

Web 3.0 based NFT Marketplace

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Abstract:- There are a huge number of centralized entities that have a stronghold on huge swathes of the sector of the world wide web, taking unilateral action to determine what is and is not permissible. This dilemma is resolved by Web3 which embraces decentralization and is being built, operated, and owned by its users. Web3 places power inside the hands of people rather than agencies.

For lovers and customers, NFT (Non-Fungible Token) represents a brand-new era of digital collection. So, it is a new manner to support artists, athletes, and musicians without any third-party intermediaries. For creators, artists, and musicians, NFT is a new manner to share and monetize their work. There were a number of troubles and issues surrounding the sale of digital products because it was very easy to duplicate and claimed through others.

Our aim is to provide a decentralized platform to users from which they can list or buy these NFTs from the seller and the transactions between the buyer and seller will not be overlooked by some central authorities.

Keywords: *NFT, Decentralized, Blockchain, Marketplace*

1. INTRODUCTION

With the growing span of a generation, increasingly new generation technology-based applications are rising every single day. digital foreign money or cryptocurrency blockchain is being used in numerous fields. Buying and selling property is also part of the blockchain. People create, sell, and buy digital assets. Virtual art is getting more popular each day. The non-fungible token or NFT has become a new fashion of this period.

NFTs are the virtual or digital tokens of paintings, games, soundtracks, or any artistic creation, with their ownership and authenticity records. These tokens or digital belongings may be offered or offered inside the NFT market. The NFT marketplace is a large virtual pool that accommodates big transactions happening on this marketplace each day. It might be the destiny of the

digital marketplace. In the future, when the use case of NFT increases, it will automatically drive the crypto market to new heights.

Without a personal account, a person cannot make their buy or sell transactions at the NFT marketplace. putting in an account is necessary, as a way to additionally ensure authenticity and authorization within the marketplace. The running characteristic of the NFT market is simple. With the aid of following the given steps, it is easy to effortlessly understand the operational procedure of the NFT market, and one also can easily market their transition in the market.

The NFT market is a brand-new age of market for trading, promoting, and buying virtual works. With the developing reputation and growing valuation of cryptocurrency, it is safe to assume that the marketplaces for NFTs and the entire blockchain network will be in demand ultimately, which is why it is important in modern times and the approaching future.

2. LITERATURE REVIEW

The web we use nowadays has gone through many iterations over the years since the actual concept of the world wide web was brought in the early 1990s, starting from a static web or Web 1.0, which was read-only, later introduced a Social Web or Web 2.0, which was interactive in nature and the users could do more than read static pages and now Web 3.0 offers an unmediated read-write web, or, to put it another way, a decentralized Internet, promoting the growth and development of dapps. These dapps are being built on top of blockchain technologies and supported by crypto-economic networks [1].

In recent years, the blockchain has developed rapidly, from Bitcoin, the first decentralized cryptocurrency, to Ethereum with smart contracts, followed by the emerging permissioned blockchain (e.g., Hyperledger fabric). Due to the extensive adoption of Blockchain, blockchain-based applications are getting involved in our everyday lives. Thus, the scalability issues of major public-chain platforms (e.g., Bitcoin and Ethereum) have arisen and greatly affected the development of blockchain. There exist several mainstream solutions including Sharding, Sidechain, and cross-chain intended to overcome the scalability issues of decentralized applications [2].

Blockchain, emerges as a paradigm of secure and shareable computing, is a systematic integration of 1) chain structure for data verification and storage, 2) distributed consensus algorithms for generating and updating data, 3) cryptographic strategies for making sure information transmission and access protection, and 4) automated smart contracts for facts programming and operations. Blockchain security can be viewed in three levels, namely, the process level, the data level, and the infrastructure level, which can be referred to as the PDI model of blockchain security, addressing the considerable business, organizational, and operational security issues [3].

Blockchain technology can help social businesses in establishing and enhancing the trust relationship with social investors and sponsors also it can provide for the domain of social business, especially in terms of transparency, auditability, privacy, and decentralization although

organisations might need to address challenges in implementing a blockchain-based solution in terms of technology adoption, infrastructure, and most importantly on how to deal with financial transactions with a cryptocurrency [4].

Blockchain lets in a decentralized, immutable virtual ledger to soundly save and transfer statistics throughout the community. Blockchain technology is utilized in e-trade to transfer transactions in a safe, cozy, and faster way. It enables a peer-to-peer transaction system and data encryption that enables the safe transfer of transactional data and is used to transfer transactional data. Blockchain when combined with smart contracts, will transform the future of e-commerce. Blockchain technology makes sure records' safety and personal privacy with smart contracts to make sure that the protocol for the transaction is maintained [5].

Blockchain is a rising technology that has the potential to revolutionize worldwide enterprise and create a relied-on relationship in a multi-party business community. There are several realistic use cases in which blockchain has been implemented. One specific area is the Art industry, where it is a natural fit in the way that art forensics and transactions are conducted, tracked, and recorded [6].

Despite the fact that people's awareness is simplest at blockchain as cryptocurrencies in normal services to do bills online without the interference of a third party will try to replace the current technique of cash that is a gradual and historical method. Blockchain is a zero-trust network and this makes it a completely powerful tool for diverse offerings supplied that people are ready to agree with and spend money on it. In the Ethereum world, the blockchain runs on smart contracts, self-executing programs that come at a cost of security. This zero-trust community is capable of replacing a number of the debated method or activities in our surroundings. Considered one of our biggest concerns is an E-voting system which has to be secure. Blockchain being an immutable and append-only ledger will not allow for any tampering while also being fully transparent [7].

3. PROBLEM DEFINITION

2.1 Issues in Current Internet State

The current state of the internet known as WEB 2, is characterized by increased user interaction, collaboration, and the generation, and sharing of user-generated content. However, there are several issues and challenges associated with the Web 2 environment, including:

Data Privacy: Web 2 applications and platforms collect and store vast amounts of personal data, raising concerns about data privacy and the risk of data breaches.

Cybersecurity: Web 2 is vulnerable to cyber-attacks, including hacking, phishing, and malware. This can lead to data loss, financial loss, and damage to reputations.

Filter Bubbles: Web 2 algorithms can create filter bubbles, where users are only shown content that aligns with their

existing beliefs and opinions, limiting their exposure to new ideas and perspectives.

Polarization: Web 2 can contribute to social and political polarization, as users are increasingly exposed to content that reinforces their existing views and biases, and are less likely to encounter opposing viewpoints.

Disinformation: Web 2 platforms can be used to spread false information and disinformation, which can have significant consequences for public health, national security, and the economy.

Centralization: Web 2 is dominated by a few large companies, which can limit competition and innovation, and raise concerns about monopolies and market power.

These issues highlight the need for ongoing efforts to address the challenges and limitations of the Web 2 environment and to build a more secure, equitable, and transparent online environment.

2.2 Need for WEB 3.0 Based Decentralized Applications

Decentralization: Decentralized applications are built on blockchain technology, which enables them to operate without a central authority. This eliminates the need for intermediaries and can increase trust and transparency in the system.

Security: Decentralized applications are secure and resistant to hacking and other types of cyber-attacks, as they use cryptographic algorithms to secure the network and the data stored on it.

Censorship-Resistance: Decentralized applications are resistant to censorship and can provide a platform for free speech and expression, even in environments where traditional centralized applications may be blocked or censored.

Intermediary-Free Transactions: Decentralized applications can enable peer-to-peer transactions without the need for intermediaries, reducing costs and increasing efficiency.

Open Access: Decentralized applications are open-source and accessible to everyone, enabling developers to build and deploy new applications, and users to participate in the network and contribute to its development.

Data Ownership: Decentralized applications enable users to own and control their data, rather than having it controlled by centralized entities, which can increase privacy and reduce the risk of data breaches.

Thus, the problem is to develop such decentralized applications which tend to be more secure, and transparent, provide an equitable online environment, and overcome the limitations and challenges associated with traditional centralized applications.

4. OBJECTIVES

The main objectives behind creating a such decentralized marketplace for NFTs (Non-Fungible Tokens) are as follows:

To create a decentralized platform for buying, selling, and trading NFTs, enabling direct and secure transactions between buyers and sellers without the need for intermediaries.

To enhance the security of NFT transactions by using blockchain technology to securely store and manage NFTs and transactions.

To ensure the authenticity and ownership of NFTs by using blockchain technology to create a permanent and public record of ownership.

To reduce the costs of buying, selling, and trading NFTs by eliminating intermediaries and reducing transaction fees.

To increase the liquidity of NFTs by enabling a wider range of buyers and sellers to participate in the NFT market, and by making it easier for buyers and sellers to find each other.

To provide a better user experience by enabling fast, secure, and cost-effective transactions, and by offering new features and services such as decentralized marketplaces and customer rewards programs.

To increase the transparency of NFT transactions by enabling all parties to see the details of each transaction on the blockchain.

To expand the reach of the NFT market by enabling cross-border transactions and by making it easier for buyers and sellers to participate in the NFT market from anywhere in the world.

5. METHODOLOGY

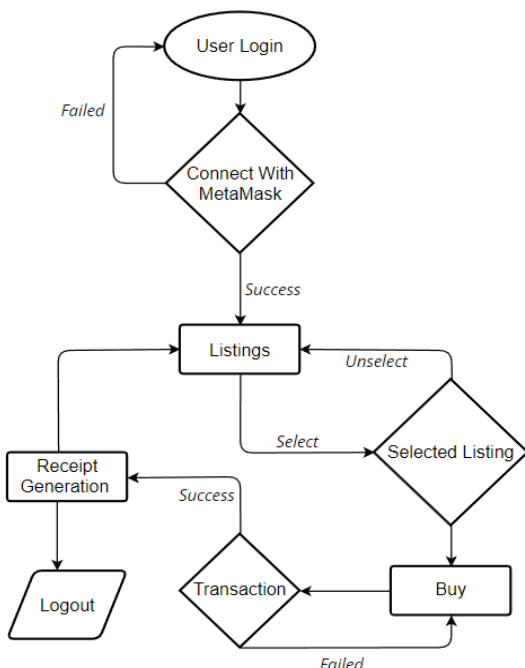


Fig 1. The flow of the Application System

The implementation to be done by the user is explained in the following manner.

The user can register into the NFT Marketplace using their MetaMask wallet and registration is authenticated when users connect with a MetaMask wallet.

After logging in successfully, users can navigate the marketplace to look for appropriate NFTs.

If the user finds an NFT of their liking, they can buy the ownership of that particular NFT at the price decided by the current owner.

Dealing will be done by using a digital currency available.

When the user has purchased the NFT using the currency stored in their MetaMask wallet, The ownership log of the NFT will display the new owner's name as the new and current holder of that digital asset.

Now, if the user wishes, they can reauction that NFT in the marketplace at a price they deem suitable for it.

6. IMPLEMENTATION

The very first step in any application is the login process, here the user must connect with their MetaMask wallet as part of the login process. MetaMask is a decentralized wallet that allows users to securely manage their digital assets and interact with decentralized applications (dApps) built on the Ethereum blockchain. It acts as a bridge between the user's browser and the Ethereum network, allowing for easy storage and management of Ethereum-based cryptocurrencies and tokens.

After logging in, the user will be able to see all the listed NFTs. NFT refers to a non-fungible token (NFT) is a type of digital asset that represents ownership of a unique item or piece of content, such as an image, video, or piece of music. Unlike fungible tokens, such as cryptocurrencies, which are interchangeable and have a fixed value, each NFT is unique and cannot be replaced or exchanged for an identical item. They are often used to represent digital art and other collectible items on blockchain platforms.

Based on users' personal likes and dislikes they can select which NFT they wish to claim. They can claim the NFTs by purchasing them via their MetaMask wallet.

Purchases can be made via MetaMask, but it requires a smart contract. Smart contracts are self-executing contracts with the phrases of the agreement directly written into code. They are executed automatically and enforce the negotiation or performance of a contract. The code and the agreements contained therein exist on a blockchain network, and the terms of the contract are executed by the network of computers that run the blockchain.

Smart contracts eliminate the need for intermediaries and provide a secure, transparent, and tamper-proof way of executing agreements. The terms of the agreement are enforced automatically, without the need for human intervention. This makes smart contracts particularly useful for executing complex or high-value transactions, where the

accuracy and security of the agreement are of utmost importance. Instead of writing our own smart contracts, we are taking them from thirdweb.com. Thirdweb lets us build web3 apps easily. You can use Thirdweb to create and ship an NFT collection without writing a single line of code. Thirdweb additionally provides considerable brilliant contracts and SDKs that guide consumer firms are utilizing to construct web3 products.

Once the transaction is complete with the help of the smart contract, the NFT disappears from the page, i.e., it is no longer available for the other users to claim. The user can see the credited NFT on OpenSea. OpenSea is a decentralized marketplace for buying, selling, and discovering unique digital items, such as non-fungible tokens (NFTs). It is built on the Ethereum blockchain, which provides a secure and transparent platform for buying, selling, and tracking ownership of NFTs. Overall, OpenSea is a platform for buying, selling, and discovering unique digital items, and for enabling creators to monetize their digital creations.

7. RESULT



Connect using MetaMask



Connect with MetaMask

Select the account(s) to use on this site

New account



Only connect with sites you trust. [Learn more](#)

Cancel

Next

8. CONCLUSION

WEB3.0-based NFT marketplace is a web application that provides unique digital ownership and provenance to the user's NFTs, while also making available a platform for buying and selling NFTs to create liquidity for the digital assets. NFTs will be auctioned and their owners will be logged in a ledger. The price will be set by the current user and the first price is marked by the original miner of that NFT.

Decentralized web applications can be trusted with the user's security as it operates on a peer-to-peer network, removing the need for intermediaries.

Decentralization also reduces the security risks of single points of failure and hacking, as the data will be safe on the blockchain away from any third party trying to read or analyze the user data.

The simplicity and ease of creation will enable new users as well as veterans to enhance their experience of hassle-free investment in the NFTs which are growing popular with each passing day.

9. FUTURE SCOPE

The future of NFT is expected to be promising as they have gained significant traction in some potential areas like digital art where NFT has provided artists to sell their digital creations as unique and valuable assets. NFT is also used to represent unique in-game items, such as weapons, and skins and it has also revolutionized the music industry as NFTs could be used to represent unique rights and ownership for musicians and their work, such as album sales and merchandise. NFTs can be used to also represent exclusive collectibles, such as digital trading cards, autographs, and other memorabilia. The platform for this application, WEB3.0, is the next generation of the internet which holds the potential to change the way we interact and transact online, by providing a more secure and decentralized environment for users, developers, and businesses in the form of Decentralized Applications and Finance which allows for the creation and use of applications that do not rely on central servers and intermediaries, and also enabling the use of a decentralized financial system where users can directly manage and invest their assets without the need of a central authority.

The marketplace platform deals with a specific type of art rather than an abundant category of NFTs available on the internet, thus attracting a more focused and engaging crowd, leading to more transactions of NFTs and more minting by the owners.

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