NFT FOR SOCKET APP USING SHA512 ALGORITHM

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Abstract: The social media platform has served as an entry point for establishing connections, content sharing and social interactions for many users. Exploiting customer's information is very prevalent nowadays by gaining insight into user's habits, preferences, connections, behaviours, content and location. NFTs are tokens that we can use to represent ownership of unique items. They let us tokenize things like art, collectibles, even real estate. They can only have one official owner at a time and they're secured by the Ethereum blockchain – no one can modify the record of ownership or copy/paste a new NFT into existence. A problem occurs when metadata is exchanged along with messages, thereby providing an opportunity for third parties to steal the user's personal details. Blockchain-based social media provide more benefits than just security and privacy: Cryptocurrencies are used for secure communication by paying and buying content in peer-to-peer marketing. Blockchain assists in gaining control over the user's own content. Unlike cryptocurrencies, they cannot be traded or exchanged at equivalency. This differs from fungible tokens like cryptocurrencies, which are identical to each other and, therefore, can serve as a medium for commercial transactions. NFTs are unique cryptographic tokens that exist on a blockchain and cannot be replicated. NFTs can represent real-world items like artwork and real estate. "Tokenizing" these real-world tangible assets makes buying, selling, and trading them more efficient while reducing the probability of fraud. NFTs can also function to represent individuals' identities, property rights, and more.

I. INTRODUCTION

"NFTs are cryptographically secure tokens" found only on blockchain networks, and are one-of-a-kind. Real-world objects like art and real estate can be represented by NFTs. These physical assets can be "tokenized," which improves the efficiency of trading while lowering the risk of fraud. NFTs can be used to represent a variety of things, including people's identities and property rights. The exchange of metadata along with communications creates an issue because it gives outsiders a chance to obtain the user's personal information. By using SHA512 algorithm we are providing the security for NFT so that it can be kept on blockchain-based social media platforms, so it provides more advantages than only security and privacy: peer-to-peer marketing uses cryptocurrencies to pay for and purchase content in a secure manner. The Secure Hash Algorithm (SHA-512), which yields a fixed-size string, may hash text of any length. Each methods results a SHA-512 length of 512 bits (64 bytes). This method is normally used to hash passwords, emails, and to audit digital information. Blockchain technology also employs SHA-512, with the BitShares network offering as the most particularly notable example. For many users, the social media platform has been a starting point for making connections, sharing material, and engaging in social activities. Nowadays, it is quite common to use client information through learning about their habits, interests, connections, behaviours, content, and location. NFTs are tokens that could be facilitate to signify the possession of certain goods. We can tokenize items like works of art, valuables, and even real estate thanks to them. They are protected by the Ethereum blockchain and can only have one legitimate owner at a time; nobody can change the ownership record or create a new NFT by copying and pasting an existing one.

II. RELATED WORK

Beyond just being a collection of JPEGs with some themes, CrypToadz emerged from the blending of social commentary and meme culture. Gremplin's aquatic collection has drawn accolades from some of the top NFT investors and collectors, following in the footsteps of enduring memes like Pepe the Frog and Dat Boi. This collection was introduced on September 8 at a price of 0.069 ETH each item. As of the time of publication, the CrypToadz floor had increased to 5 ETH, and the collection as a whole has sold approximately $200 million worth of items.

The creative and brainstorming process that resulted in the creation of "Mekaverse" is also quite unique, since every project has a unique history. The Meka Team developed a deep interest in Japanese culture and the universe during their five-month stay in Asia, where they had the most fun. They use this initiative as a great source of inspiration that allows them to experiment with a number of factors in order to create a series of collectibles that may have immense future potential.

III. SYSTEM ARCHITECTURE
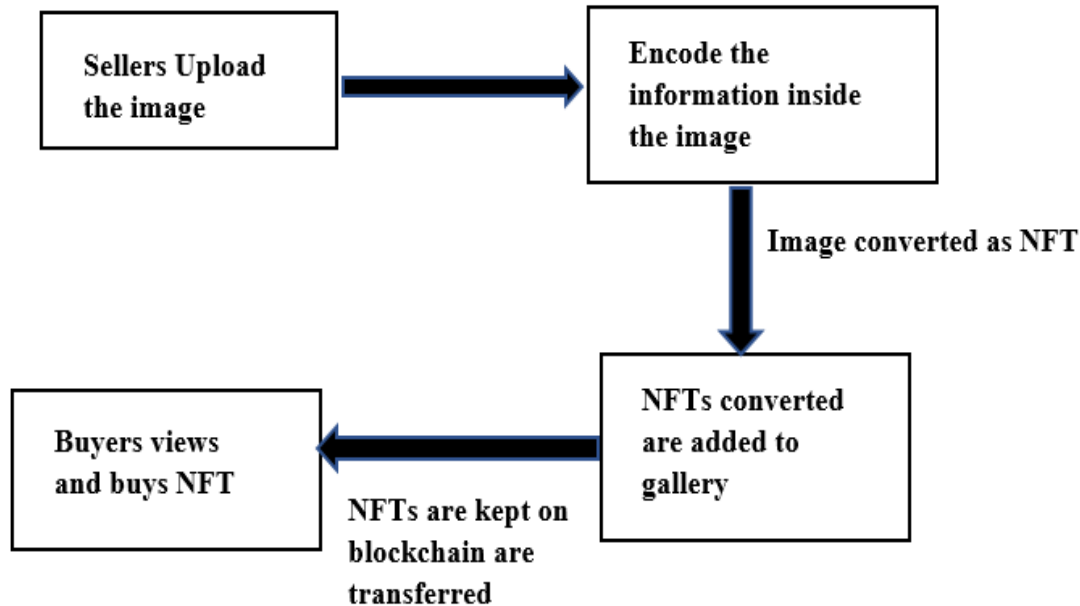
The user either the buyer or seller will register to the application using their Name, Password, Contact number, Email and other required credentials through this module. It should show message if the user already exists by referring to their email and username. When the user uploads the image, it will be converted to NFT and added to gallery. Encryption of images that are uploaded by the seller is done by using SHA512 algorithm SHA refers to the Secured Hash Algorithm which is used for encryption of image or an NFT it is one-way encryption. Given the emergence of quantum computers, it is theoretically plausible that SHA-512 may have a modest security benefit, even if a minor community choose to employ SHA-512, the likelihood of restricted miner adoption might result in serious security vulnerabilities including affordable 51 percent exploits due to low hash rates. The data encoded in the NFT and then it is encrypted using this algorithm before sending to the other end.

Modules

1. Register:
- Register module makes users to register themselves in this system by entering the required information and then setting the password for their account.

2. Login:
- Login module makes user to enter the Username and Password as he/she has given while registering themselves in this system.
- It checks if the given username exists or not if exist it checks the password if the password is correct, it checks user in else asks to enter the correct password and username.

3. NFT Gallery:
- NFT gallery contains the different NFTs along with their prices. It also contains the tools which helps to filter NFTs based on the amount of their price, categories, etc.

4. Encryption of images or art:
Encryption of images that are uploaded by the seller is done by using SHA512 algorithm SHA refers to the Secured Hash Algorithm which is used for encryption of image or an NFT it is one-way encryption. The data must be encoded in the NFT by converting the data to be hidden to its binary format and it has to be encoded in pixel data of an image and it also has a private key.
 The NFT which contains the data must be encrypted using this algorithm before sending to the other end, this process is achieved by using the id which is chain-id it is used to encrypt the NFT in block-chain and keep track of it.

5. Decryption of images or art:
To decrypt the data, we must use public key decryption algorithm. The encoded data must be decoded to get the information which is stored inside NFT image. To decode the data, we must have some technique and here we are using

the technique, which contains the key and based on that key we will decode the data. The key is called as public key, this key which says how the converted data should be decoded.
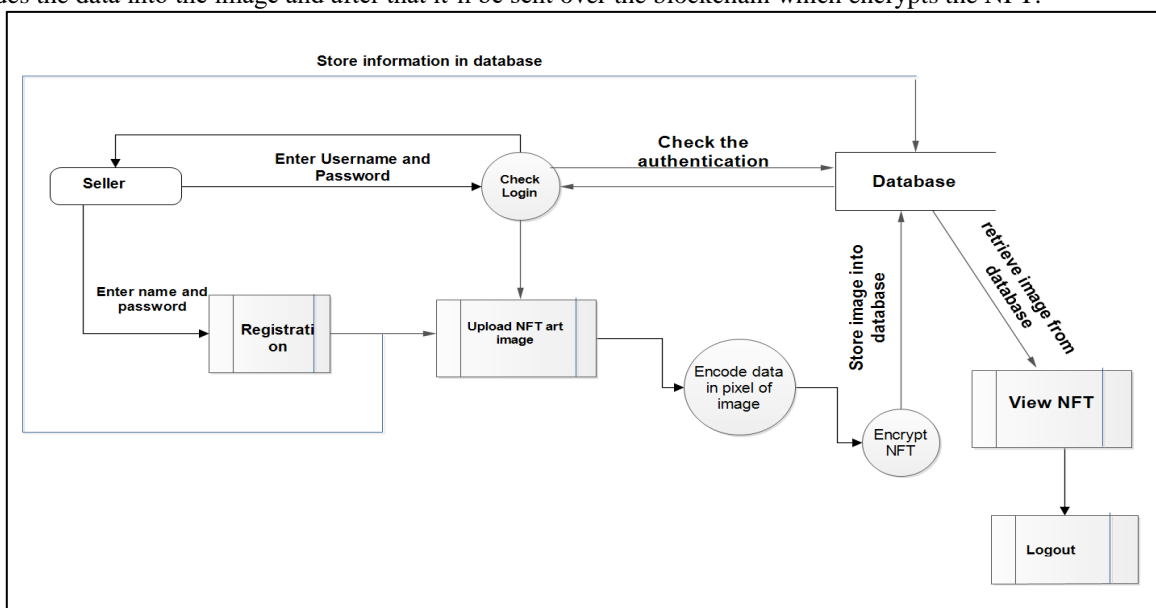
6. Buyer:

- Buyer is the one who is interested in buying the NFTs. He buys the NFTs according to his interests once after registering himself in this app.

7. Seller:

- Seller is the one who creates the NFTs. He could be the artist or the one who owns the original copy of the image he can set the minimal price and then can post it for sale.

Flowchart Implementation

Flowchart represents the flow of data in the system. In seller's module the system allows user to login or register himself as the seller and allows user to upload the image the user wants to make it as NFT. Once the user uploads the data it encodes the data into the image and after that it'll be sent over the blockchain which encrypts the NFT.

DFD of seller module
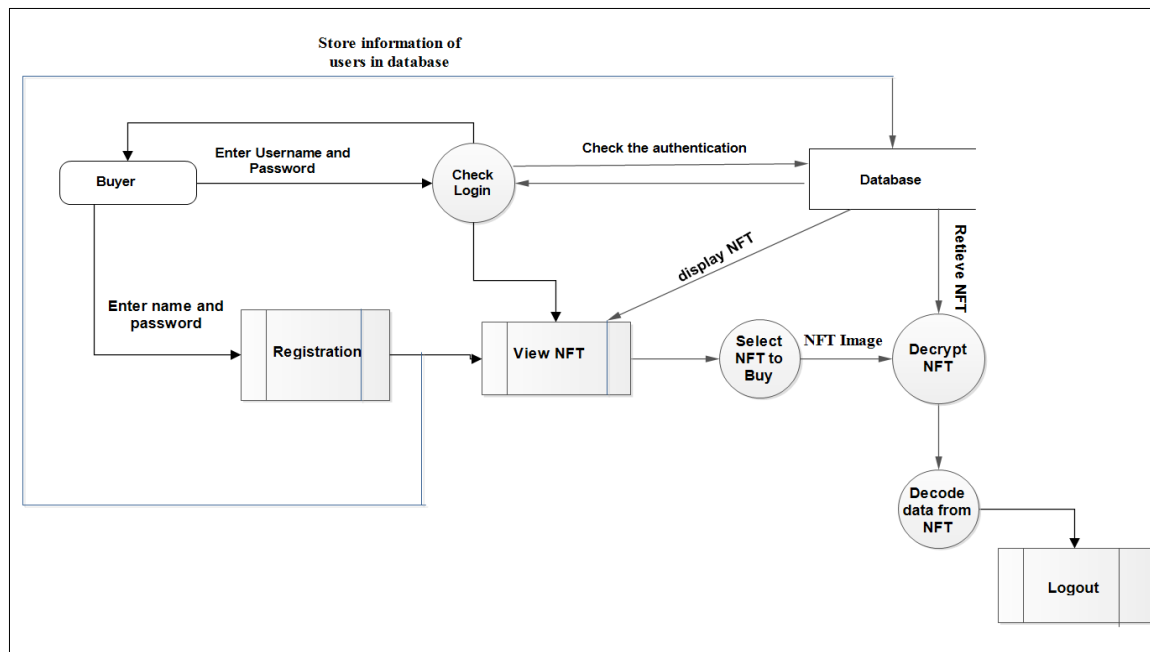
DFD of Buyer module

IV. BENEFITS OF PROPOSED SYSTEM

The application uses the technique which provides the secured way of transaction of NFT. It helps us to protect the data from malicious attack, MitM attack, and other type of cyber-attacks who want to steal the data while transferring from one end another end.

The system that has been developed provides the way for an artist or the creator who is interested in developing digital arts and they can earn from what they have created by uploading it as NFT. NFTs can be used as gaming characters or people can use them as avatars in their social media apps to represent themselves.

V. CONCLUSION

A 'Non-Fungible Token (NFT)' is a type of assurance of resources made out of information stored in digital format on a public ledger called a block-chain. NFTs can be bought, sold, and traded because the ownership of each one is tracked on the block-chain and transferable by the owner. In order for the respective owner to always be able to be found and make their claim, the NFTs contain information that demonstrates their uniqueness. They are regarded as electronic evidence of asset ownership because of their singularity and irreplaceability. These coins' ownership can be transferred and verified by block-chain technology. Examples include domain names, digital tickets, computer game items, and works of digital art. However, it is also possible to use digital evidence to prove who owns tangible items like paintings or other unique items.

Once the images and data are uploaded in the application the data will be encoded in the system and it will be encrypted and decrypted to transfer the data by using SHA512 algorithm. NFTs frequently make mention of digital media items like images, audio, and video. Unlike bitcoins, which are fungible, NFTs can only be identified once. An NFT's market pricing depends on the digital file it refers to. Since we created NFTs (Non-Fungible Tokens) utilizing the pixel data from a photo and block-chain technology, the technology offers a secure means of conducting NFT transactions.

REFERENCES

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2. https://Bored Ape NFT - Everything You Need To Know - NFI
3. https://What is NFT? How does it work, everything you need to Know! (nftically.com)

Books
[1] **Title:** The Sandbox Coin: The SAND ERC-20 Utility Token on the Ethereum Block-chain by **Thomas J. Taylor**
[2] **Title:** NFT for Beginners: Practical Guide to Create and Sell Non-Fungible Tokens (NFT Collection guides Book) by **Crypto Art AI**
[3] **Title:** The NFT Revolution - Crypto art edition: 2 in 1 practical guide for beginners to create, buy and sell digital artworks and collectibles as non-fungible tokens by **Crypto Dukedom**