

**BUILDING TRUST AND SECURITY IN CROWDFUNDING: LEVERAGING
BLOCK CHAIN TECHNOLOGY**

Submitted in partial fulfillment of the requirements for the award of Bachelor of
Engineering degree in Computer Science and Engineering

by

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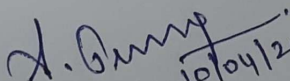
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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **BATHINA HARSHAVARDHAN (40110162)** and **AVALA ANIL (40110134)** who carried out the Project entitled "**BUILDING TRUST AND SECURITY IN CROWD FUNDING: LEVERAGING BLOCK CHAIN TECHNOLOGY**" under my supervision from November 2023 to April 2024.


Internal Guide 10/04/24

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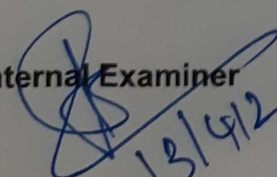
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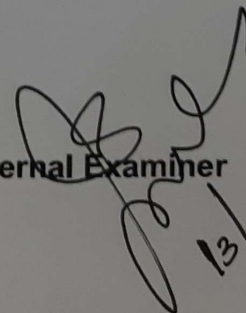
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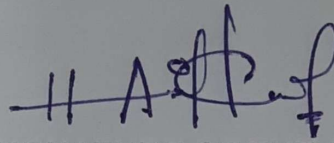

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DECLARATION

I, **BATHINA HARSHA VARDHAN** (Reg.No-40110162), hereby declare that the Project Report entitled "**BUILDING TRUST AND SECURITY IN CROWDFUNDING : LEVERAGING BLOCK CHAIN TECHNOLOGY**" done by me under the guidance of **Dr. ARUL PRAKASH A.,M.Tech.,Ph.D** is submitted in partial fulfillment of the requirements for the award of Bachelor of Engineering degree in **Computer Science and Engineering**.

DATE: 10/04/24

PLACE : CHENNAI

A handwritten signature in blue ink, appearing to read 'H. A. Vardhan', with a stylized flourish at the end.

SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **The Board of Management of Sathyabama Institute of Science and Technology** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. T. Sasikala M.E., Ph. D, Dean**, School of Computing, **Dr. L. Lakshmanan, M.E., Ph.D.**, Head of the Department of Computer Science and Engineering for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr. ARUL PRAKASH A.,M.Tech.,Ph.D.**, for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members **of the Department of Computer Science and Engineering** who were helpful in many ways for the completion of the project.

ABSTRACT

This paper presents the design and implementation of a distributed crowdfunding system using blockchain technology. Crowdfunding has become a popular method for raising funds for various projects, but it suffers from limitations such as lack of transparency, high fees, and reliance on intermediaries. To address these issues, we propose a decentralized platform that leverages the transparency and security of blockchain technology. The system allows project creators to create fundraising campaigns and investors to contribute funds directly to the projects of their interest. Contributions are conducted using cryptocurrency on the blockchain, ensuring security and eliminating the need for intermediaries. Smart contracts are employed to automate the release of funds and ensure that they are used in accordance with the agreed terms. The proposed system also incorporates a reputation mechanism to enhance trust and encourage honest behavior among participants. Experimental results demonstrate the efficiency and effectiveness of the system. Overall, this distributed crowdfunding system utilizing blockchain offers an innovative approach to fundraising that improves transparency, reduces fees, and increases inclusivity, with potential applications in various domains.

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CHAPTER 1

INTRODUCTION

The distributed crowdfunding system using blockchain is an innovative approach that leverages the power of blockchain technology to revolutionize the way crowdfunding campaigns are conducted

Traditional crowdfunding platforms often suffer from issues such as lack of transparency, high fees, and limited access to funds. In contrast, the distributed crowdfunding system aims to address these drawbacks by utilizing blockchain technology as a decentralized and transparent platform for fundraising.

At its core, blockchain is a distributed ledger that records transactions across multiple computers, ensuring transparency and immutability. By leveraging this technology, the distributed crowdfunding system allows for a transparent and secure process where every transaction is recorded and can be verified by all participants. This ensures that funds raised through the platform are used for their intended purpose, eliminating the risk of fraud or misappropriation.

Additionally, the use of blockchain enables the elimination of intermediaries, such as banks or crowdfunding platforms, who typically charge high fees for their services. In the distributed crowdfunding system, funds can be directly transferred between the campaign organizers and the contributors, cutting out unnecessary middlemen and reducing transaction costs. This means that more funds can reach the intended cause or project, increasing the overall impact of the crowdfunding campaign.

Furthermore, the distributed nature of blockchain ensures that the fundraising process is accessible to a wider range of participants. Traditional crowdfunding platforms often have limitations on who can participate, such as geographical restrictions or minimum investment amounts. With the distributed crowdfunding system, anyone with an internet connection can contribute to a campaign, regardless of their location or financial resources. This democratization of crowdfunding empowers individuals from all walks of life to support causes and projects that resonate with them.

Moreover, the use of blockchain technology enables the creation of smart contracts, which are self-executing agreements with predefined conditions. Smart contracts can be utilized in the distributed crowdfunding system to automate various aspects of the fundraising process, such as releasing funds when specific milestones are met or automatically issuing rewards to contributors. The use of smart contracts not only streamlines the crowdfunding process but also increases trust and accountability, as the terms of the agreement are encoded in the blockchain and cannot be altered or manipulated.

In conclusion, the distributed crowdfunding system using blockchain is a cutting-edge solution that addresses the limitations of traditional crowdfunding platforms. By leveraging the transparency, security, and accessibility of blockchain technology, this system empowers individuals and organizations to conduct crowdfunding campaigns in a more efficient, cost effective, and trustworthy manner. With its potential to revolutionize the crowdfunding landscape, the distributed crowdfunding system has the potential to drive positive social and economic change on a global scale.

CHAPTER 2

LITERATURE SURVEY

2.1 INFERENCES FROM LITERATURE SURVEY :

1.TEduChain: A blockchain-based platform for crowdfunding tertiary education. Authors: Rashid, M. A., Deo, K., Prasad, D., Singh, K., Chand, S., & Assaf, M. Published in: The Knowledge Engineering Review (2020)

Explanation: This paper introduces TEduChain, a blockchain-based platform designed for crowdfunding tertiary education. It explores how blockchain technology can be utilized to facilitate crowdfunding in the education sector.

2.A decentralized trust management mechanism for crowdfunding. Authors: Xu, Y., Li, Q., Zhang, C., Tan, Y., Zhang, P., Wang, G., & Zhang, Y. Published in: Information Sciences (2023)

Explanation: This research presents a decentralized trust management mechanism for crowdfunding using blockchain technology. It focuses on enhancing trust and security in crowdfunding campaigns.

3.Crowdfunding fraud prevention using blockchain. Authors: Pandey, S., Goel, S., Bansla, S., & Pandey, D. Published in 2019 6th International Conference on Computing for Sustainable Global Development (INDIACom) (2019)

Explanation: This paper discusses how blockchain can be employed for preventing fraud in crowdfunding. It explores mechanisms to enhance the integrity of crowdfunding platforms.

4.Blockchain-based Decentralized Co-governance: Innovations and Solutions for Sustainable Crowdfunding. Authors: Chen, B., Luo, Y., Li, J., Li, Y., Liu, Y., Yang, F., & Qiao, Y.

Published in: arXiv preprint arXiv:2306.00869 (2023) Explanation: This paper introduces innovations and solutions for sustainable crowdfunding through

blockchain-based decentralized co-governance. It explores ways to improve crowdfunding mechanisms.

5.Securing blockchain-based crowdfunding platforms: an integrated graph neural networks and machine learning approach.Authors: Zkik, K., Sebbar, A., Fadi, O., Kamble, S., & Belhadi, A.

Published in: Electronic Commerce Research (2023) Explanation: This research focuses on securing blockchain-based crowdfunding platforms by integrating graph neural networks and machine learning approaches. It addresses security concerns in crowdfunding.

7.Tracking the digital evolution of entrepreneurial finance: the interplay between crowdfunding, blockchain technologies, cryptocurrencies, and initial coin offerings. Authors: Bogusz, C. I., Laurell, C., & Sandström, C.

Published in: IEEE Transactions on Engineering Management (2020) Explanation: This paper explores the digital evolution of entrepreneurial finance, examining the interactions between crowdfunding, blockchain technologies, cryptocurrencies, and initial coin offerings (ICOs).

8.CROWDFUNDING PLATFORM USING BLOCKCHAIN. Authors: Varghese, A., Regi, N. A., Babu, S., Mani, S., & Varghese, C. M.

Explanation: This work, similar to reference [6], likely discusses the implementation of a crowd funding platform using blockchain technology, although specific publication details are not provided.

9.Blockchain Fundraising and Charity Platform .Authors: Govindarajan, S., Rajkumar, S. S., & Posonia, A. M.

Published in: 2023 2nd International Conference on Vision Towards Emerging Trends in Communication and Networking Technologies (ViTECoN) (2023) Explanation: This paper focuses on blockchain-based fundraising and charity platforms, examining how blockchain can enhance transparency and trust in charitable contributions.

10.LikeStarter: a Smart-contract based Social DAO for Crowdfunding.

Authors: Zichichi, M., Contu, M., Ferretti, S., & D'Angelo, G.

Published in: IEEE INFOCOM 2019-IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS) (2019) Explanation: This paper introduces Like Starter ,a smart contract based Social DAO(Decentralized Autonomous Organization) for crowdfunding. It explores the application of blockchain and smart contracts in crowdfunding initiatives.

2.2 EXISTING SYSTEM AND PROPOSED SYSTEM :

2.2.1 Existing system

The existing system for Distributed crowdfunding using blockchain has several disadvantages. Firstly, one of the major drawbacks is the scalability issue. The current blockchain technology used in crowdfunding platforms is not capable of handling a large number of transactions. As more and more users join the platform, the network becomes congested, and the transaction speed slows down significantly. This can be a major hindrance for crowdfunding campaigns that require quick and efficient transactions.

2.2.2 Proposed system

The proposed work is to develop a distributed crowdfunding system using blockchain technology. The system aims to revolutionize the way projects are funded by leveraging the transparency, security, and efficiency of blockchain.

Firstly, the system will utilize a decentralized network of nodes to ensure that no single entity or organization has control over the crowdfunding process. This will eliminate the need for intermediaries such as banks or crowdfunding platforms, reducing transaction costs, and increasing trust among participants.

Secondly, the system will incorporate smart contracts, which are self-executing contracts with the terms of the agreement directly written into code. Smart contracts will automate the entire crowdfunding process, eliminating the need for manual intervention and reducing the possibility of fraud or manipulation.

Furthermore, the use of blockchain will ensure transparency and immutability of transaction records. All transactions will be recorded on the blockchain in a tamperproof manner, preventing any form of data manipulation. This will foster trust and accountability among the participants, as they can verify the authenticity of transactions at any time.

2.3 OPEN PROBLEMS IN EXISTING SYSTEM :

1.Scalability:

Network Congestion: As more projects and contributors join the blockchain network, it can become congested, leading to slow transaction processing and high fees. Scaling solutions are needed to handle increased traffic efficiently.

2.User Onboarding:

Many potential users are unfamiliar with blockchain technology and find the onboarding process challenging. Simplifying the user experience and providing user-friendly interfaces are ongoing challenges.

3.Regulatory Compliance:

Legal Frameworks: Crowdfunding platforms must navigate complex and evolving regulatory environments in different countries. Ensuring compliance with securities laws and other regulations while maintaining decentralization is a significant challenge.

4.Security and Fraud Prevention:

Smart Contract Vulnerabilities: Smart contracts are prone to vulnerabilities that can be exploited by malicious actors. Developing more secure smart contract code and auditing mechanisms is crucial .Identity Verification: Ensuring that contributors and project creators are legitimate and not engaging in fraudulent activities is a challenge. Blockchain-based identity verification solutions need further development.

5.Token Standards:

Interoperability: There are various token standards (e.g., ERC-20, ERC-721) on different blockchain platforms. Achieving interoperability and standardization to enable cross chain crowdfunding is an ongoing challenge.

6.Governance:

Decision-Making: Decentralized autonomous organizations (DAOs) play a role in governance, but defining transparent and effective decision-making processes for project funding and platform governance remains a challenge.

7. Transparency and Accountability:

While blockchain is touted for its transparency, ensuring that all transactions and project details are fully auditable and accessible to stakeholders can be challenging.

8. Marketplace Integrity:

Project Due Diligence: Ensuring that projects listed on crowdfunding platforms are legitimate and viable requires robust due diligence mechanisms. Token Valuation: Determining the fair valuation of tokens issued in crowdfunding campaign can be challenging, leading to potential overvaluation or undervaluation.

9. Token Liquidity:

Secondary Markets: Enabling liquidity for crowdfunding tokens in secondary markets can be complex. Developing decentralized exchanges (DEXs) and liquidity pools for these tokens is an open problem.

10. User Engagement and Retention:

Community Building: Encouraging active user participation and fostering a sense of community around crowdfunding projects is a challenge. Incentive Mechanisms: Developing effective incentive structures to reward contributors and maintain user engagement is an ongoing challenge.

11. Interoperability with Traditional Finance:

Integration: Bridging the gap between blockchain-based crowdfunding and traditional financial systems to allow for fiat currency contributions and regulatory compliance remains a challenge.

12. Data Privacy:

Sensitive Information: Protecting the privacy of users and project creators while maintaining transparency on the blockchain is a delicate balance that requires innovative solutions

13.User Education:

Blockchain Literacy: Educating potential users about blockchain technology, cryptocurrencies, and the benefits of decentralized crowdfunding is an ongoing challenge.

14.Market Volatility:

Token Price Stability: Mitigating the impact of cryptocurrency price volatility on crowd funding campaigns and contributor confidence is a significant challenge.

15.Sustainability:

Environmental Impact: Addressing concerns about the energy consumption and environmental impact of blockchain networks, especially proof-of-work networks, is an important consideration

CHAPTER 3

REQUIREMENT ANALYSIS

3.1 RISK ANALYSIS OF THE PROJECT :

3.1.1 Feasibility study

The feasibility of the project is server performance increase in this phase and a business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis, the feasibility study of the proposed system is to be carried out. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

- Economical feasibility
- Technical feasibility
- Operational feasibility

3.1.2 Economical feasibility :

This study is carried out to check the economic impact that the system will have on the organization. The amount of funds that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies use dare freely available. Only the customized products had to be purchased.

3.1.3 Technical feasibility :

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands being placed on the client. The developed system must have modest requirements, as only minimal or null changes are required for implementing this system.

3.1.4 Operational feasibility :

The aspect of the study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

3.2 SOFTWARE REQUIREMENTS SPECIFICATION DOCUMENT

Hardware specifications :

- Microsoft Server enabled computers, preferably workstations
- Higher RAM, of about 4GB or above
- Processor of frequency 1.5GHz or above

Software specifications :

- Python 3.6 and higher
- Anaconda software

CHAPTER 4

DESCRIPTION OF PROPOSED SYSTEM

The proposed work is to develop a distributed crowdfunding system using blockchain technology. The system aims to revolutionize the way projects are funded by leveraging the transparency, security, and efficiency of blockchain.

Firstly, the system will utilize a decentralized network of nodes to ensure that no single entity or organization has control over the crowdfunding process. This will eliminate the need for intermediaries such as banks or crowdfunding platforms, reducing transaction costs, and increasing trust among participants.

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Furthermore, the use of blockchain will ensure transparency and immutability of transaction records. All transactions will be recorded on the blockchain in a tamper-proof manner, preventing any form of data manipulation. This will foster trust and accountability among the participants, as they can verify the authenticity of transactions at any time.

Feature/Aspect	Existing system	Proposed System
Technology	Traditional databases	Blockchain Technology
Control and Intermediaries	Centralized control with intermediaries	Decentralized network of nodes No single entity
Transaction Costs	Higher due to intermediaries	Reduced without intermediaries
Trust Among Participants	Dependent on intermediaries Reputation based trust system	Increased trust with blockchain Transparency and decentralization

Fraud and Manipulation	Potential for fraud and manipulation	Reduced with cryptographic security and smart contracts
Immutability	Data can be altered or deleted	Tamper proof records on blockchain

Table-4.1 Existing and proposed system

4.1 FLOW CHART

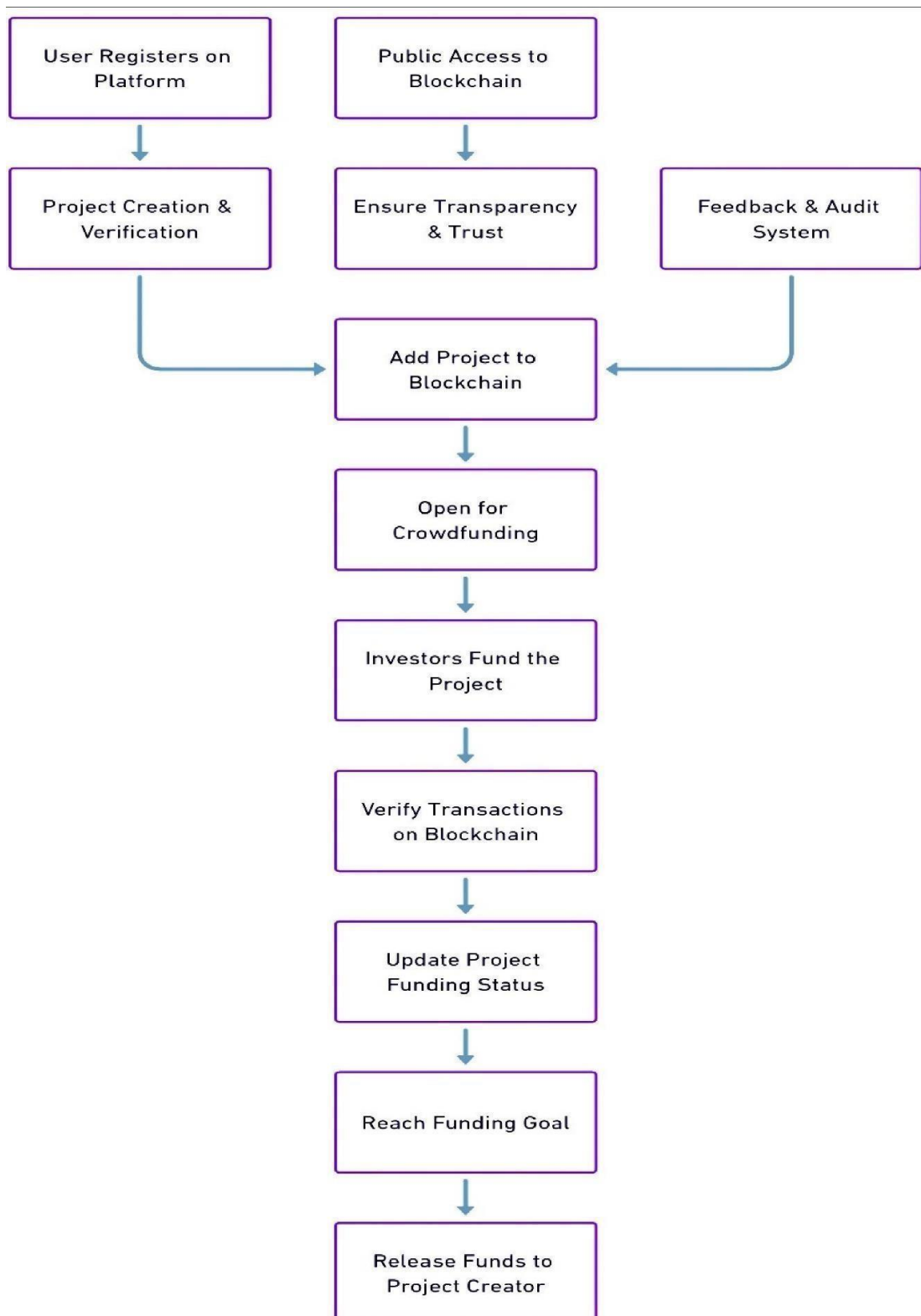


Fig 4.1 flow chart

4.2 SELECTED METHODOLOGY OR PROCESS MODEL

1.User Management Module:

This module is responsible for the management of user accounts in the distributed crowdfunding system. It includes functionalities such as user registration, login, and profile management. Users can register by providing their personal details and creating a unique username and password. The module ensures the security of user information by implementing encryption techniques and authentication mechanisms. It also handles user roles and permissions, allowing for different levels of access based on user type (e.g., project creators, backers, administrators). The module provides features for users to update their profiles, including adding or modifying personal information, profile pictures, and payment preferences. Additionally, it maintains a transaction history for each user, enabling them to track their contributions and rewards.

2.Project Management Module:

This module focuses on the management of crowdfunding projects within the distributed system. It allows users, specifically project creators, to create and publish their projects, set funding goals, and define project timelines. The module verifies and approves project submissions based on certain criteria, such as project viability and compliance with platform regulations. Once a project is approved, it is featured on the platform for backers to discover and fund. The module provides tools for project creators to add project descriptions, images, video presentations, and reward tiers for backers. It also facilitates communication between project creators and backers, enabling them to ask questions, provide feedback, and receive updates. The module tracks the progress of each project, displaying real-time data on the amount of funds raised, percentage of the goal achieved, and remaining time.

3.Payment and Transactions Module:

This module handles the financial aspects of the distributed crowdfunding system, ensuring secure and transparent transactions between backers and project creators. It integrates blockchain technology to establish trust and immutability in payment processes. The module enables backers to make contributions to projects using

various payment options, such as credit/debit cards, digital wallets, or cryptocurrencies. It also ensures that funds are securely transferred from backers to project creators, reducing the risk of fraud or misappropriation. The module verifies the authenticity of transactions and updates the project's funding status accordingly. It generates transaction records, including details of the amount contributed, transaction IDs, and timestamps. The module also manages the distribution of rewards to backers once the project reaches its funding goal, ensuring a fair and efficient reward mechanism.

4.3 ARCHITECTURE / OVERALL DESIGN OF PROPOSED SYSTEM

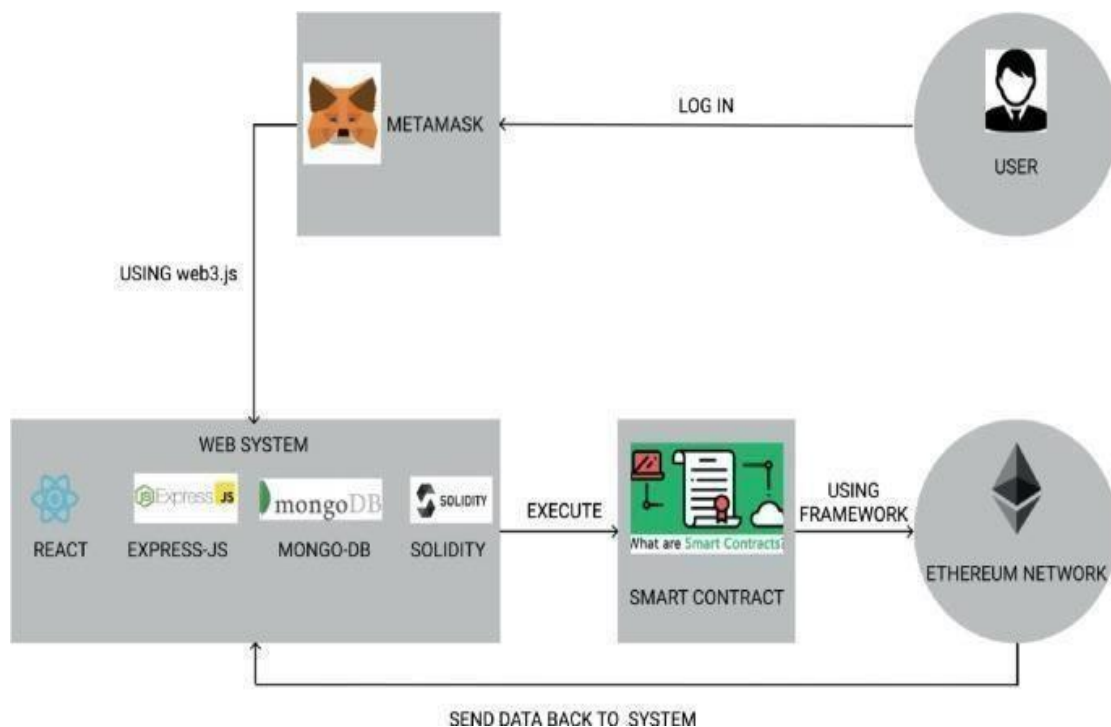


Fig- 4.3 System architecture

1.FEASIBILITY STUDY: To assess the potential for server performance improvement, a feasibility study is conducted to gather preliminary project data and present supplementary business proposals with detailed project plans and cost estimates. The feasibility study of the proposed system is to be conducted during this process. It is necessary to have some knowledge of the major requirements for

the system in order to perform feasibility analysis. The feasibility analysis takes into account three main aspects.

2.ECONOMICAL FEASIBILITY: The purpose of this research is to assess the economic influence that the system will have on the organization. The company's capacity to undertake research and development for the system is restricted. Why. They have to justify the costs. " The developed system was able to function within the budget due to the availability of most technologies at no cost. Only the bespoke items were required to be purchased.

3.TECHNICAL FEASIBILITY: The objective of this research is to assess the technical feasibility of the system, which involves its technical specifications. The development of any system should not require a significant amount of technical resources. Consequently, the demands on the client will be very high. It is necessary to have minimal changes for the developed system to be implemented, as minimal modifications are required.

The viewpoint of the ponder is to check the level of acknowledgment of the framework by the client. This incorporates the method of preparing the client to utilize the framework effectively. The client must not feel debilitated by the framework, instep must acknowledge it as a need. The level of acknowledgment by the clients exclusively depends on the strategies that are utilized to teach the client about the framework and to form him recognizable with it.

4.4 DESCRIPTION OF SOFTWARE FOR IMPLEMENTATION AND TESTING PLAN OF THE PROPOSED MODEL/SYSTEM

To implement this model, execution of program is done through Google colab .Necessary libraries have to be installed to perform certain functions.

4.4.1 DESCRIPTION OF PROGRAMMING LANGUAGE AND SOFTWARE

PYTHON

Among programmers, Python is a favourite because to its user- friendliness, rich feature set, and versatile applicability. Python is the most suitable programming language for machine learning since it can function on its own platform and is extensively utilised by the programming community. Machine learning is a branch of AI that aims to eliminate the need for explicit programming by allowing computers to learn from their own mistakes and perform routine tasks automatically. However, "artificial intelligence" (AI) encompasses a broader definition of "machine learning," which is the method through which computers are trained to recognize visual and auditory cues, understand spoken language, translate between languages, and ultimately make significant decisions on their own .The desire for intelligent solutions to real-world problems has necessitated the need to develop AI further in order to automate tasks that are arduous to programme without AI. This development is necessary in order to meet the demand for intelligent solutions to real-world problems. Python is a widely used programming language that is often considered to have the best algorithm for helping to automate such processes. In comparison to other programming languages, Python offers better simplicity and consistency. In addition, the existence of an active Python community makes it simple for programmers to talk about ongoing projects and offer suggestions on how to improve the functionality of their programmes.

ANACONDA

Anaconda is an open-source package manager for Python and R. . It is the most popular platform among data platform among data science professionals for

running Python and R implementations. There are over 300 libraries in data science, so having

a robust distribution system for the mix is a must for any professional in this field. Anaconda simplifies package deployment and management. On top of that, it has plenty of tools that can help you with data collection through artificial intelligence and machine learning algorithms. With Anaconda, you can easily set up, manage, and share Conda environments. Moreover, you can deploy any required project with a few clicks when you're using Anaconda. There are many advantages of using Anaconda and the following are the most prominent ones among them: Anaconda is free and open-source. This means you can use it without spending any money. In the data science sector, Anaconda is an industry staple. It is open-source too, which has made it widely popular. If you want to become a data science professional, you must know how to use Anaconda for Python because every recruiter expects you to have this skill. It is a must-have for data science.

It has more than 1500 Python and R data science packages, so you don't face any compatibility issues while collaborating with others. For example, suppose your colleague sends you a project which requires packages called A and B but you only have package A. Without having package B, you wouldn't be able to run the project. Anaconda mitigates the chances of such errors. You can easily collaborate on projects without worrying about any compatibility issues. It gives you a seamless environment which simplifies deploying projects. You can deploy any project with just a few clicks and commands while managing the rest. Anaconda has a thriving community of data scientists and machine learning professionals who use it regularly. If you encounter an issue, chances are, the community has already answered the same. On the other hand, you can also ask people in the community about the issues you face there, it's a very helpful community ready to help new learners. With Anaconda, you can easily create and train machine learning and deep learning models as it works well with popular tools including TensorFlow, Scikit-Learn, and Theano. You can create visualizations by using Bokeh, Holoviews, Matplotlib, and Datashader while using Anaconda.

How to Use Anaconda for Python :

Now that we have discussed all the basics in our Python Anaconda tutorial, let's discuss some fundamental commands you can use to start using this package manager.

Listing All Environments

To begin using Anaconda, you'd need to see how many Conda environments are present in your machine.

```
conda env list
```

It will list all the available Conda environments in your machine.

Creating a New Environment

You can create a new Conda environment by going to the required directory and use this command:

```
conda create -n <your_environment_name>
```

You can replace <your_environment_name> with the name of your environment. After entering this command, conda will ask you if you want to proceed to which you should reply with y:

```
proceed ([y])/n)?
```

On the other hand, if you want to create an environment with a particular version of Python, you should use the following command:

```
conda create -n <your_environment_name> python=3.6
```

Similarly, if you want to create an environment with a particular package, you can use the following command:

```
conda create -n <your_environment_name> pack_name
```

Here, you can replace pack_name with the name of the package you want to use. If you have a .yml file, you can use the following command to create a new Conda environment based on that file:

```
conda env create -n <your_environment_name> -f <file_name>.yml
```

We have also discussed how you can export an existing Conda environment to a .yml file later in this article.

Activating an Environment

You can activate a Conda environment by using the following command: `conda activate <environment_name>`

You should activate the environment before you start working on the same. Also, replace the term <environment_name> with the environment name you want to activate. On the other hand, if you want to deactivate an environment

use the following command:

Installing Packages in an Environment

Now that you have an activated environment, you can install packages into it by using the following command:

```
conda install <pack_name>
```

Replace the term <pack_name> with the name of the package you want to install in your Conda environment while using this command.

Exporting an Environment Configuration

Suppose you want to share your project with someone else (colleague, friend, etc.). While you can share the directory on Github, it would have many Python packages, making the transfer process very challenging. Instead of that, you can create an environment configuration .yml file and share it with that person. Now, they can create an environment like your one by using the .yml file.

For exporting the environment to the .yml file, you'll first have to activate the same and run the following command:

```
conda env export ><file_name>.yml
```

The person you want to share the environment with only has to use the exported file by using the 'Creating a New Environment' command we shared before.

Removing a Package from an Environment

If you want to uninstall a package from a specific Conda environment, use the following command:

```
conda remove -n <env_name><package_name>
```

On the other hand, if you want to uninstall a package from an activated environment, you'd have to use the following command:

```
conda remove <package_name>
```

Deleting an Environment

Sometimes, you don't need to add a new environment but remove one. In such cases, you must know how to delete a Conda environment, which you can do so by using the following command:

```
conda env remove --name <env_name>
```

The above command would delete the Conda environment right away.

4.5 PROJECT MANAGEMENT PLAN

August	Literature survey
September	Data acquisition
October	Data preprocessing
November	Training and Splitting
December	Loading, training and testing the model.
January	Predicting the output and generating the final report

Table-4.5 Project management plan

CHAPTER 5

IMPLEMENTATION DETAILS

5.1 Consensus Mechanism Selection :

Selecting an appropriate consensus mechanism is crucial for ensuring the security and trustworthiness of the blockchain network. Common consensus mechanisms include Proof of Work (PoW), Proof of Stake (PoS), Practical Byzantine Fault Tolerance (PBFT), and Delegated Proof of Stake (DPoS).

Each consensus mechanism has its own advantages and disadvantages. For instance, PoW is known for its robustness but consumes significant computational resources, while PoS is more energy-efficient but requires stakeholders to have a stake in the network.

The choice of consensus mechanism should align with the specific use case of the blockchain project, considering factors such as scalability, security, decentralization, and energy efficiency. Once a consensus mechanism is selected, it should be implemented and configured properly within the blockchain network to ensure that transactions are validated securely and reliably.

5.2 Identity Management and Access Control :

Implementing robust identity management and access control mechanisms is essential for maintaining trust and security within the blockchain network. This involves managing user identities, permissions, and roles effectively.

Utilizing cryptographic techniques such as public-key cryptography can enable secure user authentication and authorization on the blockchain network.

Implementing role-based access control (RBAC) mechanisms can help in defining and enforcing access policies based on users' roles and privileges within the network.

Integration with existing identity management systems or implementing decentralized identity solutions like Self-Sovereign Identity (SSI) can enhance the security and privacy of user identities on the blockchain.

5.3 Data Encryption and Privacy Preservation :

Ensuring data confidentiality and privacy is critical for building trust in blockchain applications, especially in scenarios where sensitive information is stored or transmitted.

Implementing data encryption techniques such as symmetric and asymmetric encryption can protect sensitive data stored on the blockchain or transmitted between network participants.

Utilizing privacy-preserving techniques such as zero-knowledge proofs (ZKPs) or homomorphic encryption can enable verifiable computations on encrypted data without revealing the underlying information.

Employing techniques like data masking or anonymization can further enhance privacy by obfuscating sensitive information while still allowing for meaningful data analysis and transactions.

It's important to design and implement encryption and privacy measures in a way that balances security with usability, ensuring that authorized parties can access necessary data while unauthorized access is prevented.

CHAPTER 6

RESULTS AND DISCUSSIONS

6.1 RESULT OVERVIEW

The utilization of blockchain innovation in conveyed crowdfunding has appeared a few points of interest and potential benefits Firstly, the decentralized nature of blockchain permits for expanded straightforwardness and unchanging nature, involves safely recording and ensuring all exchanges and ventures from any potential altering. This enhances trust between project owners and investors, mitigating the risk of fraudulent activities Moreover, blockchain enables instantaneous and secure transfer of funds, eliminating intermediaries.

Moreover, by incorporating smart contracts into the blockchain, intermediaries can be eliminated and the costs of transactions can be reduced., automating the execution of terms and conditions, thereby streamlining the crowdfunding process However, challenges such as scalability and regulatory frameworks There is a glaring need for addressing the potential of blockchain-based crowdfunding in order to fully harness its capabilities. It's evident that incorporating blockchain into distributed crowdfunding has the potential to fundamentally transform the traditional methods of project financing and investment.

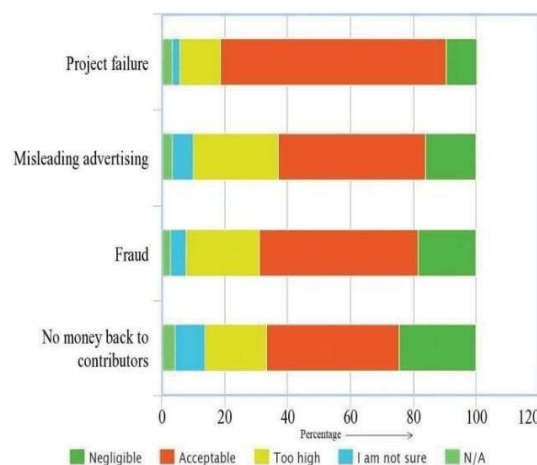


Fig-6.1 Graph result

CHAPTER 7

CONCLUSION

7.1 CONCLUSION

In conclusion, the implementation of a distributed crowdfunding system using blockchain technology has numerous benefits. The use of a decentralized ledger allows for increased transparency, as all transactions and contracts are recorded and verified by multiple participants. The immutability of the blockchain ensures that the system is secure and resistant to fraud or tampering. By removing the need for intermediaries, such as banks or crowdfunding platforms, blockchain-based crowdfunding can reduce costs and increase efficiency. Additionally, the global nature of blockchain allows for participation from individuals around the world, enabling greater access to funding opportunities. Overall, the adoption of a distributed crowdfunding system utilizing blockchain has the potential to revolutionize the way projects are funded and supported, creating a more democratic and inclusive crowdfunding ecosystem.

7.2 FUTURE WORK

The future work for a distributed crowdfunding system using blockchain involves several key areas of improvement. First, research and development should focus on enhancing the scalability of the system to accommodate a larger number of participants and transactions. This can be achieved through the implementation of layer-2 solutions such as payment channels or sharding techniques. Second, efforts should be made to enhance the security and privacy aspects of the system by exploring advanced cryptography techniques like zero-knowledge proofs or privacy-preserving algorithms. Additionally, interoperability between different blockchain networks should be explored to enable cross-chain crowdfunding campaigns and increase the flexibility for users. Furthermore, user experience and interface design should be optimized to attract more users and ensure a seamless and intuitive crowdfunding experience. This can involve the development of user-friendly mobile applications or integrating social networking features to enhance user engagement. Lastly, the system should adapt to regulatory frameworks and compliance requirements to ensure legality and legitimacy.

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APPENDIX

A. SOURCE CODE

```
/SPDX-License-Identifier: Unlicense pragma solidity ^0.8.0;

import "hardhat/console.sol"; import './Project.sol';

contract Crowdfunding{

// [X] Anyone can start a funding project .
// [X] Get All project list
// [X] contribute amount

event ProjectStarted(
address projectContractAddress , address creator,
uint256 minContribution, uint256 projectDeadline, uint256 goalAmount, uint256
currentAmount, uint256 noOfContributors, string title,
string desc,
uint256 currentState
);

event ContributionReceived( address projectAddress, uint256 contributedAmount,
address indexed contributor
);

Project[] private projects;

// @dev Anyone can start a fund rising
// @return null

function createProject(
uint256 minimumContribution, uint256 deadline,
```

```
uint256 targetContribution, string memory projectTitle, string memory projectDesc
) public {
```

```
    deadline = deadline; Project newProject = new
```

```
    Project(msg.sender,minimumContribution,deadline,targetContribution,projectTitle,
    project Desc);
    projects.push(newProject);
```

```
    emit ProjectStarted( address(newProject) , msg.sender, minimumContribution,
    deadline, targetContribution,
    0,
    0,
    projectTitle, projectDesc, 0
    );
```

```
}
```

```
// @dev Get projects list
```

```
// @return array
```

```
function returnAllProjects() external view returns(Project[] memory){ return projects;
}
```

```
// @dev User can contribute
```

```
// @return null
```

```
function contribute(address _projectAddress) public payable{
```

```
    uint256 minContributionAmount = Project(_projectAddress).minimumContribution();
    Project.State projectState = Project(_projectAddress).state();
    require(projectState == Project.State.Fundraising,'Invalid state'); require(msg.value
    >= minContributionAmount,'Contribution amount is too low !');
```

```

// Call function Project(_projectAddress).contribute{value:msg.value}(msg.sender);
// Trigger event
emit ContributionReceived(_projectAddress,msg.value,msg.sender);
}

}

//SPDX-License-Identifier: Unlicense pragma solidity ^0.8.0;

import "hardhat/console.sol";
// [X] Anyone can contribute
// [X] End project if targeted contribution amount reached
// [X] Expire project if raised amount not fullfill between deadline

//      & return donated amount to all contributor .
// [X] Owner need to request contributors for withdraw amount

Project(msg.sender,minimumContribution,deadline,targetContribution,projectTitle,
project Desc); projects.push(newProject);

emit ProjectStarted( address(newProject) , msg.sender, minimumContribution,
deadline, targetContribution,
0,
0,
projectTitle, projectDesc, 0
);

}

// @dev Get projects list
// @return array

function returnAllProjects() external view returns(Project[] memory){ return projects;
}

```

```

// @dev User can contribute
// @return null

function contribute(address _projectAddress) public payable{

uint256 minContributionAmount = Project(_projectAddress).minimumContribution();
Project.State projectState = Project(_projectAddress).state();
require(projectState == Project.State.Fundraising,'Invalid state'); require(msg.value
>= minContributionAmount,'Contribution amount is too low !');
// Call function Project(_projectAddress).contribute{value:msg.value}(msg.sender);
// Trigger event
emit ContributionReceived(_projectAddress,msg.value,msg.sender);
}

}

//SPDX-License-Identifier: Unlicense pragma solidity ^0.8.0;

import "hardhat/console.sol";
// [X] Anyone can contribute
// [X] End project if targeted contribution amount reached
// [X] Expire project if raised amount not fullfill between deadline

//      & return donated amount to all contributor .
// [X] Owner need to request contributors for withdraw amount.

// [X] Owner can withdraw amount if 50% contributors agree contract Project{
// Project state enum State {
Fundraising, Expired, Successful
}

// Structs

```

```

struct WithdrawRequest{ string description; uint256 amount; uint256 noOfVotes;
mapping(address => bool) voters; bool isCompleted;
address payable recipient;
}

// Variables
address payable public creator; uint256 public minimumContribution; uint256 public
deadline;
uint256 public targetContribution; // required to reach at least this much amount uint
public completeAt;
uint256 public raisedAmount; // Total raised amount till now uint256 public
noOfContributors;
string public projectTitle; string public projectDes;
State public state = State.Fundraising;

mapping (address => uint) public contributions;
mapping (uint256 => WithdrawRequest) public withdrawRequests; uint256 public
numOfWithdrawRequests = 0;
// Modifiers
modifier isCreator(){
require(msg.sender == creator,'You dont have access to perform this operation !');
_;
}

modifier validateExpiry(State _state){ require(state == _state,'Invalid state');
require(block.timestamp < deadline,'Deadline has passed !');
_;

// Event that will be emitted whenever funding will be received
event FundingReceived(address contributor, uint amount, uint currentTotal);
// Event that will be emitted whenever withdraw request created event
WithdrawRequestCreated(
uint256 requestId, string description, uint256 amount, uint256 noOfVotes, bool
isCompleted, address recipient

```

```

);
// Event that will be emitted whenever contributor vote for withdraw request event
WithdrawVote(address voter, uint totalVote);
// Event that will be emitted whenever contributor vote for withdraw request event
AmountWithdrawSuccessful(
uint256 requestId, string description, uint256 amount, uint256 noOfVotes, bool
isCompleted, address recipient
);

```

```

// @dev Create project
// @return null

```

```

constructor( address _creator,
uint256 _minimumContribution, uint256 _deadline,
uint256 _targetContribution, string memory _projectTitle, string memory
_projectDes
){
creator = payable(_creator); minimumContribution = _minimumContribution;
deadline = _deadline;
targetContribution = _targetContribution; projectName = _projectTitle;
projectDes = _projectDes; raisedAmount = 0;
}

```

```

// @dev Anyone can contribute
// @return null

```

```

function contribute(address _contributor) public validateExpiry(State.Fundraising)
payable {
require(msg.value >= minimumContribution,'Contribution amount is too low !');
if(contributors[_contributor] == 0){

noOfContributors++;
}

```

```

    contributors[_contributor] += msg.value; raisedAmount += msg.value;
    emit FundingReceived(_contributor,msg.value,raisedAmount);
    checkFundingCompleteOrExpire();
}

// @dev complete or expire funding
// @return null

function checkFundingCompleteOrExpire() internal { if(raisedAmount >=
targetContribution){
state = State.Successful;
}else if(block.timestamp > deadline){ state = State.Expired;
}
completeAt = block.timestamp;
}

// @dev Get contract current balance
// @return uint

function getContractBalance() public view returns(uint256){ return
address(this).balance;
}

// @dev Request refund if funding expired
// @return boolean

function requestRefund() public validateExpiry(State.Expired) returns(bool) {
require(contributors[msg.sender] > 0,'You dont have any contributed amount !');
address payable user = payable(msg.sender);
user.transfer(contributors[msg.sender]);
contributors[msg.sender] = 0; return true;
}

// @dev Request contributor for withdraw amount

```

```
// @return null
```

```
function createWithdrawRequest(string memory _description,uint256
_amount,address payable _recipient) public isCreator()
validateExpiry(State.Successful) {
WithdrawRequest storage newRequest =
withdrawRequests[numOfWithdrawRequests];
numOfWithdrawRequests++;
```

```
newRequest.description = _description; newRequest.amount = _amount;
newRequest.noOfVotes = 0; newRequest.isCompleted = false;
```

```
emit WithdrawRequestCreated(numOfWithdrawRequests,_description,
_amount,0,false,_recipient );
}
```

```
// @dev contributors can vote for withdraw request
```

```
// @return null
```

```
function voteWithdrawRequest(uint256 _requestId) public {
require(contributors[msg.sender] > 0,'Only contributor can vote !');
WithdrawRequest storage requestDetails = withdrawRequests[_requestId];
require(requestDetails.voters[msg.sender] == false,'You already voted !');
requestDetails.voters[msg.sender] = true;
requestDetails.noOfVotes += 1;
emit WithdrawVote(msg.sender,requestDetails.noOfVotes);
}
```

```
// @dev Owner can withdraw requested amount
```

```
// @return null
```

```
function withdrawRequestedAmount(uint256 _requestId) isCreator()
validateExpiry(State.Successful) public{
WithdrawRequest storage requestDetails = withdrawRequests[_requestId];
```

```

require(requestDetails.isCompleted == false,'Request already completed');
require(requestDetails.noOfVotes >= noOfContributors/2,'At least 50% contributor
need to vote for this request');
requestDetails.recipient.transfer(requestDetails.amount);
requestDetails.isCompleted = true;

emit AmountWithdrawSuccessful(
_requestId, requestDetails.description, requestDetails.amount,
requestDetails.noOfVotes, true, requestDetails.recipient
);

}

// @dev Get contract details
// @return all the project's details

function getProjectDetails() public view returns( address payable projectStarter,
uint256 minContribution, uint256 projectDeadline, uint256 goalAmount,
uint completedTime, uint256 currentAmount,string memory title, string memory desc

projectStarter=creator; minContribution=minContribution;
projectDeadline=deadline; goalAmount=targetContribution;
completedTime=completedAt; currentAmount=raisedAmount; title=projectTitle;
desc=projectDescription; currentState=state; balance=addresses(this).balance;
}

}

```

B. SCREENSHORTS

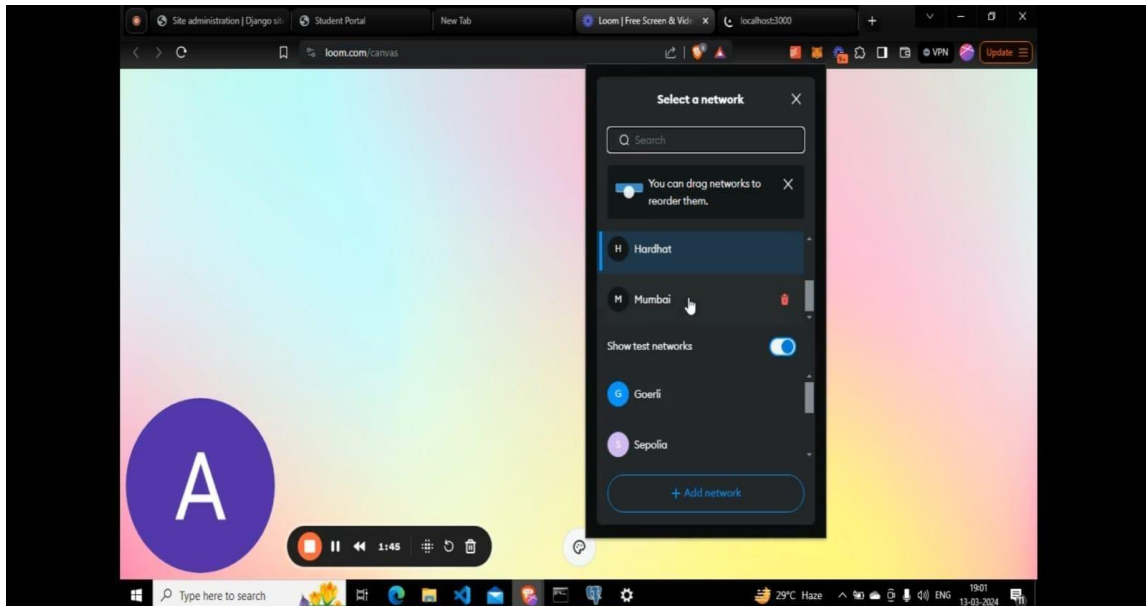


Fig.B.1 Dashboard

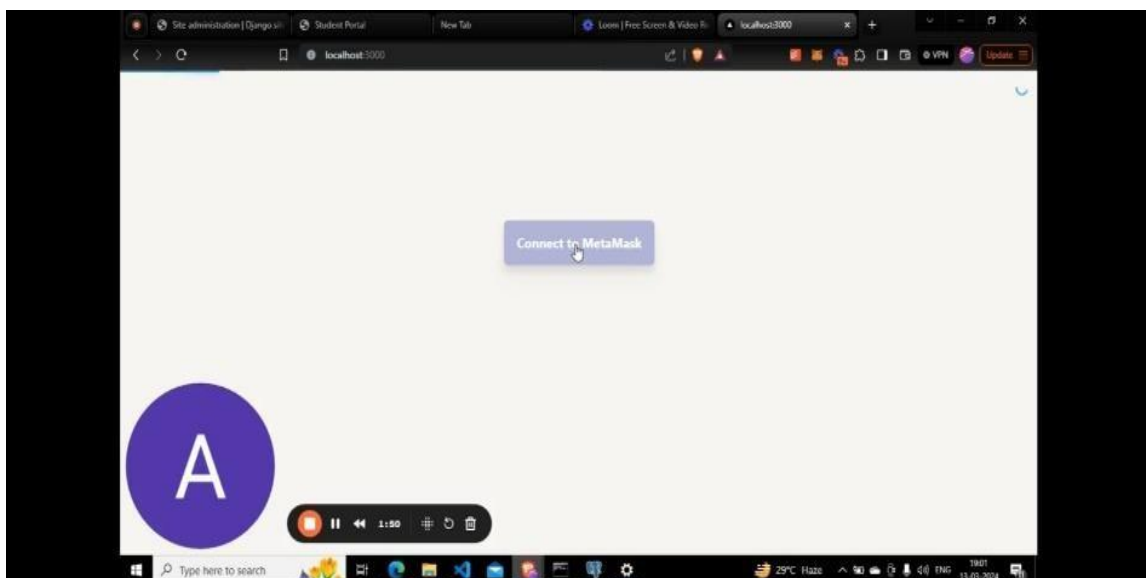


Fig B.2. Upload page

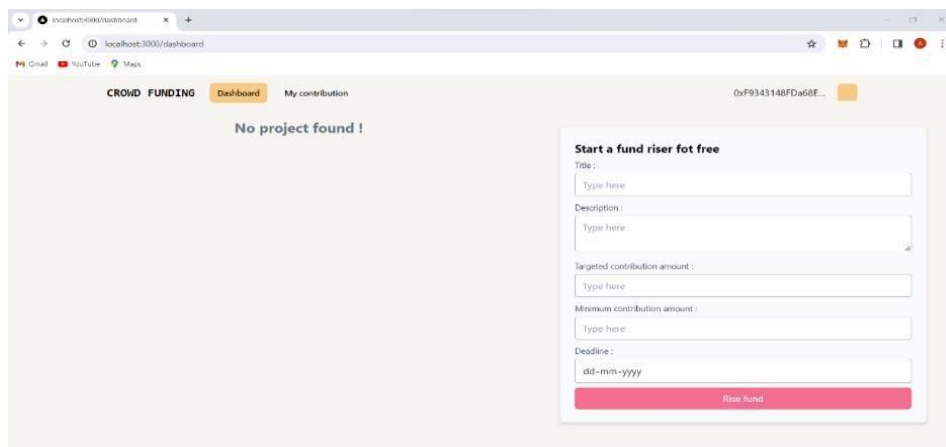


Fig B.3. Successfully upload

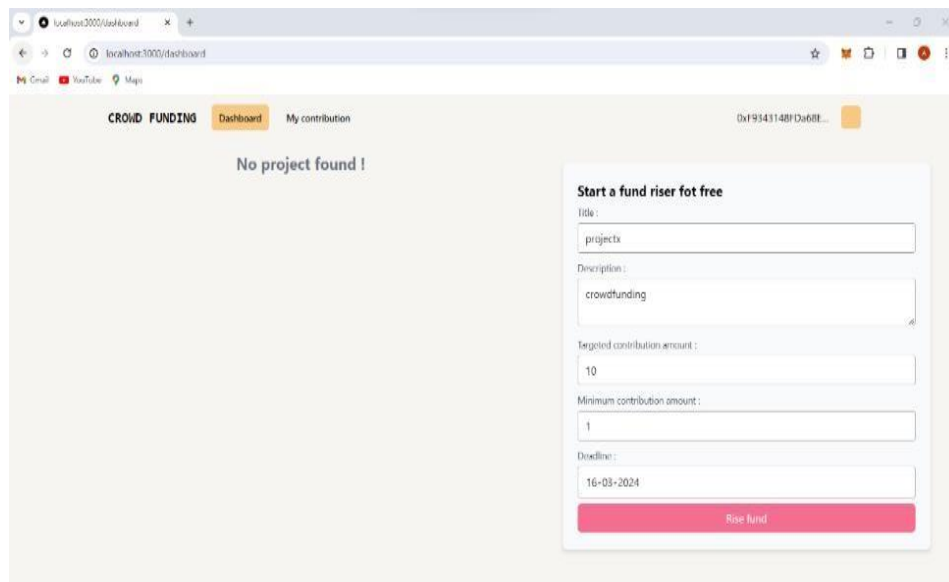


Fig B.4. Start transaction

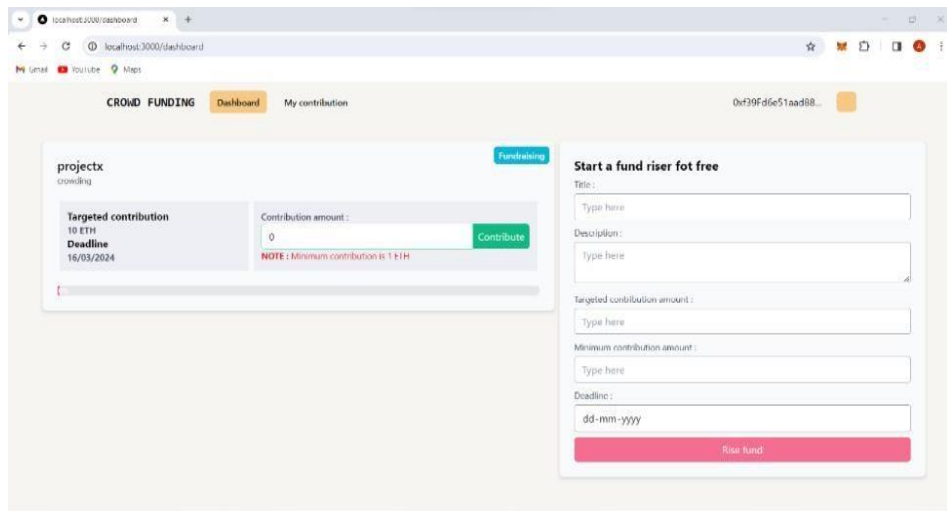


Fig A.5 Confirm transaction

C. RESEARCH PAPER

Blockchain-Powered Crowdfunding: Ensuring Trust and Security in the Digital Era

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Abstract. Blockchain decentralized crowdfunding is a new way to change the entire fundraising process using the transparency, security and distribution of blockchain technology. In this model, participants can directly engage in fundraising activities without intermediaries, eliminating the need for centralized crowdfunding platforms. Additionally, blockchain's immutability ensures the transparency of transactions and enables public auditing, enhancing donors' confidence in the system. By utilizing a distributed network of nodes, this crowdfunding model ensures fault tolerance and resilience against single-point failures. This approach allows for the pooling of resources from a diverse group of contributors, enabling projects and initiatives to achieve their funding goals. Blockchain technology, which is built on decentralized principles, offers numerous advantages for distributed crowdfunding. In conclusion, distributed crowdfunding using blockchain presents a transformative solution that offers transparency, security, and accessibility to revolutionize the traditional fundraising landscape.

Keywords: : Blockchain, Crowdfunding, Smart Contract, Solidity, Consensus algorithm, Token, Transparency

INTRODUCTION

Distributed crowdfunding the usage of blockchain era is revolutionizing the manner tasks and projects are funded. By getting rid of intermediaries and the usage of a decentralized network, it permits people to at once make contributions to tasks they accept as true with in. Blockchain's obvious and immutable nature guarantees that each one transactions and commitments are recorded accurately, and individuals can agree with that their budget may be used as meant. With the cap potential to crowdfund on a international scale, tasks of all sizes and from any a part of the arena can now get right of entry to a much wider pool of cap potential or monetary resources. This democratization of crowdfunding empowers people from all walks of lifestyles to help reasons and tasks that resonate with them. Smart contracts are agreements that are self-executing and contain predetermined conditions may be applied withinside the allotted crowdfunding gadget to automate numerous elements of the fundraising system, including freeing budget whilst particular milestones are met or routinely issuing rewards to contributors. The use of clever contracts now no longer best streamlines the crowdfunding system however additionally will backers, fostering innovation and empowering communities. The allotted crowdfunding gadget the usage of blockchain is an progressive method that leverages the electricity of blockchain era to revolutionize the manner crowdfunding campaigns are conducted. Traditional crowdfunding structures regularly be afflicted by troubles including loss of transparency, excessive expenses, and restrained get right of entry to budget. In contrast, the allotted crowdfunding gadget ambitions to cope with those drawbacks with the aid of using utilizing blockchain era as a decentralized and obvious platform for fundraising. Blockchain lies at the exceptionally heart of innovation, serving as a decentralized and secure record that captures exchanges over different computer frameworks, making beyond any doubt straightforwardness and unchanging nature. By leveraging this era, the allotted crowdfunding gadget permits for

a obvious and steady system in which each transaction is recorded and may be tested with the aid of using all individuals. This guarantees that budget raised via the platform are used for his or her meant purpose, getting rid of the danger of fraud or misappropriation. Traditional crowdfunding structures regularly have boundaries on who can participate, including geographical regulations or minimal funding amounts. With the allotted crowdfunding gadget, everybody with a web connection can make contributions to a marketing campaign, irrespective of their place or monetary resources.

This democratization of crowdfunding empowers people from all walks of lifestyles to help reasons and tasks that resonate with them. Smart contracts are agreements that are self-executing and contain predetermined conditions may be applied within the allotted crowdfunding gadget to automate numerous elements of the fundraising system, including freeing budget whilst particular milestones are met or routinely issuing rewards to contributors. The use of clever contracts now no longer best streamlines the crowdfunding system however additionally will increase agree with and accountability, because the phrases of the settlement are encoded within the blockchain and cannot be altered or manipulated. In conclusion, the allotted crowdfunding gadget the usage of blockchain is a modern answer that addresses the constraints of conventional crowdfunding structures. By leveraging the transparency, security, and accessibility of blockchain era, this gadget empowers people and agencies to behaviour crowdfunding campaigns in a extra efficient, fee effective, and straightforward manner. With its cap potential to revolutionize the crowdfunding landscape, the allotted crowdfunding gadget has the cap potential to pressure tremendous social and financial alternate on a international scale. Additionally, the use of blockchain enables the elimination of intermediaries, such as banks or crowdfunding platforms. This makes it possible to regulate precisely who has access to sensitive information, guaranteeing that only those who are permitted have the required rights. Furthermore, SecureNet integrates sophisticated threat detection and prevention systems to recognize and address any possible security lapses, delivering prompt notifications and preemptive actions to protect the information. In a time where cyberattacks and data breaches are frequent occurrences, both individuals and enterprises want a strong security solution that can withstand the constantly changing threats. They can rest easy with SecureNet, knowing that their most valuable assets are shielded by state-of-the-art encryption, strengthened by blockchain technology, and backed by an extensive array of data protection safeguards. SecureNet provides the highest level of security and privacy for financial transactions, personal information, and intellectual property, enabling individuals and businesses to safely traverse the digital environment and protect their priceless data

RELATED WORKS

TeduChain: blockchain primarily based, platform used for crowdfunding tertiary training. - Authors: Rashid, M. A, Deo, K, Prasad, D, Singh, K., Chand, S., & Assaf, M. - Published in: The Knowledge Engineering Review (2020) -Explanation: This paper introduces Tedu-Chain, blockchain primarily based totally platform designed for crowdfunding development training. It explores how blockchain era may be applied to facilitate crowdfunding within the training sector.

A decentralized believe control mechanism for crowdfunding. - Authors: Xu., Y, Li, Q, Zhang C., Tan, Y., Zhang, P, Wang, G., & Zhang, Y. - Published in: Information Sciences (2023) - Explanation: This study gives a decentralized believe control mechanism for crowdfunding the use of blockchain era. It focuses on enhancing trust and security in crowdfunding campaigns.

Crowdfunding extortion anticipation utilizing blockchain. - Creators: Pandey S, Goel, S, Bansla, S, and Pandey., D. - Distributed in: 2019 6th Universal Conference on Computing for Economical Worldwide Advancement (INDIACom.) (2019) - Explanation: This paper discusses how blockchain can be employed for preventing fraud in crowdfunding. It explores mechanisms to enhance the integrity of crowdfunding platforms. Blockchain-primarily based completely Decentralized Co-governance: Advancements and Arrangements for Economical Crowdfunding. - Creators: Chen., B, Lou, Y, Li., J, Li., Y, Liu., Y, Yang, F, & Qiao, Y.. - Published in: arXiv preprint arXiv:2306.00869 (2023) - Explanation: This paper introduces improvements and answers for sustainable crowdfunding thru blockchain-primarily based totally decentralized co-governance. It explores ways to improve crowdfunding mechanisms.

Securing blockchain-based crowdfunding stages: an coordinates chart neural systems and machine learning approach. - Creators: Zkik, K., Sebbar, A., Fadi, O., Kamble, S., & Belhadi, A. - Distributed in: Electronic Commerce Inquire about (2023) - Clarification: This investigate centres on

CROWDFUNDING PLATFORM USING BLOCKCHAIN: A REVIEW OF D APP IMPLEMENTATION. - Authors: Varghese, A., Regi, N. A., Babu, S. M., & Varghese, C. M. -Explanation: While particular guide info aren't provided, this paintings probably critiques the implementation of decentralized applications (DApps) for crowdfunding structures making use of blockchain technology.

To follow the Advancement of Entrepreneurial Back: The interaction among Crowdfunding, blockchain advances, Creators: Bogusz, C. I., Laurell, C., & Sandström, C. - Distributed in: IEEE Exchanges on Building Administration (2020) - Clarification: This paper investigates the virtual Advancement of Entrepreneurial Back, Looking at the Intelligent among blockchain innovations, cryptocurrencies, and preparatory Coin

Offerings (ICOs).

CROWDFUNDING PLATFORM USING BLOCKCHAIN. - Authors: Varghese, A., Regi, N. A., Babu, S., Mani, S., & Varghese, C. M. - Explanation: These paintings, much like reference [6], probably discusses the implementation of a crowdfunding platform the use of blockchain technology, despite the fact that particular guide info aren't provided.

Blockchain Raising money and Charity Stage. - Creators: Govindarajan., S, Rajkumar., S. S, & Posonia., A. M. - Distributed in: 2023 moment Universal conference on vision towards Developing Patterns in communication and organizing advances (ViTECon) (2023)- Explanation: This paper focuses on blockchain based fundraising and charity platforms, examining how blockchain can enhance transparency and trust in charitable contributions.

Like starter: A keen contract based social DAO for crowdfunding. - Creator: Zichichi., M, tally M, Ferretti, S, & D'Angelo., G. - distributed in: IEEE INFOCOM 2019-IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS) (2019) - Clarification: This paper presents LikeStarter, a Shrewd Contract Based social DAO (Decentralized Independent Organization) crowdfunding. It investigates the application of blockchain moreover keen contracts in crowdfunding activities.

Secure and Transparent crowdfunding using Blockchain – Authors: Harsh Khatter, Hritik Chauhan, Ishan Trivedi, Jatin Agarwal - Published in (2021) international conference on Recent Trends on electric, information, communication Technology (RTEICT) - Explanation: crowdfunding is the practice by which an individual or an organization can raise funds for a project, where a large number of people contribute small amount of money, typically via the internet.

The Role of blockchain technology-based social crowdfunding in advancing social value Creation – Authors: Loan T.Q. Nguyen ^{a b}, Thinh G. Hoang ^{b c}, Linh H. Do ^a, Xuan T. Ngo ^a, Phuong

H.T. Nguyen ^a, Giang D.L. Nguyen ^b, Giang N.T. Nguyen ^d - published (2021) Technology forecasting and social change Explanation: This study investigates the practical applications of blockchain technology in socially oriented crowdfunding platforms (SCPs).

Blockchain technology empowers the crowdfunding decision -making of marine ranching – Authors: Xiaole Wan ^{a b}, Zhengwei Teng ^a, Qianqian Li ^{a 1}, Muhammet Deveci ^{c d} – published in (2023) Expert Systems with applications – Explanation: Marine ranching as a new commercial form

, the lack of construction and development funds has become its development constraint

Blockchain Solution to improve trust in crowdfunding systems- Authors: Imane Ezzine, Laila Benhlila published : 29 November 2021 -Explanation: Trust is the foundation of any business relation , success depends on it, and its part of how enterprise takes care of their business networks

[14] Theories of Crowdfunding and token issues – Author: Anton Miglo- Published: 13 May 2022 – Explanation: Entrepreneurial, innovative and small- and medium-sized firms experience difficulties with raising funds using traditional debt and equity. Consequently, they are constantly looking for new strategies of financing

[15] Secure and Transparent crowdfunding using Blockchain – Authors: Harsh Khatter, Hritik Chauhan, Ishan Trivedi, Jatin Agarwal - Published in (2021) international conference on Recent Trends on electric, information, communication Technology (RTEICT) - Explanation: crowdfunding is the practice by which an individual or an organization can raise funds for a project, where a large number of people contribute small amount of money, typically via the internet.

PROBLEM STATEMENT

Distributed crowdfunding platforms have gained popularity as alternative ways of raising funds for various projects, businesses, and social causes. Be that as it may, these stages regularly confront challenges such as need of straightforwardness, security, and tall exchange. Blockchain innovation has the potential to viably handle these issues by advertising a decentralized and dependable stage for crowdfunding. Through the use of blockchain's immutable and transparent nature, projects can instill trust in potential supporters, decreasing the likelihood of fraudulent endeavors and encouraging greater participation. Additionally, smart contracts can streamline the process of collecting commitments and evaluating projects, guaranteeing transparency and responsibility. However, the widespread adoption of blockchain in crowdfunding is hindered by scalability and usability obstacles

that must be overcome in arrange to completely saddle the focal points of this groundbreaking advancement. By leveraging the permanence and straightforwardness of blockchain, ventures can pick up believe from potential sponsor, reducing the risk of fraudulent activities and increasing overall participation. Moreover, that are self-executing contracts with the expressions of the settlement at once composed into code. Keen contracts will robotize the total crowdfunding handle,, guaranteeing straightforwardness and responsibility. However, the adoption of blockchain in crowdfunding still faces scalability and usability challenges entails securely

recording and protecting all transactions and investments from any potential tampering.

EXISTING SYSTEM

The existing system for Distributed crowdfunding using blockchain has several disadvantages. Firstly, one of the primary drawbacks is the scalability issue. The modern-day blockchain era utilized in crowdfunding systems isn't able to managing a massive variety of transactions. As increasingly customers be a part of the platform, the community turns into congested, and the transaction pace slows down significantly. This may be a chief issue for crowdfunding campaigns that require brief and green transactions.

PROPOSED SYSTEM

The proposed work is to create a disseminated crowdfunding framework utilizing blockchain innovation. The framework points to revolutionize the way ventures are financed by leveraging the straightforwardness, security, and proficiency of blockchain. Firstly, the gadget will make use of a decentralized community of nodes to make certain that no unmarried entity or organisation has manipulate over the crowdfunding process. This will do away with the want for intermediaries together with banks or crowdfunding platforms, decreasing transaction costs, and growing consider amongst participants. Furthermore, the contraption will include intelligent contracts, that are self- executing contracts with the expressions of the settlement at once composed into code.

Savvy contracts will robotize the total crowdfunding prepare, arranging of the need for direct mediation and diminishing the opportunity of extortion or control. Furthermore, using blockchain will make certain transparency and immutability of transaction records. All transactions may be recorded at the blockchain in a tamperproof manner, stopping any shape of information manipulation. This will foster consider and duty many of the participants, as they could affirm the authenticity of transactions at any time. The proposed work is to develop a distributed crowdfunding system using blockchain technology.

The framework points to revolutionize the way ventures are financed by leveraging the straightforwardness, security, and productivity of blockchain. Firstly, the framework will utilize a decentralized arrange o hubs to guarantee that no single substance or organization has control over the crowdfunding prepare. This will dispose of the require for middle people such as banks or crowdfunding stages, decreasing exchange costs, and expanding rust among members. Furthermore, the framework will join keen contracts, which are self-executing contracts with the terms of the assertion straightforwardly composed into code. Savvy contracts will mechanize the complete crowdfunding handle, dispensing with the require for manual mediation and diminishing the plausibility of extortion or control. Besides, the utilize of blockchain will guarantee straightforwardness and permanence of exchange records. All exchanges will be recorded on the blockchain in a tamperproof way, anticipating any frame of information control.

This will cultivate believe and responsibility among the members, as they can confirm the genuineness of exchanges at any time. Creating a secure and trustworthy environment for utilizing blockchain technology in crowdfunding requires a meticulously constructed system that carefully considers every aspect of the crowdfunding process. In order to fully understand this system, let's break it down from the ground up, beginning with the two key players: project initiators and fund contributors. Crowdfunding Participants: - At the heart of the crowdfunding system are project initiators and fund contributors. Project initiators seek funding for their projects, while fund contributors are individuals or entities who wish to contribute funds to support these projects

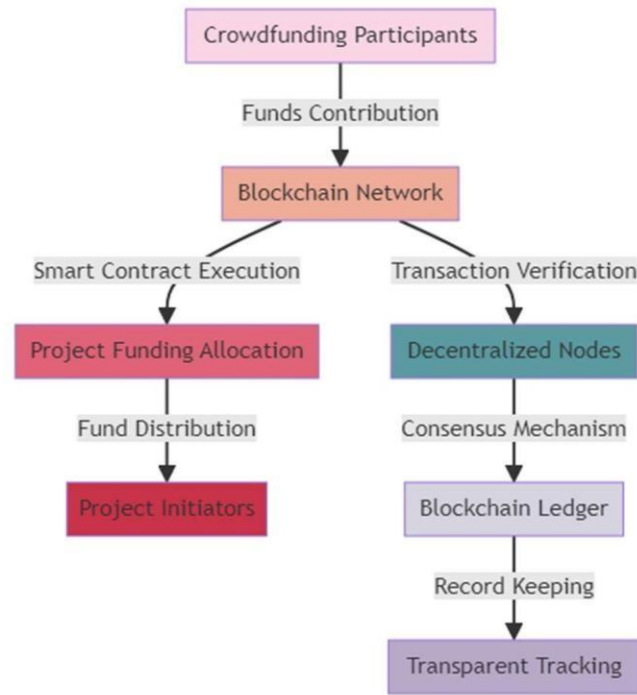


Fig -1 proposed system

Funds Contribution: - To participate, fund contributors securely and transparently contribute funds to their chosen projects. This step involves a detailed process that guarantees the safe and straightforward contribution of funds to the projects being backed. **Blockchain Network:** The blockchain network acts as the bedrock of the architecture, boasting decentralized, transient, and secure operations. **a. smart contract execution:** **Project Funding Allocation:** Smart contracts handle the allocation of funds to specific projects. Contributors can specify the project they wish to support, and smart contracts automate the allocation process. **Fund Distribution:** After securing funding, smart contracts seamlessly handle the disbursement of funds to project originators. This guarantees that funds are released following pre-established terms, promoting transparency and responsibility. **Project Initiators:** Those spearheading new projects, whether individuals or teams, are known as project initiators. They are responsible for putting together proposals, determining funding goals, and outlining the parameters for fund distribution via smart contracts. **b. Transaction Verification:** **Decentralized Nodes:** The blockchain network is built upon decentralized nodes, strategically dispersed throughout the network to guarantee decentralization. These nodes are run by a diverse array of participants, effectively bolstering the network's security and resilience. **Consensus Mechanism:** In arrangement to set up and accomplish agreement on the state of the blockchain, an agreement component is utilized. Its essential work is to guarantee that all hubs inside the organization keep up a cohesive understanding of the exchanges taking place. Prevalent instruments, such as Confirmation of Work (PoW) or Verification of Stake (PoS), are frequently utilized for this reason. **Blockchain Ledger:** The Blockchain Ledger is a revolutionary decentralized record of all transactions, effectively safeguarded against tampering. Within its encrypted pages lie crucial details such as fund contributions, project funding allocations, and fund distributions. This cutting-edge technology guarantees complete transparency and unchangeability for all parties involved. **Record Keeping:** The blockchain ledger acts as a recordkeeping tool, documenting all transactions and smart contract executions. This transparent system provides a reliable history of all actions, promoting accountability and transparency. **Transparent Tracking:** By utilizing blockchain technology, participants have the ability to easily track the transaction flow, from initial contributions to project allocations. This level of transparency fosters trust among participants, as they are empowered to independently verify the legitimacy of all transactions. Using advanced technology, this architecture emerges the efficiency of

smart contracts with the unbreakable security of blockchain to produce a crowdfunding system that places emphasis on trust, transparency, and safety. Every aspect of this system works together harmoniously to guarantee the integrity of the crowdfunding process

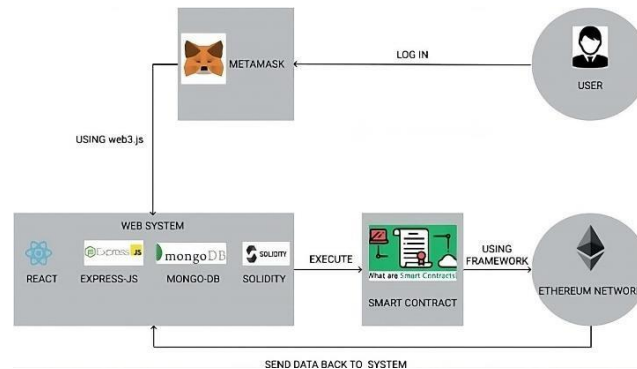


Fig-2 system architecture

Contributors and Project Creators: Users of the crowdfunding platform. Contributors provide funds to projects, while project creators initiate fundraising campaigns. Let's talk about two powerful instruments for association with the Ethereum blockchain. To begin with, we have MetaMask - a convenient browser expansion that too capacities as a wallet. It permits clients to safely oversee their Ethereum accounts, sign exchanges, and lock in with decentralized applications (DApps) right inside their web browser. And for those who prefer to work with JavaScript, there's Web3.js, a versatile library that enables seamless communication with Ethereum nodes. With these tools in your arsenal, navigating the Ethereum ecosystem has never been easier. It allows the web system to communicate with the Ethereum blockchain, query data, and send transactions. Web3.js facilitates the integration of Ethereum functionality into web applications. **Web System (React + Express.js):** React (Frontend): A JavaScript library for building user interfaces. In this context, React is used to create our crowdfunding platform boasts a cutting-edge, user-friendly interface that seamlessly connects with the Ethereum blockchain using the advanced technology of Web3.js. This is backed by the reliable and powerful Express.js framework for Node.js.. Express.js handles serverside logic, manages routes, and interacts with the MongoDB database.

It serves as the backend for the crowdfunding platform. **MongoDB:** A NoSQL database used to store non-blockchain data, such as user information, project details, and other application-specific data. MongoDB provides flexibility in handling data structures. **Solidity (Smart Contracts):** Fluency and Engagement: Strength could be an effective programming dialect particularly made for making brilliantly contracts that work on the Ethereum Virtual Machine (EVM). These shrewd contracts are independent and execute based on the predefined terms that are specifically modified into the code. In this setting, Robustness is utilized to actualize crowdfunding logic. **Ethereum Network System:** The Ethereum organization could be a decentralized blockchain organization. It provides the infrastructure for executing smart contracts and managing transactions. The Ethereum network framework includes nodes, miners, and the EVM. Nodes maintain the blockchain, miners validate transactions, and the EVM executes smart contracts. **Execution of Smart Contracts using Ethereum Network:** When a user interacts with the crowdfunding platform, the React frontend communicates with the Express.js backend to handle user requests. Smart contracts written in Solidity are deployed on the Ethereum network. These contracts define the rules and logic for crowdfunding campaigns. Users interact with smart contracts through transactions sent to the Ethereum network. For illustration, donors send reserves to a keen contract address. MetaMask is utilized to sign exchanges safely. With its user-friendly interface, this platform offers an effortless way to handle Ethereum accounts and engage with DApps. **Data Flow:** The React frontend retrieves data from the Express.js backend, which, in turn, may query from the MongoDB database. Smart contracts on the Ethereum network store and update crowdfunding-related data, such as project details, contributor information, and withdrawal requests. In summary, this architecture integrates various components to create a decentralized crowdfunding platform. Users interact with the platform through a web interface, MetaMask

facilitates secure transactions, Web3.js connects the web system to the power of the Ethereum network lies in its blockchain, where crowdfunding is governed by smart contracts written in Solidity, creating a seamless flow of actions and transactions. MongoDB is used to store additional funds to a smart contract address. MetaMask is used to interact securely with our project, especially with the self-executing agreements

EVALUATION TECHNIQUES

FEASIBILITY STUDY: To assess the potential for server performance improvement, a feasibility study is conducted to gather preliminary project data and present supplementary business proposals with detailed project plans and cost estimates. The feasibility study of the proposed system is to be conducted during this process. It is necessary to have some knowledge of the major requirements for the system in order to perform feasibility analysis. The feasibility analysis takes into account three main aspects.

ECONOMICAL FEASIBILITY: The purpose of this research is to assess the economic influence that the system will have on the organization. The company's capacity to undertake research and development for the system is restricted. Why? They have to justify the costs. "The developed system was able to function within the budget due to the availability of most technologies at no cost. Only the bespoke items were required to be purchased.

TECHNICAL FEASIBILITY: The objective of this research is to assess the technical feasibility of the system, which involves its technical specifications. The development of any system should not require a significant amount of technical resources. Consequently, the demands on the client will be very high. It is necessary to have minimal changes for the developed system to be implemented, as minimal modifications are required.

OPERATIONAL FEASIBILITY: The viewpoint of the ponder is to check the level of acknowledgment of the framework by the client. This incorporates the method of preparing the client to utilize the framework effectively. The client must not feel debilitated by the framework, instead must acknowledge it as a need. The level of acknowledgment by the clients exclusively depends on the strategies that are utilized to teach the client about the framework and to form him recognizable with it.

TABLE

Feature/Aspect	Existing System	Proposed System
Technology	Traditional databases	Blockchain Technology
Control and Intermediaries	Centralized control with intermediaries	Decentralized network of nodes No single entity
Transaction Costs	Higher due to intermediaries	Reduced without intermediaries
Trust Among Participants	Dependent on intermediaries Reputation based trust system	Increased trust with blockchain Transparency and decentralization
Fraud and Manipulation	Potential for fraud and manipulation	Reduced with cryptographic security and smart contracts
Immutability	Data can be altered or deleted	Tamper proof records on blockchain

Accountability	Limited ability to verify transaction	Increased accountability with verifiable and immutable records
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Fig- 3 existing system & proposed system differences

RESULT AND DISCUSSION

The utilization of blockchain innovation in conveyed crowdfunding has appeared a few points of interest and potential benefits Firstly, the decentralized nature of blockchain permits for expanded straightforwardness and unchanging nature, involves safely recording and ensuring all exchanges and ventures from any potential altering. This enhances trust between project owners and investors, mitigating the risk of fraudulent activities Moreover, blockchain enables instantaneous and secure transfer of funds, eliminating intermediaries. Moreover, by incorporating smart contracts into the blockchain, intermediaries can be eliminated and the costs of transactions can be reduced., automating the execution of terms and conditions, thereby streamlining the crowdfunding process However, challenges such as scalability and regulatory frameworks There is a glaring need for addressing the potential of blockchain-based crowdfunding in order to fully harness its capabilities. It's evident that incorporating blockchain into distributed crowdfunding has the potential to fundamentally transform the traditional methods of project financing and investment.

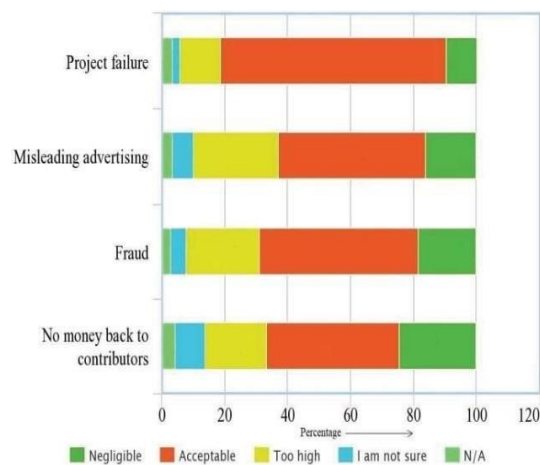


Fig-4 graph result

SYSTEM OUTPUT

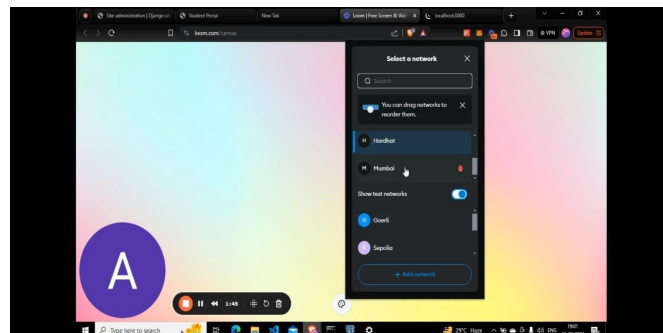


Fig-5 dashboard

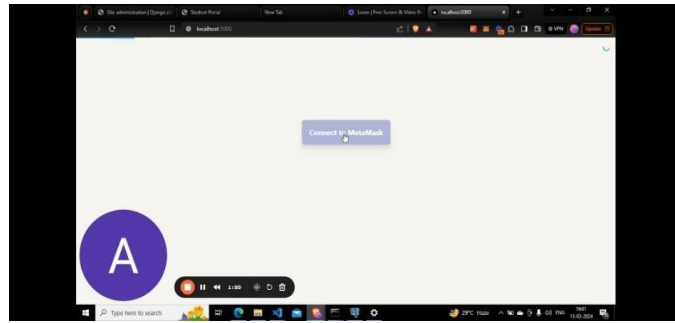


Fig-6 upload page

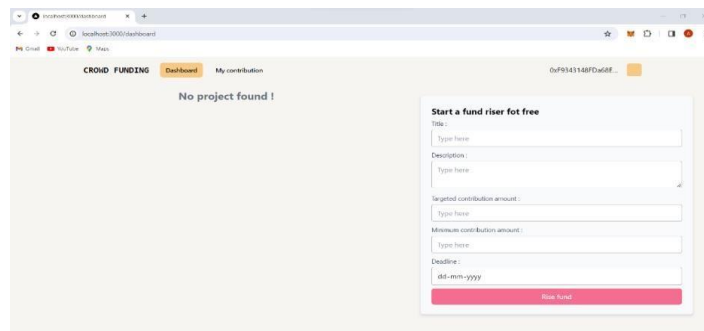


Fig7-succesfully upload

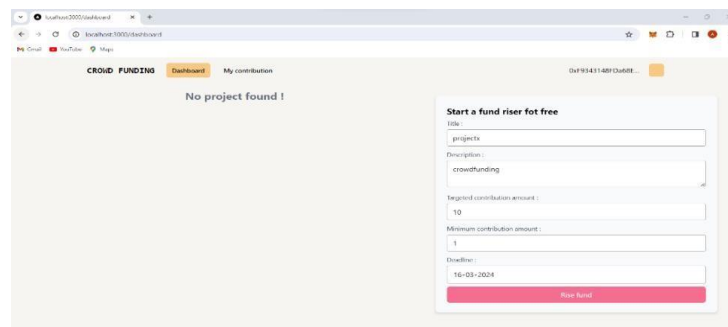


Fig-8 start transaction

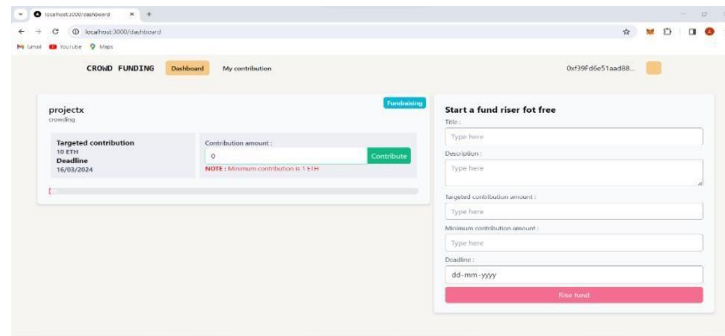


Fig-9 confirm transaction

CONCLUSION AND FUTURE SCOPE

In conclusion, the usage of a apportioned crowdfunding gadget the utilize of blockchain era has afew benefits. The use of a decentralized ledger permits for expanded transparency, as all transactions and contracts are recorded and tested through a couple of participants. The immutabilityof the blockchain guarantees that the device is stable and proof against fraud or tampering. By disposing of the want for intermediaries, along with banks or crowdfunding platforms, blockchain- primarily based totally crowdfunding can lessen fees and boom efficiency. Additionally, the worldwide nature of blockchain permits for participation from people across the world, permitting more get admission to investment opportunities. Overall, the adoption of a allotted crowdfunding device making use of blockchain has the capacity to revolutionize the manner initiatives are funded and supported, developing a greater democratic and inclusive crowdfunding ecosystem. The future work for a distributed crowdfunding system using blockchain involves several key areas of improvement. To begin with, investigate and improvement ought to center on improving One way to move forwardthe system's adaptability and handle a bigger volume of members and exchanges is by joining layer-2 arrangements, such as installment channels or sharding strategies. Additionally, in order to bolsterthe security and privacy of the system, it would be beneficial to consider implementing advanced cryptography strategies like zeroknowledge proofs or privacy-preserving calculations like zero- knowledge proofs or privacy-preserving calculations. Additionally, interoperability between different blockchain networks should be explored to enable cross chain crowdfunding campaigns andincrease the flexibility for users. Furthermore, user experience and interface design should be optimized to attract more users and ensure a seamless and intuitive crowdfunding experience. Thiscan involve the development of user-friendly mobile applications or integrating social networking features to enhance user engagement Finally, the framework ought to adjust to administrative systems and compliance prerequisites to guarantee legitimacy and authenticity. Overall, future work for a distributed crowdfunding system using blockchain will revolve around scalability, security,privacy, interoperability, user experience, and regulatory compliance.

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