International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 11 | November - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

NFT MARKETPLACE

Sahil Jagtap, Prof. Megharaj Patil, Tanish Kale, Kiran Kale

[1]*Sahil Jagtap Department of Information Technology, G.S. Moze College of Engineering*
[2]*Prof. Megharaj Patil Department of Information Technology, G.S. Moze College of Engineering*
[3]*Tanish Kale Department of Information Technology, G.S. Moze College of Engineering*
[4]*Kiran Kale Department of Information Technology, G.S. Moze College of Engineering* [5]

Abstract – This NFT, abbreviated for "non-fungible tokens", are digital assets that are representative of physical or digital creative work or intellectual property including music, digital art, games, gifs, video clips and more. "Nonfungible" in NFT means that each token is not exchangeable with another token, making each token a unique entity that represents a single specific object. These tokens consist of digital information in the form of media (music, video, image) the value of which can be calculated in terms of cryptocurrencies. The NFTs are part of the Ethereum blockchain in particular but differ from Ethereum coins which are fungible, that is, exchangeable with similar types of assets. Rapid technological advancements and its growth are accompanied by increased security risks including those of authenticity. The uniqueness and nonfungibility of NFTs minimizes, if not completely eradicates, the problem of authenticity and counterfeits to a large extent by means of a digital signature of the owner incorporated in each token such that an asset is easily traceable to its owner. Furthermore, it also addresses the problem of the customers being deceived into buying counterfeit items e.g., tickets or artwork. Buyers can easily trace the items on sale to owners, thereby ensuring a legitimate purchase. Moreover, the introduction of NFTs is opening new avenues for artistic businesses that previously found it challenging to establish online markets in an era of internet-based businesses due to the lack of exclusive ownership .

Key Words: *Blockchain; NFT; Ethereum;*

1.INTRODUCTION

Non-fungible tokens (NFTs) are unique digital assets traded on NFT marketplaces. They differ from fungible tokens like cryptocurrencies in that each NFT is one-of-a-kind and has a distinct value. NFTs have opened up new revenue streams for creators to offer something rare and exclusive to their fans.

Most NFTs are digital, and some of the most popular examples include Jack Dorsey's first tweet and the viral animation 'Nyan Cat.' In 2020, the NFT market was worth $250 million, with a growth rate of 299% according to a report by L'Atelier BNP Paribas and nonfungible.com. Additionally, NFT marketplaces have been successful in generating over $1 billion in sales, according to Crypto Slam.

NFT marketplaces provide a secure and transparent platform for buying, selling, and trading unique digital assets.

They allow creators to showcase their work to a global audience and monetize their creations through the sale of NFTs. Specialized NFT marketplaces cater to specific niches, making it easier for creators to target their audience.

Overall, NFT marketplaces have transformed the digital art and collectibles market, offering new opportunities for creators to monetize their work and for buyers to acquire unique, collectible digital assets.

2. Body of Paper

2.1 Objective

The objective is to give the world a digital product that is unique. It is a one-of-a-kind asset that has no other copies. Ethereum is the leading blockchain and many others can implement their own NFTs. Non-Fungible Tokens can be anything from games to digital items. The main aim of this project to give artists and other such people a place where they can show their work and make profit out of it without having to worry about security.

2.1 Proposed System

Our NFT marketplace's UI is its "face" by which the users will judge its appeal and user-friendliness. So we will develop the UI carefully based on our target audience's preferences and usability principles. NFT marketplace means a virtual shopping center that offers collectors and artists boundless tokenization and purchase of programmable digital goods, such as: Digital art, Gaming items, Collectibles etc. You can't create an NFT marketplace without the function of NFT minting. The minting algorithm should also include robust safety testing, end-to-end encryption, and domain name creation to make the NFTs unique and operational. It will have maps to locate NFTs. It's possible to build personal goods with the help of the inserted minting instrument. There are different types of sales that can take place in an NFT marketplace:

1. Fixed Price Sale: In this type of sale, the seller lists the NFT for a fixed price. Other users can directly purchase the NFT by paying the amount specified in the NFT details.
2. Auction: In an auction sale, the seller lists the NFT for auction and specifies the minimum bid amount and duration of the auction. Users can bid on the NFT during the auction period, and the highest bidder wins the NFT. The owner of the NFT will transfer to the highest bidder only if the seller accepts the highest bid.
3. Hybrid (Auction & Fixed Price): In this type of sale, the seller lists the NFT for both auction and fixed price. The seller specifies the minimum bid amount, duration of the auction, and buy now price. Users can bid on the NFT during the auction period, but if a user purchases the NFT with the buy now price, the NFT will be immediately sold to the buyer, and the auction will be closed.

These different types of sales provide flexibility for sellers to choose the most suitable method to sell their NFTs and offer buyers multiple options to purchase the NFTs.
The process for Bidding and Buying on an NFT in an NFT marketplace is as follows:

1. User selects the NFT they want to buy or bid on.
2. User connects their Meta mask wallet to the marketplace.
3. If it is a fixed-price sale or hybrid sale, the user can buy the NFT by calling the Buy token function and paying the listed price. If it is an auction, the user can bid on the NFT by calling the Bid Token function and specifying their bid amount.
4. User signs the transaction and sends it to the blockchain.
5. An event is triggered, which updates the owner of the NFT in the marketplace's database.

Owners of NFTs can remove them from sale at any time, which means that no one can purchase or bid on them anymore.

In addition to buying and bidding on NFTs, users can also create and update collections. Collections are used to group NFTs with similar traits, making it easier for users to browse and search for NFTs. Users can assign their owned NFTs to collections, and collections can exist in the marketplace's database for easy browsing and searching.

Finally, it is useful to keep a copy of the NFTs' metadata in the marketplace's database, in addition to the IPFS. This makes it easier for users to browse and search for NFTs by various criteria, such as title, category, and collection. Different views can be created to list the NFTs and make them easily discoverable for users.

2.3Technologies used :

1) Solidity: Solidity is an object-oriented programming language created specifically by the Ethereum Network team for constructing and designing smart contracts on Blockchain platforms. In this hardhat is used by developers to create machine-level code and compile it on the Ethereum virtual machine (EVM). It is like programming languages like C and C++ and is easy to learn and understand. For instance, in Solidity programming, a “contract” plays a role like a “main function” in C. Solidity also shares many fundamental programming concepts with other programming languages, such as variables, functions, classes, arithmetic operations, and string manipulation. These concepts enable developers to build powerful and complex smart contracts that can interact with the Ethereum blockchain. By leveraging these features within the Hardhat environment, developers can create sophisticated dapps with ease.

2) Hardhat: Hardhat is a development environment designed for developers to efficiently test, compile, deploy, and debug Web3 applications or dapps based on the Ethereum blockchain. By using Hardhat, developers can effectively manage many of the necessary tasks involved in developing dapps and smart contracts. Additionally, Hardhat automates some of these steps, saving developers time and providing new, useful functions. Overall, Hardhat is a comprehensive solution for developing and deploying dapps on the Ethereum network. It's a flexible and extensible task runner that helps you manage and automate the recurring tasks inherent to developing smart contracts and dApps.

3) React: React is a JavaScript library that specializes in helping developers build user interfaces, or UIs. In terms of websites and web applications, UIs are the collection of on-screen menus, search bars, buttons, and anything else someone interacts with to USE a website or app. React is a front-end JavaScript library. React can make API calls (sending the request to the backend), which deal with the data. React cannot process the database or the data source itself.

4) Vs code : Visual Studio Code is a free and versatile code editor that enables users to quickly start coding. It supports multiple programming languages, making it possible to code in any language without having to switch editors. The source-code editor is highly flexible and can be used with a wide variety of programming languages, including C, C#, C++, Fortran, Go, Java, JavaScript, Node.js, Python, Rust, and many others. Visual Studio Code is built on top of the Electron framework, which is a popular tool for developing Node.js web applications that run on the Blink layout engine. This allows for a seamless

and intuitive development experience across multiple programming languages and platforms.

5) Pinata: Pinata is a blockchain-based record facilitating and content dissemination stage that uses the Interplanetary Document Framework (IPFS) and the Ethereum blockchain. Piñata permits clients to store and disperse content on a decentralized organization, and that implies that records are not put away on a focal server yet rather on an organization of PCs. Pinata utilizes IPFS to store and disperse content, which gives a more productive and savvy method for putting away and disseminate huge documents. IPFS is a distributed convention that considers decentralized record capacity and sharing. Pinata likewise utilizes the Ethereum blockchain to give extra highlights like substance adaptation and decentralized proprietorship. Content makers can adapt their substance utilizing digital money installments, and the responsibility for content is followed on the blockchain. Piñata has an easy-tounderstand interface and can be utilized by anybody with a web association. Especially helpful for engineers need to disseminate their product or for content makers who need to adapt their manifestations in a decentralized manner.

3. CONCLUSIONS

The NFT marketplace is a new platform that facilitates the buying, selling, and trading of digital works. With the rising popularity and valuation of cryptocurrencies, is it is very clear that the demand for NFT marketplaces and the blockchain network will continue to grow in the coming years. As a result, it is crucial to establish legal authorities to manage and regulate these marketplaces in a centralized manner. This step has the potential to revolutionize the future of NFTs. The emergence of these marketplaces will create an entire industry, generating employment opportunities for individuals and providing artists, musicians, designers, and other creatives with a platform to showcase their work. This will lead to the production of better-quality work, which is beneficial for everyone in the long run.

As we know from all the recent reports that NFTs have a huge potential to grow. In the past several years it has grown exponential becoming a billion-dollar market and becoming more popular day by day. It has a huge potential to become even greater in the long run and reach heights which we cannot even fathom.

Based on our understanding of marketplaces, we can anticipate a smoother user experience that incorporates algorithms to direct users' exploration and provide personalized recommendations based on their preferences. Each time a user logs in, their experience becomes more refined and intuitive, as the marketplace gathers innovative information about their behavior. The platform will evolve beyond being a simple product display, allowing brands to share their story and build their community.

In 2021, NFT sales amounted to an astounding $17.6 billion, with the potential to become a trillion-dollar market in the future. As a result, investing in these marketplaces is an opportunity not to be missed, as they have the potential to rival large conglomerates in terms of size and revenue. These marketplaces will become similar to other e-commerce giants like Amazon and Flipkart, but instead of selling physical goods, they will trade digital goods.

REFERENCES

1.Zhanwen Chen, Kazumasa Omote : Towards achieving anonymous NFT trading.
Faculty of Engineering, Information and Systems, University of Tsukuba, Tsukuba 305-8573, Japan 2National Institute of Information and Communications Technology, Koganei, Tokyo 184-8795, Japan;
2. Alexandre C. Moreaux, Mihai P. Mitre : Royalty-Friendly Digital Asset Exchanges on Blockchains
SAMOVAR, Télécom SudParis, Institut Polytechnique de Paris, 91120 Palaiseau, France