

Group 5 - AURASKY- NFT MARKETPLACE

Vision Document

Version 1.3

Group ID: 05

Project Name: NFT Marketplace - AuraSky

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Vision (Small Project)

1. Introduction

The purpose of this document is to collect, analyze, and define high-level needs and features of the AuraSky Project, an application for NFT Market. It focuses on the capabilities needed by the stakeholders and the target users, and **why** the needs exist. The details of how the Louvre application fulfills these needs are detailed in the use case and supplementary specifications.

The introduction of the **Vision** document provides an overview of the entire document. It includes the purpose and references of this **Vision** document.

1.1 References

Applicable references are:

1. <https://www.youtube.com/watch?v=4NNOPuePZw&list=PL3Bp9JDvkAra8rRrUPOpfKdKvJ6-okqaw&index=9>
2. <https://docs.google.com/document/d/1RSiQKB6W2izMIDeamPwO5bLQe7MZ-6Nv/edit>
3. <https://drive.google.com/drive/folders/1k83fLzYR6y1aKYmD9X6nPMkjUOAkzPbq>
→ PA1.PDF
4. https://courses.ctda.hcmus.edu.vn/pluginfile.php/117751/mod_resource/content/1/LN06%20-%20Requirements%20Engineering.pdf
5. https://courses.ctda.hcmus.edu.vn/pluginfile.php/117750/mod_resource/content/1/LN05%20-%20Software%20Requirements.pdf
6. https://courses.ctda.hcmus.edu.vn/pluginfile.php/116775/mod_resource/content/0/LN04%20-%20Project%20Management.pdf
7. <https://www.youtube.com/watch?v=mrUEZ5j--7M>
8. <https://www.linkedin.com/advice/0/whats-your-process-managing-product-requirements>
9. <https://www.slideteam.net/software-project-assumptions-and-dependencies.html>
10. <https://www.linkedin.com/pulse/what-stakeholder-requirements-keith-collyer-2e>

2. Positioning

2.1 Problem Statement

The problem of	creating a place to buy and sell unique NFTs from multiple blockchain networks
affects	the sellers and buyers, especially the ecosystem of the blockchain networks
the impact of which is	that the transactions could take longer and transaction fees go up,
a successful solution would be	use a smart contract to handle NFTs and selling/buying them.

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2.2 Product Position Statement

For	anyone
Who	is interested in crypto and NFTs.
The (product name)	AuraSky
That	creates a place where you can buy and sell NFTs like traditional markets.
Unlike	opensea.io
Our product	connects to multiple networks (ETH, BSC, Polygon,...).

3. Stakeholder and User Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Developing Team	Member of group 5	<ul style="list-style-type: none"> Ensures that the system will be as completed as possible within the limited time and maintainable in the future. Ensures that there will be a market demand for the product's features.
Supervisor	Mr. Ho Tuan Thanh	<ul style="list-style-type: none"> Monitors the project's progress. Give comments, advice and directions. Evaluate the developing team performance.
Content Creators	A person who acts as an intermediary between creators in the NFT marketplace. The mission is to create trends and generate ideas for users.	<ul style="list-style-type: none"> Continuously research and stay informed about current industry trends, audience interests, and emerging topics relevant to their content niche. Create high-quality content, which can include articles, videos, images, podcasts, or other forms of media, that are both informative and engaging.
Designer	People who design the user interface and user experience.	<ul style="list-style-type: none"> Guide the overall detailed design. Discover users' needs, preferences, and habits

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Project manager	A person who manages the project and leads the development of the team.	<ul style="list-style-type: none"> • Organize, plan, and execute projects according to schedules and budgets. • Responsible for the completion of the project.
Architecture	A person who plans and organizes the software structure.	<ul style="list-style-type: none"> • Responsible for the overall architecture of the software • Make high-level design choices. • Frame technical standards.
Business Analyst	A person who analyzes enterprise requirements.	<ul style="list-style-type: none"> • Forms business insights and recommends changes in businesses and other organizations. • Determine requirements and deliver data-driven to establish initiatives and strategies to optimize costs.
Mentor	A person who is more experienced in software development.	<ul style="list-style-type: none"> • Help developers improve job skills and overcome obstacles in different tasks. • Provide the right resources to grow and offer new perspectives
Tester	A professional responsible for assessing the quality and functionality of software products.	<ul style="list-style-type: none"> - Ensuring the quality and reliability of the software. - Conducting various types of testing (e.g., functional, regression, performance). - Identifying and reporting defects, - Collaborating with developers to resolve issues, - Maintaining test documentation and test cases, - Contributing to the improvement of testing processes and strategies.

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3.2 User Summary

Name	Description	Responsibilities	Stakeholder
Customers	View, sell, create, and buy and collect NFTs	<ul style="list-style-type: none"> - View, sell, create, and buy NFTs on the web. - Supply the trending data for the system to improve AI mode. - Collect and auction your NFTs. 	Self
Admin	Administrator for customer service, responding to customers' questions, solving the problem of the Aurasky web.	<ul style="list-style-type: none"> - Reply the question rapidly, and supply the correct information for the customers. Interact with the customers friendly. - Interacting with the developer of the system to solve the failure when receiving the reports. 	AuraSky Owner

3.3 User Environment

- There are four members in my team to complete the tasks, constantly from the beginning of the project to the end.
- A task cycle will last two weeks, containing a planning meeting, a reviewing meeting, and 2 supporting meetings. A meeting needs to be provided for at least 3 hours, complete the mission in a group of 4 members, not intercede to the execution task, observe and support friendly. In the working process, an additional meeting will be held if any team member needs support.
- The product will be executed in the format of a web application, and need a web browser to use this application.
- The system platforms are Microsoft Windows, Mac OS, and Linux. Users only need an Internet connection.
- Other applications we may use in the project are webflow.com to get the template for the web application, Apache Jmeter to test the system, and Trello to organize the workspace, schedule, and task assignment. Slack to interact with the other members.

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3.4 Alternatives and Competition

1. Rarible: might be the most recognizable digital marketplace in the industry. If you want a digital marketplace that has it all, Rarible is an excellent alternative to AuraSky. The platform breaks its NFTs into categories such as art, games, music, photography, domains, and many others.

- Another underscoring of its creator-first approach is Rarible's royalty fees. Creators can earn up to 50 percent for every secondary sale while the ones on OpenSea (and many other platforms, for that matter) are capped at 10 percent.
- Rarible has raised \$16 million in venture funding thus far, allowing it to hire around 150 people. Its RARI token currently has a market cap of \$20 million.a
- Top features of Rarible include:
 - Mobile application support
 - OpenSea integration
 - Uses RARI token for governance
 - Supports MetaMask, WalletLink, and Formatic wallets

2. Mintable: The second AuraSky alternative on our list is Mintable. This Singapore-based NFT marketplace launched in 2024 and allows users to buy, sell, trade, and mint NFTs to their heart's delight. You'll find plenty of categories available on Mintable, including art, games, music, and collectibles. Plus, Mintable now supports USD, so if you want to use fiat currency, Mintable could be the way to go.

- One of its key differentiators is that it provides (former) college athletes with the option to monetize their work. For example, it has worked with former Clemson quarterback Trevor Lawrence (now Jacksonville Jaguars) as well as NHL player Matthew Tkachuk to create digital collectibles.
- It also offers a variety of marketing services for creators. They can purchase a variety of packages that grant them exposure via email marketing or press releases, among other channels. Sellers University provides creators with the necessary information to get started creating and selling NFTs.
- The top features of Mintable include:
 - Lazy minting
 - Simple and easy-to-use website.
 - Live chat functionality through Discord.
 - Supports Ethereum and USD.
 - Customer store and advertising packages available.

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4. Product Overview

4.1 Product Perspective

The NFT marketplace is a standalone digital platform designed to facilitate the buying, selling, and trading of non-fungible tokens (NFTs) within the blockchain ecosystem. It operates independently of other systems or applications. The primary components of the NFT marketplace system include:

No.	Product Perspective	Description
1	User Interface	The user interface of the marketplace where users can browse, search, and interact with NFT listings.
2	Blockchain Integration	The platform interfaces with various blockchain networks to record and verify NFT ownership and transactions.
3	Payment Gateway	To facilitate transactions, a secure payment gateway is integrated for users to make purchases using cryptocurrency.
4	User Authentication	User authentication and registration processes are included to ensure secure and personalized access to the platform.
5	Content Management	The platform includes content management tools for users to create, upload, and list their NFTs.
6	User Wallets	Digital wallets are provided for users to store and manage their NFT collections.
7	Community and Social Features	The platform may include social features to enable user engagement and community building.

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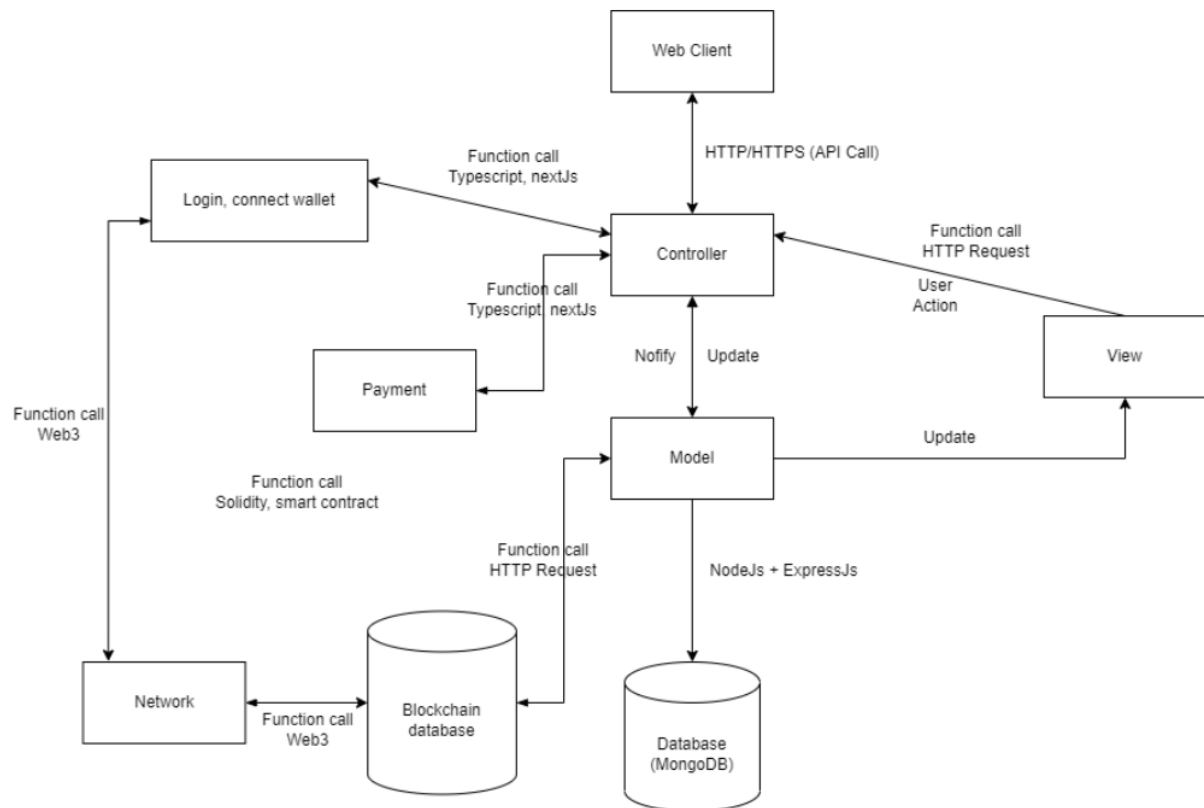


Figure 4.1.1 Diagram

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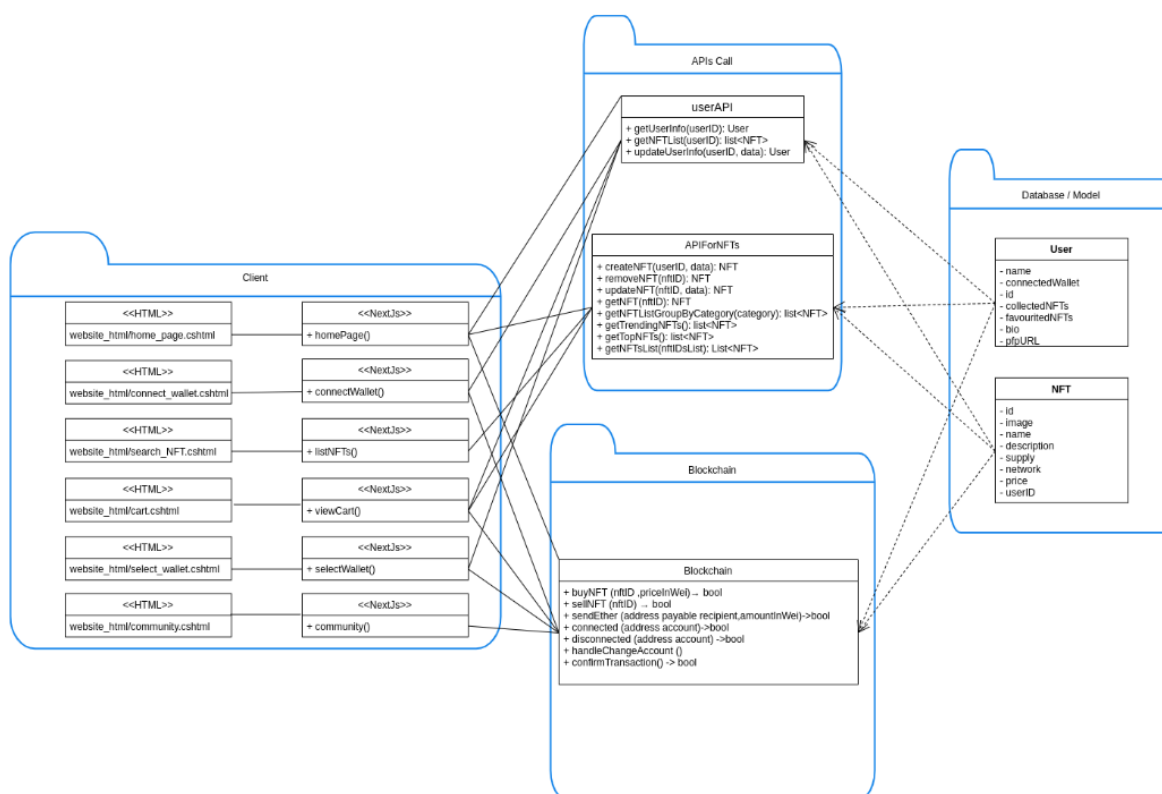


Figure 4.1.2 Overview

4.2 Assumptions and Dependencies

The successful realization of the NFT marketplace project relies on several key assumptions and dependencies, which, if altered, may impact the project's scope and objectives. These include:

No.	Assumptions and Dependencies	Description
1	Availability of Blockchain Technology	The project assumes that blockchain technology and networks required for NFT creation, storage, and transactions will remain available and operational.
2	Cryptocurrency Integration	The project relies on the continued integration and support of cryptocurrencies for transactions, and assumes the availability of required APIs and payment gateways.
3	Legal and Regulatory Compliance	Assumption that the project will adhere to evolving legal and regulatory requirements related to cryptocurrency, digital assets, and NFTs in the regions it operates.

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4	Scalability of Hosting Infrastructure	The project assumes that the hosting infrastructure can be scaled to accommodate increased user traffic and growing data storage requirements.
5	User Adoption and Engagement	The success of the NFT marketplace depends on user adoption and engagement; it assumes that users will actively participate in buying, selling, and trading NFTs.
6	Content Creation	The project depends on content creators and artists actively producing and listing NFTs on the platform.
7	Technological Stability	Assumption that the underlying technologies used, including smart contracts, will remain stable and secure.
8	Market Trends	The project's success is tied to market trends and evolving interests in NFTs. It assumes that it can adapt to changing user preferences and trends.
9	Availability of External Services	Dependencies on external services, such as digital wallets and identity verification services, are assumed to remain available and functional.
10	Compliance with Digital Wallet Providers	Assumption that digital wallet providers will continue to support NFT storage and transactions.

5. Product Features

No.	Feature	Description	Priority
1	Create and trade NFTs	<p>Users can create their own NFTs:</p> <ul style="list-style-type: none"> • Arts, paintings, profile pictures • Domain names • Songs and movies <p>and sell them on AuraSky Marketplace.</p> <p>Users can buy NFTs from other users or NFT creators with their crypto.</p>	High

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		If users own an NFT, they can sell or trade with other users at their desired price.	
2	Buy and keep NFTs in your collections NFTs	Discover a vast world of unique digital assets. Browse, bid, and purchase NFTs from a variety of categories, adding them to your ever-growing collection.	High
3	Authenticate user with Metamask wallet	Users connect their crypto wallet to AuraSky to keep their assets from trading NFTs on the marketplace. For security purposes, crypto wallets are also used for storing users' personal information on AuraSky by preventing hackers from stealing data from a centralized server.	High
4	Connect to multiple networks (ETH, BSC, Polygon,...).	We support multiple blockchain networks, enabling you to transact with NFTs on Ethereum, Binance Smart Chain, Polygon, and more.	Medium
5	View trending, the most searched, the most valuable NFTs.	Our platform allows you to explore trending NFTs, discover what's being searched for, and evaluate the most valuable NFTs, keeping you informed and inspired.	High
6	Stat the ranking and activities	Get insights into your NFT ranking and activities, empowering you to make informed decisions about your NFT portfolio and creations.	High
7	Ownership franchise to Partners	The ownership franchise feature lets you collaborate with others on NFT projects	High
8	Join our social networks and enjoy your virtual world	Collaborate with others on NFT projects, creating new possibilities for joint ventures and co-ownership	High
9	Main Page	By accessing AuraSky website, users can view multiple types of NFTs, NFT collections, and collectibles on AuraSky Marketplace.	High

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		Hot NFTs and most active collectibles ranking. Searching NFTs, collections, and collectibles are supported for users on AuraSky.	
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6. Non-Functional Requirements

No.	Non-Functional Requirements	Description
1	Scalability	The system can perform well enough even with large amounts of data in the database but may not if there are too many users at the same time (the system will work well enough with around 1 million users at the same time).
2	Security	The platform must ensure the security and privacy of users' NFTs and transactions. It should guard against fraud, data breaches, and cyberattacks.
3	Reliability	The system should be highly reliable, with minimal downtime and robust failover mechanisms to ensure uninterrupted access to NFTs and transactions.
4	Performance	The platform should provide fast response times for actions such as NFT listings, purchases, and transfers. It should also be able to handle high traffic loads efficiently.
5	Interoperability	The system should support various blockchain networks and standards to allow the exchange of NFTs across different ecosystems.
6	Usability	<p>- Effectiveness:</p> <p>+ The fields to be filled are well-defined and informative so that data entry errors will be reduced and the tasks will be finished correctly.</p> <p>+ The notifications and pop-up alerts are understandable enough to instruct users.</p>

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		<ul style="list-style-type: none"> - Efficiency: <ul style="list-style-type: none"> + The flow of transactions (such as order, billing, etc) is well-instructed with clearly-labeled buttons, for example, so that the customers know what they are doing. + The layout, navigation, and shortcuts need to have a common structure as other websites to match the environment customers are using. - Error tolerance: <ul style="list-style-type: none"> + Try to minimize the errors from occurring while users are using the product. Even when errors happen, try not to make users confused and solve problems quickly. + All navigation elements are clear and visible so the users can know where they are and where to go next. + The actions throughout every step need to be clear and consistent to reduce mistakes. - Easy to learn: <ul style="list-style-type: none"> + Updates are informed in advance so that users won't encounter unexpected changes. + Introduction for the first time, access to the new features is available.
7	Compliance	The platform should adhere to legal and regulatory requirements related to cryptocurrencies and NFTs in the regions it operates in.
8	Scalable Storage	The system should have the capacity to store and manage a growing number of NFTs and related metadata effectively.
9	Data Backup and Recovery	Regular backups of NFT data and transaction history should be performed, and a comprehensive disaster recovery plan should be in place.

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10	High Availability	The platform should ensure high availability, minimizing service interruptions, and providing continuous access to NFTs and services.
11	Auditability	The system should maintain detailed logs and audit trails of all NFTs transactions and activities for compliance and transparency.
12	Integration with External Services	The ability to integrate with external services, such as digital wallets, cryptocurrency exchanges, and identity verification services, is essential.
13	Load Balancing	Load balancing mechanisms should distribute traffic evenly across multiple servers or nodes to optimize performance and prevent overloads.
14	Geographic Redundancy	Geographic redundancy or data replication should be implemented to ensure data availability in case of regional outages or disasters.
15	Maintenance	All the code is pushed to GitHub to keep track of the workflow. All relevant members of a specific team need to understand the code. Documents are well-written and reviewed.
16	Resilience	Small failures will just require the users to refresh the site or wait for some time (around 5 seconds) before continuing to use the website. With bigger failures, the website would have enough features for users to get information on how the failure affected them.