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A Secure Trading Platform for Non-Fungible Tokens Based on Web 3.0

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ABSTRACT: The Non-Fungible Tokens(NFTs) can be any digital asset like painting, pictures, etc. The phenomenon and its marketplaces have grown dramatically since early 2021. The number of NFT marketplaces has been gradually rising since a few years ago. To store digital assets, the majority of them employ unified system techniques (files). The concept of decentralized networks is violated by this. In this initiative, we propose a secure trading platform for non-fungible tokens that stand in for digital assets. Users will be able to create new digital commodities and trade them for currency based on Ethereum. The user will get awards according to buying and selling on the platform. It can also rate any of the NFT which will help the user to segregate the NFT based on the reviews. In addition, this study focuses on the use of Web 3.0 technology.

KEYWORDS: Digital, NFT, Crypto currency, Web 3.0, Smart Contract.

I. INTRODUCTION

Non-fungible tokens, or NFTs, have emerged as a new type of digital asset that is revolutionizing the way we think about ownership, value, and authenticity in the digital world. Each NFT represents a one-of-a-kind digital asset, such as artwork, music, or virtual real estate. NFTs are created and stored on a blockchain, a secure and transparent digital ledger that records transactions and ensures the authenticity of digital assets. Each NFT contains a unique code that verifies its ownership and authenticity, making it a valuable and collectible asset[12].

One of the key benefits of NFTs is their ability to provide greater control and ownership to creators of digital content. In the past, digital creators had limited control over their work, and could easily be replicated or distributed without their permission. With NFTs, creators can verify ownership and ensure that their work is valued and protected.

The rise of non-fungible tokens (NFTs) has created a new market for unique digital assets, such as artwork, music, and virtual real estate[4]. These assets are different from traditional cryptocurrencies because they are unique and cannot be exchanged on a one-to-one basis. However, trading NFTs can be challenging due to the lack of a secure and transparent trading platform. A secure trading platform for NFTs based on Web 3.0 can provide a solution to this problem. Web 3.0 is the next generation of the internet that is decentralized, transparent, and secure. It uses blockchain technology to create a secure and transparent ledger that records transactions and ensures the authenticity of digital assets. This technology can be applied to create a secure trading platform for NFTs.

A secure trading platform for NFTs based on Web 3.0 would enable buyers and sellers to trade their digital assets securely and transparently without the need for intermediaries or centralized exchanges. This would provide greater



control and ownership of their assets, while also increasing the security and privacy of their transactions. In addition to facilitating the trading of NFTs, a secure trading platform could offer additional features, such as digital wallets for storing NFTs, messaging systems for communication between buyers and sellers, and built-in dispute resolution mechanisms to ensure fair and transparent transactions.

The use of blockchain technology also provides the ability to create smart contracts that can be executed automatically when certain conditions are met. This can be used to create escrow accounts for transactions, where the funds are only released when the buyer receives the NFT.

Overall, a secure trading platform for NFTs based on Web 3.0 has the potential to revolutionize the way we trade and value unique digital assets. It can provide greater control and ownership to buyers and sellers, while also increasing the security and transparency of transactions. As the market for NFTs continues to grow, the need for a secure and transparent trading platform will become increasingly important[5].

II. EXISTING SYSTEM

A Secure Trading Platform for Non-Fungible Tokens (NFTs) based on Web 3.0 is a blockchain-based platform that allows users to buy, sell, and trade NFTs securely. NFTs are unique digital assets that are stored on a blockchain and can represent various forms of media such as art, music, videos, and more. This platform will leverage the benefits of blockchain technology to ensure the secure transfer of ownership and authenticity of NFTs. The platform is built on top of the Ethereum blockchain, which is a decentralized blockchain that allows for the creation of smart contracts. Smart contracts are self-executing contracts with the terms of the agreement directly written into code. This allows for the creation of trustless transactions, meaning that parties can transact with each other without the need for a trusted third party. There are several existing platforms based on a secure trading platform for Non-Fungible Tokens (NFTs) based on Web 3.0[2] which are based on an invite-only NFT marketplace that focuses on high-quality digital art, they also use the Ethereum blockchain and smart contracts to ensure secure trading[3].

III. PROPOSED SYSTEM

NFTs, or non-fungible tokens, are a type of digital asset that use blockchain technology to certify their ownership and authenticity. They have gained popularity in recent years for a few reasons:

- 1. Unique ownership:** NFTs allow for the creation and sale of unique digital assets that are owned by a single individual or entity, making them highly collectible and potentially valuable[7].
- 2. Digital scarcity:** By limiting the number of NFTs that can be created for a particular asset, creators can establish digital scarcity and increase the perceived value of their work.
- 3. Immutable provenance:** Because NFTs are stored on a blockchain, their ownership and transaction history is publicly available and cannot be altered, making them a trustworthy means of proving ownership and authenticity. NFTs have been used for a variety of purposes, including the sale of digital artwork, music, and even virtual real estate in video games. While the market for NFTs is still relatively new and evolving, they have the potential to revolutionize the way we think about ownership and value in the digital age.

The purpose of using NFTs, or non-fungible tokens, is to create unique and verifiable digital assets that can be bought, sold, and traded like any other asset[6]. NFTs use blockchain technology to certify ownership and authenticity and can be used for a wide range of purposes, including:

- 1. Artwork:** NFTs are increasingly being used to represent digital artwork, allowing artists to sell unique and verifiable pieces of their work as digital assets[8].
- 2. Music:** NFTs can also be used to represent music, allowing musicians to sell unique and verifiable copies of their songs or albums.
- 3. Gaming:** NFTs can be used to represent in-game items, allowing gamers to buy and sell rare or valuable virtual items as digital assets.
- 4. Collectibles:** NFTs can be used to represent a wide range of collectible items, such as sports memorabilia,



trading cards, and rare coins.

5. Real estate: NFTs can also be used to represent virtual real estate, such as virtual land in a game or virtual world.

In all of these use cases, the purpose of using NFTs is to provide a verifiable and secure means of buying, selling, and trading unique digital assets. By certifying ownership and authenticity on the blockchain, NFTs can create a new market for digital assets that were previously difficult to value and trade.

IV. METHODOLOGY

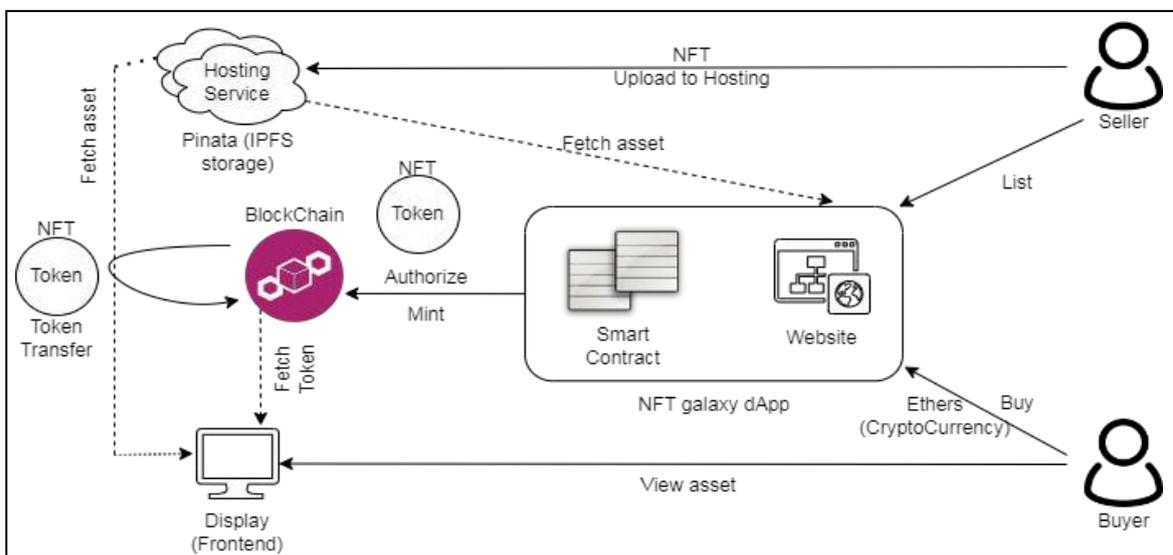


Fig - 1: Working Model

1. Seller –

- NFT upload to hosting service – When a seller uploads NFTs on a hosting service Pinata, they are essentially storing the digital files that represent their NFTs on Pinata's decentralized file storage network. The connection between the seller and Pinata is maintained through the website's user interface, which provides a simple and streamlined way for the seller to upload and manage their NFTs. Pinata provides a user-friendly interface that allows seller to upload their NFT files and store them securely on the blockchain network. Once the files are uploaded, Pinata generates a unique IPFS (InterPlanetary File System) address that can be used to identify and access the NFTs[9]. The NFTs stored on Pinata can then be sold or transferred to buyers using a blockchain-based marketplace or exchange. When a buyer purchases an NFT, the ownership is recorded on the blockchain network, and the buyer is provided with the unique IPFS address that allows them to access and display the NFT[1].

- List NFTs on the website – A seller lists NFTs on a website, they are essentially creating a record of their NFTs on the website's blockchain-based marketplace. This allows buyers to browse, search, and purchase NFTs directly from the website. The connection between the seller and the website is maintained through the website's user interface, which provides a simple and streamlined way for the seller to list and manage their NFTs. The connection between the seller and the website is facilitated through the use of smart contracts, which automatically execute the terms of the sale when a buyer makes a purchase.

2. Buyer –

- Buying NFTs using ethers on the website – When a buyer buys NFTs with ethers on a website, the connection is maintained through a series of interactions between the buyer's wallet, the website's user interface, and the blockchain network. The connection between the buyer and the website is maintained through the website's user interface, which provides a simple and streamlined way for the buyer to browse, purchase, and manage NFTs. The connection between the buyer's wallet and the blockchain network is maintained through the buyer's wallet software or browser extension, which interacts directly with the network to initiate and sign transactions.

- Can view assets – The connection between the buyer and the website is maintained through the website's



user interface, which provides a simple and streamlined way for the buyer to view and manage their digital assets. The connection between the website and the blockchain network is maintained through the use of blockchain-based protocols and standards, such as the ERC-721 standard for NFTs.

3. Hosting Service –

- The connection between the user and Pinata is maintained through the use of Pinata's API, which provides a way for the user to upload and retrieve assets. The connection between Pinata and the IPFS network is maintained through the use of IPFS protocols, which allow Pinata to store and fetch assets from the distributed network. The connection between the user, Pinata, and the IPFS network is facilitated through a combination of API tools and decentralized storage protocols, which allows users to securely store and retrieve their digital assets on a decentralized network.

4. Smart Contract –

- Smart contract mints and authorizes NFTs on the blockchain and then displays them to a buyer, the connection is maintained through a series of interactions between the smart contract, the blockchain network, and the buyer's wallet. The connection between the smart contract, the blockchain network, and the buyer's wallet is maintained through the use of blockchain-based protocols and standards, such as the ERC-721 standard for NFTs [10]. The connection between the buyer and the website is maintained through the website's user interface, which provides a simple and streamlined way for the buyer to browse, purchase, and manage NFTs.

V. EXPERIMENTAL RESULTS

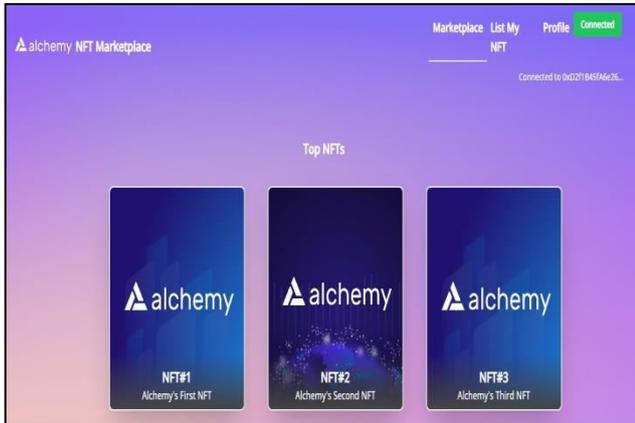


Fig – 2: HOMEPAGE

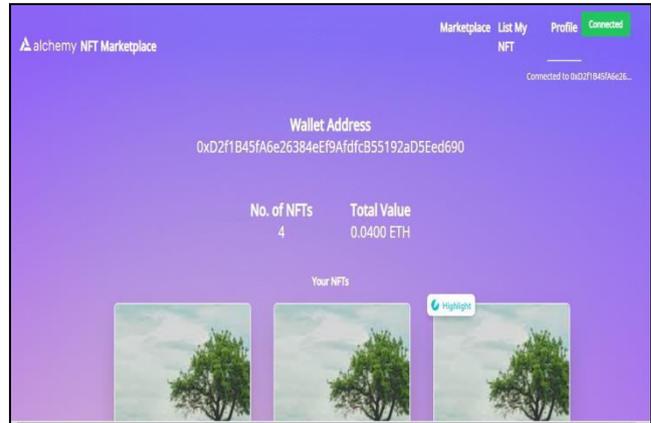


Fig – 3: RECENT UPLOADED NFTs

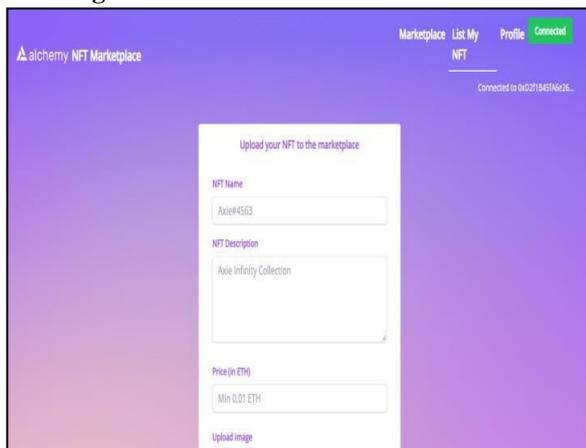


Fig – 4: LIST MY NFT PAGE

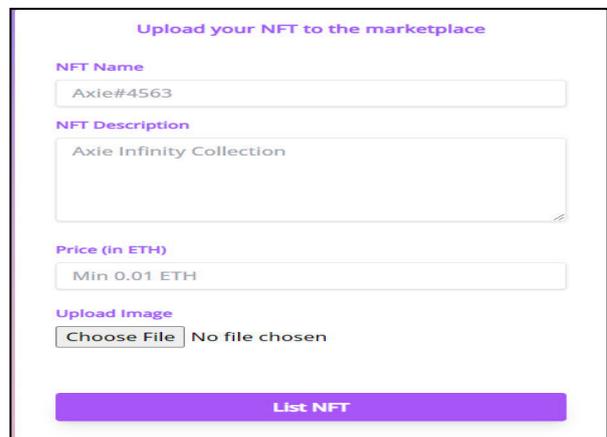


Fig – 5: FORM FOR UPLOADING NFT

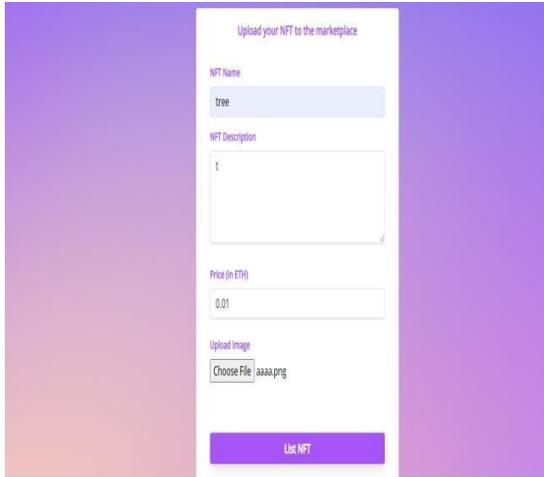


Fig – 6: FILLING THE DETAILS OF NFT

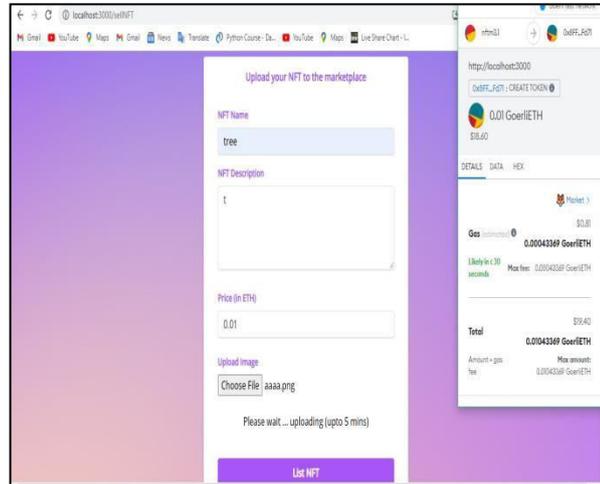


Fig – 7: CONNECTING TO WALLET

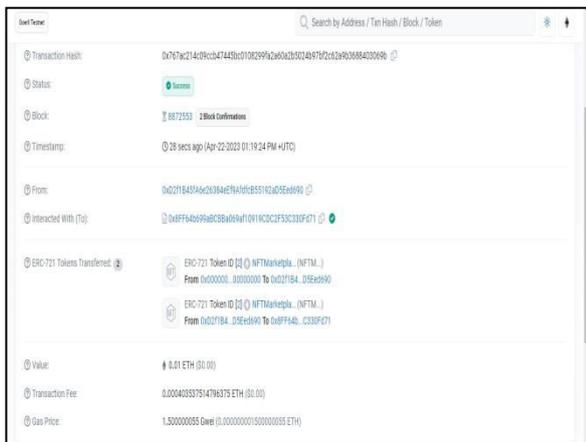


Fig – 8: TRANSACTION DETAILS

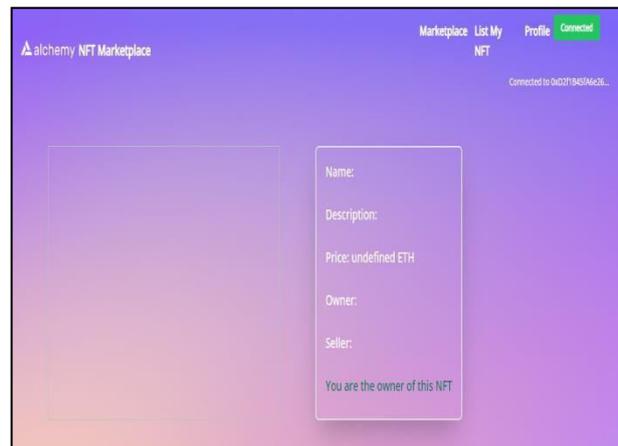


Fig – 9: DESCRIPTION PAGE

VI. FUTURE SCOPE

- Integration with other blockchain platforms:** As the blockchain ecosystem continues to evolve, there may be opportunities to integrate the NFT trading platform with other blockchain platforms. For example, the platform could be integrated with decentralized finance (DeFi) protocols to enable users to trade NFTs using cryptocurrencies or stablecoins.
- Increased security and privacy features:** As the value of NFTs and other digital assets traded on the platform grows, there will be a need for increased security and privacy features. This could include more advanced encryption techniques, multi-factor authentication, and anonymous trading options.
- Integration with emerging technologies:** As new technologies such as artificial intelligence (AI) and the Internet of Things (IoT) continue to emerge, there may be opportunities to integrate these technologies with the NFT trading platform. For example, AI algorithms could be used to predict market trends and inform trading decisions.



VII. CONCLUSION

The non-fungible token (NFT) marketplace is a rapidly evolving ecosystem with significant potential for growth and innovation. Studies analyzing various aspects of the NFT marketplace, such as transaction volume, price levels, market capitalization, and user behavior, have shown that it is a vibrant and dynamic space with many different players and factors influencing its development. The emergence of NFTs has created new opportunities for creators, artists, and collectors to exchange value and engage with digital assets in new ways. As the technology and infrastructure supporting the NFT marketplace continues to improve, it is likely that we will see further growth and development in this space. However, as with any emerging market, there are also risks and challenges associated with NFTs, such as regulatory uncertainty and concerns around the environmental impact of their underlying blockchain technology. It will be important for stakeholders in the NFT ecosystem to work together to address these challenges and ensure that the marketplace remains sustainable and accessible for all participants.

REFERENCES

1. Lennart Ante, “Non-fungible token (NFT) markets on the Ethereum blockchain: Temporal development, cointegration and interrelations”, 2021
2. Bryan White, Aniket Mahanti, KalpdramPassi, “Characterizing the OpenSea NFT Marketplace”, 2022
3. Kristin Cornelius, “Betraying Blockchain: Accountability, Transparency and Document Standards for Non-Fungible Tokens (NFTs)”, 2021
4. Christian Pinto-Gutiérrez, Sandra Gaitán, Diego Jaramillo and Simón Velasquez, “The NFT Hype: What Draws Attention to Non-Fungible Tokens?”, 2022
5. Mieszko Mazur, “Non-Fungible Tokens (NFT). The Analysis of Risk and Return”, 2021
6. Ben Chester Cheong, “Application of Blockchain-enabled technology: Regulating non-fungible tokens (NFTs) in Singapore”, January 2022
7. Andrei-Dragos Popescu, “Non-Fungible Tokens (NFT) – Innovation beyond the craze”, 2021
8. Kishore Vasan, Milán Janosov & Albert-László Barabási, “Quantifying NFT-driven networks in crypto art”, 2022
9. Gang Wang, Mark Nixon, SoK, “Tokenization on Blockchain”, 2021
10. Dipanjan Das, Priyanka Bose, Nicola Ruardo, Christopher Kruegel, Giovanni Vigna, “Understanding Security Issues in the NFT Ecosystem”, 2022
11. Dinuka Piyadigama, Guhanathan Poravi, “An Analysis of the Features Considerable for NFT Recommendations”, 2022
12. Diptiben Ghelani, “What is Non-fungible token (NFT)? A short discussion about NFT Terms used in NFT”, 2022



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