

Blockchain-based Integration of Social Media and Music for Enhanced Privacy and Trust in a Decentralized Ecosystem

Nisha Wandile¹, Abhishek Bhonde², Ashok Garje³, Pravin Chavan⁴ and Prathamesh Bhangale⁵

¹⁻⁵JSPM's Rajarshi Shahu College of Engineering, Tathawade/Computer Science, Pune, India

Email: nishakimmatkar@gmail.com, abhishekbhonde8@gmail.com, ashokgarje0505@gmail.com, pravinchavan0656@gmail.com, bhangaleprathamesh7445@gmail.com

Abstract—A Decentralized Social Media Network is platform that operates on a distributed system of nodes rather than a central server. It utilizes technologies such as block-chain and peer to peer network to enable data security, privacy and user control over the data. This system offers users to communicate and share information anonymously, while also promoting free speech and resistance to censorship and surveillance. Compared to traditional centralized social media platforms, a decentralized social media networks offers a more democratic and user-driven alternative that priorities the security, privacy, and freedom of expression for its users. One of the key benefits of decentralized social media network is the increased security and privacy it provides. Since the network is distributed across multiple nodes, there is no single point of failure or central authority that can be hacked or compromised. In addition, users have greater control over their data and can choose which information to share and with whom.

Index Terms— Distributed System, Blockchain, Data Security, Privacy, Network Trust, IPFS(InterPlanetary File System), web 3.0, Social Media, Music.

I. INTRODUCTION

Innovative solutions across various domains have flourished thanks to decentralized applications and immersive user experiences in the dynamic landscape of digital technology. This survey paper delves into the newly emerging area where music and decentralized technology collide, giving a thorough examination of the latest decentralized music apps that have fused with chat capabilities. The decentralized social music platform with a chat feature presents an innovative solution to the limitations and concerns associated with traditional centralized social media platforms. By combining the power of blockchain technology, social networking, and collaborative features, our platform empowers musicians, enhances user privacy and control, fosters community engagement, and revolutionizes the way music is shared, discovered, and enjoyed. Through this project, we aim to contribute to the evolution of the music industry, providing a platform that celebrates creativity, collaboration, and freedom in the digital age. Decentralized applications and blockchain technology have revolutionized the music industry, offering fairer revenue distribution for artists and empowering users with peer-to-peer systems. Additionally, the integration of chat functions into these decentralized music platforms adds a social component for an enhanced user experience that increases collaboration and interactivity. Music distribution has significantly changed due to

the rise of decentralized music applications fueled by blockchain technology. This survey will explore their major components and architectural considerations, as well as highlight the integration of chat into the digital music platform.

II. RELATED WORK

Decentralized management is an important concept in collaboration studies that has attracted attention in recent years due to the potential of blockchain technology. As centralized systems face issues such as points of failure, lack of transparency, and vulnerability to censorship, blockchain emerges from the promise of providing a centralized regulatory framework and influence. This survey explores the broader literature surrounding the use of blockchain technology to achieve distributed computing across domains. In this chapter, we review and analyze current research and progress, providing an overview of the main results, methods, and findings in this field. Research-related studies not only describe the current state of knowledge, but also identify gaps and opportunities for further research, leading to a deeper understanding of the decentralized spaces enabled by blockchain technology.

01] By using blockchain technology, this paper proposes a solution to the issues of security, privacy, and management faced by online social networks (OSNs) through decentralization. A blockchain-powered OSN service guarantees decentralization while low-security data storage is taken care of by the Interplanetary Filesystem (IPFS). This empowers users with the ability to democratically self-govern the OSN through a Decentralized Autonomous Organization (DAO). By harnessing the power of blockchain and IPFS, the system's security, privacy, and performance are exponentially improved. The DAO is grounded in democratic principles that encourage user participation and community ownership, promising a move towards a decentralized and user-centric online social experience that is revolutionary. Frontend modules.

02] By using blockchain technology, this paper proposes a solution to the issues of security, privacy, and management faced by online social networks (OSNs) through decentralization. A blockchain-powered OSN service guarantees decentralization while low-security data storage is taken care of by the Interplanetary Filesystem (IPFS). This empowers users with the ability to democratically self-govern the OSN through a Decentralized Autonomous Organization (DAO). By harnessing the power of blockchain and IPFS, the system's security, privacy, and performance are exponentially improved. The DAO is grounded in democratic principles that encourage user participation and community ownership, promising a move towards a decentralized and user-centric online social experience that is revolutionary. Frontend modules

03] The current stage of the internet, also known as Web 2.0, centers on social media platforms to connect individuals. Meanwhile, Web 3.0, often referred to as the virtual or semantic web, offers groundbreaking possibilities for the future. This article explores the unique direction of the decentralized web, which presents a fresh perspective for what is ahead. Rather than focusing on individuals, the decentralized web prioritizes developing underlying technologies and protocols in a manner that end users may not even notice. The web can be improved by tackling both present and new problems associated with current platforms. A comprehensive look at difficulties linked to Web 2.0 is presented in this article, as well as an introduction to the emerging decentralized web and a summary of the technologies currently being developed. Blockchain Module: This module will handle the storage of the music system and chat on the blockchain and ensure their immutability

04] Transforming the social networking scene, mobile devices have facilitated access to web and mobile applications. However, with these advancements come risks of privacy and addiction. The objective of this study is to investigate ethical models in social networking, address apprehensions concerning big data and datafication, and push the advantages of decentralized architecture and Web 3.0. Secure storage of data and privacy controlled by users are ensured through decentralized architecture in social networking. Web 3.0, as a decentralized application, prioritizes user authority over data and identity, providing a user-oriented perspective of the dynamic technological realm.

05] Privacy and user control continue to be major worries despite the achievement of centrally controlled cloud-based social media options. In view of this, a decentralized alternate is suggested. The proposition accepts the difficulty of ensuring content availability. To tackle this obstacle, a replication protocol that makes use of cyclic diurnal patterns in user uptime behaviors is launched, based on time-based user grouping. This approach assures the persistence of content with minimum replication overhead. We take the idea of - availability to represent the probability that a replication group of at least individuals will be online altogether at some point. High content persistence can be achieved efficiently without taxing the network and storage with our simulation results. Our beta-availability measurements are based on replication group size and peer-uptime duration from a mathematical model. The experiment proves the efficacy of the protocol.

06] The inevitability of connectivity in our world has made it clear that there are no secrets anymore. Even if people try to keep their personal data private, the digital age has presented concerns regarding privacy and security breaches. To address the increasing unease - especially in healthcare - this paper proposes a decentralized approach to managing data privacy. This model offers peace of mind to individuals who must share sensitive information, while also allowing decision-makers and providers to utilize useful data for health-related programs.

07] Titled "Decentralizing Privacy," the MIT Media Lab has creatively incorporated blockchain to draft a non-centralized personal data management system. This allows users to have complete control and ownership of their data without any need for third-party authentication. We have introduced an advanced encryption algorithm sourced from NTT Service Evolution Laboratory in our paper, which takes an extra step towards strengthening the fundamental values of "Decentralizing Privacy. Introducing a Proof-of-Credibility Score to improve security measures, we break away from the customary Proof-of-Work (PoW) safeguard. In our study, we delve into hypothetical attack scenarios to gain a thorough comprehension of the system's toughness and dependability.

08] Combining decentralized P2P networking with centralized personal group media tools is our proposed solution for a thriving social community. Our objective is to introduce a scalable information-sharing environment that goes beyond the mere exchange of basic information. This system integrates effectual tools like Wikis and weblogs, with the aim to facilitate infinite, scalable, and growing information management for individuals and groups. Our ultimate goal is to reduce administrative costs and provide collaborative groupware using a P2P-based approach, building on our past work.

09] Concerns about privacy and online surveillance arise when we purchase items like watches online and then see corresponding ads on social media platforms. The risks of centralized chat systems include potential security breaches and data loss. A solution being proposed is decentralization, utilizing a peer-to-peer network to distribute information globally across devices. Data security, encryption, and authorization are ensured through the employment of Gun.js, a secure and realtime decentralized graph database. This approach seeks to address the risks associated with centralized systems and enhance user privacy online.

10] In the modern world, centralized servers pose security risks and financial burdens. A decentralized application, which employs peer-to-peer networks, can eliminate these issues. Adding blockchain technology, as an unchanging ledger, allows messaging to be decentralized. Sharing resources and communication can be facilitated by different consensus mechanisms. By blending Decentralized Applications and Blockchain, a messaging app can be developed that is secure and reliable. This merge can even eradicate disadvantages of other communication apps.

11] Blockchain has moved beyond the concept of digital money and become an integral part of existing and emerging businesses and digital applications. Today, blockchain technology represents the most well-known tool taken into consideration when creating the next generation of social media. This article focuses on an alternative to centralized and profit-driven platforms: open source and decentralized online social networks (DOSN). First, we provide a summary of our focus, describing the main themes and patterns in the study. We then present the opportunities and challenges of blockchain in social media by showing its key features and benefits. We conclude that blockchain supports the reliable exchange of data and information on social media. It is an infrastructure that can provide better privacy and is a way to look forward to providing greater functionality through smart contracts and applications.

12] In the current era of digital technology, Online Social Networks (OSNs) produce a massive amount of data, leading to scalability issues and concerns around privacy, provider dependency, and the need for constant online connectivity. The centralized nature of OSNs has significant drawbacks, leading to a push towards decentralizing social networking functions. This has given rise to a decentralized application network (Dapp), which is a distributed system for social networking with little or no dependence on a dedicated central infrastructure. Although large OSN sites use content distribution networks for caching to distribute some of the load and improve performance, a central repository still exists for user and application data, which can lead to issues around scalability, privacy, and provider dependence. To tackle these issues, several specific Dapp designs and types have been explored to achieve decentralized OSNs while maintaining the functionalities offered by centralized OSNs. To overcome these limitations, Dapps provide a decentralized platform that eliminates the need for a central repository of data, ensuring that users retain control over their data and offering greater privacy and security. This study aims to explore the various motivations for distribution methods for online communication and the challenges and opportunities associated with distribution. More ethical, more powerful, more secure and more private, OSN is designed to promote user control and ownership while addressing the limitations of internal base OSNs.

13] Social apps are the key to next-generation connectivity. Today, social media are central platforms with an organization that holds control of the network and raises the issue of control and trust of the content created. The ARTICONF project, funded by EU Project Horizon 2020, explores social media as a new system of reliable, robust and internationally sustainable tools for privacy, stability and freedom. A promise that owned social media platforms have so far failed to deliver. This article introduces the ARTICONF approach to car sharing applications based on a new peer-to-peer collaboration model offers an alternative to private car ownership. We describe the implementation model of the car sharing application and show how different ARTICONF tools support it in the simulated scenario from real images. Index Terms—Social media, car sharing, decentralization, blockchain.

14] Privacy issues have become the main problem that current online chats have to solve, leading researchers to think about the framework of online chatting. In this paper, we propose a new decentralized social network architecture developed by blockchain technology. We use the sharding framework to improve the scalability of the system, the blockchain system to ensure the integrity and consistency of information, and reputation as a permission control method to increase the security of the system. Index terms—blockchain, social network, sharding, decentralization.

15] Traditionally, security issues arise when messages are sent over an unsecured channel. Although there are many ideas for encrypting messages, efforts to write data continue. Additionally, most applications store information in a central database. Blockchain technology offers new ways to ensure data privacy, censorship resistance, immutability and decentralized management. Each part of the network receives a copy of the data sent directly to the blockchain by the user. Only approved employees can access information on the blockchain using their private keys. It eliminates the need for trusted intermediaries. Since the system has a completely decentralized structure, users can send messages safely. The software shows how to hash messages and extract them on the blockchain. We will use decentralized hash table (DHT) and blockchain to provide storage and fast maintenance. This article shows how to create an interactive session.

16] Music is an essential part of our life. People love listen to music everyday as per their taste and music listening impacted the psychobiological stress system. Recommender systems can be future scope of decentralized social media. For recommendation we can use public personality traits information. Facebook use Naive Bayes classifier for recommendation which helps user to search in large size of dynamically generated information. In future Recommender system can play essential role in decentralized social media applications.

17] Blockchain technology provide security, immutability and transparency. People can be become misguided by Malicious data. So checking truthfulness, quality of data should be one of the future scope for good decentralized platform and our application can become more transparent and trustworthy. This paper gives idea about identification of truthfulness and quality, check fake or real. Weight-based validation can be proper idea to identification. Use of BFS to evaluate the proximity and assign weight to users could be path to implement it.

18] Utilizing blockchain, decentralized system enables trust in online interactions through transparency and immutability. The approach to involving machine learning for privacy-preserving evidence extract from social media, with data store on a proof-of-work blockchain. Paper presented TAPESTRY service as a decentralized prototype designed to empower users to establish the provenance of online identity through their digital personhood (DP), aiding trust decisions.

19] Blockchain tech is getting a ton of attention in schools and the money world. But, there's a big debate because there are so many guesses about lots of different digital money and scams with initial coin offerings (ICOs). This paper looks at how blockchain systems grew and why we need decentralized apps (dApps). These are like really important computer programs. We also check out the best ones and talk about where blockchain is going. So, if you read this, you'll see why people care so much about blockchain and what's new in this digital world.

20] The purpose of this article is to identify systems that are capable of identifying music based on content, whether it be audio or written notation. It describes various techniques and algorithms that contribute to this. The article recommends a comparative study involving these methods just like MIREX at ISMIR, which is analogous to a TREC competition in the field of music. A map was created by them illustrating where these systems excel, and they realized that current systems find it hard to handle tasks that do not have much specificity nor vagueness. In other words, what these researchers want is how they can improve upon their music searching software across all genres.

21] There are big central points in decentralized operations which fail and bring down the whole system. Communication occurs in a decentralized manner due to blockchain acting like an unchangeable record book. In today's world, it is risky and expensive to have all of your data stored in just one central location. Therefore, we

need distributed systems to share information and resources securely. There can be different ways of sharing and communicating through the use of different agreements (consensus). By combining blockchain with Decentralized Applications (DApps), one can create a safe messaging application that people can trust unlike other regular messaging apps. Different places in decentralized systems often control different things; however, each place only manages some decisions while at the same time affecting the others when something is done in one location.

22] Decentralized apps involve the use of peer-to-peer networks, ensuring that if one part fails, it doesn't crash the whole system. Blockchain, on the other hand, acts as a ledger that cannot be changed thereby making messaging decentralized. Keeping all your data in one central place is risky and expensive in today's world. Therefore, we need decentralized applications to ensure safe communication and resource sharing. We can have various ways to share and talk through different agreements (consensus). We can create a secure messaging app by combining blockchain and decentralized apps without typical disadvantages. The keywords for this are Hyperledger, Security, Internet of Things (IoT), Mining, Consensus Algorithm in Bitcoin Blockchain Technology, Ethereum its related technologies – Geth Mist Browser among others.

23] This survey paper provides an overview of contentbased music information retrieval systems, both for audio and for symbolic music notation. The paper briefly presents matching algorithms and indexing methods. The high number of quite different methods which so far only have been used on different data collections makes it necessary that we should undertake a TREC-like comparison of matching algorithms such as MIREX at ISMIR. We placed the systems on a map showing the tasks and users for which they are suitable, and we find that existing content-based retrieval systems fail to cover a gap between the very general and the very specific retrieval tasks.

24] From mobile devices, commercial music streaming services offer access to digital music that is currently available. Digital music is now plentiful compared to previous times, but trying to organize it all can be a tiresome and overwhelming task, causing one to experience information fatigue. Thus, an automated music recommendation system, capable of searching through music catalogs and proposing suggestions, would prove itself very advantageous. To provide its users with the right kind of music, a music provider can employ a music recommender system which enables them to anticipate and suggest the most fitting songs. Our research aims to create a personalized music experience for listeners by analyzing the features of their previously played songs. We envision a music platform that tailors to the unique preferences of each user. Based on the features of an audio signal, a recommender system is capable of providing recommendations. The outcome of this system is...Based on the findings of this study, it has been concluded that music enthusiasts show a higher inclination towards recommendations that take into account the various genres of music as opposed to recommendations that rely solely on other factors.

25] Mougayar (2016) declares that the creative industries possess a revolutionary potential with the advent of blockchain technology, which is comparable in significance to the World. The potential to change the supply chain is held by the Wide Web technology in its early stages. Already exploring these possibilities are organizations like Open Music Initiative. A disruptive force emerging on the music industry is how blockchain technology might be analyzed in this article.

26] The popularity of Facebook and Twitter has spurred anxiety over centralized governance and user data protection. One possible solution is the emergence of peer-to-peer (P2P) technologies, which offer censorship and data leak resistance, strict access control, anonymity, and zero-trust communication features. This survey aims to outline the essentials and characteristics of P2P social networks, evaluate vital components of P2P frameworks, and evaluate current solutions for online social networking. There are three key objectives to this study. To tackle security risks and safeguard privacy, we prioritize distribution of control among users, rather than dependence on a central authority. Additionally, we strive to offer an understanding of the technical intricacies and advancement of P2P-centered resolutions.

27] To uncover likenesses, create a method that's out of the ordinary. Using both audio features and lyrics, a comparison was made between a couple of songs. This paper's methodology concentrates on different aspects. User interface is available for playing songs. Songs can be played using this interface. Current tunes are simultaneously suggested by the platform. Using stored recommendations, a song is currently being played. Storage Firebase and Firestore. Of every pair of songs, the score for the lyrics and audio traits differ. Artificial Neural Networks utilize data provided to the algorithm. Regression algorithms called KNN are utilized. The algorithm might be either. The similarity score between a pair of songs is anticipated by the algorithm. respect to the highest similarity scores, which have been observed. The user is recommended the song currently playing. Music recommendation is the primary aim of this paper, with the goal of achieving a more uncommon approach to the subject matter. To provide users with excellent recommendations and highquality

service, there is a need to strategically rearrange and selectively remove text. Interaction between humans and computers is a vital component of modern computing. The relationship humans share with technology is constantly evolving. In order to improve the user experience, designers must strive to create intuitive interfaces that are easy to use and understand. One important consideration is ergonomics, where the physical placement and design of hardware and software is considered with the goal of reducing physical strain. Additionally, designers work to ensure that software is designed with the needs and abilities of a diverse range of users in mind. With constantly changing technology, human computer interaction will continue to play a crucial role.

III. CHALLENGES

Bringing together chat, music, and social media in a decentralized app may sound like a dream, but the daunting obstacles this poses cannot be ignored. There are issues of scalability, trying to win folks over from centralized options, smoothing out content scrutiny, tackling tangled music licensing and pay quandaries, finding fair ways to earn from content, keeping privacy and security on point, ensuring consistency across all platforms, pulling off a successful decentralized governance plan, drawing and retaining users, following regulatory guidelines, teaching novices, outshining well-grounded competitors, and dealing with continuing tech finesse and sustainability concerns. Tackling these formidable challenges require methodical organization and seamless implementation so to guarantee triumph for the project.

IV. RESEARCH GAP

There is a lack of research when it comes to user experience and preferences, on decentralized platforms compared to ones. This suggests that there is a gap in our understanding of how to create a social media application with music features and integrated chat. It's also important to find ways to content while balancing freedom of expression and responsible governance. Furthermore we need research that focuses on developing monetization models for content creators ensuring the privacy and security of chat and music features making sure the platform works well across devices exploring how communities are managed creating strategies to educate users and encourage adoption establishing a competitive position against centralized platforms and analyzing how changing regulations impact decentralized social media. Conducting this range of research is crucial, for developing and widely adopting decentralized social media platforms.

V. SYSTEM ARCHITECTURE

The proposed architecture for a blockchain-based decentralized social chat and music record storage system using IPFS would consist of three main components: the blockchain network, the IPFS network, and the user interface. The blockchain network would be used for maintaining a decentralized and tamper-proof ledger of all records. Each record would be stored as a transaction on the blockchain, with the hash of the corresponding file being stored on IPFS. The blockchain network would also be used for managing access control, user authentication, and smart contract execution. The IPFS network would be used for storing and retrieving records. Each record file would be encrypted and stored on the IPFS network, with the corresponding hash stored on the blockchain. The use of IPFS ensures that records are stored in a decentralized and distributed manner, making it more difficult for unauthorized users to access or tamper with the data. The user interface would be used for interacting with the system and managing records. Users would be able to access their own records, and view audit logs of all transactions related to their records. The user interface would also be used for managing smart contracts related to record sharing and access control. Overall, the proposed architecture for a blockchain-based decentralized health storage system using IPFS would provide a secure, decentralized, and tamper-proof way of managing and sharing records. By leveraging the benefits of both blockchain and IPFS, the system would ensure data privacy, security, and interoperability across different users.

VI. CONCLUSION

In conclusion, this project represents a visionary endeavor to create a decentralized social media web chat app seamlessly integrated with music functionality. Through diligent research, innovation, and collaborative efforts, we have tackled complex challenges, from user experience to content moderation, monetization, and privacy. Our anticipated outcomes promise a digital landscape where users have unprecedented control over their data and interactions, ensuring privacy and ownership. The platform's robust security measures, innovative content moderation, and user-driven governance will foster a safe and respectful environment. As we look forward, the

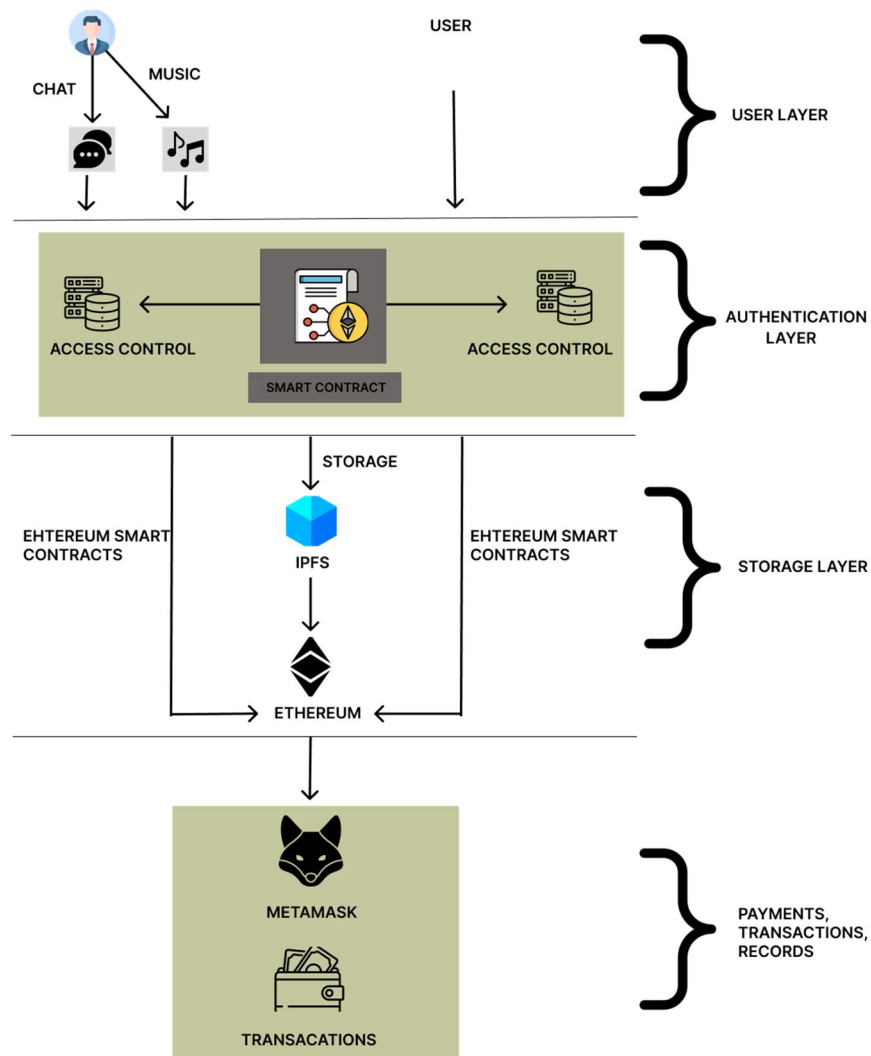


Fig : Architecture Diagram

strategic positioning of this decentralized platform against centralized giants, coupled with effective user education and adoption strategies, is poised to drive widespread adoption and engagement. Moreover, our commitment to continuous adaptation to evolving regulatory frameworks underscores the platform's long-term sustainability. This project represents not only the realization of a forward-thinking social media and music platform but also a transformative step towards prioritizing user empowerment, data privacy, and content creators' support in the digital era. It stands as a testament to the potential of decentralization in reshaping how we connect, share, and discover in the digital age.

REFERENCES

- [1] Ningyuan Chen, David Siu-Yeung Cho. "A Blockchain based Autonomous Decentralized Online Social Network". IEEE International Conference on Consumer Electronics and Computer Engineering (ICCECE 2021), 2021.
- [2] Nikita V. Ghodpage, Prof. R. V. Mante. "Privacy Preserving and Information Sharing in Decentralized Online Social Network". ICICCT, IEEE, 2018 .
- [3] Faten Adel Alabdulwahhab ."Web 3.0: The Decentralized Web Blockchain networks and Protocol Innovation", IEEE,2018 .
- [4] Reza Shokri Kalan. "Decentralization: A Confluence of Data and Digital Personality". IEEE,2020 .
- [5] [5] Nashid Shahriar, Shihabur Rahman Chowdhury, Reaz Ahmed, Mahfuza Sharmin, Raouf Boutaba, Bertrand Mathieu. "Availability in P2P based online social networks". IEEE, 2017 .

- [6] Dharasra Medhaweebhaddhara, Rounsang Chaisricharoen. "A Decentralized Privacy Zone for Health Domain". IEEE, 2021 .
- [7] Dongqi Fu, Liri Fang. "Blockchain-based Trusted Computing in Social Network". 2016 2nd IEEE International Conference on Computer and Communications. 2016 .
- [8] Guozhen Zhang, Qun Jin. "Scalable Information Sharing Utilizing Decentralized P2P Networking Integrated with Centralized Personal and Group Media Tools". IEEE, 2006 .
- [9] Uma Thakur, Abhishek Chichmalkar, Aditya Sambhare, Aman Chaturvedi, Chinmay Khuspare, Nikhil Tembhe. "Decentralized chat application". International Research Journal of Engineering and Technology (IRJET), 2022 .
- [10] Abhishek P. Takale, Chaitanya V. Vaidya, Suresh S. Kolekar, Rajendra Man. "Decentralized Chat Application using BlockchainTechnology". International Journal for Research in Engineering Application Management (IJREAM), 2018 .
- [11] Esmeralda Kadena, Silvana Qose. "Blockchain in Social Media: Eliminating Centralized Control vs. Challenges". 2022 IEEE 10th Jubilee International Conference on Computational Cybernetics and Cyber-Medical Systems (ICCC). 2022.
- [12] Mahavir A. Devmane. "D-Space: A Decentralized Social Media App". 2023 2nd International Conference on Edge Computing and Applications (ICECAA). 2023.
- [13] Anandhakumar Palanisamy, Mirsat Sefidanoski, Spiros Koulouzis, Carlos Rubia, Nishant Saurabh, Radu Prodan. "Decentralized Social Media Applications as a Service: a Car-Sharing Perspective". 2020 IEEE Symposium on Computers and Communications (ISCC). 2020.
- [14] Shuai Zeng, Yong Yuan, Fei-Yue Wang. "A decentralized social networking architecture enhanced by blockchain*". 2019 IEEE International Conference on Service Operations and Logistics, and Informatics (SOLI). 2019.
- [15] Akhil Kuchimanchi, Maddineni Vagdevi, Meghana Reddy, Ganesh Avugaddi, Sanjay S Kumar. "Chatease: A Blockchain based Chat Application". 2023 2nd International Conference on Applied Artificial Intelligence and Computing (ICAAIC). Publisher- IEEE. 2023.
- [16] 2018 IEEE 3rd International Conference on Computing, Communication and Security (ICCCS) Abhishek Paudel, Brihat Ratna Bajracharya, Miran Ghimire, Nabin Bhattarai, Daya Sagar Baral
- [17] 2019 7th International Conference on Smart Computing Communications (ICSCC) Shovon Paul, Jubair Islam Joy, Shaila Sarker, Abdullah - Al - Haris Shakib, Sharif Ahmed, Amit Kumar Das
- [18] A De-centralized Service for Trusted Interaction Online. IEEE Transactions on Services Computing, 2022 Yifan Yang, Daniel Cooper, John Collomosse, Constantin C. Dragan, Mark Manulis, Jamie Steane, Arthi Manohar, Jo Briggs, Helen Jones, Wendy Moncur.
- [19] WEI CAI, (Member, IEEE), ZEHUA WANG, (Member, IEEE), JASON B. ERNST , (Member, IEEE), ZHEN HONG , (Student Member, IEEE), CHEN FENG , (Member, IEEE), and VICTOR C.M. LEUNG , (Fellow, IEEE) "Decentralized Applications: The Blockchain-Empowered Software System" School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, Guangdong 518172 China (2017)(IEEE)
- [20] Rainer Typke, Frans Wiering, Remco C. Veltkamp "A Survey of Music Information Retrieval Systems" ISMIR 2005, 6th International Conference on Music Information Retrieval, London, UK, Proceedings(Research Gate)(2005)
- [21] Shweta Dnyaneshwar Bagade, Prof. (Dr) N.R. Wankhade "A SURVEY OF MUSIC INFORMATION RETRIEVAL SYSTEMS " International Research Journal of Modernization in Engineering Technology and Science (2023)
- [22] Keshav Khalkar , Nikhil Dhake , Sarwesh Kelzarkar , Tejas Shinde "Decentralized Chat Application using Blockchain Technology" P K Technical College of Engineering, gate no 714, Kadachiwadi, Chakan, Pune-4105501 Computer Department Savitribai Phule Pune University. IJRASET (2023)
- [23] Rainer Typke, Frans Wiering, Remco C. Veltkamp Universiteit Utrecht Padualaan "A SURVEY OF MUSIC INFORMATION RETRIEVAL SYSTEMS ", remco.veltkamp@cs.uu.nl, (ISMIR) 2015
- [24] Adiyansjaha, Alexander A S Gunawana,*, Derwin Suhartono. "Music Recommender System Based on Genre using Convolutional Recurrent Neural Networks". 4th International Conference on Computer Science and Computational Intelligence 2019 (ICCSOI), 12–13 September 2019.
- [25] Luis Claudio Arcos, "THE BLOCKCHAIN TECHNOLOGY ON THE MUSIC INDUSTRY". Brazilian Journal of Operations Production Management · July 2018.
- [26] Newton Masinde1 · Kalman Graf2. "Peer-to-Peer-Based Social Networks: A Comprehensive Survey". The Author(s) 2020.
- [27] Smt. Namitha S J. "Music Recommendation System". International Journal of Engineering Research Technology (IJERT), July-2019.