



A Next-gen Platform For Trading NFTs, Utilizing The Power of Blockchain in the Web 3.0 Ecosystem.

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ABSTRACT

The world of digital art has been expanding at a rapid pace, and with it comes the challenge of ensuring ownership and recognition for artists. Non-Fungible Tokens (NFTs) offer a solution to this problem by allowing parties to agree on a shared smart contract of what constitutes ownership. However, the current NFT marketplace is still in its early stages and lacks a comprehensive platform that can fully utilize the power of blockchain technology in the Web 3.0 ecosystem for trading NFTs. A promising solution to this issue is the development of a next-gen platform for trading NFTs that fully harnesses the power of blockchain technology in the Web 3.0 ecosystem. With this platform, parties can ensure ownership of their digital art while enjoying the benefits of blockchain technology, such as security, transparency, and decentralization. This will revolutionize the NFT marketplace. The platform will not only provide a secure and transparent way of trading NFTs but also enable the creation of customizable smart contracts tailored to the needs of the parties involved. This will ensure that disagreements concerning possession and acknowledgment are reduced, and that the privileges of each party are safeguarded. Additionally, the utilization of blockchain technology in the platform will enable the creation of a decentralized marketplace, eliminating the necessity for intermediaries and enhancing the effectiveness of trading NFTs.

Keywords:

Blockchain, NFTs, Web3, Decentralized Applications (DApps), Metamask

I. INTRODUCTION

NFT trading platforms have surfaced as a popular medium that offers a distinct approach for creators and collectors to exchange digital assets through blockchain technology. These assets encompass a broad array of digital creations, such as digital artwork, music, videos, memes, and even virtual real estate. By uploading their digital content to an NFT trading platform, creators can generate unique tokens (NFTs), signifying ownership of the specific piece. The blockchain technology underlying NFTs guarantees that ownership of the digital asset is secure, transparent, and immutable, providing a secure and tamper-resistant means of documenting ownership. One of the primary advantages of NFT trading platforms is that they present a fresh and innovative method for creators to monetize their digital creations. Before the emergence of NFTs, digital creators frequently encountered difficulties in monetizing their work, as digital content can be effortlessly replicated and circulated without consent. However, NFTs offer a means for creators to vend distinct, unparalleled versions of their digital creations, which are not easily replicated or duplicated. Furthermore, NFT marketplaces provide a platform for creators to showcase their work and offer it for sale to interested collectors. These marketplaces typically impose a charge for each transaction, usually a percentage of the NFTs sale price. This provides an incentive for creators to continue producing exceptional work and presents an opportunity for collectors to invest in unique, scarce digital assets that may appreciate in value over time. NFTs also have the potential to appreciate in value over time, implying that collectors may be able to sell them for a profit in the future.

I. LITERATURE REVIEW

Since its inception in the early 1990s, the World Wide Web has undergone various iterations. It started with Web 1.0, a static read-only web. Later, the interactive Social Web or Web 2.0 was introduced. Now, Web 3.0 offers a decentralized Internet that promotes the growth of DApps built on top of blockchain technologies. These DApps are supported by crypto-economic networks, making them more secure and transparent. In recent years, blockchain has quickly developed, starting with Bitcoin, the first decentralized cryptocurrency, and moving on to Ethereum with smart contracts. Blockchain technology offers a secure and shareable computing paradigm, integrating chain structure, distributed consensus algorithms, cryptographic strategies, and automated smart contracts. It can help social businesses establish trust with social investors and sponsors and provide transparency, auditability, privacy, and decentralization. It has several practical use cases, including the Art industry, where it can be a natural fit for art forensics and transactions. Blockchain technology's immutable and append-only ledger ensures records' safety and personal privacy while being fully transparent.

Here are some brief explanations of the research papers:

1. "A Study on Application of Web 3.0 Technologies in Small and Medium Enterprises of India" (May 2018) explores how small and medium enterprises in India can benefit from adopting Web 3.0 technologies. The paper identifies opportunities and challenges in using these technologies to improve productivity and efficiency.
1. "A Study of NFTs (Non-Fungible Tokens)" (May 2022) discusses the concept of NFTs, which are digital assets representing real-world objects like art, music, videos, gaming items, etc. The paper explains how NFTs work and how they can be used to indicate a certificate of authenticity or proof of ownership.
2. "NFTs in Practice – Non-Fungible Tokens as Core Component of a Blockchain-based Event Ticketing Application" (Dec 2019) demonstrates the use of NFTs in the domain of event ticketing. The paper explains how NFTs can be used to provide a secure and transparent way of recording ownership and how they can be used to prevent fraud and counterfeiting.
3. "A Brief Analysis of Algorithm and its Challenges" (Jan 2021) provides a brief analysis of algorithms, including POS and hash function. The paper discusses the challenges associated with these algorithms and their potential applications.

III. SCOPE:

The scope of such a decentralized marketplace for NFTs (Non-Fungible Tokens) are as follows:

1. Develop an all-encompassing platform for the buying and selling of NFTs, fully harnessing the potential of blockchain technology within the Web 3.0 ecosystem.
2. Provide a secure, transparent, and decentralized mechanism for NFT trading, specifically tailored to meet the requirements of involved parties.
3. Ensure ownership rights and proper recognition for digital artwork.
4. Offer collectors the opportunity to possess exclusive and unique digital assets that have the potential to appreciate in value over time.
5. Streamline the NFT trading process by eliminating the need for intermediaries, resulting in improved efficiency and cost-effectiveness.
6. Establish a secure and tamper-proof system for recording ownership of digital assets.
7. Provide a platform where creators can showcase their work and offer it for sale to interested collectors.
8. Offer collectors the opportunity to invest in unique and rare digital assets that have the potential to appreciate in value over time.
9. Contribute to the ongoing discussions surrounding the future of digital art and the transformative role of blockchain technology in this domain.

The existing Web 2 is all about people sharing and creating content online. However, there are several problems with Web 2, including:

1. Websites and apps collecting personal information, which can be dangerous if it falls into the wrong hands
2. Cybercriminals trying to steal information or cause problems
3. Websites showing us only what we already like and believe, which can limit our exposure to new ideas and perspectives

We need to continue working on ways to make the internet safer, fairer, and more open for everyone.

V. PROPOSED SYSTEM

Decentralized applications, or DApps, offer several benefits over traditional centralized applications. Some of these benefits include:

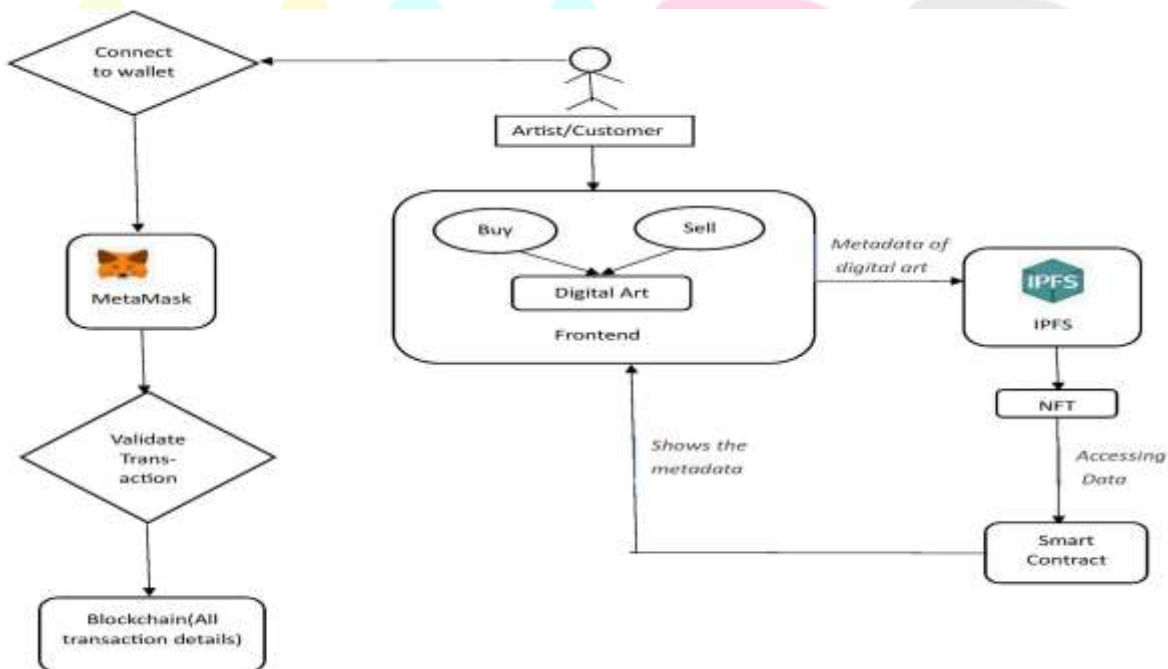
1. **Security:** Decentralized applications are more secure than centralized applications because they are built on top of blockchain technology, which provides a tamper-proof and transparent way of recording transactions. This means that there is no central point of failure that can be exploited by hackers or other bad actors.
2. **Transparency:** Decentralized applications are transparent because all transactions are recorded on a public blockchain that can be audited by anyone.
3. **No intermediaries:** Decentralized applications eliminate the need for intermediaries, such as banks or other financial institutions. This can aid in cost reduction and enhance efficiency.
4. **Openness:** Decentralized applications are open and permissionless, meaning that anyone can participate in the network without needing permission. This can help to promote innovation and competition.

Overall, decentralized applications offer several benefits over traditional centralized applications, including increased security, transparency, and openness. These benefits make them well-suited for a wide range of use cases, including NFT marketplaces.

VI. IMPLEMENTATION

The process of implementing an NFT on a blockchain involves several steps that must be followed carefully. These steps include:

1. Connect your DApp with a Web3 wallet: To mint an NFT on a blockchain, you first need to connect your DApp with a Web3 wallet such as MetaMask. This connection provides access to the blockchain network, which is essential for the creation and transfer of NFTs.
2. Upload metadata to IPFS: The next step is to upload your NFT's metadata to IPFS (InterPlanetary File System). This metadata includes the NFT's assets (image, video, GIF), title, description, and properties. Since we are building a non-fungible token, the metadata must be decentralized and permanent. Storing it in IPFS is the best option. If you upload these files to a centralized database, the security of your file is at risk. After uploading your NFT's metadata to IPFS, you will receive a metadata ID (IPFS key).
3. Mint your NFT: Once you have uploaded your NFT's metadata to IPFS, use the metadata ID as the token URI and sign the transaction to mint an NFT. This process creates a unique, one-of-a-kind version of your digital creation that is recorded on the blockchain network. The blockchain technology underlying NFTs ensures that the ownership of the digital asset is secure, transparent, and cannot be replicated or duplicated, offering a secure and tamper-proof way of recording ownership.
4. List the NFT for sale: The final step is to list your NFT for sale on an NFT marketplace or through a private sale. This process involves setting a price for your NFT, creating a listing, and waiting for a buyer to purchase it. NFT marketplaces offer a new and exciting way for creators to earn money from their work and offer collectors the chance to own rare and unique digital assets that may increase in value over time. However, the current NFT marketplace is still in its early stages and lacks a comprehensive platform that can fully utilize the power of blockchain technology in the Web 3.0 ecosystem for trading NFTs.



VII. TECHNOLOGIES

1. **Blockchain** :Blockchain is a type of shared database that differs from a typical database in the way it stores information. Various forms of information can be stored on a blockchain as a ledger for recording transactions.
2. **Solidity**: Solidity is a high-level programming language that is used to develop smart contracts on the Ethereum blockchain. Solidity is similar to other programming languages like JavaScript, C++, and Python, but it is designed specifically for developing smart contracts on Ethereum.
3. **Javascript**: JavaScript is a high-level, interpreted programming language that is widely used for web development. It is a versatile language that can be used for both front-end and back-end development.
4. **React js**: React.js is a widely used open-source JavaScript framework and library that was developed by Facebook. It is used for building interactive user interfaces and web applications quickly and efficiently .
5. **IPFS**: The Interplanetary File System (IPFS) is a distributed file storage protocol that allows computers all over the globe to store and serve files as part of a giant peer-to-peer network. The IPFS (InterPlanetary File System) software can be downloaded and installed on any computer globally, enabling it to host and serve files. This decentralized protocol allows users to store and retrieve data in a distributed manner, making files available across the network.
6. **Infura**: Infura is frequently employed as an API (Application Programming Interface). It furnishes developers with a straightforward and dependable method to engage with the Ethereum blockchain and other decentralized platforms. By employing Infura's API, developers can acquire diverse functionalities such as fetching blockchain data, initiating transactions, examining smart contracts, and more.

VIII. CONCLUSION

In conclusion, the development of a next-generation platform for trading NFTs that utilizes the power of blockchain technology in the Web 3.0 ecosystem is a promising solution to the challenges that digital artists face in terms of ownership and credit of their artwork. This platform is expected to revolutionize the NFT marketplace and play a significant role in the future of digital art, by providing a secure, transparent, and decentralized way of trading NFTs that is tailored to the needs of the parties involved. The objective of this study was to identify the opportunities and challenges faced in adopting and leveraging Web 3.0 technologies. This study identified some of the key underlying Web 3.0 technologies that SMEs in developing countries, such as India can adopt and

use in their businesses to improve their efficiency and productivity We found that NFTs can help to overcome the current weaknesses of existing non-blockchain ART GALLERY Websites, such as susceptibility to fraud, lack of control and over secondary market transactions and validation of ownership. Finally we can say that this project performs in its best possible manner in order to expands daily activities of a NFT based art gallery website under blockchain technology.

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