



Decentralized NFT market place with custom token

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Abstract – The non-fungible token industry holds tremendous potential, making the development of NFT marketplaces a promising opportunity. We have built decentralized NFT marketplace where people can buy and sell their non-fungible tokens for a custom ERC-20 token.

Traditional market places let the seller sell the NFTs in exchange to their choice of token which customer may do not have at that time. To purchase that NFT, he or she first must swap that token on different website or place with the token for which the NFT is listed for and then buy that NFT. Our NFT marketplace makes the process easy by introducing our own token which the customer can buy on the same marketplace. This would save the time and efforts of the customer and give seller a wide range of audience.

Keywords - NFT, Blockchain, Custom Token, Decentralized Networks.

I. INTRODUCTION

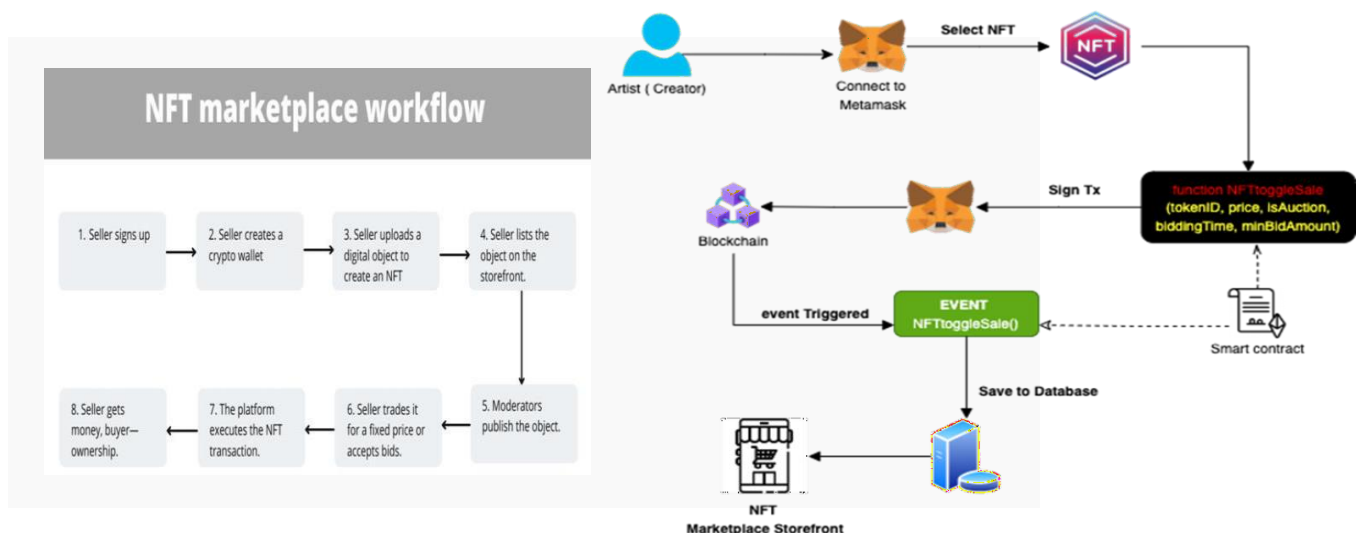
In traditional marketplaces, the seller chooses in which cryptocurrency or we can say in which token he or she wants to sell their NFT. Be it Ether, Solana, Polygon, Bitcoin, or any other token This can limit the customer with a different token from buying the NFT. To buy an NFT, the customer would have to first swap their token with the token of seller's choice and then buy it. It can delay the process of buying or customer even cancel it. Also, this can narrow down the number of customers who are willing to buy that NFT. In this scenario, both seller and customer may face difficulties to perform transactions.

To solve the problem above mentioned, we came up with following solutions:

To develop a custom token that can be used to perform transactions on the marketplace

To design a mechanism which can swap other cryptocurrencies with our custom token to increase the ease of buyer and seller.

II. SYSTEM ARCHITECTURE





III. RELATED WORK

This platform allows you to establish immutable evidence of digital ownership of digital assets such as shares, content, art forms, real estate, and so on. Trained non-fungible token resources and support are used to create tokens on contract-driven blockchain networks. The generation of tokens on this platform guarantees utmost transparency and simplifies the process of maintaining platform liquidity. It uses a unique identification protocol that adds value to the diversification of smart contracts. The token verification protocol is simple and stable, allowing for a faster launch to market.

Features tailored into the development of this platform are:

- Programmable equity
- Fictionalization of larger assets
- Increase in liquidity
- Automated SEC compliance
- Secure wallet
- Global capital investment
- Greater market efficiency
- No intermediaries
- Customized blockchain
- Tailored smart contracts

IV. ALGORITHM SHA-256 ALGORITHM

The National Security Agency developed SHA-2 (Secure Hash Algorithm 2) in 2001 as a replacement for SHA-1. The SHA-256 algorithm is one variant of SHA-2. A 256-bit value is produced by the patented cryptographic hash algorithm SHA-256. 1] Blockchain relies on the Sha-256 algorithm to produce a consistent hash size of 256 bits each time. Another component of encryption technology is this algorithm. Let's check out the operation of this algorithm now: This contains some 256-bit data, referred to as IV. Now, the input we receive will be enormous. Therefore, divide it into 512 bits. 2] Because the input will never be a perfect multiple of 512 bits, some input will always be missing. 3] We add 10 bits of padding to the left input before concatenating it. Now that our input is a perfect multiple, we may go on. 4] 256 bits of IV are now added to the 512 bits of input to create a total of 768 bits. These 768 bits are compressed using function "c" to produce an output of only 256 bits. 5] This 256-bit output is once more combined with 512-bit input from block B2. In order to get a 256-bit output, the sum is once more run through the compression method. The final block is filled by this loop (block n). 6] Once more, a compressing procedure begins and produces a final output of 256 bits, or what is known as a hash of the input data.

Tailwind CSS:

Tailwind CSS represents an advanced utility-first CSS framework that facilitates the swift creation of highly tailored user interfaces. It serves as a flexible and low-level CSS framework, providing all the essential building blocks necessary for creating unique designs, free from any rigid and overriding styles that may hinder the development process.

The beauty of this thing called Tailwind is it does not impose design specification or how your site should look like, you simply bring tiny components together to construct a user interface that is unique. Tailwind CSS operates by taking an initial "raw" CSS file and seamlessly processing it through a configuration file, resulting in a refined output that aligns with the desired specifications.

ERC-721:

The ERC-721 standard revolutionizes the concept of non-fungible tokens (NFTs), defining them as unique entities that possess distinct value compared to other tokens within the same Smart Contract. This value can stem from various factors such as age, rarity, and even visual characteristics. Surprisingly, visuals play a crucial role in NFTs. Each NFT is associated with a uint256 variable known as tokenId, ensuring global uniqueness when paired with the contract address. As a result, decentralized applications (DApps) can leverage this uniqueness to create captivating visual representations. "converter" These visuals can range from captivating images of zombies, weapons, and skills to delightful depictions of adorable kitties.

**Hardhat:**

Hardhat is a development environment for Ethereum software. This comprehensive ecosystem encompasses a range of essential components that seamlessly integrate to facilitate the smooth editing, compiling, debugging, and deployment of your smart contracts and decentralized applications (dApps). By providing a cohesive environment, Hardhat empowers developers with a complete toolset to streamline the entire development process and maximize efficiency.

Metamask:

Metamask is a free web and mobile crypto wallet that allows users to store and swap cryptocurrencies. With Metamask, individuals gain access to a thriving Ethereum blockchain ecosystem, facilitating their interaction with various decentralized applications (DApps). As one of the most extensively utilized crypto applications globally, over ten million active monthly users logged into Metamask in August of 2021. In earlier versions, Metamask was only available as a desktop browser plugin for Firefox and Chrome, but in September 2020, Metamask Mobile was released for both Android- and iOS-powered devices. Metamask quickly established itself as the standard bearer for self-managed, non-custodial crypto wallets — in part thanks to its user experience (UX) and frequent updates. It has played an important role in raising the standards of usability in blockchain and crypto technology, laying the foundation for the explosive growth of sectors like decentralized finance (DeFi) and non-fungible tokens (NFTs) by simplifying and streamlining the Ethereum user experience into one simple wallet interface.

V. RESULT

In this project we developed the frontend with Next.js and wrote 3 smart contracts using Solidity language and deployed it on Goerli test network. First smart contract is ERC-20 token which is our own custom currency for our marketplace. Then we wrote smart contract to swap that token with different tokens. And the third and the last smart contract in this project is the NFT marketplace smart contract which performs all the buying and selling transactions. Events that occur on smart contract are catches and indexed using Moralis NoSQL database. All of this is then connected with the frontend where people interact with our smart contracts. To access this, seller and buyer just need one Metamask account and some cryptocurrencies to buy and sell NFTs.

CONCLUSION

Like other physical markets, the marketplace for NFT is also a market, and the only difference is that it is a digital marketplace. Over the last few months, NFT sales have been through the roof. Using NFT crypto, anyone can buy or sell any Digital Assets or NFT tokens here. This marketplace is also used to store, display, or show trading and create NFT tokens or any digital assets. NFT marketplace is the new age marketplace for trading, selling, and buying digital works. With the growing popularity and increasing valuation of cryptocurrency, it is safe to assume that the marketplaces for NFTs and the whole blockchain network will stay in demand in the long run, which is why it is vital in recent times and the coming future.

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