

# Infinity Diaries: A Nft Marketplace

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**Abstract:** Non-fungible tokens, which are digital monetary assets that represent real objects, such as works of art or real estate. NFTs are units of data stored on a blockchain digital ledger that represent things like photos, videos, audio, and other intellectual property. NFT proves that digital assets are unique i.e. not interchangeable. Blockchain is a digital, distributed, consensus-based secure storage of information that is protected in a peer-to-peer network against censorship and tampering. It is a digital store that stores information in the form of transactions. It is distributed. So no one controls it. The consensus algorithm ensures security and immutability. When a new block is added to the blockchain, it is linked to the previous block by a cryptographic hash. The data is saved in chronological order. Anyone on the social network can see the transaction. Current blockchains store each node's transactions, but require higher security to show proof of ownership. Unlike fungible cryptocurrencies (i.e. bitcoin or ether), NFTs are distinct and carry unique metadata and codes on the blockchain. As the name suggests, the non-buoyancy of NFTs additionally makes them safer in business transactions. This project offers a decentralized application where we can create, save and sell our non-slingable tokens and share their status with friends.

**Keywords:** NFT, Blockchain, Ethereum, Decentralized Networks.

## I. INTRODUCTION

A decentralized application where we can create, register and sell our non-slingable tokens and also share their status with friends while sharing media files and messages on social networks. It is a platform where NFTs can be easily stored and sold.

These tokens can usually be purchased at a fixed price or auctioned off. In order to participate in the NFT marketplace, it is necessary to have a cryptocurrency wallet to store and trade your NFT tokens.

Users must create an account, upload digital artwork, and the marketplace serves as a platform to sell their work.

In general, specialty marketplaces are more popular than traditional marketplaces because they contain everything a customer needs, expertise in promoting artwork online, and focus on a specific target audience.

## II. LITERATURE SURVEY

Table 1 : Existing System - Theoretical and methodological contributions

Paper Details					
Sr.No	Paper Name	Author	Year Of Publication	Publication	Seed Idea
1	Enabling end-to-end digital carbon emission tracing with shielded NFTs	Matthias Babel, Vincent Gramlich, Marc-Fabian Körner, Johannes Sedlmeir, Jens Strüker, and Till Zwede	2022	<a href="#">Springer Open</a>	Applied cryptography community by demonstrating an implementation for shielded NFTs with fractional ownership, and of the energy informatics community by developing a new concept for applicable and target-oriented carbon dioxide emission tracing.

Date of Submission: 2 May 2023

Date of Acceptance :20 June 2023

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2	An NFT Marketplace's development and scope in the future of e-commerce	Apoorva Singh and Vibhor Sharma	2022	<u>IJCRT</u>	A decentralized universal NFT market based on Ethereum. Define the advantages of NFT marketplaces over traditional e-commerce marketplaces like Amazon.
3	Connect2NFT	Jagger Bellagarda & Adnan M.Abu-Mahfouz	2022	<u>MDPI</u>	A Web-Based, Blockchain Enabled NFT Application with the Aim of Reducing Fraud and Ensuring Authenticated Social, Non-Human Verified Digital Identity', the main functionality of this practical application will enable users to connect their Twitter social media accounts to the NFTs they own, thus ensuring that potential buyers or viewers of the NFT can comprehensively conclude who is the authentic owner of a specific NFT.
4	A NFT verification method for distributed AI system	Tong Zhang, Mingyan Song, Yue Sui, Hanlin Chen, and Jian Tan	2021	<u>IOP Science</u>	The blockchain model built by the distributed artificial intelligence system is based on the support of NFT. Ownership information can be included in smart contracts via tokens.
5	Non-Fungible Tokens as Core Component of a Blockchain-based Event Ticketing Application	<u>Ferdinand Regner, André Schweizer, and Nils Urbach</u>	2019	<u>AIS eLibrary</u>	A decentralized application presents a new way to create, manage, transfer, and track the ownership and usage rights involved. A prototype based on NFTs for a decentralized, blockchain-based event ticketing system that aims to replace the existing centralized ticket applications.
6	Non-Fungible Tokens (NFTs) in Additive Manufacturing	Alireza Jaribion, Adriaan Knapen, Jan Holmstr, Alberto Xamin and Siavash H. Khajavi	2019	<u>USF.EDU</u>	A Digital Tool for Enhancing IPR Protection', a prototype allows to reach a larger customer base and potentially higher sales by enabling us to quickly bring the products from design to the online market without IP concerns.

### III. BACKGROUND AND BASICS

The Non-Fungible Token or NFT market is one such market that acts as a public blockchain platform. However, despite its early days, the platform is gaining momentum and pushing developers and businesses to create a marketplace. NFT denotes non-fungible token. Digital artifacts that reflect real-world assets such as art, music, game merchandise, and videos are called NFTs. They are bought and sold digitally, sometimes using cryptocurrencies, and they are mostly encoded using the same procedures as many other cryptocurrencies. Blockchain is a peer-to-peer decentralized distributed ledger technology that makes the registration of any digital asset transparent and immutable, and works

without involving third-party intermediaries. It is an emerging revolutionary technology that has received a lot of public attention for its ability to reduce risk and fraud in a scalable way. Decentralized networks offer several advantages over traditional centralized networks, including increased system reliability and privacy. Additionally, such a network is easier to scale and has no true single point of failure. Blockchains are distributed due to shared communication and distributed processing. Blockchain's P2P architecture has several advantages, such as greater security compared to traditional client-server based networks. The distributed P2P network, coupled with the requirement for majority consensus, provides blockchains

with relatively high resistance to malicious activity.

**IV. WORKING MODEL EXECUTION FLOW**

In order to create a NFT Marketplace, smart contracts have to be created. So, following is the working execution flow of the NFT Marketplace.

- Setting up the goals and objectives for the NFT Marketplace.
- Conducting Feasibility Study and Literature Review.
- Creating Frontend, and setting up the details of smart contracts.
- Writing smart contracts for Transferring NFTs.
- Minting the NFTs on the marketplace.
- Connecting MetaMask as the crypto-wallet for the transactions.
- Deploy DAPP on the internet.
- Hosting on Ethereum Blockchain.
- Connecting Frontend and Backend with smart contracts.

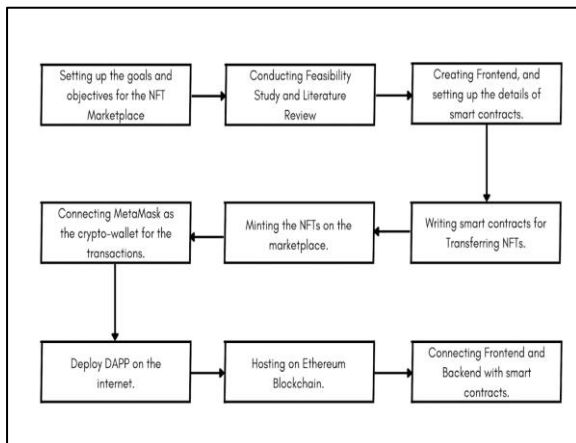


Figure 1: Working Execution Flow Diagram

**V. IMPLEMENTATION DETAILS OF MODULE**

**A. CLASS DIAGRAM:** System Backend Overview  
The class diagram represents all base classes in the backend. Details about the classes are as follows:

- The Admin and User classes inherit from the abstract Account class.
- The Collection Item and Listed Item classes inherit from the abstract Item class.
- There is a compositional relationship between the User class and the Item class.
- There is a compositional relationship between the Item class and the Transaction class.

- There is a compositional relationship between the Auction class and the Listed Item class.
- There is an association between the Tag class and the Item class.

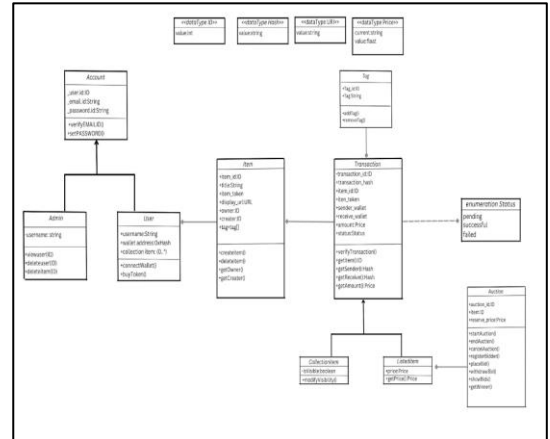


Figure 2: : Class Diagram of a NFT Marketplace includes Admin Class, User Class, Item class and their relationships. Also, the association between auction class, listed class, tag class and item class.

**B. ACTIVITY DIAGRAM: ARCHITECTURE OVERVIEW**

**• Metamask Wallet:**

MetaMask is a cryptocurrency wallet for interacting with the user interfaces of different web3 applications (eg DApps) and the regular web. What it does is inject a JavaScript library called web3.js into the namespace of every page loaded by the browser. Web3JavaScript, often abbreviated as "js," is a programming language that was not specifically created or developed by the Ethereum core team. However, JavaScript is commonly used in web development and can be used to interact with the Ethereum blockchain through various libraries and frameworks. MetaMask is primarily utilized as a web browser extension.

**• Nodejs Backend:**

This server contains all the business logic of NFT Bazaar. It communicates with the client through REST APIs, with the distributed file system using IPFS protocol and with the Ethereum Blockchain using the smart contracts. It also has a SQL database.

**• Distributed File System:**

It is a peer-to-peer network of devices that store files. Files uploaded by users for tokenization will be stored on this network. The backend can access this network

using the IPFS protocol. It is a distributed file system across multiple file servers or multiple locations. It allows programs to access or store quarantined files as if they were local files, allowing programmers to access files from any network or computer.

• **Ethereum Blockchain:**

This will save the NFT URL. It also stores all transactions performed by smart contracts and users. Ethereum is a type of blockchain platform that is decentralized and operates through a peer-to-peer network. One of its key functions is executing and verifying smart contracts, which are essentially application code that runs securely on the platform.

Smart contracts allow participants to transact with each other without the trusted central authority. Transaction records are immutable, verifiable, and distributed securely across the network, giving participants full ownership and transparency of transaction data. Transactions that are sent and received from Ethereum accounts created by users. The sender must spend Ether i.e. Ethereum's native cryptocurrency, to sign transactions and process them on the network.

• **Smart Contract:**

Smart contracts are scripts that automate the actions specific to a contract between two parties. Smart contracts permit trusted transactions and agreements to be carried out among disparate, anonymous parties without the need for a central authority, legal system, or external enforcement mechanism.

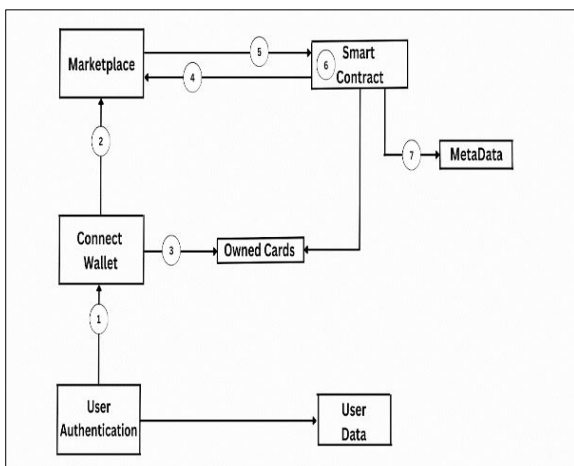


Figure 3: Activity Diagram of a NFT Marketplace

**C. DATA FLOW DIAGRAM OF PRELIMINARY MODEL**

The data flow diagram depicts the flow of data in the NFT asset purchase process. Here is some information on this subject:

- Users can filter or sort the results according to their preferences.
- The user selects an item of interest and requests to view it.
- On the view items page, users can request to purchase items.
- Payments are approved by user wallets.
- The amount is deducted from the user's wallet and added to the seller's wallet.
- NFT tokens are transferred to user wallets.
- All transactions have been added to the transaction database.

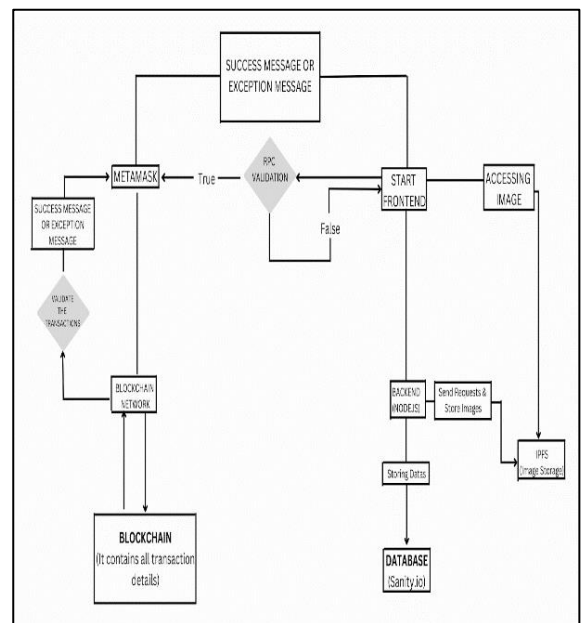


Figure 4: Data Flow Diagram of a NFT Marketplace

**D. SEQUENCE DIAGRAM**

Sequence diagrams describe the interactions between classes in terms of exchange of messages over a duration of time. The NFT Marketplace sequence diagram depicts the interaction between Artists, Sellers and NFT Marketplace. Here is the sequence in the NFT marketplace:

User creates request for new contract address NFT  
Admin accepts a listing request for a new contract address NFT

- User creates an order when selling his NFT
- A user creates a transaction to buy a sold NFT
- The owner of the NFT can cancel the sell order if he does not want to sell anymore

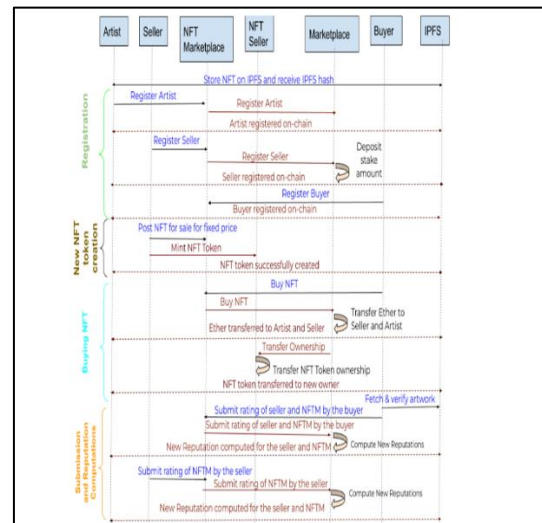
**E. BUSINESS RULES**

- Registration: Allow users to register personal accounts to store and manage digital assets.
- Visually appealing storefront: Key information specified here includes bid, value, owner, price history, preview, etc.
- Lists Creation: Allow users to build and send collectibles.
- Bidding option: This enables users to both purchase NFT items and bid on them.
- Sell & Share: They act as a secure place to get and share their digital assets.

**F. PROJECT PROCESS MODELING**

The term “agility” refers to the ability to move quickly and easily. Agile is a project management methodology developed as a more flexible and efficient way to bring products to market. Thus, agile methodologies allow project teams to make adjustments more quickly and easily than other project methodologies.

Agile Project Management, an iterative approach to project delivery that focuses on continuous releases that incorporate customer feedback. Agile project management makes sure that a project can be continuously improved throughout its lifecycle and react quickly. Agile has gained significant popularity in the field of project management due to its versatile nature, ability to adapt to changes, and emphasis on active involvement from customers

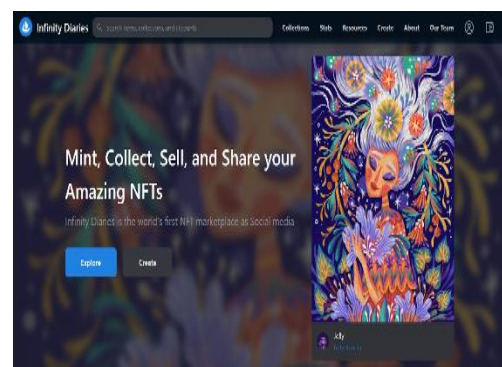


**Figure 5: Sequence Diagram of a NFT Marketplace**

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**VI. RESULTS**

**A. LAYOUT OF WEBPAGES AND SCREENS**



**Figure 6: Implementation and results**

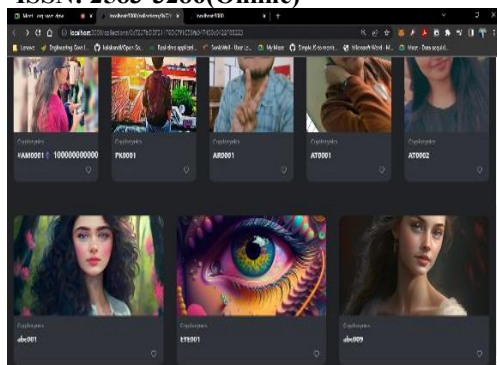


Figure 7: Implementation and results

## B. DETAILS OF NFT's:

Table 2 : Details of the NFTs minted on Infinity Diaries (Our NFT Marketplace)

S. N O	NAME OF THE NFT	NFT_I D	SELLIN G PRICE	NFT MINTE D
1.	DAYDREAMI NG	#AM01 08	0.78 ETH	
2.	TECHPOWER	#PK130 5	0.95 ETH	
3.	FUNROTATO R	#AR120 6	0.65 ETH	
4.	BELLAAMD A	#AK17 04	0.70 ETH	
5.	CHIQUITA	#AK04 17	0.54 ETH	
6.	BELLAMY	#EY092 3	0.48 ETH	
7.	EDITH	#BT101 0	0.91 ETH	
8.	AURORA	#ZC121 1	0.29 ETH	

## VII. LIMITATIONS AND EXCLUSIONS

As interest in NFTs grows, it's debatable whether the praise is warranted or just temporary hype. The increased use of technology coupled with a lack of research in this area is a knowledge gap. Therefore, analysing the application of digital art to NFTs to reveal potential advantages and disadvantages will help in understanding the use of this technology. Additionally, examining the underlying motivations and social norms that influence the use of technology will provide a broader understanding of its use. Creating an electronic copy of an original work, linking it to a token and selling it on an online marketplace is therefore very problematic. Once sold, there is no longer a link to the original, so the logo is associated with a fraudulent version.

## VIII. CONCLUSION

The growth of the NFT market is a new trend along with an increase in market value. Because of its attractive features, the network is attracting more and more users as its non-fungible tokens increase in value. The demand for NFTs is huge and constantly growing. However, while they may appear to have a lot of potential, you should be careful when investing in new dubious markets as they are highly volatile and subject to speculation. However, even if they were tokenized, almost any asset would not be worth investing in. Regardless of whether the blockchain determines the owner of an asset, the fundamentals of investing remain the same. Finding quality assets you want to buy and being prepared is your best bet as an investor. So, creating your own marketplace is very easy and now the NFT store is ready to welcome NFT fanatics, art lovers and celebrities.

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