user by connecting to a MetaMask wallet can fund a campaign by exploring the fund explorer page. User can view the images, description, necessary links to the project and the total amount to be raised.

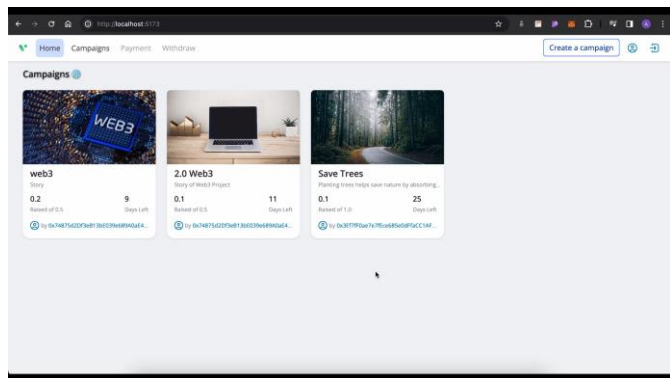


Fig -2: Funds Explorer Page

User sends funds directly to the fund manager using cryptocurrency. The transaction is transparent to all and is displayed below the donate campaign page.

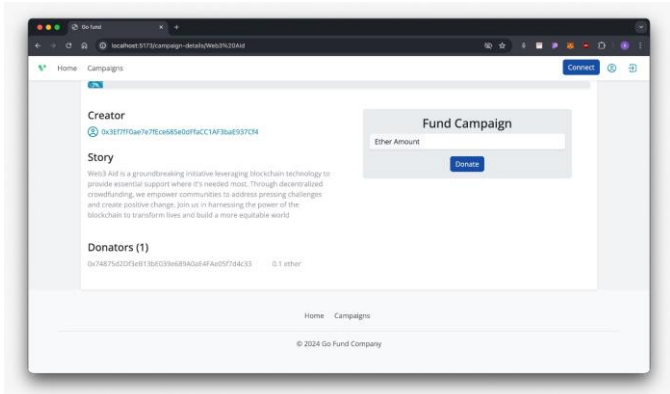


Fig -3: Donation Page

Campaign Dashboard is also provided using smart contract, displaying days left, amount raised and total backers.



Fig -4: Campaign Dashboard

User can also create his/her campaign, promoting himself as a fund manager for his/her campaign. User can add title, story, donation amount.

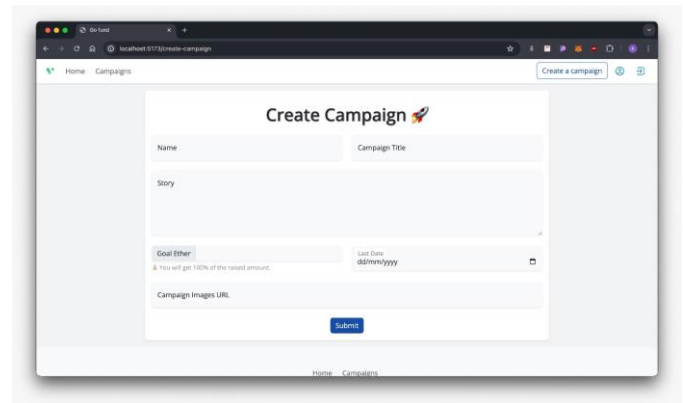


Fig -5: Campaign Creation Page

5. EVALUATION

Testing's such as Unit testing, Integration testing, Load and Stress testing were performed on the prototype. Some improvements regarding load testing were suggested by the testing team. These updates will be done in the next version upgradation, and after Acceptance testing the Dapp will be available for end user.

6. FUTURE SCOPE

Decentralized applications (Dapps) for crowdfunding hold great potential for future improvements and consequences. As blockchain technology develops, crowdfunding Dapps should become more scalable, efficient, and user-friendly platforms. The integration of artificial intelligence, decentralized finance (DeFi) principles, and advanced smart contract functionality could enhance the fundraising experience by providing donors and project creators with state-of-the-art tools and features. Additionally, the potential for cross-chain interoperability may expand the accessibility and reach of Dapps for crowdfunding, fostering the development of a truly global fundraising environment. Sustaining uniformity and clarity of legislation will be crucial for the broad adoption of regulatory frameworks as they develop.

7. RESULTS AND ANALYSIS

A crowdfunding dApp's analysis and findings can be derived from a number of sources. By evaluating fundraising campaigns in many categories and seeing patterns in project kinds, financing objectives, and token structures that appeal to backers, financial analysis would assess the performance of fundraising efforts. In order to evaluate the dApp's network effect and pinpoint areas for user acquisition and engagement enhancement, network analysis would monitor user growth, project creation rates, and transaction volume.

Smart contract audits would identify any flaws or weaknesses, providing information for future development and possibly affecting the platform's overall security. Social network research could reveal fraudulent activity, highlight popular marketing components, and look at user sentiment regarding initiatives. Developers may enhance their dApp regularly, optimize campaign structures, draw in new users and projects, and more by integrating these analytics.

Users can also verify the transaction using etherscan.io which registers all transactions taking place on the ethereum network.

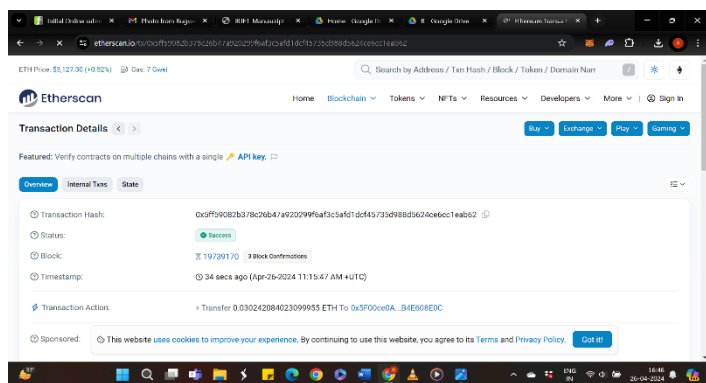


Fig -6: Campaign Creation Page

7. DISCUSSION

Crowdfunding is a key subtopic in the field of decentralized applications (DApps) that represents the democratization of fundraising. DApps, which are based on blockchain technology, transform traditional crowdfunding by doing away with middlemen, improving transparency, and encouraging involvement from all over the world. These platforms let creators to connect directly with a wide range of backers, circumventing traditional gatekeepers. Crowdfunding DApps revolutionize the way projects, from businesses to social initiatives, receive funding by utilizing smart contracts to automate processes and ensure trust. Their importance in changing fundraising in the future is highlighted by their promise to democratize finance.

8. CONCLUSIONS

To summarize, Dapps, or decentralized applications for crowdfunding, are a revolutionary development in crowdfunding that leverage blockchain technology's revolutionary potential. These innovative platforms have successfully disrupted traditional fundraising methods with their decentralized, transparent, and efficient ecosystem. Users may now support or launch campaigns with ease because of the automation of smart contracts, the integration of digital wallets, and improved campaign development methods. Because blockchains are transparent by nature,

contributors may rely on the ledger's accountability and openness.

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