**INTRODUCTION**

**CHAPTER 1**

**INTRODUCTION**

* 1. **OVERVIEW**

Blockchain is a decentralized and distributed ledger technology that securely records all the transactions across a network of computers. It relies on a chain of blocks, where each block contains cryptographic hash of the previous one, ensuring data integrity. The decentralized network of nodes reaches consensus on transaction validity through mechanisms like proof of work or proof of stake. Cryptographic hash functions and immutability make a recorded data resistant to tampering. Smart contracts, self-executing code, automate and enforce the predefined contract terms. Transactions are transparent, visible to all participants, while the participant identities remain pseudonymous. Blockchain applications extend beyond finance to supply chain, healthcare, and voting systems. Its security, transparency, and resistance to censorship contribute to its widespread interest and adoption.

Business runs on information. The faster it’s received and the more accurate it is, the better. Blockchain is an ideal for delivering that information because it provides immediate, shared and completely transparent information stored on an immutable of ledger that can be accessed only by permissioned network members. A blockchain network can track an order, payments, accounts, production and much more. And because members share a single view of the truth, you can see all details of transaction end to end, giving you greater confidence, as well as new efficiencies and opportunities.

* 1. **MOTIAVTION**

**Raise Funds :** Creators are motivated to use crowdfunding platforms because it provides an easy, efficient, organized way to solicit and collect financial from many people through the distributed network. By using web-based technologies, such as online payment systems and social media, creators are able to market and solicit resources safely and easily through the crowdfunding platforms.

**Expand Awareness of Work** **:** In addition to raising financial resources, creators are to be motivated to expand awareness of their work by publicizing their crowdfunding project. And unlike traditional fundraising methods in which only the application reviewers read about the project, crowdfunding provides an avenue for anyone on the internet to view one’s of project through a brief video and written description. Creators expand awareness by posting links to their project in social media and sending emails about their campaign t friends, family, and a news media outlet.

**Form Connections :** In addition to raising funds and expanding awareness of work, our data suggests that creators are motivated to engage crowdfunding to connect with people through a long-term interaction that extends well beyond a single financial transaction. Because the crowdfunding platforms store supporter contacts and provide online messaging services, and creators are able to easily communicate with supporters in answering questions and giving a project updates.

**Learn New Fundraising Skills :** Having control over a crowdfunding campaign forces the creators to gain experience in areas outside their professional expertise. Although creators did not initially report being motivated to be learn, those who had completed campaigns, both the successes and failures, were motivated to participate again to improve skills to fundraise in an effective manner, such as marketing, communication, management, risk taking, and financial planning.

* 1. **PROBLEM STATEMENT**

Crowdfunding is a financing method that involves funding a project with relatively modest of contributions from the large group of individuals, rather than seeking substantial sums from a small number of investors.

This crowdfunding platform powered by the blockchain technology eliminates the need for a middleman third party in a number of ways, enhancing and supporting the practice. Increased security in hostile environments just one of the many advantages that blockchain technology offers in a wide range of industries.

Blockchain is a linked list that employs hash pointers rather than regular pointers. This allows each blockchain node to not only locate the next node but also verify whether the data in that node has changed. This blockchain-based crowd-funding system can receive funding. Anyone with an internet connection can use this system.

* 1. **PROPOSED SYSTEM**

**Blockchain-based Platform :** A decentralized platform, open to all, that allows creators to fundraise from anywhere in the world without the need for intermediaries.

**Peer-to-Peer :** A peer-to-peer network that connects creators with funders, allows for secure and transparent fundraising and enables transactions to be publicly audited.

**Ease of Use :** A simple, user-friendly interface that simplifies the crowdfunding process and reduces the time it takes to bring your project to life.

**Customizable Features :** The platform offers customizable features, including rewards and an incentive that allow creators to incentivize funders and increase their chances of success.

* 1. **REPORT ORGANIZATION**

**Chapter 1 :**

This chapter gives the overall description about the project. It gives the overview of a proposed project work. It tries to answer why is this project is needed in current scenario and what are various motivation factors that motivated to implement this project. This chapter also points out the limitations in the existing systems and tells how these limitations can be help to overcome by using this project.

**Chapter 2 :**

This chapter gives us details about various base papers that are related to the proposed project work. It shows how various activities related to the project we carried out at different point of time. It gives a short introduction to each base paper, talks about their Shortcomings and tells how this project can overcome those shortcomings.

**Chapter 3 :**

This chapter introduces the system analysis process. It gives us brief idea whether this project should be done or not based on various feasibility study. It gives the summary of the various feasibility studies that were carried out and shows the advantages of doing a project. At the same time, it also gives the ove.

**Chapter 4 :**

This chapter talks about various hardware and software tools that are necessary in the order to implement this project. It provides details of software and languages that will be used andalso lists the minimum requirements needed to run the project.

**Chapter 5 :**

This chapter shows the detailed design of the architecture, components, modules, and interfaces, and data for the proposed system to satisfy specified requirements. It shows us the various standard UML diagrams that are needed to design the system. It provides visualization of how the data will flow among various components of the system.

**Chapter 6 :**

This chapter shows the implementation of the structure created during architectural of design and the results of system analysis so construct system elements that meet a stakeholder requirements and system requirements developed in an early life cycle phase. It shows us the segment of programming code that is used in order to implement this project.

**Chapter 7 :**

This chapter shows the various test results produced by the system. Various kinds of a tests are performed foe each part of the system and as well as the whole system. It shows us a various pre-defined test cases and result of running these test cases on the system.

**Chapter 8 :**

This chapter shows the various screenshots of the system. It also shows how a data is processing happens at various stages of the system and the final output is also displayed. And it also shows the outer interface design of the system.

* 1. **INTRODUCTION SUMMARY**

This introduction chapter gives the overview about the project and gives a short kind of description of the proposed project work. It tries to answer why this project is needed in a current scenario and what are various scopes and advantages of this project.

**LITERATURE SURVEY**

**CHAPTER 2**

**LITERATURE SURVEY**

A literature survey is a critical component of any research project or paper. It is a comprehensive review of existing literature on a specific research topic, which helps the researcher to identify knowledge gaps, current research trends, and potential avenues for future research. The purpose of a literature survey is to gather information and evidence from various sources, such as academic journals, books, reports, and other reliable sources, to establish a solid foundation for the research.

A literature survey is an essential part of any research project because it helps to define the scope of the project, provide context, and demonstrate the relevance of the research question. It also helps the researcher to understand the existing research landscape and identify the key concepts and theories related to the research topic. A well-conducted literature survey can provide valuable insights and ideas for the research and help the researcher to develop a more comprehensive and accurate understanding of the topic

There are several steps involved in conducting a literature survey for a research project. The first step is to identify the research question or problem and formulate the research objectives. This will help to narrow down the search and identify the relevant literature to be reviewed. The second step is to search for relevant literature using various search engines and databases, such as Google Scholar, Web of Science, Scopus, and PubMed. The search terms should be chosen carefully to ensure that the literature reviewed is relevant to the research question.

Once the literature has been identified, it should be critically evaluated to determine its quality, relevance, and reliability. This involves reading the abstract, introduction, methodology, results, and conclusion of each paper to assess its contribution to the field and its potential relevance to the research. The literature should be summarized and synthesized, highlighting the key findings, themes, and trends in the field. The literature survey should also identify any gaps or inconsistencies in the existing literature and suggest potential areas for further research.

In conclusion, a literature survey is a critical component of any research project, and it should be conducted carefully and systematically to ensure its accuracy and reliability. It helps the researcher to identify knowledge gaps, current research trends, and potential avenues for future research. It also provides a foundation for the research and helps to establish the relevance and significance of the research question. Therefore, it is important for researchers to invest sufficient time and effort in conducting a literature survey and to ensure that it is well-written and presented.

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| **Sl no** | **Title** | **Authors** | **Publisher & year** | **Related**  **work** | **Drawback** |
| 1 | Crowd- Funding Using Blockchain | Dr. Sumathi VP, Harish Krishna.S, Lakshya Jain, Hisham Ahmed | IEEE 2023 | Leveraging Ethereum blockchain, our crowdfunding platform utilizes smart contracts for enhanced reliability and efficiency. | Potential challenges include user complexity, gas price volatility, regulatory hurdles, and  scalability concerns. |
| 2 | Literature Survey on “Crowdfund ing Using Blockchain | Abhinav R.B,Ahmed Mohtesham,Akas h,Basavesh M,Farhan Ashraf | IRJET 2023 | Survey explores blockchain integration in crowdfunding, addressing asymmetry and transaction costs. | potential for fraudulent activities in crowdfunding. |
| 3 | Smart Contracts Security | Harry Virani, Manthan Kyada | ARXIV 2022 | Exploring smart contract studies, researchers delve into supply chain efficiency, code analysis, privacy, and challenges in cloud integration. | security vulnerabilities, lack arency, potentiof transpal for fraudulent activities, and challenges in  dispute resolution. |
| 4 | Crowdfundi ng Platform Recommen dation Algorithm Based on Collaborativ e Filtering | Yaming Li, Jiahao Liu , Yuying Jin, Xinxin Fan , Bixi Wang | ICCSCT 2022 | The research endorses collaborative filtering, customizing crowdfunding suggestions based on user affinities. Top of Form | The research endorses collaborative filtering, customizing crowdfunding suggestions based on user affinities.  Top of Form |
| 5 | Blockchain- Based Crowdfundi ng Application | Viren Patil,Vasvi Gupta,  Rohini Sarode | IEEE 2021 | Examined crowdfunding methods, ensuring security, transparency, and smart contract utilization. | lacks real- world cryptocurrency integration and practical deployment information. |

**2.1 Literature Surveys of All Base Papers**

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| --- | --- | --- | --- | --- | --- |
| 6 | A Survey of Security Vulnerabilities in Ethereum Smart Contracts | Noama Fatima Samreen, Manar  H. Alalf | ARXIV 2021 | Prior studies lack depth in Ethereum Smart Contract vulnerabilities and prevention. | Current tools focus on specific vulnerabilities without  comprehensive analysis. |
| 7 | A Survey on Ethereum Systems Security: Vulnerabilities, Attacks, and Defenses | Huashan Chen,Marcus Pendleton, Laurent Njilla, Shouhuai xu | ACM  Comput 2020 | Ethereum security insights against prior blockchain surveys. | Lack of coverage on other blockchain implementations beyond Ethereum in the  related work. |
| 8 | Crowd Funding using Blockchain | Ms. S. Benila,V. Ajay,  K. Hrishikesh,R. Karthick | GRD  Journals 2019 | Implementing blockchain in crowdfunding for improved reliability & efficiency. | Challenge of high gas fees associated with blockchain transactions. |
| 9 | A  Decentralized Application on Ethereum Blokchain | R. Vishnu Prasad,Ram Dantu  Aditya Pau,Paula Mears  Kirill Morozov | IEEE 2018 | solves eBay issues, enhances privacy, and reduces fees. | Navigating the intricate decentralized framework poses a significant  onboarding challenge. |
| 10 | Crowdfunding: principles, trends and issues | Stéphane Onnée , Sophie Renault | ResearchGate 2016 | Crowdfunding thrives on diverse models, including gifts, rewards, loans, creating multifaceted platforms for collaborative financial support | Intellectual property risks, exposure to replication, a crowdfunding drawback. |

**2.2 Literature Survey Summary**

This chapter gives details about various base papers that are related to the proposed project work. It shows how various activities related to the project were carried out at different point of time. It gives a short introduction to each base paper, talks about their shortcomings and tells how this project can overcome those shortcomings.

**SYSTEM ANALYSIS**

**CHAPTER 3**

**SYSTEM ANALYSIS**

**3.1 Introduction to System Analysis**

* **System**: A system is an orderly group of interdependent components linked together according to a plan to achieve a specific objective. Its main characteristics are organization, interaction, interdependence, integration and a central objective.
* **Analysis:** Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate system should consider other related systems. During analysis data are collected on the available files decision points and transactions handled by the present system. This involves gathering information and using structured tools for analysis.
* **System Analysis:** System analysis and design are the application of the system approach to problem solving generally using computers. To reconstruct a system the analyst must consider its elements output and inputs, processors, controls, feedback and environment.

**3.2 Feasibility Study**

Feasibility is the determination of whether or not a project is worth doing. The process followed in making this determination is called feasibility Study. This type of study if a project can and should be taken. In the conduct of the feasibility study, the analyst will usually consider seven distinct, but inter-related types of feasibility.

**3.2.1 Technical Feasibility**

This is considered with specifying equipment and software that will successfully satisfy the user requirement the technical needs of the system may vary considerably but might include

* The facility to produce outputs in a given time.
* Response time under certain conditions.

**3.2.2 Economic Feasibility**

Economic analysis is the most frequently used technique for evaluating the effectiveness of a proposed system. More commonly known as cost / benefit analysis. The procedure is to determine the benefits and savings are expected form a proposed system and a compare them with costs. It benefits outweigh costs; a decision is taken to design and implement the system will have to be made if it is to have a chance of being approved. There is an ongoing effort that improves in accuracy at each phase of the system life cycle.

* + 1. **Operational Feasibility**

It is mainly related to human organization and political aspects. These points are considered are

* What changes will be brought with the system?
* What organizational structures are distributed?
* What new skills will be required?
* Do the existing system staff members have these skills?
* If not, can they be trained in the course of time?

**3.3 Functional Requirements**

* **User Roles and Login:** The system must support Admins, Creators, and Users with distinct responsibilities. Admins manage core functionality, Creators propose projects, and Users contribute funds.
* **Campaign Management:** The system should approve campaigns before listing, enable Creators to manage details, and allow Users to browse and contribute. It supports two-stage funding goals for campaign.
* **Funding and Transactions:** The system should ensure secure transactions on Ethereum, store user funds securely, and optionally include an admin-managed voting system for fund releases.
* **Content Management:** The system should provide a responsibility to creators provide project details, displayed clearly on campaign pages for user understanding and engagement.
* **Notification and Alert Management:** The system should include robust notification and alert mechanisms to promptly inform users about errors or mismatches in field details, ensuring data accuracy and system reliability.
* **User Interface:** The system must offer an intuitive, user-friendly interface for easy access and interpretation of displayed information, enhancing user experience and efficiency.
* **Transparency and Security:** The system ensures transparency by recording transactions on Ethereum's blockchain, using smart contracts for campaign logic automation, and implementing robust security measures for user data and funds protection.
* **Campaign Funding and Distribution:** The system provides an admin-managed voting system for fund release based on contributor voting. Contributors can vote "approve" or "reject" based on predefined criteria, ensuring transparent and fair fund distribution.

**3.4 Non-Functional Requirements**

* **Security:** The system must ensure a high level of security for user data, funds, and smart contracts, utilizing strong encryption methods and access control mechanisms compliant with blockchain security standards.
* **Reliability:** The system must be highly reliable and available at all times, with redundancy and fault-tolerant mechanisms to ensure continuous operation.
* **Scalability:** The system must scale up or down to accommodate a growing user base and transaction volume, handling real-time transactions efficiently.
* **Performance:** The system must meet performance requirements, including fast response times, processing speeds, and throughput, without slowing down during peak loads.
* **Interoperability:** The system should integrate seamlessly with blockchain technologies like web3, Geth Go and MetaMask, as well as with other relevant technologies and APIs, following industry standards
* **Maintainability:** The system must be easy to maintain and update, with minimal disruption to operations, through proper documentation and debugging tools to ensure smooth operation and minimal downtime.

**3.5 System Analysis Summary**

This chapter introduces the system analysis process. It gives brief idea whether this project should be done or not based on various feasibility study. It gives the summary of various feasibility studies that were carried out and shows the advantages of doing this project. At the same time, it also gives the overview of various functional and non- functional requirements of the system.