



Web Based Application for Buying/Selling of Non-Fungible Tokens

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ABSTRACT

Numerous centralized groups rule over substantial portions of the internet and take unilateral action to determine what is and is not acceptable. This problem is resolved by Web3, which promotes decentralization and is built, maintained, and owned by its users. Web3 provides individuals—rather than organizations—control over their own fate.

For fans and consumers, NFT (Non-Fungible Token) marks the beginning of a new era of digital collection. Consequently, it is a creative approach to support musicians, athletes, and artists directly without the need of middlemen. NFT is a cutting-edge method enabling creators, musicians, and artists to share and profit from their creations. Selling digital things was fraught with difficulties due to how easily they might be copied and used fraudulently.

Our objective is to provide customers with a decentralized application marketplace where they may sell or buy these NFTs from the vendor without being concerned that any centralized authorities will disregard their business operations.

Keywords:

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

1.INTRODUCTION

As generational spans lengthen, the number of applications based on next-generation technology is increasing daily. Blockchain is being used in a wide range of sectors as cryptocurrency or digital money. Real estate transactions on the blockchain are also possible. Individuals create, acquire, and trade digital assets. Virtual art is becoming more and more popular every day. The newest fashion in this era is the non-fungible token, or NFT.

In addition to ownership and authenticity records, NFTs are virtual or digital representations of various forms of artistic works, such as paintings, video games, music, and other types of creative works. On the NFT market, these tokens or digital assets might be bought, sold, or traded. The NFT market is a big virtual pool that can support the significant daily transactions. It could impact how the online economy develops. Future application cases for NFT will undoubtedly result in the bitcoin business expanding to new heights.

Without a personal account, a person cannot make purchases or sales on the NFT marketplace. It is necessary to create an account in order to further ensure validity and authorization within the market. There is a simple underlying characteristic of the NFT market. Using the phases presented, it is easy to understand how the NFT market operates. It is also easy to sell one's entry into the market

A contemporary marketplace for buying, selling, and trading virtual works is the NFT market. Given the growing reputation and worth of cryptocurrencies, it is reasonable to assume that the markets for NFTs and the entire blockchain

network will someday be in demand. For this reason, it is important now and in the near future.

2.LITERATURE REVIEW

The world wide web as we know it today has undergone multiple versions since the world wide web's real concept was first introduced in the early 1990s. Starting with a static web, or Web 1.0, that was read-only, followed by the introduction of a social web, or Web 2.0, that was interactive and allowed users to do more than just read static pages, and now with the introduction of Web 3.0, which offers an unmediated read-write web, or, to put it another way, a decentralized Internet, encouraging the growth of open source software. These decentralized applications (Dapps) are built on top of blockchain technologies and are driven by crypto-economic networks [1].

In recent years, the blockchain has developed swiftly, first with Bitcoin, the first decentralized cryptocurrency, then moving on to Ethereum with smart contracts, and finally to the emerging promising blockchain (like Hyperledger fabric). Blockchain-based apps are becoming increasingly common in our daily lives as a result of the growing acceptance of the technology.

As a result, the scalability issues of important public-chain platforms (such as Bitcoin and Ethereum) have surfaced and significantly impacted the development of blockchain. The scalability issues of decentralized systems can be solved using a number of frequently used strategies, such as sidechains, cross-chains, and sharding [2].

The following components are all systematically integrated into the blockchain, which is emerging as a paradigm for safe and shareable computing: Chain structures are used for data storage and verification, distributed consensus algorithms are used to create and update data, cryptographic methods are used to protect information transmission, and automated smart contracts are used to program and manage data. The process level, the data level, and the infrastructure level are the three levels that make up the PDI model of blockchain security, which solves important corporate, organizational, and operational security challenges [3].

Using blockchain technology, social enterprises may improve and solidify their credibility with sponsors and social investors. Additionally, it can support social business in terms of transparency, auditability, privacy, and decentralization. However, organizations might have trouble implementing a blockchain-based solution due to infrastructure issues, technology adoption, and, most importantly, how to handle financial transactions involving cryptocurrencies [4].

Blockchain makes it possible to securely store and share data across the community using a decentralized, unchangeable virtual ledger. E-trade transfers transactions securely, efficiently, and quickly using blockchain technology. It allows for the use of data encryption and a peer-to-peer transaction system, both of which are necessary for the safe transfer of transaction data. When smart contracts and blockchain are combined, the future of e-commerce will be altered. Blockchain technology ensures the security and privacy of records by using smart contracts to guarantee that the transaction protocol is followed [5].

Blockchain is a young technology that has the potential to change international trade and build trust among several parties in the business community. There are already a lot of real-world applications for blockchain. The art business is one market in particular where it readily fits because art forensics and transactions are conducted, documented, and recorded [6].

Even though people are most familiar with the blockchain as a mechanism to conduct transactions online without the involvement of a third party, it will seek to replace the current system of money, which is a slow and traditional one. Blockchain can be used for a variety of services because it is a zero-trust network, provided that users are ready to accept and pay for them. Smart contracts—self-executing scripts that undermine security—rule the blockchain in the Ethereum ecosystem. This zero-trust community has the potential to replace many divisive practices or endeavors in our surroundings. One of our main concerns is the requirement for a secure electronic voting system. Blockchain prevents manipulation since it is an append-only ledger that is completely visible and unchangeable [7].

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.
2. "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.
3. "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.PROBLEM DEFINITION

3.1 Issues with the State of the Internet Currently

The current internet ecosystem, also known as WEB 2, is characterized by increased user cooperation, user interaction, and the creation and sharing of user-generated content.

However, the Web 2 environment has a variety of issues and challenges, including:

Huge amounts of personal data that Web 2 applications and platforms gather and store have sparked worries about data privacy and the potential for data breaches.

Cybersecurity: Malware, phishing, and other forms of cyberattacks can target Web 2. Data loss, financial loss, and reputation damage could all arise from this.

Web 2 algorithms may result in "filter bubbles," where users are only exposed to content that confirms their prior attitudes and views, so limiting their exposure to new ideas and points of view.

Polarization: Web 2 users are more likely to come across content that confirms their existing views and biases and less likely to come across content that challenges them, which can intensify social and political polarization.

Disinformation: The spread of false information and disinformation using Web 2 platforms has the potential to have a significant negative influence on public health, national security, and the economy.

Centralization: A few number of large companies control most of the Web 2 industry, which can limit innovation and competition and raise concerns about monopolies and market dominance.

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

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3.2 Decentralized Web Applications built on 3.0 are required.

Decentralization: Since decentralized applications are based on blockchain technology, they can operate without a central authority. Eliminating the need for middlemen can increase the system's openness and credibility.

Security: Decentralized applications are secure and resistant to hacking and other types of cyber-attacks because they use cryptographic techniques to protect the network and the data stored on it. Even in environments where traditional centralized applications might be banned or regulated, decentralized applications are censorship-resistant and can provide a platform for free speech and expression. Decentralized apps can enable peer-to-peer transactions without the need for middlemen, which decreases costs and increases efficiency.

Open Access: Users and developers can join the network and help to enhance its development because decentralized applications are open-source and accessible to everyone.

Data Ownership: Decentralized applications can enhance privacy and reduce the risk of data breaches by letting users to own and control their data rather than having it controlled by centralized organizations. The challenge is to develop such decentralized applications that have a tendency to be safer and more transparent, to offer an equal online environment, and to get around the limitations and challenges associated with traditional centralized systems.

4.OBJECTIVES

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

The creation of a decentralized market place for the purchase, sale, and exchange of NFTs, enabling direct, secure transactions between buyers and sellers without the involvement of middlemen.

To manage and securely store NFTs and transactions utilizing blockchain technology in order to increase the security of NFT transactions and to provide a permanent and generally accessible record of ownership, using blockchain technology, in order to ensure the legality and ownership of NFTs.

To reduce transaction costs and get rid of middlemen in order to make buying, selling, and trading NFTs cheaper and to increase the liquidity of NFTs by making it simpler for buyers and sellers to find one another and allowing a wider range of buyers and sellers to participate in the NFT market.

We want to enhance the user experience by enabling speedy, secure, and economical transactions and by adding new features and services like decentralized markets and customer rewards schemes.

Transparency of NFT transactions will increase if all participants have access to the specifics of each transaction on the blockchain.

The NFT business will expand in scale if cross-border transactions are permitted and it is made easier for buyers and sellers to participate in the NFT market from any location.

5.METHODOLOGY

The following describes how the user's implementation works:

Registration for the NFT Marketplace is verified when users connect with a Meta mask wallet. Utilizing their Meta mask wallet, users can sign up.

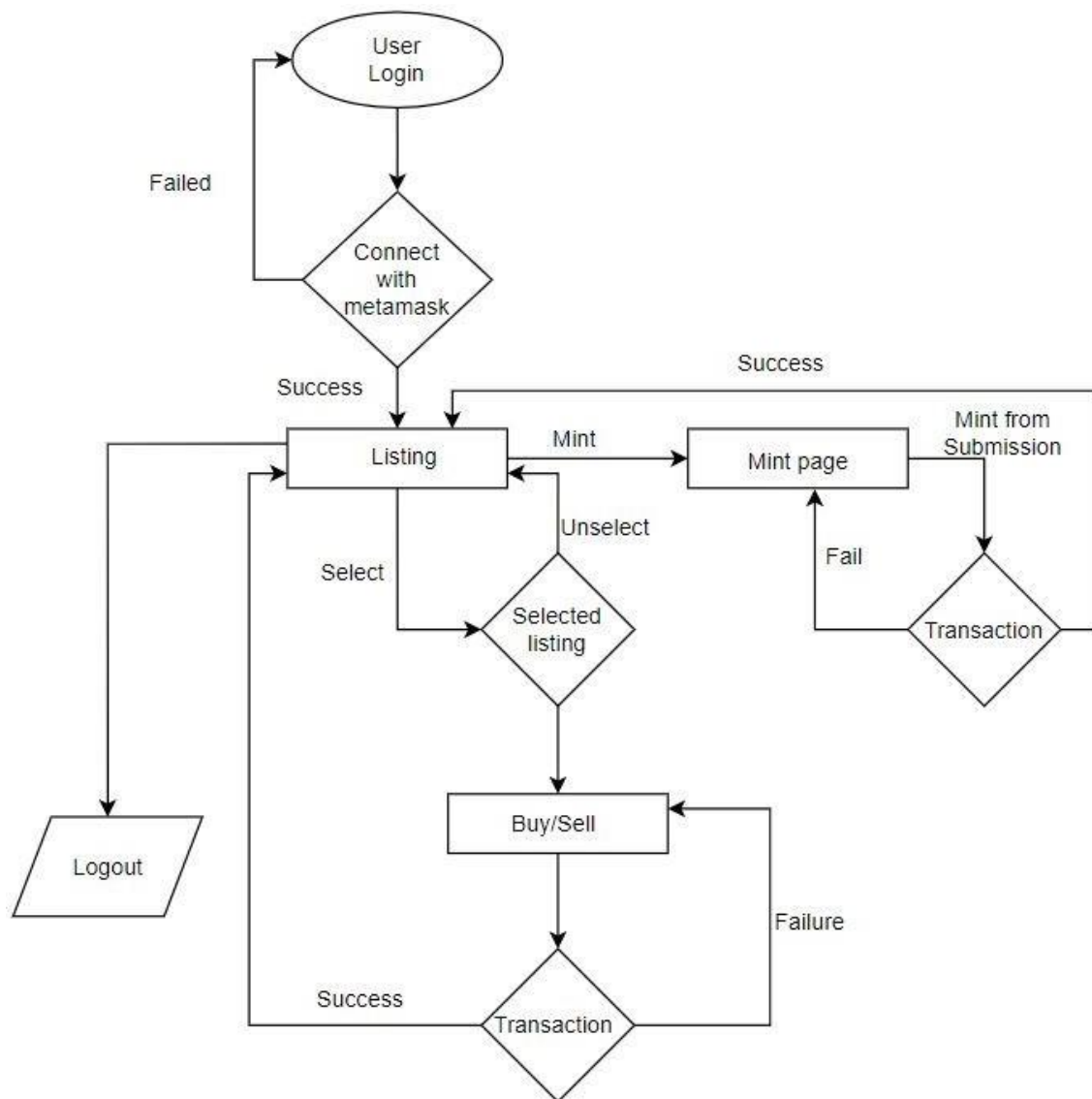
Consumers that log in successfully can search the market for the appropriate NFTs.

If a user finds a particular NFT they like, they can buy ownership of it at a price established by the current owner.

Dealing will be done with easily accessible digital currency.

Once the user has purchased the NFT using the money stored in their Meta mask wallet, their name will appear in the ownership ledger as the new and current possessor of that digital asset.

Now, if the user so desires, they may re-auction the NFT in the market at a price they deem suitable for it.



6.IMPLEMENTATION

The first step in using any program is to log in, and this one needs the user to connect to their MetaMask wallet. Users can use MetaMask, a decentralized wallet, to securely store their digital assets and connect with decentralized applications (dApps) built on the Ethereum blockchain. It acts as a conduit between the user's browser and the Ethereum network, simplifying the storage and management of tokens and cryptocurrencies created on the Ethereum platform.

After logging in, the user will be able to see all of the aforementioned NFTs. An NFT, or non-fungible token, denotes ownership of a unique item or piece of content, such as a picture, a movie, or a piece of music. A type of digital asset are NFTs.

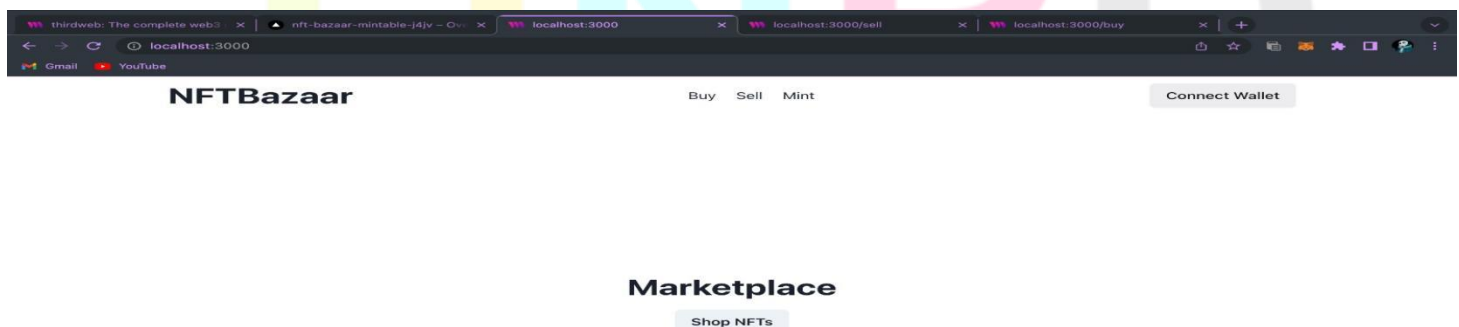
Unlike fungible tokens, such as cryptocurrencies, which are interchangeable and have a predetermined value, each NFT is unique and cannot be changed for an identical object. They are widely used to represent digital artwork and other items on blockchain networks. Based on their personal tastes, users can select the NFT they wish to claim. They can then claim the NFTs by purchasing them with their MetaMask wallet.

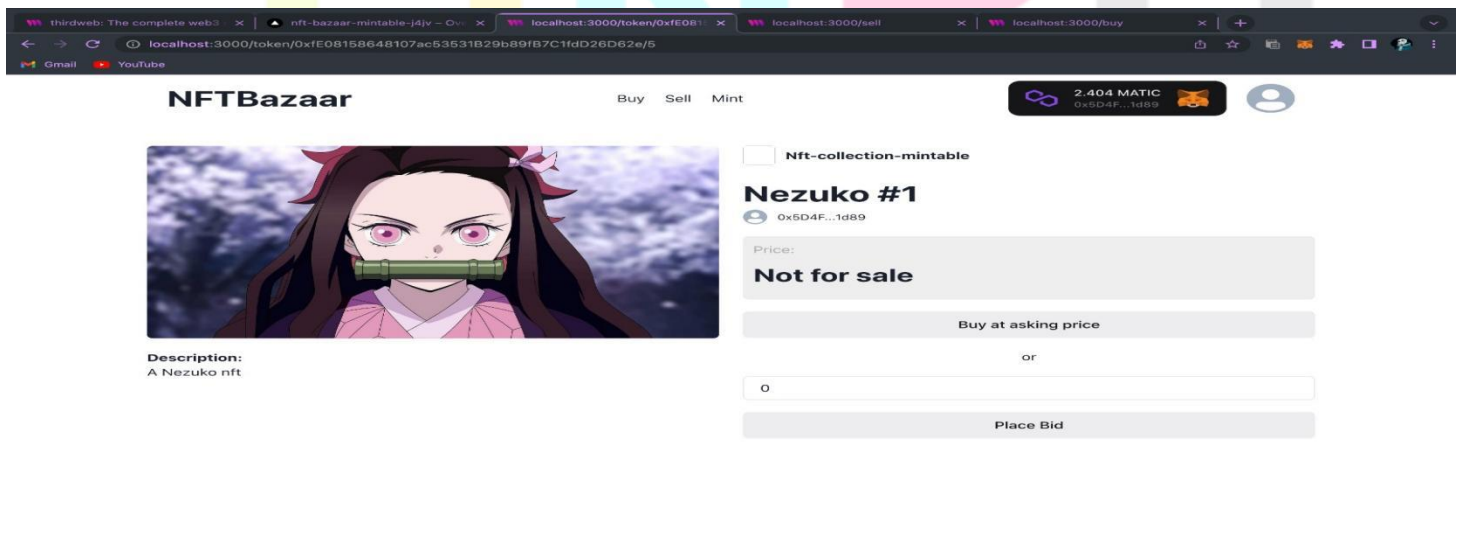
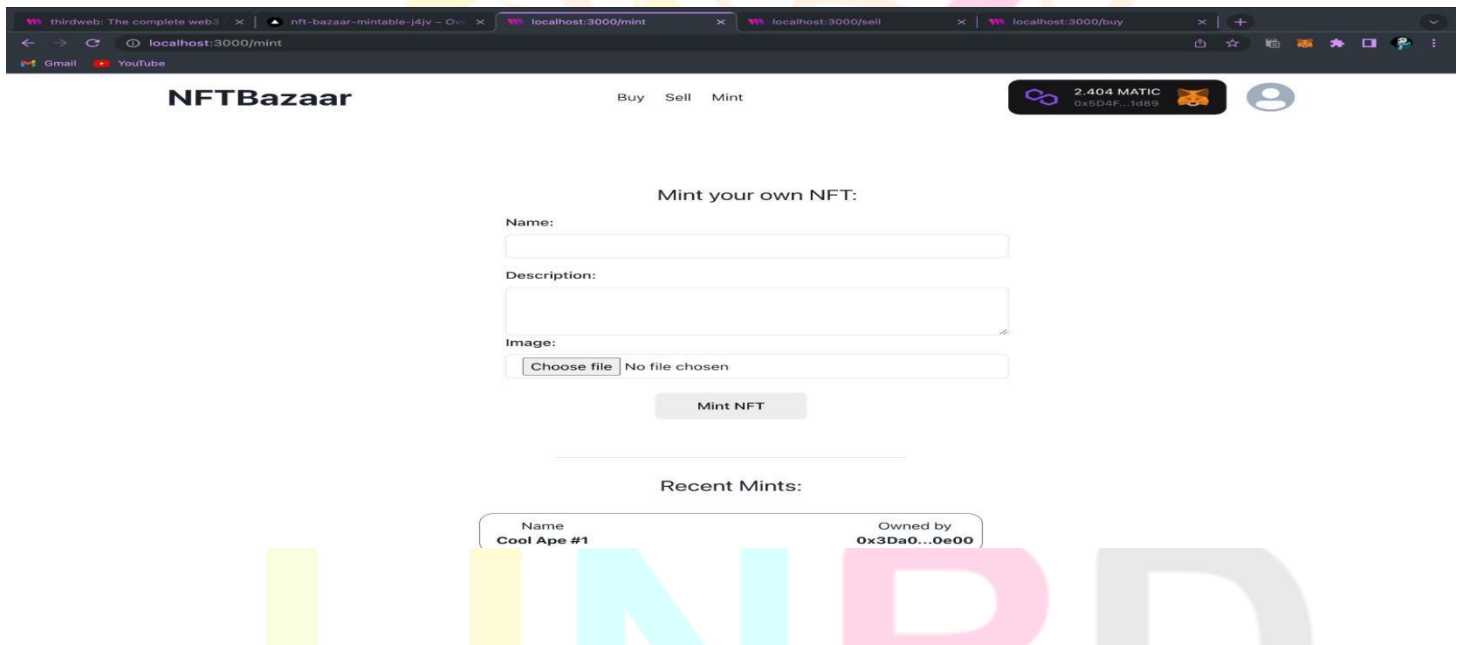
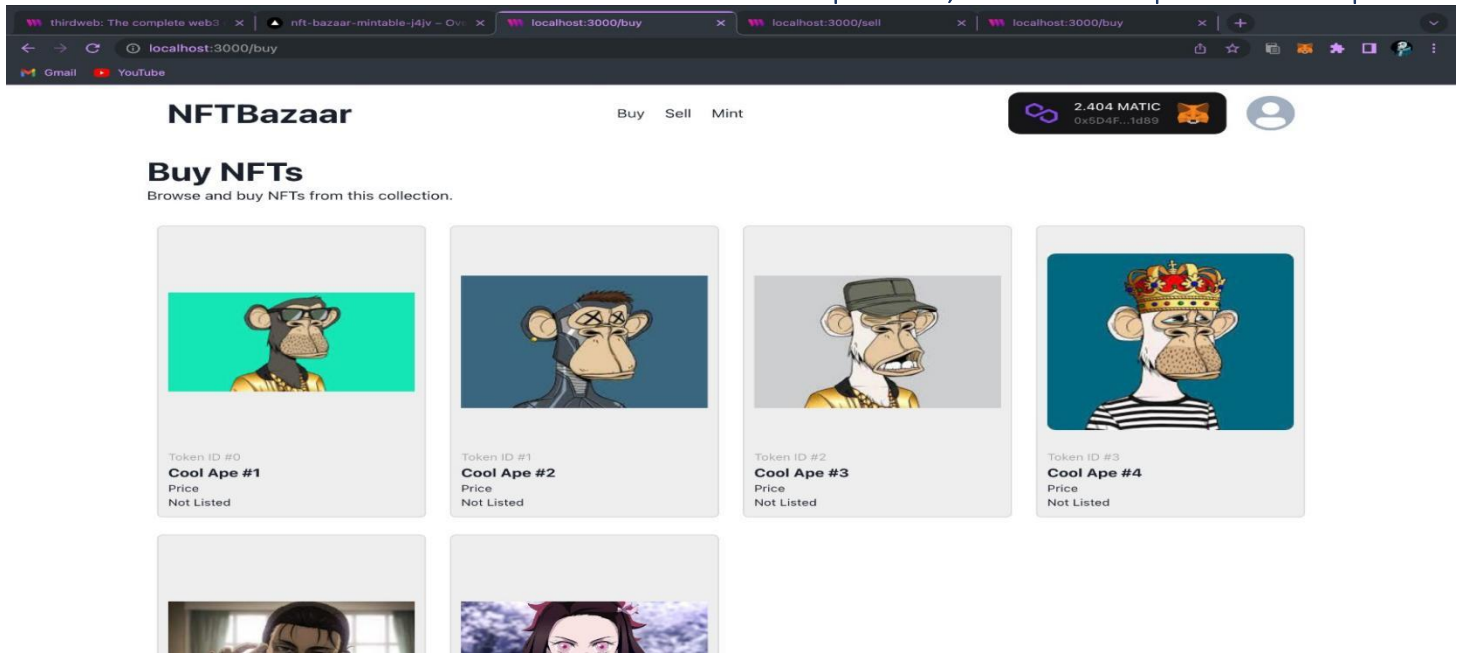
Purchases through MetaMask are possible, but a smart contract is required. Because they are written in code, smart contracts automatically carry out their conditions. They automatically carry out the negotiating or fulfillment of a contract. The code and the agreements contained therein are located in the network of computers that operates the blockchain, and it is this network of computers that carries out the terms of the contract.

By eliminating the need for middlemen, smart contracts provide a secure, transparent, and unalterable mechanism to conduct transactions. The provisions of this Agreement shall be automatically enforced without the involvement of any Person. As a result, smart contracts are particularly useful when conducting difficult or pricey transactions where the accuracy and security of the contract are essential. Instead of creating our own smart contracts, we use thirdweb.com's. With 3.0 Web, we can quickly construct web3 applications. Using 3.0 Web, you can create and deliver an NFT collection without writing a single line of code.

3.0 Web also provides comprehensive clever contracts and SDKs to help consumer companies develop web3 products. Once the smart contract transaction is complete, the NFT disappears from the screen and is no longer available for claim by anybody else. The user can view the credited NFT on OpenSea. Users can trade non-fungible tokens (NFTs) and locate other unique digital products on the decentralized exchange known as OpenSea. Its foundation is the Ethereum blockchain, which provides a secure and open market for trading and tracking ownership of NFTs. OpenSea is a marketplace that allows users to buy, sell, and discover unique digital goods as well as to enable producers to monetize their digital creations.

7.RESULT





8. CONCLUSION

A web application that offers users' NFTs a distinctive digital ownership and provenance is known as a WEB3.0-based NFT marketplace. To boost the liquidity of users' digital assets, it also provides a platform for buying and selling NFTs. NFTs will be auctioned in addition to having their owners listed in a ledger. The initial price was set by the NFT's original miner, and the price will be decided by the user at the time.

Decentralized web applications may be trusted with user security since they run on a peer-to-peer network and don't need middlemen.

The risk of single points of failure and hackers will be reduced because the data will be secure on the blockchain, protected from anyone attempting to read or analyze the user data from outside sources.

The simplicity and ease of formation will help both new users and seasoned investors by enabling them to invest in the NFTs, which are growing in popularity every day, without encountering any difficulties.

9.FUTURE SCOPE

Because NFT has made significant strides in a variety of potential industries, including digital art, where they have offered artists the chance to promote and sell their works as distinctive and valuable assets, the company's future is predicted to be bright. The music industry has altered as a result of NFTs, which can be used to represent particular rights and ownership for performers and their work, such as album sales and merchandise. NFTs can also be used to symbolize exclusive in- game items like skins and weaponry. NFTs can also represent exclusive artifacts like digital trading cards, autographs, and other mementos. By providing a more secure and decentralized environment for users, developers, and businesses through Decentralized Applications and Finance, which enables the creation and use of applications that do not rely on central servers and intermediaries and also permits the use of a decentralized financial system, the WEB3.0 platform, the next generation of the internet, has the potential to change how we interact and transact online.

Instead of the broad category of NFTs that are easily accessible online, the marketplace platform focuses on a specific artistic genre, attracting a more enthusiastic and narrowly focused audience and promoting more NFT transactions and owner minting.

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