International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 04 | April - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

Delta NFT Marketplace

Ravikumar Subodh Sharma[1], Prashant Awadhesh Mishra[2], Pappu Nandkishor Gupta[3,]

Sachin Rajmani Pal[4,]

[1-5]Department Of Computer Engineering, SLRTCE

Abstract - The emergence of Non-Fungible Tokens (NFTs) has revolutionized digital ownership and asset representation, extending its applications beyond the realms of art and collectibles to various domains, including research. This paper introduces Delta NFT Marketplace, which is a decentralized platform tailored specifically for the exchange of research assets, facilitating the dissemination, monetization, and collaboration within the academic and scientific communities.Delta NFT Marketplace enhance blockchain technology to provide transparency, immutability, and security to the exchange of research assets. Researchers can tokenize their intellectual property, scholarly publications, datasets, software, and other research outputs as NFTs, enabling unique digital ownership rights. The platform use smart contracts to automate transactions, ensuring fair compensation and attribution to creators.

Key Words: Decentralized, Tokenization, Smart Contracts, NFT(Non-fungible-token), Delta, Polygon, Pinnata, MATIC.

INTRODUCTION

Welcome to the Delta NFT Marketplace, a revolutionary platform at the forefront of the burgeoning NFT (Non-Fungible Token) ecosystem. Our marketplace offers a seamless and decentralized environment for creators and collectors to exchange unique digital assets securely. With a focus on transparency, authenticity, and innovation, Delta NFT Marketplace is poised to redefine the way digital assets are traded and valued. Join us as we embark on a journey to unlock new possibilities in the world of digital ownership and expression.

Literature Review

Findings (Problem , Technologies , method , process , etc.)	Conclusion
Stakeholders and Value in the NFT Ecosystem Towards a Multi-disciplinary Understanding of the NFT Phenomenon	Understanding Ethereum Blockchain , smart contracts various , Ethereum , tokens and exploring Dapps
Non-Fungible Toke (NFT) : Overview , Evaluation , Opportunities and Challenges	Understanding concept behind NFT's their recent spike in trends what makes them special , and exploring concept of digital ownership

Fig1

Proposed Methodology

To ensure a thorough understanding of stakeholder needs, we embark on comprehensive research and through this process, we identify both functional and non-functional requirements, encompassing aspects such as usability, security, scalability, and compliance.With requirements in hand, we proceed to develop conceptual and architecture diagrams. Our focus is on crafting an intuitive user interface (UI) and user experience (UX), while architecting a robust backend infrastructure that seamlessly integrates with blockchain networks and external services.In the development phase, we translate our designs into tangible solutions, following established best practices and coding standards. This involves the iterative implementation of smart contracts for NFT creation and management, alongside frontend components using web technologies and Web3 libraries for blockchain integration.Throughout development, we conduct rigorous testing to ensure the functionality, performance, and security of the platform.Once testing is complete, we prepare for deployment to production environments, meticulously configuring and securing all dependencies. Automated deployment pipelines facilitate the seamless deployment of application components to hosting environments, with thorough post-deployment checks confirming successful deployment and functionality.With the platform live, our focus shifts to ongoing maintenance and support. We establish processes for addressing bug fixes, implementing feature enhancements, and deploying security updates. User support channels are provided to address inquiries and issues promptly, while continuous monitoring ensures optimal performance and security posture.

Research Objective

The mission of our platform is to elevate the NFT trading experience by redefining the way users engage with digital assets. We aim to create a seamless and secure environment where individuals can buy, sell, and trade NFTs with confidence. At the heart of our vision is the empowerment of artists, providing them with a global stage to showcase their work and monetize their creations more effectively. Through our platform, artists can reach a broader audience and achieve greater financial success. Additionally, we are committed to setting new standards in user experience, security, and community engagement within the NFT marketplace landscape.

Research Significance

To Redefine the NFT trading experience, offering users a seamless and secure environment to engage with digital assets and to provide a space for artists to thrive, showcasing their work to a global audience and monetizing their creations more effectively. Setting up benchmarks for user experience, security, and community engagement, driving positive change in the broader NFT marketplace landscape. To shape the future of NFTs by integrating emerging technologies and trends, contributing to the ongoing evolution of digital ownership and to Encourage wider adoption of NFTs by offering a platform that appeals to both enthusiasts and newcomers, thus accelerating the mainstream acceptance of digital assets.

Research Framework

Creating a user-friendly online marketplace with intuitive navigation and features for buying, selling, and trading NFTs. Incorporation of robust security protocols to ensure safe transactions, data protection, and user privacy.To create tools and resources that empower artists to create, list, and promote their NFTs, fostering a collaborative and creative environment.The main focus is on creating a smooth and efficient user journey, from registration to transaction completion, to enhance overall satisfaction.Strategized launch of the platform, supported by targeted marketing efforts to attract artists, collectors, and enthusiasts.

Proposed Solution

The proposed solution for the Delta NFT Marketplace encompasses a multifaceted approach aimed at enhancing various aspects of the NFT trading experience while fostering growth and community engagement. At its core, the platform will introduce innovative features designed to streamline trading processes, improve asset discoverability, and foster seamless user interaction. Security measures will be paramount, with the implementation of robust blockchain-based authentication, encryption protocols, and multi-factor authentication to safeguard users' digital assets and personal information from potential threats. Moreover, Delta will prioritize the empowerment of artists by offering fair compensation, increased visibility, and tools for copyright protection, thus cultivating a supportive environment for creators to thrive. Community-building initiatives will play a pivotal role, with the platform fostering an inclusive ecosystem through social features, interactive forums, and educational resources. Transparency will be a cornerstone of Delta's operations, ensuring clear communication regarding fee structures, transaction history, and governance processes to establish trust and confidence among users. Furthermore, Delta remains committed to continuous innovation, adapting to emerging trends and technologies to ensure the platform's relevance and competitiveness in the dynamic NFT marketplace landscape. Through this comprehensive solution, Delta NFT Marketplace seeks to redefine the NFT trading experience, driving mainstream adoption and reshaping the digital asset ecosystem.

Use Case Diagram:

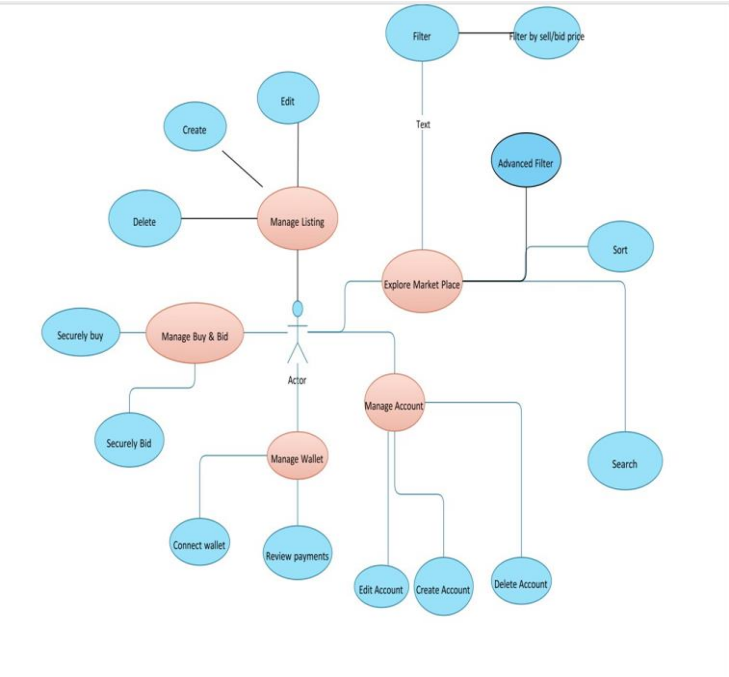

Fig 2-Use Case

Underlying Technology and Architecture

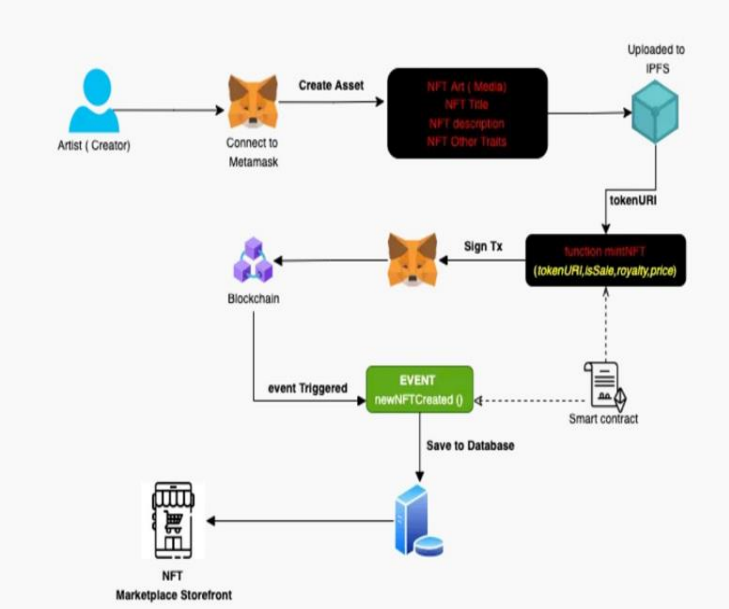

Fig 3-Architecture

The process starts with the creation of digital art.This could be an image, video, or any other form of digital content. Artists use various tools and software to create unique and visually appealing .The next process is NFT creation process which involves integrating with a blockchain network (such as Polygon). The NFT's metadata, ownership details, and provenance are stored on the blockchain. Smart contracts play a crucial role in NFTs. They define the rules for ownership, transfer, and royalties. When an artist mints an NFT, a smart contract is deployed to the blockchain. Minting refers to the process of creating an NFT from digital content. The artist uploads their artwork to the NFT platform, which generates a unique token associated with that content. Once minted, the NFT can be listed on an NFT marketplace. The marketplace provides a platform for buyers and sellers to interact, trade, and discover NFTs. The technology stack includes web servers, APIs, databases, and front-end frameworks. Web3 libraries enable communication with the blockchain. Users (artists, collectors, or enthusiasts) interact with the marketplace through a web interface. They can explore NFTs, place bids, and manage their collections. NFT marketplaces are often decentralized, allowing peer-to-peer transactions without intermediaries. Decentralization ensures transparency, security, and ownership control.

Implementation

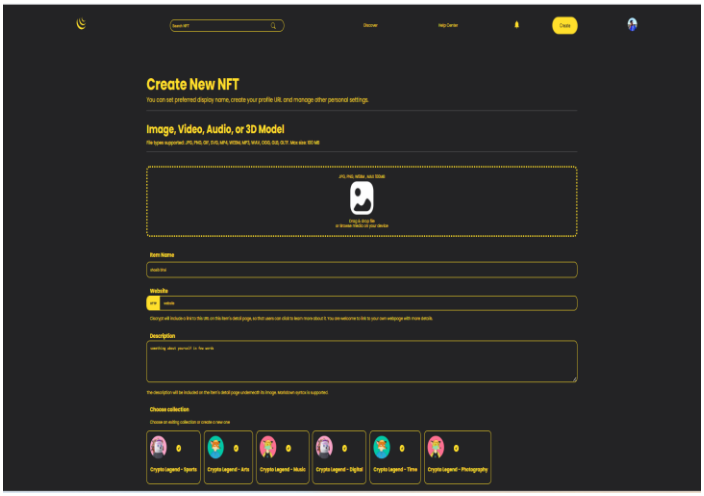

Fig 4-Create NFT's

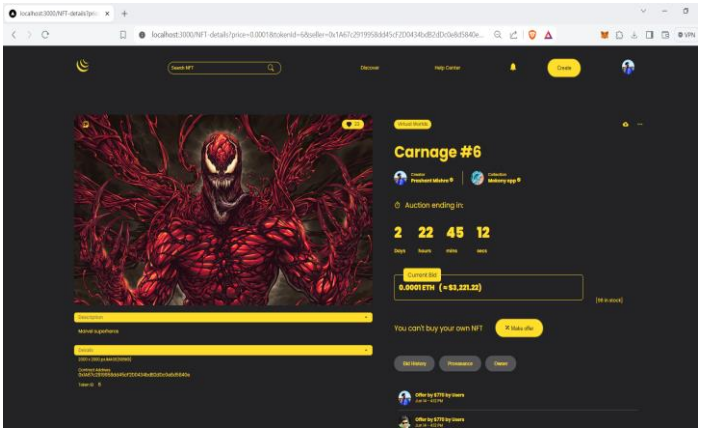

Fig 5-Created NFT

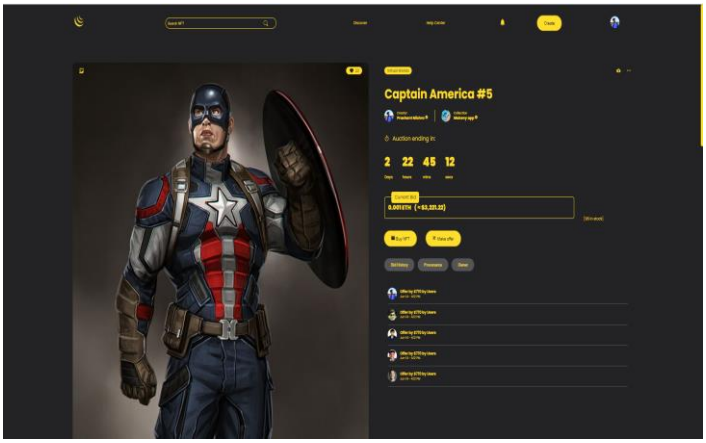

Fig 6-Buy NFT

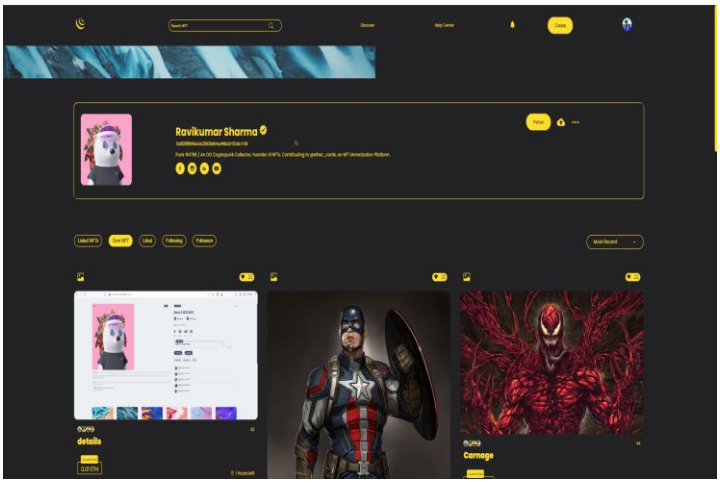

Fig 7-User Owned NFT's

Result

Paper	Author	Outcome
NFT Marketplace based on Ethereum Blockchain	Hellani, et.al	They have developed the marketplace on Ethereum Blockchain
Non Fungible Token	Qin Wang	It provide the recent spike in trends
Delta NFT MARKETPLACE	Ravikumar , Prashant	It have the developed the marketplace on Polygon Blockchain

CONCLUSIONS

In conclusion, the Delta NFT Marketplace represents a significant advancement in the world of digital asset trading and ownership. With its innovative features, robust security measures, and user-centric design, Delta aims to redefine the NFT trading experience and empower creators, collectors, and enthusiasts alike. By providing a seamless and secure platform for buying, selling, and trading NFTs, Delta fosters a vibrant community of artists and users, while setting new standards for transparency, authenticity, and engagement in the NFT marketplace landscape. Moving forward, Delta remains committed to continuous innovation, adaptation, and community-driven growth, driving the mainstream adoption of NFTs and shaping the future of digital ownership. Join us on this exciting journey as we unlock new possibilities and opportunities in the dynamic world of non-fungible tokens.

ACKNOWLEDGEMENT

We would like to extend our heartfelt appreciation to all individuals and organizations who have contributed to the development and success of the Delta NFT Marketplace project.

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BIOGRAPHIES

Ravikumar Subodh Sharma
Student at SLRTCE studying
Computer Engineering

Prashant Awadhesh Mishra
Student at SLRTCE studying
Computer Engineering

Pappu Nandkishor Gupta
Student at SLRTCE studying
Computer Engineering

Sachin Rajmani Pal
Student at SLRTCE studying
Computer Engineering