Web3 Community Based Crowd-funding Platform With Blockchain Transactions

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report **"Web3 Community Based Crowd-funding Platform With Blockchain Transactions"** is the bonafide work of "Aadarsh Nagrath, Md. Ishan Anwar, Mitalee Verma, Arpit Yadav**"** who carried out the project work under my supervision.

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Submitted for the project viva-voce examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER

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List of Standards (Mandatory For Engineering Programs)

Standard	Publishing Agency	About the standard	Page no
IEEE 802.11	IEEE	IEEE 802.11 is part of the IEEE 802 set of local area network (LAN) technical standards and specifies the set of media access control (MAC) and physical layer (PHY) protocols for implementing wireless local area network (WLAN) computer communication.	Mention page nowhere standard is used.

ABSTRACT

The "Web3-Based Crowdfunding Platform with Blockchain Transactions" project is a forward-thinking initiative that seeks to transform the landscape of crowdfunding by harnessing the power of Web3 technology and blockchain. This endeavor is driven by the vision of providing creators with a secure, transparent, and decentralized platform, enabled by the use of smart contracts and blockchain technology, which instills trust and guarantees ownership.

The primary objectives of this project revolve around the creation of a user-friendly crowdfunding platform, the establishment of decentralized identity systems, and the implementation of blockchain transactions for fundraising purposes.

To achieve these goals, the project leverages Ethereum or similar blockchain networks to host smart contracts, thereby ensuring the highest level of transparency and global accessibility. By doing so, it aims to foster a new era of collaboration, innovation, and financial inclusivity within the realm of crowdfunding.

This groundbreaking initiative aspires to bridge the gap between creators and their supporters, ushering in a novel era of decentralized fundraising where trust, transparency, and security are paramount.

ABBREVIATIONS

- Web3: Decentralized Web
- Metamask: MetaMask Wallet
- Ethereum: Ethereum Blockchain
- Polygon: Layer-2 Scaling Solution for Ethereum
- NFT: Non-Fungible Token
- P2P: Peer-to-Peer
- Escrow: Financial Arrangement for Holding and Regulating Payments
- USDT: Tether Stablecoin
- Gas: Transaction Fee on the Ethereum Blockchain
- USD: United States Dollar
- Crypto: Cryptocurrency
- DApp: Decentralized Application
- Token: Digital Representation of Value on a Blockchain
- Minting: Creating New Tokens or Coins on a Blockchain
- Blockchain: Distributed Ledger Technology
- Crowdfunding: Funding a Project through Small Contributions
- NFT Marketplace: Non-Fungible Token Marketplace

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CHAPTER 1

INTRODUCTION

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1.1   Identification of Client / Need / Relevant Contemporary Issued

In the ever-evolving digital landscape, as technological frontiers continue to expand, the importance of addressing real-world issues remains paramount. Our journey unfolds within this dynamic context, with the creation of a pioneering solution – the "Web3 Community-Based Crowdfunding Platform with Blockchain Transactions."

- **Identification of Client / Need**
  People and communities who want a new, fair, and safe way to do crowdfunding and other financial transactions are our main stakeholders. In an era characterized by democratization and decentralization, there is an obvious need for a platform that goes beyond the constraints of conventional fundraising. Our clients are people who understand the transformational power of blockchain technology and want to use it for the greater good. They include both funders and campaign creators.

1.2   Relevant Contemporary Issues

We chart a journey through a digital landscape dotted with a number of relevant modern concerns. The emergence of Web3, distinguished by its decentralized architecture, signifies a significant departure from the conventional Web2 paradigm. Both possibilities and obstacles arise in this transformation. One of these difficulties is the tax ramifications that crowdfunding participants must deal with. The effectiveness of the money raised may be impacted by the tax-related complications that creators frequently face when they receive donations.

1.3   Problem Identification

The primary issues that this initiative aims to address are taxation and the difficulty of moving from Web2 to Web3. Conventional financial conventions and tax structures need to change in a Web3 ecosystem where blockchain technology and cryptocurrencies rule. For contributors and campaign creators to handle these intricacies with ease, they need a dependable system.

1.4   Tasks Identification

The journey ahead is marked by a series of crucial tasks. We are called to craft a digital infrastructure that not only streamlines the process of crowdfunding but, critically, offers solutions to taxation challenges in the Web3 realm. Our journey involves:

- **Platform Development:** The creation of an intuitive and user-friendly Web3 platform that empowers campaign creators and donors to harness the potential of blockchain technology effectively.

- **Escrow Account Feature:** Designing a robust escrow account system to facilitate the seamless exchange of cryptocurrencies into standard currencies, mitigating tax-related complications.

- **Unified Cryptocurrency:** The introduction of a unique cryptocurrency, designed to provide a standardized medium of transaction within the platform, ensuring a frictionless financial ecosystem.

1.5   Timeline

TASK	START DATE	END DATE	DURATION
1. **Project Initiation**	**14 Aug '23**	**21 Aug '23**	**1 Week**
2. **Research and Planning** - **Conduct Market Research** - **Define project requirements** - **Develop a project plan**	**22 Aug '23**	**5 Sep '23**	**2 Weeks**
3. **System Design** - **Design Architecture** - **Deciding features and application designing**	**7 Sep '23**	**21 Sep'23**	**2 Weeks**

4. Development - **Building Front-End and Back-End** - **Deploying Smart Contract**	**22 Sep '23**	**27 Oct '23**	**5 Weeks**
5. User testing and feedback - **Testing and Debugging** - **Fixing Bugs**	**28 Oct '23**	**4 Nov '23**	**1 Week**
6. Refinement and finalization - **Finalize Documentation**	**5 Nov '23**	**9 Nov '23**	**1 Week**

Table 1.1 - Timeline Table

1.6 Organization of the Report

CHAPTER 1: INTRODUCTION

- Introduction to the Web3 Community-Based Crowdfunding Platform
- Overview of the Problem Statement
- Objectives of the Project
- Significance and Innovation of the Project

CHAPTER 1

CHAPTER 2: LITERATURE REVIEW

- Introduction to Web3 and Blockchain Technology
- Benefits of Web3 and Blockchain for Crowdfunding
- Review of Existing Crowdfunding Platforms
- Best Practices for Designing Web3 Crowdfunding Platforms
- Summary of Key Findings and Research Gaps

CHAPTER 3: METHODOLOGIES

- Description of the Platform's Architecture and Technology Stack
- Target User Population and Selection Criteria
- Data Collection Methods (e.g., Wallet Integration, Campaign Creation)
- Data Analysis Methods (e.g., Blockchain Transactions, User Interactions)
- Summary of Methodology and Potential Limitations

CHAPTER 4: EXPERIMENTAL SETUP

- Analysis of the Platform's Impact on Crowdfunding
- Comparison with Traditional Crowdfunding Methods
- Feedback from Users through Surveys and Interactions
- Usability, Accessibility, and Satisfaction Assessment
- Discussion of Any Platform Limitations and Suggestions for Improvement

CHAPTER 5: CONCLUSION AND FUTURE SCOPE

- Conclusion on the Impact of Web3 Crowdfunding Platform
  Future Scope, including -
- Integration of AI for Campaign Assessment and Matching
- Introduction of Additional Features like Video-Conferencing
- Development of Paid Exclusive Features to Enhance User Experience
- Potential Expansion to Other Blockchain Networks
- Consideration of Legal and Regulatory Frameworks

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CHAPTER 2

LITERATURE REVIEW

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2.1. Timeline of the reported problem

- **Pre-Web3 Era:**

  <u>Early 2000s:</u> The advent of Web2 and centralized crowdfunding platforms, which imposed limitations on the accessibility and inclusivity of fundraising efforts.

  <u>Emergence of digital transactions:</u> Traditional online fundraising platforms allowed individuals and organizations to raise funds, but they operated within the boundaries of centralized systems.

- **The Web3 Revolution Begins:**

  <u>Mid-2000s:</u> The Web3 era commences, marked by the introduction of blockchain technology and decentralized networks.

  <u>Rise of cryptocurrencies:</u> The birth of cryptocurrencies, including Bitcoin, Ethereum, and others, lays the foundation for decentralized financial ecosystems.

  <u>Smart contracts and blockchain innovation:</u> The development of smart contracts on blockchain networks opens up possibilities for decentralized applications (dApps) and automated financial interactions.

  <u>Early experiments:</u> Web3 pioneers explore the potential of blockchain for fundraising, but challenges and complexities related to taxation and transaction efficiency emerge.

- **Present-Day Web3 Challenges:**

  <u>Taxation Dilemma:</u> As Web3 platforms gain prominence, concerns arise about the tax implications for campaign creators and donors when transitioning from Web2 to Web3.

  <u>Need for Unified Currency:</u> The fragmentation of cryptocurrencies makes it imperative to create a unified medium of exchange within Web3 platforms.

  <u>Escrow Solutions:</u> The demand for secure escrow accounts to facilitate the smooth conversion of cryptocurrencies into standard currencies becomes evident.

  <u>P2P Transactions:</u> The convenience of peer-to-peer transactions within the Web3 landscape underscores the need for user-friendly interfaces.

2.2.   Existing solutions

Here are some existing solutions for Web3 community based crowdfunding platform with blockchain transactions:

1. **Gitcoin Grants:** Gitcoin Grants is a decentralized crowdfunding platform that allows users to fund open source software development. It is built on the Ethereum blockchain and uses the Gitcoin token (GTC) as its native currency.

2. **DAOstack:** DAOstack is a set of tools and protocols that allow users to create and manage decentralized autonomous organizations (DAOs). DAOs can be used for a variety of purposes, including crowdfunding.

3. **Aragon:** Aragon is a platform that allows users to create and manage decentralized applications (dApps) on the Ethereum blockchain. It includes a variety of modules that can be used to build different types of dApps, including crowdfunding platforms.

4. **Colony:** Colony is a platform that allows users to create and manage decentralized networks of freelancers and contractors. It can be used to crowdfund projects by hiring freelancers to work on them.

5. **FundRequest:** FundRequest is a decentralized crowdfunding platform that allows users to fund projects without having to trust a central authority. It uses the Request Network (REQ) token to facilitate payments between campaign creators and contributors.

2.3.   Bibliometric analysis

[1] Saniya Zad, Zishan Khan, Tejas Warambhe, Rushikesh Jadhav (2022) Crowdfunding using Blockchain Technology
In this research paper, the concept of crowdsourcing—a novel financial system that has gained significant traction lately—is examined. The process of raising money for projects or campaigns from a large number of donors is known as crowdfunding. This is typically done through internet distribution platforms like Kickstarter, Indiegogo, and mystartr.com. It offers an inexpensive method of raising capital, expanding the market for innovative projects, reducing investment risk, and customizing financing plans for different types of businesses. The report emphasizes crowdfunding as a common form of financing that businesses and people can use. It highlights the opportunities and challenges that firms and investors face in this dynamic financing sector. Many crowdfunding-related subjects are covered in the article, including goal-setting, platform selection, trust, and interest-building. Utilizing past studies, it provides perspectives on the crowdfunding landscape. The ultimate objective of the suggested approach is to create a venue for efficiently marketing projects and raising money, which will increase the appeal of crowdsourcing as a funding option for both investors and artists.

[2] Shrishti Varshney, Satyam Aggarwal, Vinay Sharma, Rahul Sharma (2023) Crowd Gain – Crowdfunding Web Application Based on Blockchain using Ethereum
The research paper covers the idea of blockchain-based crowdfunding with Ethereum and MetaMask serving as the main technologies. It highlights the advantages of decentralized crowdfunding, emphasizing transparency, safety, and less fraud in comparison to traditional methods. Smart contracts on the Ethereum network are crucial for automating the allocation of funds according to preset standards. Connecting with decentralized apps is made simpler for users by the MetaMask browser plugin. The paper also mentions the Third Web, which is closely tied to blockchain technology and promises a more secure and decentralized internet. Campaign design, smart contract deployment, and transactional processes are all included in the "Crowd Gain" platform that is being evaluated. Contributions are made via MetaMask; in the event that the funding goal is met prior to the campaign's conclusion, the smart contract promptly transfers the funds to the creator; in the event that it is not, donors get a refund. The article concludes by endorsing blockchain-based crowdfunding as a secure and practical project fundraising mechanism with benefits over traditional methods. It acknowledges, however, that regulatory difficulties and investment risks must be minimized in order for this fundraising method to grow further.

[3] Firmansyah Ashari, Tetuko Catonsukmoro, Wilyu Mahendra Bad, Sfenranto, Gunawan Wang (2020) Smart Contract and Blockchain for Crowdfunding Platform
The incorporation of blockchain technology and smart contracts into crowdfunding procedures is examined in this research study, with a focus on overcoming the difficulties brought on by the Covid-19 pandemic. The study highlights the crucial role that trust plays in fundraising efforts and looks at the ways in which technological advancements might improve trust among various parties, including funders, fundraisers, and intermediary organizations. Donation-based, pre-selling, and equity crowdfunding are the three basic categories used in the article to classify crowdfunding. Fundraisers, funders, intermediary groups, and banks or other financial institutions are the four main parties it names as being involved in crowdfunding. The study describes the typical crowdfunding pipeline, which includes registering fundraisers and funders, creating campaigns, raising money, and disbursing it. It underlines the problems with the conventional model, including verification, reliance on outside parties like banks, and time-consuming procedures.

[4] Md Nazmus Saadat, Syed Abdul Halim, Husna Osman, Rasheed Mohammad Nassr, Megat F. Zuhairi (2019) Blockchain based crowdfunding systems
In order to solve problems like fraud and project delays, this research paper examines how blockchain technology, in particular Ethereum smart contracts, may be applied to crowdfunding platforms. Crowdfunding is the practice of raising money for initiatives without the help of established financial institutions by using online platforms. The article emphasizes the advantages of crowdsourcing, including its quick fundraising and higher investor involvement. It also highlights important flaws in conventional crowdfunding, such as fraud, a delay in incentives, and inadequate communication. It is suggested to use blockchain technology, which is well renowned for its decentralization and transparency. Smart contracts automate campaign execution and the blockchain's tamper-proof record ensures stakeholder trust while reducing fraud and delays. The paper describes the consensus algorithms and blockchain components in detail, highlighting their dependability and transparency. It talks about how smart contracts might be incorporated into crowdfunding to increase security by constructing contracts that retain funds until a

project's goals are completed. The research lacks specific findings and analyses despite discussing system design and Ethereum's Rinkeby network. Overall, the research points to the potential benefits of integrating blockchain and smart contracts to increase crowdfunding transparency and trust, benefiting both campaigns and contributors while solving significant problems with the current crowdfunding environment. The system will be improved with ERC-223 tokens in the future for faster operations.

[5] HELPING MINDS – CROWDFUNDING PLATFORM POWERED BY BLOCKCHAIN (2023) Paranthaman P, Shakthy Balan D, Sukumar G, Brinda P

This study proposes a crowdfunding application that uses blockchain technology to address pressing issues facing the industry. By-passing conventional financial intermediaries like banks and venture capitalists, crowdfunding has arisen as an alternative funding source for entrepreneurs and companies. However, it has problems including high transaction fees, little transparency, and the possibility of fraud, which scares away prospective investors and restricts market expansion. Using blockchain technology could be a solution. By boosting accessibility and transparency, it offers a decentralized, safe platform that can transform crowdfunding. This revolution is made possible by smart contracts, automated blockchain programs that guarantee fair and transparent fund distribution while getting rid of middlemen and fraud threats. With the help of blockchain technology and smart contracts, the proposed crowdfunding application will give business owners a transparent and approachable fundraising platform while giving investors safe ways to support cutting-edge ventures. Decentralization, open smart contracts, accessibility on a global scale, instantaneous settlements, and improved investment protection are benefits of the proposed system. Regulatory issues, scalability restrictions, and technical complexity are a few of the difficulties that must be overcome. The tools and frameworks are described in the methodology section, with an emphasis on their careful selection for a safe and effective crowdfunding application. In conclusion, blockchain-powered crowdfunding shows promise for a future where fundraising is more open, effective, and accessible.

[6] DECENTRALIZED CROWD-FUNDING USING BLOCKCHAIN - Ashish Sharma, Paras Chugh, Himanshu Singh Bisht (2022)

This research article explores the integration of blockchain technology into crowdfunding, aiming to address issues related to fraud and misuse of collected funds. The study begins by providing an overview of crowdfunding, its rapid growth, and its various types, including donation-based, incentive-based, equitybased, and debt-based crowdfunding. It emphasizes crowdfunding's potential to disrupt traditional fundraising methods. The article then delves into the role of blockchain technology in crowdfunding, explaining blockchain's immutable and decentralized nature, which enhances transparency and trust. It discusses the distinction between public and private blockchains and highlights Ethereum as an example of a decentralized public blockchain that supports smart contracts. The methodology section outlines how blockchain can be used to create a decentralized crowdfunding platform, focusing on the Ethereum blockchain's smart contract capabilities. The proposed system involves two smart contracts: one for managing fundraiser programs and the other for tracking transactions and details of each fundraiser program. In conclusion, the article acknowledges that decentralized crowdfunding is a relatively new concept with potential challenges and legal issues. However, it expresses optimism about the future of blockchain technology in crowdfunding, highlighting the need for further research and advancements in the field. In summary, the research article explores the integration of blockchain technology into crowdfunding as a means to enhance transparency, security, and trust in the fundraising

process, ultimately offering a potential solution to issues such as fraud and misuse of funds.

[7] Venturing Crowdfunding using Smart Contracts in Blockchain - Nikhil Yadav and Sarasvathi V (2020)

The writers of this study piece examine the drawbacks and shortcomings of conventional crowdfunding platforms as well as the ways in which blockchain technology can resolve these problems. In traditional crowdfunding, there are frequently middlemen who demand high fees, and these platforms might not ensure that the cash generated will be used as promised. Additionally, the fact that investors often have little control over the money they provide can breed unhappiness and distrust. The authors suggest a blockchain-based approach for crowdfunding to address these issues. Transparency is provided through blockchain technology, which lowers the risk of fraud by generating an open and unchangeable ledger of all transactions. The entire process of crowdfunding is automated by smart contracts, self-executing pieces of code, starting with project creation and fundraising all the way through to spending request approval. By ensuring that money is only distributed when certain criteria are satisfied, this automation increases contributors' trust. Writing smart contracts in the Solidity programming language, compiling them, and deploying them on the Ethereum blockchain are all steps in the development of this system. The development of a user-friendly decentralized web application will help project managers and contributors communicate with one another. This blockchain-based method to crowdfunding has many benefits. Knowing that their money is trapped in smart contracts until certain project milestones are reached, contributors have more control over their contributions. Less reliance on middlemen and improved fund management are advantageous to project managers. Both sides save money when middlemen are removed from the equation. According to this study, blockchain technology has the ability to greatly enhance the crowdfunding ecosystem by making it more efficient, secure, and transparent. It also emphasizes the expanding significance of blockchain technology across a range of sectors, such as banking and fundraising, opening the way for decentralized and trustworthy systems that give people and organizations more power.

[8] Crowdfunding Platform using Smart Contracts - Raunak Sulekh, Manas Katiyar, Devang Trivedi (2023)

Main focus of this research paper is to explore the use of blockchain technology to create a crowdfunding platform with a focus on improving transparency, security, and decentralization. It begins by highlighting the limitations of traditional crowdfunding platforms and introduces the concept of blockchain technology and smart contracts as potential solutions. The paper discusses the architecture and functionality of a crowdfunding platform built on a blockchain network, emphasizing its ability to provide safe and transparent fundraising, money tracking, and incentive delivery. It also discusses the advantages and challenges of implementing such a platform, including user acceptance and regulatory considerations. The primary goal is to leverage Ethereum's smart contract technology to enable global participation in fundraising campaigns, giving contributors more control over their contributions and fostering trust between fundraisers, donors, and the platform. The findings suggest that a blockchain-based crowdfunding platform can address many of the shortcomings of conventional platforms, as evidenced by a review of existing literature and case studies. The paper covers keywords like Crowdfunding, Smart Contracts, Blockchain, Ethereum, and Cryptocurrency. It is structured into several sections, including an introduction, a discussion of traditional fundraising problems and solutions, a review of related literature, a section on smart contracts, a proposed system using

blockchain, and a module description. In conclusion, blockchain-based crowdfunding platforms offer transparency, security, and efficiency advantages over traditional counterparts, potentially transforming how funds are raised for social causes and projects. As blockchain technology continues to evolve and gain wider acceptance, these platforms have the potential to create a positive social impact by democratizing fundraising and ensuring the accountable use of funds.

[9] Blockchain Based Crowdfunding - Siddhesh Jadye, Pratik Tayade, Gaurav Patil, Ashutosh Yadav, Vivek Lone (2023)

This research paper explores the use of blockchain technology to create a crowdfunding platform, emphasizing transparency, security, and decentralization. It addresses the limitations of traditional crowdfunding platforms and introduces blockchain and smart contracts as solutions. The proposed system leverages Ethereum's smart contracts to enable global fundraising campaigns, offering contributors more control and fostering trust. The paper covers keywords such as Blockchain, Smart Contracts, Crowdfunding, Ethereum, and Cryptocurrency. It is structured into several sections, including an introduction, a literature review, and a conclusion. Blockchain technology is introduced as a secure and tamperproof ledger, while smart contracts are discussed as selfexecuting agreements on the blockchain. The crowdfunding process is explained, highlighting the role of administrators, startup creators, and contributors. The literature review includes studies on the use of blockchain in crowdfunding platforms, emphasizing transparency, information symmetry, and security. It also compares blockchain-based and traditional crowdfunding approaches, highlighting the advantages and disadvantages of each. In conclusion, blockchain-based crowdfunding platforms offer reliability, transparency, and trustworthiness compared to traditional platforms. The immutability of blockchain data and the automation of smart contracts improve security and reduce fraud. However, further research is needed to enhance blockchain technology for more complex applications.

[10] Decentralized Crowdfunding Platform Using Ethereum Blockchain Technology - Siddhesh Jadye, Swarup Chattopadhyay, Yash Khodankar, Dr. Nita Patil (2021)

This research work explores the potential benefits of integrating blockchain technology into various industries, emphasizing its security, trustworthiness, and efficiency compared to traditional methods. It acknowledges the challenges faced by traditional systems due to their complexity and lack of security. The paper highlights the advantages of blockchain-based systems, including increased security, transparency, efficiency, and reduced fraud. It acknowledges that despite these advantages, the adoption of blockchain technology is hindered by a lack of knowledge. The focus of the research is on crowdfunding platforms and how blockchain technology can address issues faced by traditional crowdfunding methods. The methodology section introduces the concept of smart contracts and how they can be used to improve crowdfunding processes. It describes the workings of the Ethereum network and its role in deploying and managing smart contracts. The paper also discusses the comparison between the proposed blockchain-based crowdfunding method and existing methods. It points out that the proposed method provides contributors with more control over their contributions, reduces the risk of fraud, and ensures transparency. Siddhesh Jadyetechnology to enhance various industries, particularly crowdfunding. It suggests that blockchain can provide decentralization, fraud prevention, security, and efficiency. Overall, the research work aims to raise awareness of blockchain-based systems' benefits and their potential to improve transparency, efficiency, and security across industries.

2.4.   Review Summary

The bibliography analysis reveals a growing interest in integrating blockchain technology into crowdfunding platforms. These studies collectively highlight the potential for blockchain to revolutionize the crowdfunding landscape by enhancing transparency, security, and decentralization.

The literature review consistently underscores the role of smart contracts as a critical component of blockchain-based crowdfunding. These self-executing agreements automate various aspects of the crowdfunding process, such as fund distribution and campaign management, ultimately improving transparency and trust.

Decentralization is a recurring theme in the reviewed articles. Blockchain's decentralized nature is presented as a solution to the lack of transparency and high fees associated with traditional crowdfunding platforms. It is seen as a means to reduce fraud risk and empower contributors with more control over their contributions.

Ethereum is prominently featured as a blockchain technology that supports smart contracts. The articles highlight its potential to create secure and efficient crowdfunding platforms, underscoring its role in improving the crowdfunding process.

Regulatory challenges and legal issues are acknowledged as potential barriers to the widespread adoption of blockchain-based crowdfunding. Scalability, technical complexity, and regulatory compliance are among the challenges that must be addressed for the technology to reach its full potential.

The reviewed literature is optimistic about the future of blockchain-based crowdfunding, despite recognizing the need for further research and development. Blockchain is viewed as a technology with the potential to enhance the transparency, efficiency, and accessibility of fundraising campaigns, benefitting both project managers and contributors

CHAPTER 2

Year	Article Title	Authors	Tools/Software	Technique	Source	Evaluation Parameter
2022	Crowdfunding using Blockchain Technology	Saniya Zad, Zishan Khan, Tejas Warambhe, Rushikesh Jadhav	N/A	Crowdfunding	Research Article	Funding, Market Expansion, Investment Risk
2023	Crowd Gain – Crowdfunding Web Application Based on Blockchain using Ethereum	Shrishti Varshney, Satyam Aggarwal, Vinay Sharma, Rahul Sharma	Ethereum, MetaMask	Decentralized Crowdfunding	Research Paper	Safety, Openness, Fraud Prevention
2020	Smart Contract and Blockchain for Crowdfunding Platform	Firmansyah Ashari, Tetuko Catonsukmoro, Wilyu Mahendra Bad, Sfenranto, Gunawan Wang	N/A	Blockchain-based Crowdfunding	Research Study	Trust, Technological Advancements
2019	Blockchain based crowdfunding systems	Md Nazmus Saadat, Syed Abdul Halim, Husna Osman, Rasheed Mohammad Nassr, Megat F. Zuhairi	Ethereum, Smart Contracts	Crowdsourcing	Research Paper	Transparency, Fraud Prevention, Efficiency
2023	HELPING MINDS – CROWDFUNDING PLATFORM POWERED BY BLOCKCHAIN	Paranthaman P, Shakthy Balan D, Sukumar G, Brinda P	N/A	Crowdfunding Transformation	Research Study	Accessibility, Transparency, Investment Protection
2022	DECENTRALIZED CROWD-FUNDING USING BLOCKCHAIN	Ashish Sharma, Paras Chugh, Himanshu Singh Bisht	N/A	Decentralized Crowdfunding	Research Article	Transparency, Security, Trustworthiness
2020	Venturing Crowdfunding using Smart Contracts in Blockchain	Nikhil Yadav and Sarasvathi V	N/A	Blockchain-based Crowdfunding	Study Piece	Transparency, Fraud Prevention, Control
2023	Crowdfunding Platform using Smart Contracts	Raunak Sulekh, Manas Katiyar, Devang Trivedi	N/A	Crowdfunding on Blockchain	Research Paper	Transparency, Security, Efficiency
2023	Blockchain Based Crowdfunding	Siddhesh Jadye, Pratik Tayade, Gaurav Patil, Ashutosh Yadav, Vivek Lone	Ethereum, Smart Contracts	Crowdfunding on Blockchain	Research Paper	Transparency, Security, Decentralization
2021	Decentralized Crowdfunding Platform Using Ethereum Blockchain Technology	Siddhesh Jadye, Swarup Chattopadhyay, Yash Khodankar, Dr. Nita Patil	Ethereum, Smart Contracts	Crowdfunding on Blockchain	Research Work	Security, Trustworthiness, Efficiency

Table 2.1 - Literature Review Table

2.5.   Problem Definition

Transparency, security, and effective fund management are major issues facing modern crowdfunding platforms. These problems are particularly common in centralized systems, which frequently lack the required accessibility and control on a worldwide scale. It becomes essential to create a decentralized blockchain system in order to address these problems.

These issues can be successfully resolved by a decentralized blockchain-based platform that provides a ground-breaking method of crowdfunding. First off, by keeping a record of every transaction on an unchangeable, tamper-proof ledger, it guarantees transparency. This fosters transparency and trust throughout the ecosystem by making it simple for anyone to track down and validate each donation and financial allocation.

Moreover, by automating the implementation of predetermined rules and agreements, smart contracts—a keystone of blockchain technology—streamline fund management. Because of this automation, there is less chance of mistakes and disagreements, and the money is distributed exactly as project creators and backers have intended. Essentially, smart contracts serve as the foundation for a crowdfunding procedure that is safer and more effective.

Decentralized blockchain technology considerably improves the security of the crowdfunding procedure. Through the removal of centralized points of vulnerability, such a single server or authority, the blockchain reduces the likelihood of fraud and hacking. Because every transaction is authenticated and encrypted over a dispersed network of nodes, it is incredibly difficult for bad actors to compromise the system.

The empowerment that blockchain-based crowdfunding platforms offer to project creators and funders is among its most revolutionary features. By taking ownership and management of their assets and donations, they encourage direct communication and lessen the need for middlemen. In addition to fostering trust, this face-to-face communication makes crowdfunding more dynamic and collaborative.

CHAPTER 2

2.6. Goals/Objectives

1. Revolutionize Crowdfunding :

- By implementing blockchain technology, create a paradigm shift in the crowdfunding landscape. Move beyond traditional methods that often involve intermediaries and high fees, providing a more decentralized, efficient, and transparent alternative.

- Give campaign creators direct access to a worldwide network of possible investors and funders to lessen their reliance on centralized financial institutions.

2. Empower Creators and Causes:

- Provide an adaptable platform that helps a wide range of efforts and projects, from creative ventures and inventive enterprises to philanthropic causes and social impact projects.

- Empower individuals and organizations to convey their visions and missions, fostering a sense of ownership and community support.

3. Enhance Accessibility:

- Remove geographical and financial barriers to entry by accepting cryptocurrencies. This makes fundraising accessible to people worldwide, regardless of their location or access to traditional banking services.

- Give people in areas with poor financial infrastructure the ability to engage in crowdfunding to increase the opportunities available to both funders and project developers.

4. Community Building:

- Facilitate a vibrant community of users by providing features that encourage interaction, collaboration, and decision-making within the platform.

- Enable users to form connections, discuss campaigns, and collectively decide which projects to support. This community-driven approach can enhance trust and engagement.

5. Tax-Efficient Crowdfunding:

- Mitigate the challenges associated with cryptocurrency donations, such as tax implications, by offering an escrow account feature.

- This feature allows users to convert cryptocurrency donations into stablecoins, reducing the impact of cryptocurrency price volatility and simplifying tax reporting.

6. Innovative Transaction Medium:

- Introducing a native cryptocurrency as a transaction medium within the platform provides a unified, efficient, and cost-effective means of exchange.

- This invention gives customers a single, easily navigable currency for all platform transactions, streamlining the donation and funding process.

7. User-Friendly Interface:

- Develop an aesthetically pleasing, intuitive user interface that caters to both campaign creators and donors.

- Make sure that the platform is easy to use and intuitive for users to the extent that even those who are not familiar with blockchain technology can do so.

DESIGN FLOW / PROCESS

3.1. Evaluation & Selection of Specifications/Features

1. The literature review discusses research articles related to Web3 Crowdfunding platforms and identifies the following key features and characteristics -

- **Blockchain Technology:** Blockchain technology is a major component of Web3 crowdfunding platforms, which frequently use well-known blockchain networks like Ethereum. The fundraising process is made transparent, unchangeable, and trustworthy thanks to this technology.

- **Smart Contracts:** Web3 crowdfunding relies heavily on smart contracts. These self-executing contracts streamline transparency and wipe out the need for middlemen by automating a number of tasks, such as incentive fulfillment, campaign management, and fund distribution.

- **Decentralization:** Web3 crowdfunding platforms are decentralized, which means they operate without a central authority. This decentralization increases transparency, reduces fraud, and empowers contributors with more control over their contributions.

- **Transparency:** Blockchain-based crowdfunding provides an open and immutable ledger of all transactions, ensuring transparency in the use of funds and the progress of fundraising campaigns.

- **Security:** Blockchain technology enhances the security of web3 crowdfunding platforms by providing tamper-proof records and reducing the risk of fraud, project delays, and misuse of collected funds.

- **Efficiency:** Web3 crowdfunding sites are thought to operate more effectively than their conventional counterparts. There is less dependence on middlemen and greater control over contributions from contributors, which saves money for both project managers and contributors.

- **Regulatory Challenges:** The literature acknowledges that there are regulatory challenges and legal issues to address in the adoption of web3 crowdfunding. Scalability, technical complexity, and regulatory compliance are among the challenges that need to be overcome.

- **Future Potential:** The literature is upbeat about the prospects of web3 crowdfunding platforms in spite of the difficulties. It is believed that blockchain technology has the ability to completely transform fundraising by increasing transparency, effectiveness, and accessibility—a feature that will benefit donors as well as project managers.

CHAPTER 3

2. The features in the solution are -

- **User-Friendly UI/UX:** The platform offers an intuitive and aesthetically pleasing user interface and user experience, enhancing engagement for both campaigners and donors.

- **Crowdfunding Campaigns:** Users can create campaigns for crowdfunding their projects, missions, or initiatives, attracting support from the community.
  - User have to fill in the important details like -
    - Name and title
    - Campaign story and amount to be raised
    - Campaign expiry date and an image of the campaign

- **Donation Mechanism:** Donors can easily contribute crypto to the campaigns they wish to support, streamlining the fundraising process.
  - In order to donate to the campaign one can easily select the campaign and enter the amount to be donated.
  - Donators transaction id is stored and mentioned along with that funded campaign.

- **Multi-Blockchain Support:** Our platform operates on both the Ethereum and Polygon blockchains, offering users flexibility and choice in their transactions.
  - Project can be scaled to any blockchain network, if corresponding Mainnet network and its RPC is available.

- **Escrow Account:** Users can use an escrow account feature to exchange their cryptocurrency into a stablecoin like USDT, mitigating the tax implications of crypto donations and providing financial flexibility.
  - Escrow Account allows users to exchange their funded donations with other users, and ensures safety.

- **Community Communication:** Users can interact with one another within the platform, discussing campaigns, projects, and missions, and collectively deciding where to allocate funds.

- **P2P Crypto Transactions:** The platform facilitates peer-to-peer cryptocurrency transactions, allowing users to send and receive crypto directly.

- **Responsiveness:** The application should be responsive and perform well on various devices and platforms, including desktop, mobile, and tablet.

- **NFT Marketplace:** Although not the primary focus, users can engage in buying and selling NFTs within the platform, further expanding the ecosystem's capabilities.
  - Users can create NFTs
  - Participate in Live Auction and place bids

3.2. Design Constraints

- **Limited internet connectivity -** There may not be as much or consistent internet connectivity in rural locations, which can lead to buffering, slow page loads, and other problems. The website's design would need to be adjusted for low-bandwidth connections in order to remedy this, for as by reducing the usage of large graphics and videos. The website should also be able to continue operating even in the event of sporadic connectivity, for example, by utilizing offline capabilities that let users access and engage with content.
- **Blockchain Technology Limitations** - There are limits to blockchain networks, like Ethereum and Polygon, in terms of scalability and transaction speed. The functionality and user experience of the platform may be impacted by certain limitations.

- **Cryptocurrency Volatility** - Prices of cryptocurrencies are often unstable. This may have an effect on the platform's assets and donation values, which may have an influence on users' financial choices.

- **Regulatory Compliance** - Compliance with local and international regulations is crucial. Ensure that your platform complies with legal and tax requirements in the jurisdictions it operates in.

- **Wallet Compatibility** - Your platform relies on users having compatible cryptocurrency wallets, primarily Metamask. Some users may not be familiar with or willing to use such wallets.

- **Smart Contract Security** - Smart contracts are susceptible to vulnerabilities and hacks. Implement rigorous security testing and ensure that your smart contracts are audited by professionals.

- **User Education** - Cryptocurrency and blockchain technology can be complex. Design the platform with user-friendly features and provide comprehensive educational resources to bridge the knowledge gap.

- **Scalability** - As the platform grows and attracts more users, it must be scalable to handle increased traffic and transactions without a significant drop in performance.

- **Data Privacy and Security** - Ensure that user data and transactions are securely stored and managed. Implement robust data privacy measures to protect user information.

- **Interoperability** - Consider the compatibility of your platform with different blockchain networks, as users may have preferences or limitations regarding which network they use.

- **User Onboarding Challenges** - Onboarding users to Web3 and your platform may be challenging, particularly for those unfamiliar with cryptocurrency and blockchain technology.

- **Third-Party Integrations** - If you rely on third-party services, such as price oracles or payment processors, be aware of their limitations and potential downtime.

- **Costs and Fees** - Transaction fees on the blockchain (gas fees) can fluctuate and impact the cost of using the platform. This should be carefully managed and communicated to users.

3.3.   Analysis of Features and finalization subject to constraints

A. Analysis Of Features

- **Blockchain Integration:** Your project integrates with the Ethereum and Polygon blockchains, allowing users to send and receive cryptocurrencies. This provides transparency and security for transactions.

- **Metamask Wallet Integration:** The integration of Metamask simplifies the process of connecting wallets, making it user-friendly and secure.

- **Crowdfunding Campaigns:** The platform allows users to create crowdfunding campaigns. This feature empowers individuals and organizations to raise funds for various purposes, leveraging the power of the community.

- **Donation Functionality:** Users can donate to campaigns, supporting projects and causes that resonate with them. The transparent nature of blockchain ensures that donors can track how their contributions are being used.

- **Community Communication:** The ability for donors to communicate and collaborate within the platform fosters a sense of community. This feature encourages collective decision-making and engagement, enhancing the overall user experience.

- **P2P Transactions:** Enabling peer-to-peer transactions within the platform allows for more extensive use cases. Users can easily send and receive cryptocurrencies from each other, promoting financial inclusion.

- **NFT Marketplace:** While not the primary focus, the inclusion of an NFT marketplace adds an additional dimension to the platform, attracting users interested in digital collectibles and digital art.

- **Custom Cryptocurrency:** The creation of your own cryptocurrency adds an element of uniqueness to the platform. It offers a unified medium of exchange and may potentially encourage users to engage more with the platform's native currency.

B. Finalization Subject To Constraints

- **Regulatory Compliance:** The use of, crowdfunding, and NFTs can have complex legal and regulatory implications. Ensure that your platform complies with local and international regulations, especially regarding tax handling, KYC/AML procedures, and securities laws.

- **User Education:** Educating users on how to use blockchain technology and cryptocurrency is crucial, especially for those unfamiliar with the space. A user-friendly onboarding process and educational resources should be in place.

- **Security:** With blockchain and cryptocurrency involved, security is paramount. Implement robust security measures to protect user funds and data, such as multi-factor authentication, encryption, and continuous security audits.

- **Competition:** The blockchain and crowdfunding spaces are highly competitive. Ensure that your platform offers unique features and a compelling value proposition to stand out from the crowd.

- **User Adoption:** Convincing users to transition from web2 to web3 is a challenge. Highlight the benefits, like the escrow account feature, transparency, and the potential for reduced tax burdens.

● **Community Building:** Building an engaged user community is vital. Encourage user participation and ensure the community aspect is an integral part of your platform's success.
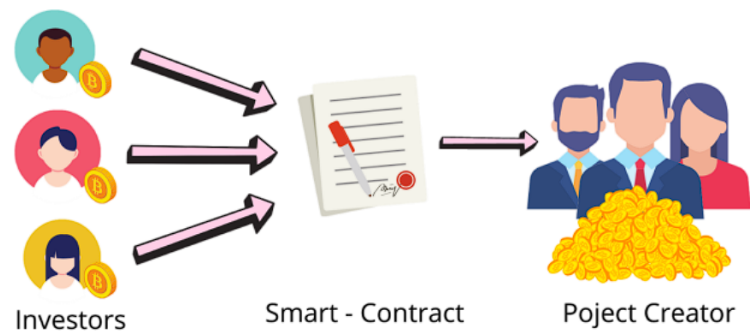

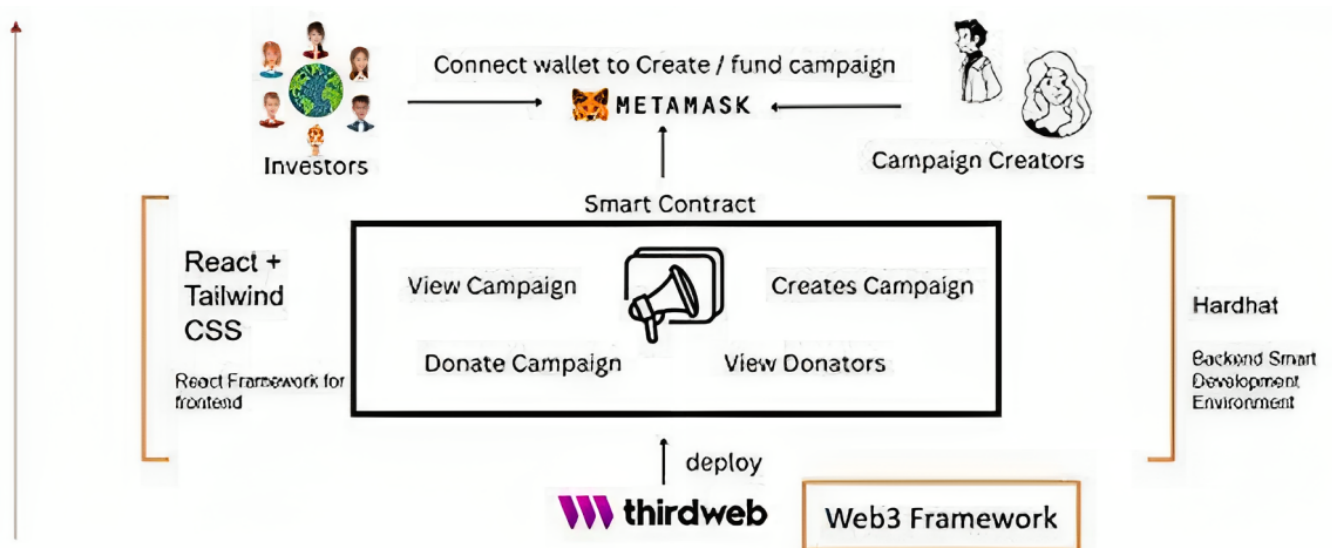
Fig 3.1 - Investor - campaign creator

3.4. Design Flow

Fig 3.2 - Design Flow

3.5.　Design Selection

- **Define the Requirements:** Begin by defining the specific requirements of your Web3 crowdfunding platform. Clearly identify the features, functionalities, and user expectations. This is the foundation upon which your design will be built.

- **Choose Blockchain Technology:** Given the blockchain integration in your platform, select the appropriate blockchain technology, such as Ethereum or Polygon, to build on. Consider factors like scalability, transaction costs, and community support.

- **Develop the Platform:** Utilize the chosen blockchain technology and cloud services to develop the core of your crowdfunding platform. Leverage smart contracts for transparent and automated crowdfunding operations.

- **Configure the Platform:** Set up the user interface and experience. Develop the wallet integration with Metamask, create a user-friendly dashboard for campaign creators and donors, and establish secure user accounts.

- **Set up the Environment:** Configure the blockchain environment, including creating wallets, managing transactions, and setting permissions for users, campaigns, and community features.

- **Test the Platform:** Rigorously test your platform to ensure security and functionality. Pay special attention to blockchain transactions, wallet integration, and smart contract operations. Identify and address any bugs or vulnerabilities.

- **Launch the Platform:** Once testing is successfully completed, launch your Web3 crowdfunding platform. Ensure clear communication to your target users about the benefits and unique features it offers.

- **Monitor and Maintain the Platform:** Continuously monitor the platform for issues, such as transaction delays or security threats. Implement security updates and patches promptly to maintain a secure and smooth user experience.

- **Continuously Improve the Platform:** Regularly gather user feedback and input from the community. Use this feedback to enhance and expand the platform. Consider adding features like analytics tools for campaign creators, NFT marketplace improvements, or additional blockchain integrations.

CHAPTER 3

3.6. Implementation plan/methodology

Here is a general methodology -

1. **Project Charter:**

   The project charter serves as the foundation for your entire project. It outlines the scope, objectives, timeline, and resource requirements. It's not just a formal document; it's a living reference that guides the project from inception to completion. It defines the specific goals of the crowdfunding platform, the expected outcomes, and the overall project vision. A well-crafted project charter helps align the team, stakeholders, and other participants with a shared understanding of the project's purpose and direction. It also sets clear boundaries, helping to prevent scope creep and maintain focus throughout the project's lifecycle.

2. **Requirements Gathering:**

   Requirements gathering is a crucial step in the development process. It involves understanding the needs and expectations of all project stakeholders, especially users. This process should include conducting user interviews, analyzing competitors in the crowdfunding and blockchain space, and evaluating the regulatory landscape. By engaging with potential users and analyzing the market, you can identify specific features, functionalities, and regulatory considerations that your platform must address. Understanding your competitors can provide insights into what works and what doesn't in similar platforms, helping you identify unique selling points for your project.

3. **Blockchain Selection:**

   The selection of the appropriate blockchain technology is a pivotal decision that impacts the platform's performance and scalability. To choose the right blockchain (e.g., Ethereum, Polygon, etc.), consider factors such as scalability, security, and community support. Scalability is essential to handle a potentially high volume of transactions, while security ensures the safety of user data and funds. Assess the level of support and development activity in the chosen blockchain's community. It's critical to opt for a blockchain that aligns with your project's goals and can accommodate potential future growth.

4. **Smart Contract Development:**

   Smart contracts are at the core of your platform's operations, particularly for crowdfunding, escrow, and NFT marketplace transactions. Developing smart contracts requires meticulous coding and adherence to best practices. Security audits are crucial to identify vulnerabilities in the smart contracts that could be exploited by malicious actors. A thorough audit helps ensure the robustness of your smart contracts and secures the integrity of the crowdfunding process. The implementation of secure smart contracts is pivotal in gaining users' trust and ensuring the platform's long-term success.

5. User Interface (UI/UX) Design:

User experience design is a critical component of your platform's success. An engaging and user-friendly design enhances the overall user experience. Considerations must extend to Metamask wallet integration, ensuring that users can easily connect their wallets and perform transactions seamlessly. The user interface (UI) should be visually appealing and easy to navigate, promoting user engagement and satisfaction. The user experience (UX) design should prioritize the ease of use, guiding users intuitively through the platform. The design should align with the branding and messaging of your crowdfunding platform, fostering user trust and loyalty.

6. Development:

The development phase involves the actual creation of the front-end and back-end components of your platform. Following the requirements defined earlier, this phase includes the coding and implementation of features, functionalities, and integrations. It's important to maintain a high standard of code quality, following best practices in software development. The integration of blockchain features should be executed seamlessly, allowing for secure and efficient interactions with the chosen blockchain technology. Regular testing is essential to identify and resolve bugs and issues during development.

7. Blockchain Integration:

Integrating the blockchain features is a critical aspect of your project. This includes connecting users' wallets, managing transactions, and providing real-time tracking of donations and NFT sales. The integration should be seamless, providing users with a straightforward and secure experience. This ensures that blockchain operations, which underpin the transparency and security of the platform, are executed efficiently. In addition to technical integration, it's important to communicate blockchain functionality clearly to users through the platform's user interface and educational materials.

8. Escrow Account System:

The implementation of the escrow account system is a significant feature of your crowdfunding platform. It allows users to exchange cryptocurrencies into stablecoins, reducing the tax burden. This feature should be designed with security and transparency in mind. It ensures that users have a mechanism to manage tax implications effectively. Security measures must be in place to protect the assets in escrow, and the system should provide clear documentation and transaction history to users for tax reporting purposes.

9. Community and Communication Features:

Creating a community hub within your platform is essential to foster user engagement and collaboration. Users should be able to discuss campaigns, share feedback, and collectively decide which projects to fund. This feature is more than just a social aspect; it's a vital component of community-driven crowdfunding. It empowers users to have a say in where their contributions go and builds a sense of ownership within the platform. The community hub should be user-friendly and include discussion forums, voting mechanisms, and transparent tracking of campaign progress to facilitate collective decision-making.

CHAPTER 3

10. NFT Marketplace Integration:

The NFT marketplace is an additional feature of your platform that requires integration. It should provide users with a seamless experience for buying and selling NFTs. This includes user-friendly browsing, bidding, and transaction capabilities. The marketplace should have a visually appealing design and robust search and discovery features to help users find NFTs of interest easily. Integrating blockchain technology for the creation, ownership, and transfer of NFTs is crucial for the security and authenticity of these digital assets.

11. Testing:

Rigorous testing is essential to ensure the reliability and security of your crowdfunding platform. It encompasses multiple types of testing, including security audits, functional testing, performance testing, and user acceptance testing. Security audits are critical to identifying and addressing vulnerabilities in your code and smart contracts that could be exploited by malicious actors. Functional testing checks whether all features and functionalities work as intended. Performance testing assesses how the platform behaves under different loads and conditions, ensuring it can handle a substantial user base. User acceptance testing involves real users using the platform to identify any issues from a user perspective.

12. Deployment:

Deployment marks the transition from development to public use. Initially, the platform should be deployed to a testnet to ensure a smooth and secure user experience. A testnet allows you to identify and address any potential issues before launching on the mainnet. The mainnet deployment should be well-coordinated, involving careful planning and the allocation of resources to handle potential user demand. During the deployment phase, it's essential to communicate clearly with your users about the launch, including how to access and use the platform.

13. User Support and Training:

Providing comprehensive user support and educational materials is crucial for user adoption and satisfaction. Users, especially those new to blockchain technology, will require guidance to navigate your platform effectively. User support channels should be established, including email or chat support, to address user inquiries and resolve issues promptly. Educational materials, such as guides, FAQs, and video tutorials, should be available to help users understand blockchain and your platform's specific features. A well-informed user base is more likely to engage with your platform confidently.

CHAPTER 3

14. Monitoring and Maintenance:

Continuous monitoring is necessary to oversee the platform's performance, security, and user feedback. Monitoring tools can detect security threats and performance issues, allowing you to address them proactively. Regular maintenance involves applying software updates, patches, and improvements to ensure the platform's security and performance. User feedback is invaluable in identifying areas for improvement. By responding to user suggestions and addressing their concerns promptly, you can maintain a positive user experience and platform reputation.

15. Community Engagement:

Fostering community engagement is vital for building a strong and active user community. Responding to user feedback and addressing their concerns creates a sense of involvement and ownership among your user base. Conducting regular community events, such as live Q&A sessions, virtual meetups, or webinars, provides opportunities for users to interact, share insights, and learn from one another.

16. Scaling and Growth:

As your user base grows, scalability becomes a primary consideration. Scaling your infrastructure to handle increased demand is essential to maintain a smooth and responsive user experience. You may also consider adding support for additional blockchains to expand the platform's reach and accessibility. Expansion can include integrating with other blockchain technologies to reach a broader user base or exploring cross-chain compatibility.

17. Data Privacy and Security:

Implementing strong data privacy and security measures is paramount to protect user data and assets. Ensure that user data is handled securely, stored with encryption, and accessible only to authorized personnel. Implement robust access controls and authentication mechanisms to safeguard user accounts and prevent unauthorized access. Regular security audits should be conducted to identify and address vulnerabilities. Data privacy policies and terms of service should be transparently communicated to users, establishing trust and compliance with data protection regulations.

18. Documentation:

Comprehensive documentation is essential for both internal and external stakeholders. This documentation includes smart contract code, UI/UX guidelines, and user manuals. Smart contract documentation provides transparency regarding the platform's operations, contributing to user trust. UI/UX guidelines ensure consistency in design, helping maintain a coherent user experience. Internal documentation is vital for your development team and future maintenance, helping new team members understand the project's architecture and functionality.

CHAPTER 3

19. Continuous Improvement:

Continuous improvement is a fundamental aspect of maintaining the platform's relevance and competitiveness. Regularly analyzing user behavior and gathering feedback provides insights into user preferences and areas for enhancement. User feedback should drive the addition of new features and refinements to the platform. Staying agile and adaptable to evolving blockchain trends is key, allowing you to remain at the forefront of the industry. As technology evolves and user needs change, your platform should evolve in parallel, offering a dynamic and cutting-edge service.

These elaborations provide a deeper understanding of the importance and considerations associated with each key point in your implementation plan for your Web3 crowdfunding platform. Each step is critical to the success of your project and should be approached with meticulous attention to detail and user-centric design principles.

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CHAPTER 4

RESULTS ANALYSIS AND VALIDATION

</div>

4.1. Implementation Of Solution

The project combines Web3 and blockchain for transparent and decentralized crowdfunding. It offers a user-friendly platform, decentralized identity, and global fundraising through smart contracts on networks like Ethereum. It fosters collaboration and financial inclusivity, transforming crowdfunding.

Web3 community-based crowdfunding platform with blockchain transactions sounds like an innovative and comprehensive solution. It addresses several key challenges in the shift from Web2 to Web3 and offers a range of features to make it appealing to users. Here's a concise summary of our project's results:

- **Seamless Integration:** Your platform seamlessly integrates with popular wallets like MetaMask and operates on both Ethereum and Polygon blockchains, making it user-friendly and accessible.

- **Crowdfunding and Donations:** Users can create campaigns for crowdfunding, while others can easily donate using cryptocurrency. The user-friendly UI/UX enhances the experience for both campaigners and donors.

- **Community Engagement:** The platform fosters community interaction, allowing donors to discuss and decide which campaigns to support, promoting a sense of collaboration and shared mission.

- **P2P Transactions:** Users can conduct peer-to-peer cryptocurrency transactions on the platform, enhancing its utility and versatility.

- **Escrow Account:** Your clever use of an escrow account feature addresses the tax implications of crypto donations by enabling users to exchange their crypto for stablecoins like USDT. This minimizes the tax burden and provides financial flexibility.

- **Unified Crypto:** The introduction of your own cryptocurrency creates a unified medium of transaction on the platform, streamlining operations and enhancing user experience.

- **NFT Marketplace:** While not the main focus, the NFT marketplace adds another layer of functionality, allowing users to buy and sell NFTs within the platform.

<u>Check out more result images of the platform -</u>

User-Friendly UI/UX:

The platform prioritizes a user-friendly interface and experience, making it visually appealing and easy to navigate for both campaigners and donors, enhancing engagement.
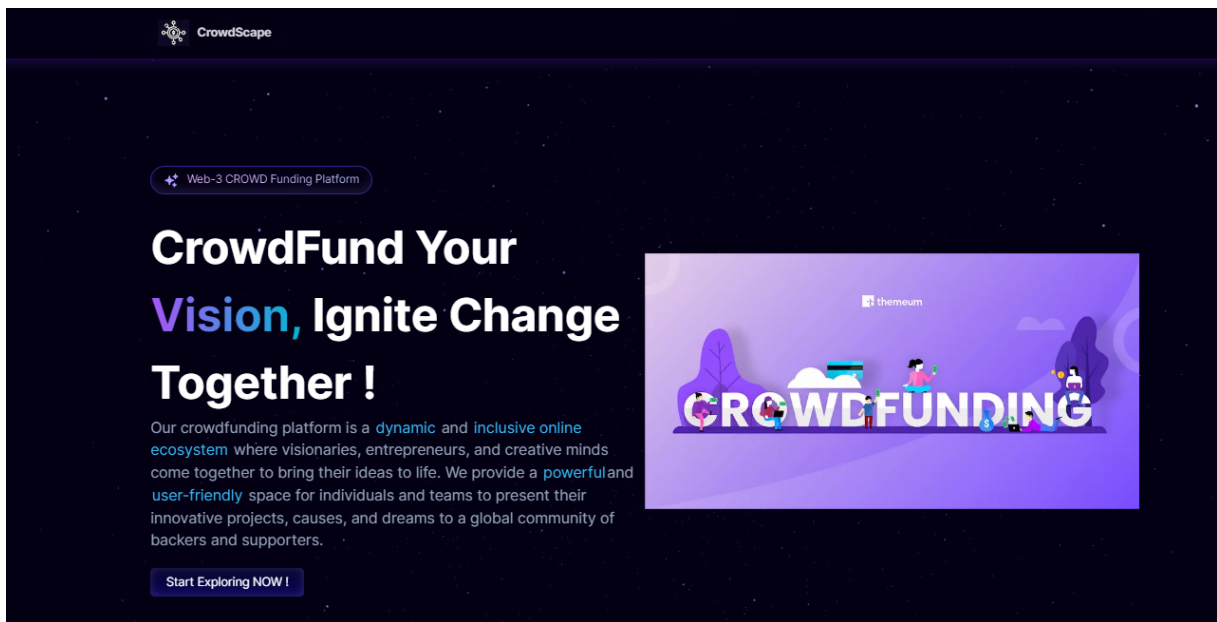
Fig 4.1 - Home Page
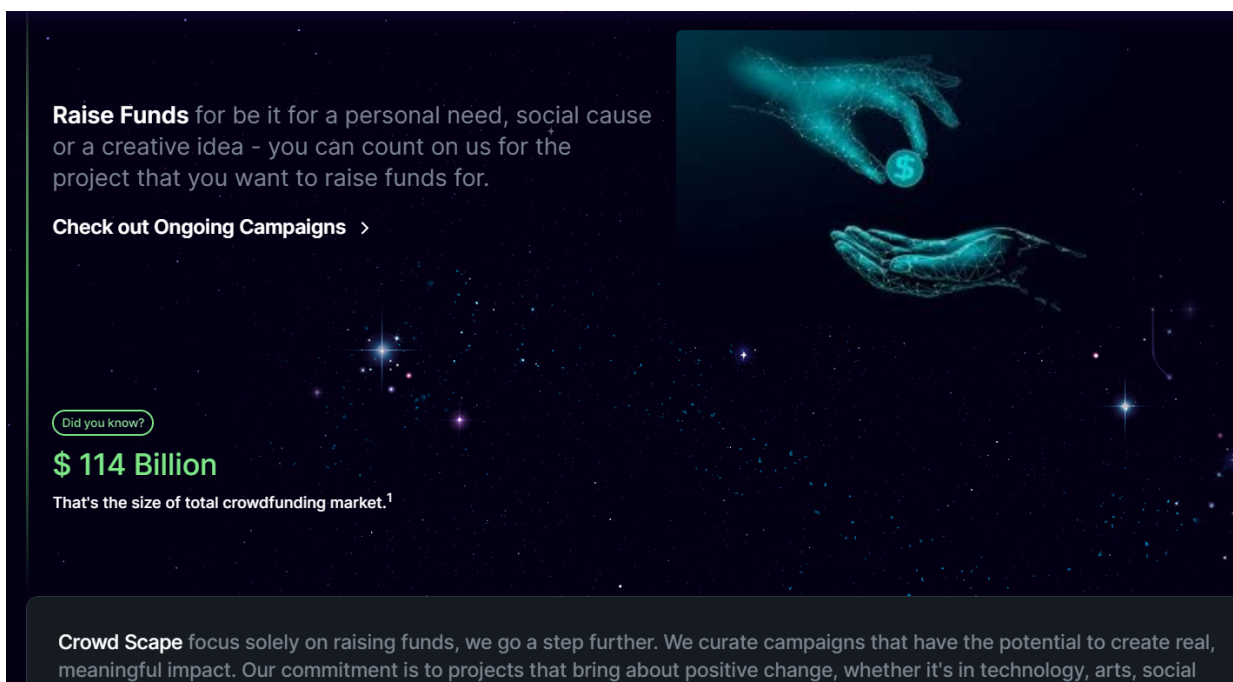
Fig 4.2 - Home Page
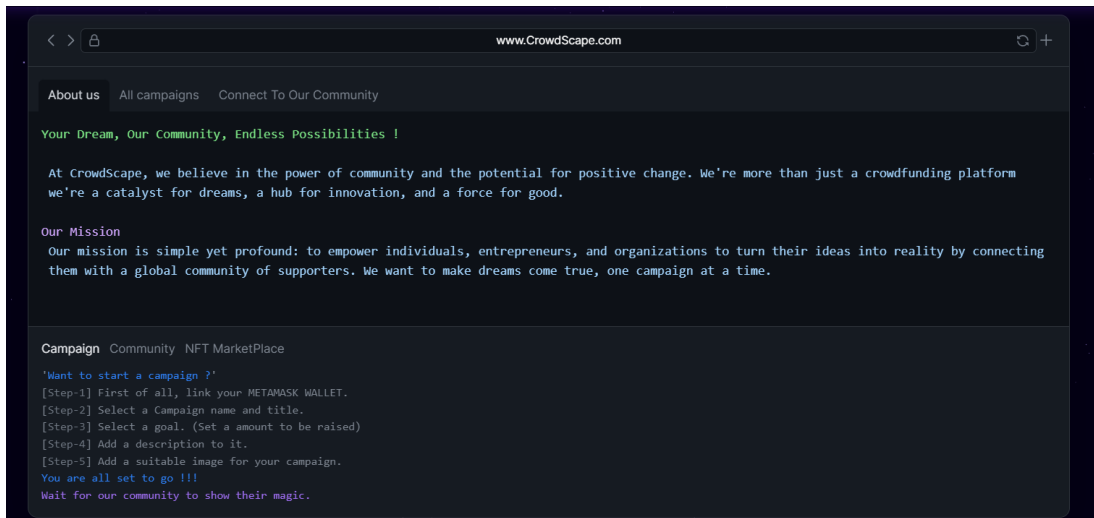
Fig 4.3 - About Us

Crowdfunding Campaigns:

Users can create campaigns for fundraising, providing essential campaign details such as name, title, story, fundraising goal, expiry date, and images to attract community support.

Fig 4.4 - Campaign Page

Fig 4.5 - Campaign Creation

Donation Mechanism:

Donors can seamlessly contribute crypto to campaigns they wish to support by selecting campaigns and specifying the donation amount. Each donation transaction is stored and linked to the funded campaign.

Fig 4.6 - Campaign Information

Escrow Account:

Users can utilize the escrow account feature to exchange cryptocurrency into a stablecoin like USDT, helping mitigate the tax implications of crypto donations while providing financial flexibility and security.
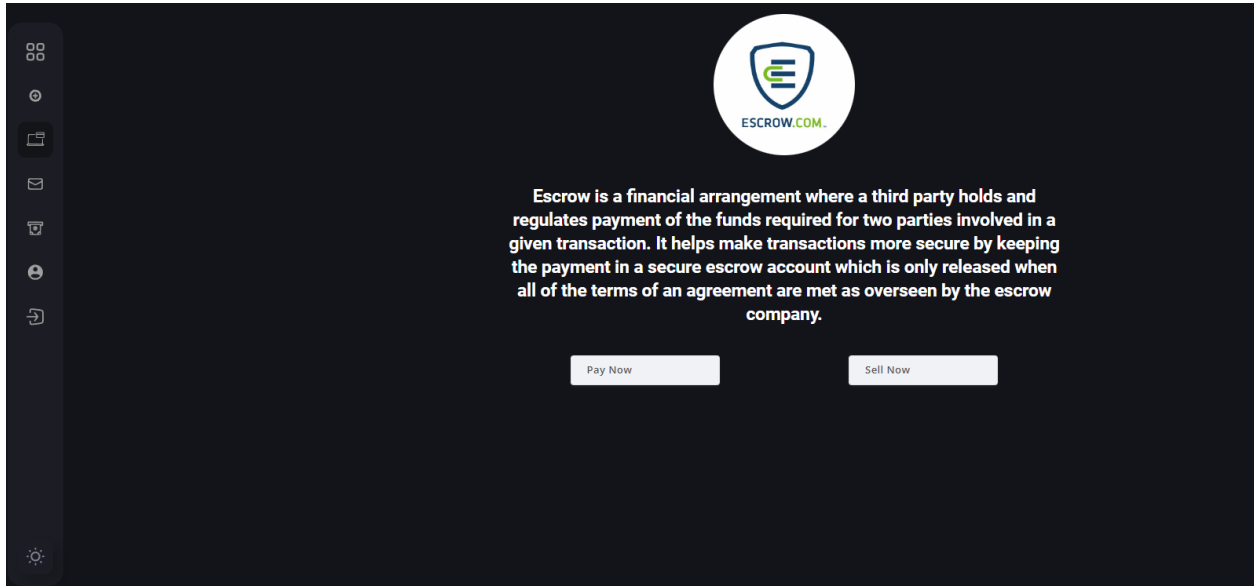
Fig 4.7 - Escrow Account Page

Community Communication:

Users can interact with one another within the platform, discussing campaigns, projects, and missions. The platform enables collective decision-making on fund allocation.
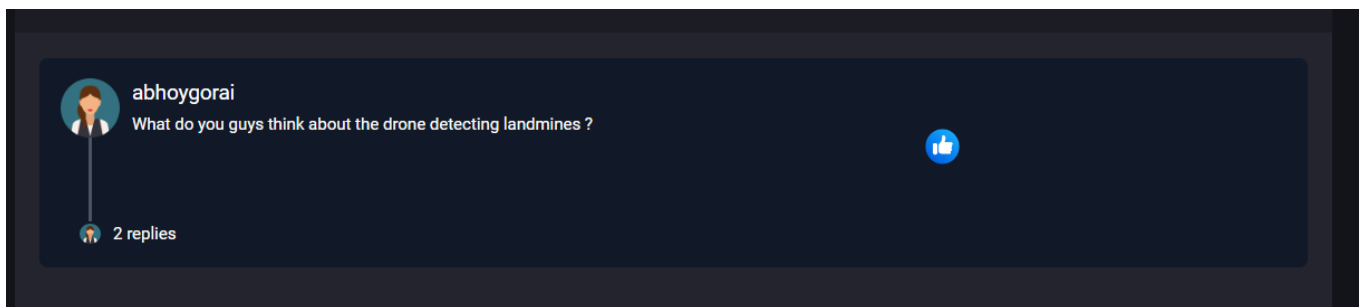
Fig 4.8 - Community Interaction Page

NFT Marketplace:

While not the primary focus, users can engage in buying and selling NFTs within the platform, broadening the ecosystem's capabilities. Users can create NFTs, participate in live auctions, and place bids.
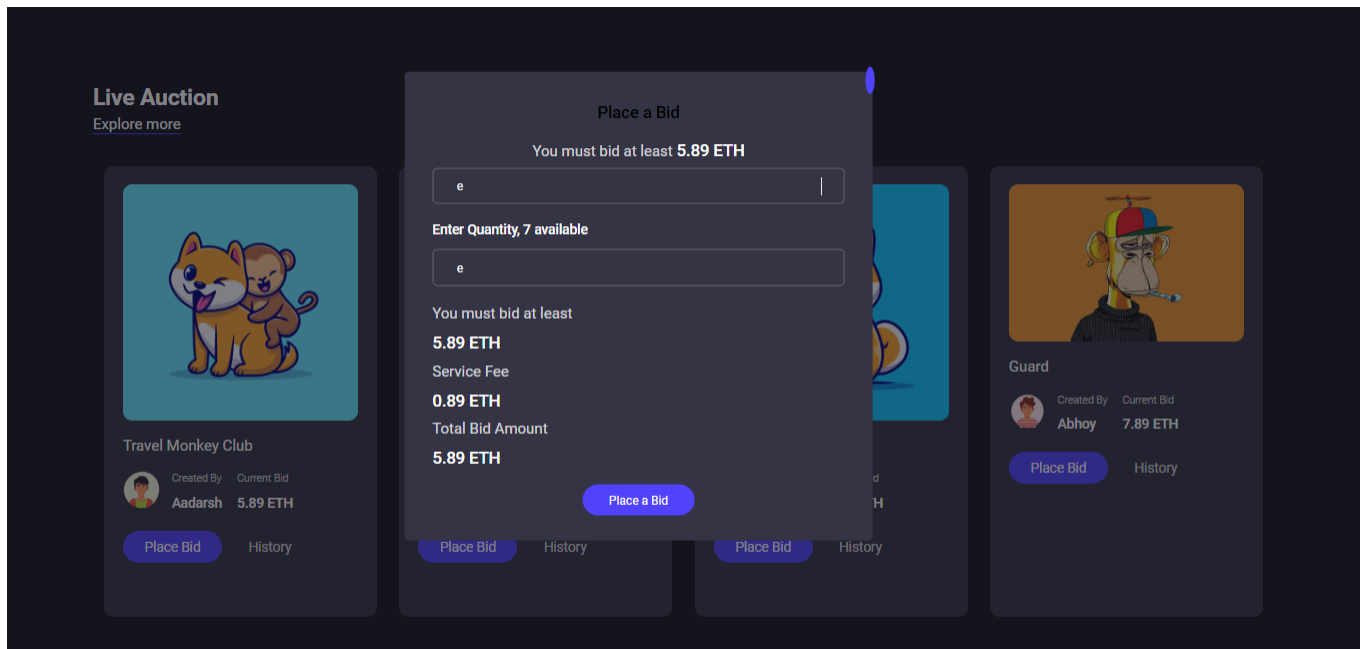
Fig 4.9 - NFT Marketplace

CHAPTER 5

CONCLUSION AND FUTURE WORK

5.1. Conclusion

In summary, the advent of Web3 crowdfunding platforms marks a fundamental change in the fundraising landscape and the start of a new phase of decentralized, open, and community-driven funding. This revolutionary environment has many benefits for the entire ecosystem as well as campaign creators and donors.

Web3 crowdfunding platforms have a significant and multifaceted impact. These platforms do away with the conventional gatekeepers and middlemen and give creators access to a worldwide network of possible supporters. Blockchain technology makes transactions transparent and unchangeable, which promotes accountability and trust.

In addition, Web3's introduction allows users to easily conduct peer-to-peer cryptocurrency transactions, removing both financial and geographic barriers. Users' convenience is increased by the incorporation of stable cryptocurrencies such as USDT and the availability of an escrow account feature, which reduces the complexity of tax obligations.

Adding community interaction features to crowdfunding goes beyond its basic functions; it encourages donors to work together and make decisions as a group, which can result in better-informed and more significant charitable endeavors. By adding an NFT marketplace, the platform becomes more useful and provides more opportunities for investment and innovation. To put it another way, Web3 crowdfunding platforms are having a much bigger impact than just replacing Web2; they are fundamentally changing how resources are distributed and projects are funded. An era where financial support is democratized and accessible to everyone, regardless of location or financial background, is heralded by the convergence of blockchain technology, decentralized finance, and community engagement.

CHAPTER 5

The vast potential offered by Web3 crowdfunding platforms should be embraced and utilized by creators, users, and the larger ecosystem as they continue to develop and grow. These platforms have the potential to transform the crowdfunding and philanthropic industries by promoting transparency, trust, and inclusivity, thereby elevating them to a more equitable and significant force for good.

5.2.   Future work

Web3 crowdfunding platforms have a plethora of opportunities for the future, which bodes well for sustained and innovation. The following are some important areas for future growth:

1. **AI Integration for Donor Matching and Campaign Assessment:** Using AI algorithms for donor matching and campaign evaluation can greatly increase the effectiveness of the platform. Artificial intelligence (AI) can suggest worthy projects for potential donors by analyzing campaign details, user preferences, and historical data. This improves the user experience and raises the likelihood that crowdfunding campaigns will be successful.

2. **Incorporating Extra Features, such as Video-Conferencing:** Since community engagement is a key element of Web3 crowdfunding platforms, including live streaming and video-conferencing capabilities can help to promote real-time communication between campaign creators, funders, and the larger community.

3. **Creation of Paid Exclusive Features to Improve User Experience:** Take into consideration providing premium or subscription-based services with exclusive features in order to maintain and monetize the platform. These might consist of individualized support, priority campaign visibility, and advanced analytics. These kinds of services not only bring in money but also satisfy users who want a more advanced crowdfunding experience.

CHAPTER 5

4. **Possible Expansion to Other Blockchain Networks:** Adding support for blockchain networks other than Ethereum and Polygon to the platform could increase accessibility and increase the number of users. Because each blockchain has its own advantages, users with different needs and preferences may be drawn to this diversity of blockchains.

5. **Global Reach and Localization:** To reach a worldwide audience, think about providing multilingual support and locally tailored experiences. This can be crucial for guaranteeing inclusivity and broadening the platform's user base, particularly in areas with a diversity of linguistic and cultural backgrounds.

6. **Sustainable Initiatives:** Include elements in the blockchain ecosystem that encourage eco-friendly behavior. The integration of environmentally responsible alternatives can improve the platform's reputation and attract socially concerned customers, as the topic of sustainability and carbon footprint has garnered considerable attention.

7. **Blockchain Innovation Integration:** Monitor and assess the possible integration of new blockchain technologies, like proof-of-stake (PoS) and sharding. These developments have the potential to lower expenses and speed up transactions, increasing user appeal of the platform.

8. **User Governance and Decentralization:** Examine how decentralized governance models, in which users directly influence platform choices, might be implemented. Voting systems based on tokens and community-led projects can raise user engagement and transparency on the platform.

   By taking these future scope issues into account, you can present your Web3 crowdfunding platform as a flexible and dynamic ecosystem that can fulfill users' changing expectations and demands while staying compliant with new regulations and technical developments. Taking advantage of these chances for expansion and innovation will be crucial to ensuring the platform's viability and relevance as the Web3 environment changes.

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APPENDIX

1. Plagiarism Report

Research Paper

by LIT Writers

General metrics

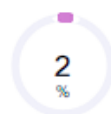| 31,883	4,274	273	17 min 5 sec	32 min 52 sec
characters	words	sentences	reading time	speaking time

Score

87
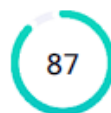
This text scores better than 87% of all texts checked by Grammarly

Writing Issues

143
Issues left

✓
Critical

143
Advanced

Plagiarism

2 %   **8** sources

2% of your text matches 8 sources on the web or in archives of academic publications

Complete step-by-step instructions along with pictures necessary to run the project:

Step 1 – To start the application we need to install the respective dependencies. So go inside client , web3, server and homepage folder and in terminal execute – "npm install "

Step 2 – Create a meta-mask wallet, Go to option → Account Details → and Show Private Key. From here copy the "Private key of your wallet". Create a .env file in web3 and Store the PRIVATE_KEY = "here paste the key".
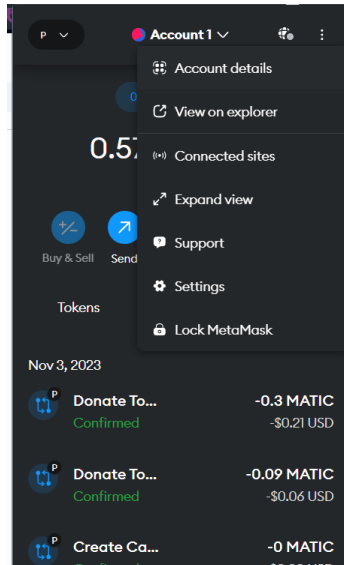
Step 3 – Create an account on third web, login on it as well.

Step 4 – To deploy the smart contract on thirdweb, in the web3 folder, in console type - "npm run deploy".

Step 5 – After the deployment a link will be provided in the console, click it and you will be re-directed to third-web website , ready to deploy your smart contract on Polygon network (by-default).

Note you should have Polygon (test net say) in your wallet to sign the contract in meta mask. If not then create a Polygon_mumbai network test net.

Step 6 – Once the contract is deployed, now all the campaign data can be stored in Blockchain as per the blueprint of defined smart contract on third-web. **Most importantly copy the contract address of your deployed contract and go to →client→src→context→index.jsx. Now paste the address in useContract().**

Goerli	🗐 **0x7992...C4d6**
Mumbai	🗐 **0x808D...EBBe**
Mumbai	🗐 **0xBcdB...CCaE**

Step 7 – At last run npm run dev, to run the application in the developer mode. Go inside client, server and homepage and run - "npm run dev" command to start all servers and client.

```
▲ Next.js 13.5.6
- Local:        http://localhost:3000
- Environments: .env

✓ Ready in 7.4s
```

Step 8 – head to http://localhost:3000 which is the starting page of application and click on "Start Exploring Now" which will start the application for you.