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NFTs in AR

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Abstract: In the real world, we enjoy showing off our art collections through images and films to express our personalities and interact with others in the neighborhood. However, there aren't many methods in the NFT community outside updating the profile image for us to show others how much we love our collections. Adding any NFT to your camera is quite simple with this project. This merely needs an OpenSea connection to access the associated material because of the compatibility with web3. And whether it is 3D or 2D, a superb AR experience will be created based on the NFT. The NFT can be used as a background if it's a JPEG. However, if the 3D model is set up, you may control it by moving your body.

I. INTRODUCTION

The practice of adding digital information to the physical environment is known as augmented reality (AR). The greatest potential for applications to provide intense immersion and interactivity is undoubtedly augmented reality. Non-fungible tokens (NFTs), which use blockchain-based technology, have lately made their way into the technical world as a distinctive method of identifying ownership of a digital product. User Interface, often known as UI, is what controls how customers interact with your marketplace. Making User Experience (UX) better and more intuitive is the objective that is followed by high-quality, straightforward, and intelligible UI. This results in the user exerting the least amount of effort to get the desired result. The future of the digital world includes true digital ownership, authenticity, and identity. The value and speed of mass adoption depend not only on technological advances it also depends on how this digital future is integrated into the "real" physical world. • Extracting resources from NFT, integrating them into augmented reality, animating and rendering the 3D model to match the user's stance, and having the 3D NFT "dance" with the user. • To add a list of NFT's User owns, by connecting to the user's Metamask wallet and getting the user's address. We then use OpenSea APIs to fetch the user's owned NFTs on OpenSea.

II. LITERATURE REVIEW

A. *Background*

1) Ethereum Blockchain Ether (ETH), a cryptocurrency, and dozens of decentralized apps are powered by Ethereum (dApps). The Ethereum blockchain is a distributed, open ledger where transactions are collected into blocks by miners who complete Proof of Work (PoW) tasks using cryptography.

2) Non-Fungible Tokens (NFT) Tokens serve as representations of facts in the actual world, such as one's place in a line or permission to enter a building. Tokens are digital assets in Ethereum that are constructed on top of the blockchain. Tokens are implemented by specific smart contracts, as opposed to Ether, the native (built-in) money of the Ethereum network.

3) Web3 Considering all of our evidence, we provide the following assertion concerning Web3. In the Web3 age of computing, apps' crucial computations may be independently verified. We make it clear that this description is not the only way to describe Web3, but it captures its essential feature and has the two required traits of being general and quantifiable. To be more precise, it is not restricted to any overarching applications or supporting infrastructures.

4) Web AR One of the technologies that will alter the way we interact with our surroundings is augmented reality. It has been dubbed "the next big thing" by several analysts. Layers of visual information that provide context for what is in front of us may be seen through the camera on our phone, like a cereal box, a movie poster, a complicated engine room, a famous building's exterior, and more.

III. RESEARCH GAP

However, beyond the fact that there are first experimental use cases, a better comprehension of NFTs would be advantageous from the perspective of IS research in three key areas. First, a more thorough grasp of the overall traits of NFTs and how they vary from fungible tokens allow for a better comprehension of the advantages and possibilities that follow.

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Second, academics and practitioners stand to gain enhanced prescriptive knowledge about the procedure for creating and assessing applications based on NFTs. Thirdly, future researchers can better concentrate on resolving unsolved problems as a result of an enhanced understanding of practical obstacles. Unfortunately, academic researchers have not yet conducted comprehensive studies of NFTs that address these features. Further, the current body of knowledge lacks best practices, development project experience, and insights into blockchain-based software development. We conclude that there is a glaring research void. By proving the use of non-fungible tokens in a particular area, we want to close that gap.

IV. PROBLEM STATEMENT

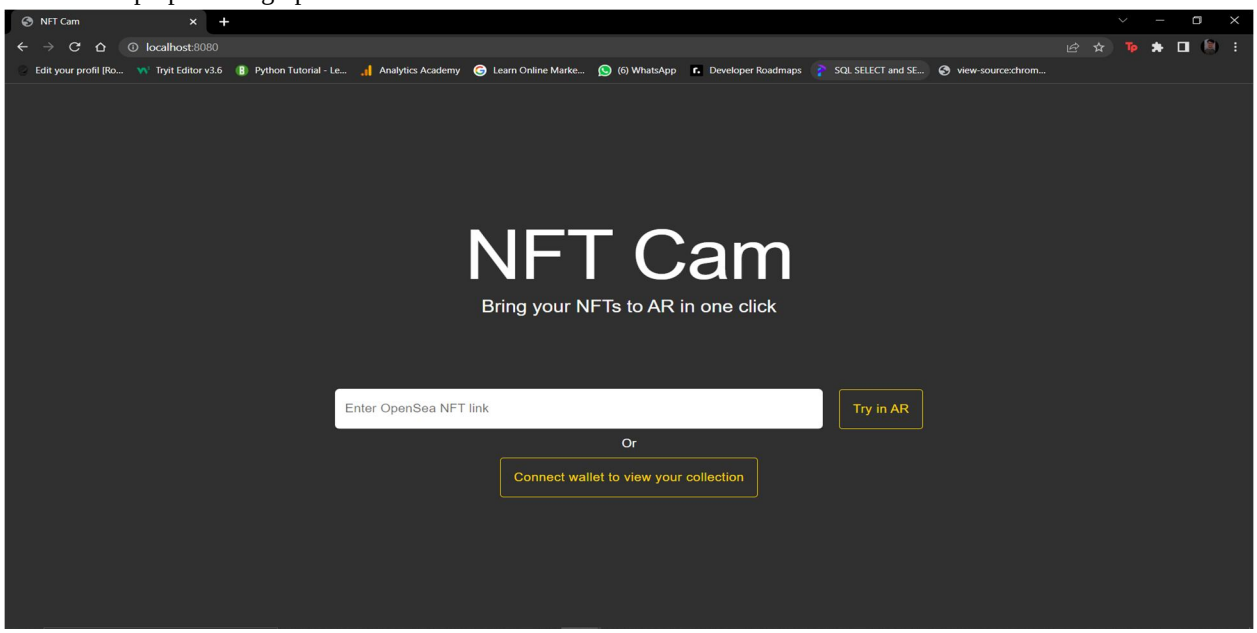
NFTs will be able to reflect the rules of the actual world inside the virtual space with a few minor alterations. We have outlined an approach for combining NFTs and AR to provide the privacy and intellectual property layers that are still lacking in a finished application [3]. NFTs offer a suitable answer for how individuals will be able to use their property; they are more than a specialized technology. Even if there are still some issues to be resolved, the concept of employing NFTs to protect AR worlds will make it possible to develop an aftermarket for digital property.

V. SYSTEM DESIGN / METHODOLOGY

System Requirements Various tools and software required for completing and integrating different components are mentioned below:

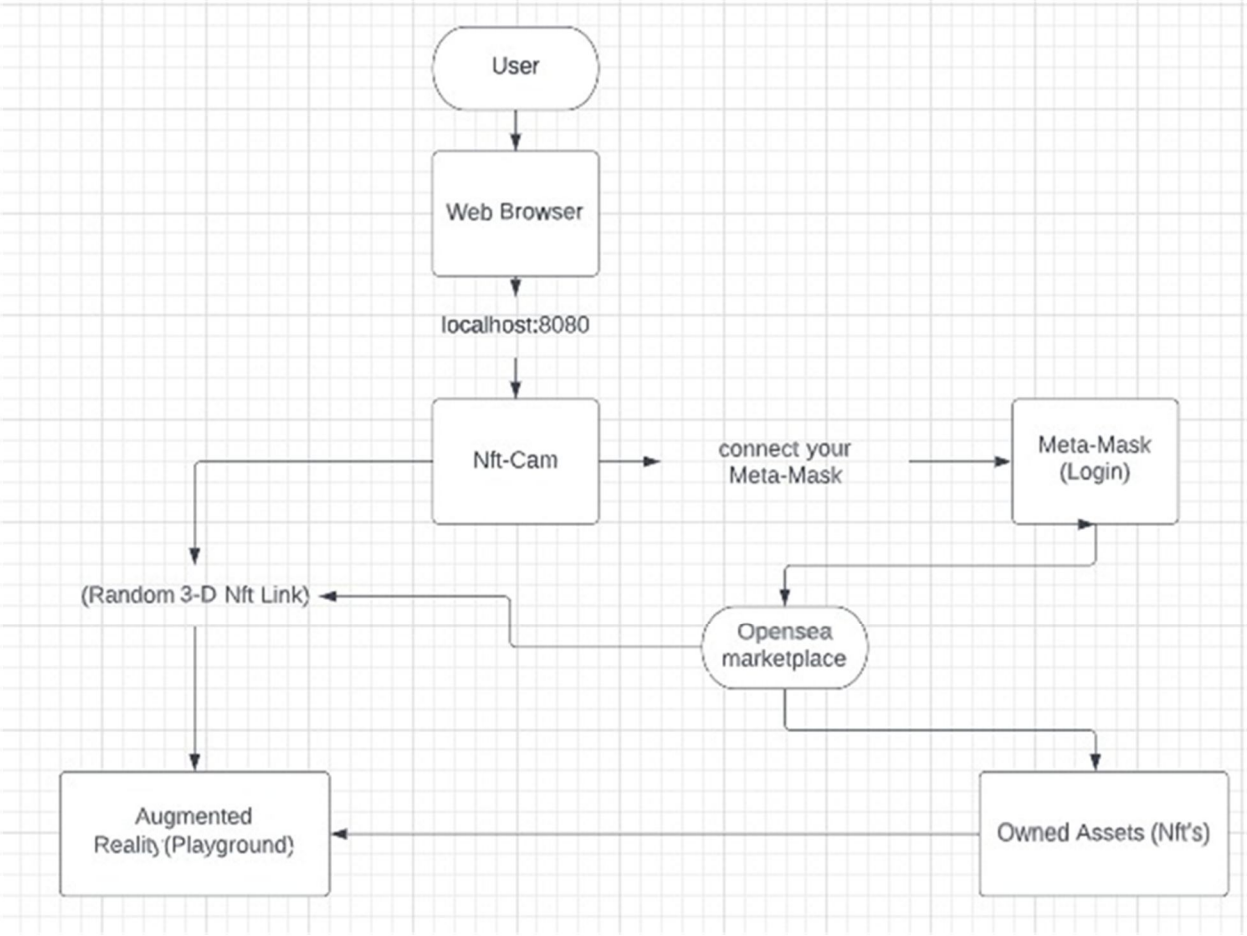
S.no	Software / Tools Required	Purpose
1	React.js	UI/Auto Rendering
2	Three.js / Opensea	Import 3D Objects
3	Mediapipe	Track Body Movements
4	Node.js / Web3	Create / Connect Server
5	Github / Vs-code	Edit / version-control

We will use Three.js and MediaPipe library mostly to animate and React will handle the rendering and permission issues. Also for browser Chrome, Brave, and Firefox which doesn't hinder the camera permissions, as there are 3D, glTF objects rendering it’s good to have a nice PC/laptop with a graphics card.



VI. OBJECTIVES

Non-fungible tokens (NFTs) are the new assets that one would want to flex and show off before all. After spending millions on NFT art and building a classic NFT collection, it is natural that you would like to display it so that everyone can see it. Thanks to the interoperability of web3, this only needs an OpenSea link to grab the corresponding asset. And a perfect AR experience will be generated based on the NFT, which can later be used on Snapchat or Instagram lens.



VII. LIMITATIONS

There isn't much research happening on this topic as it's still new to many researchers/developers. also, the computational power needed to load a gltf or 3d object into a web app makes it harder to work into a low network zone, the object is hardcoded and we need AR-specific NFTs to make more use of this feature.

VIII. CONCLUSION

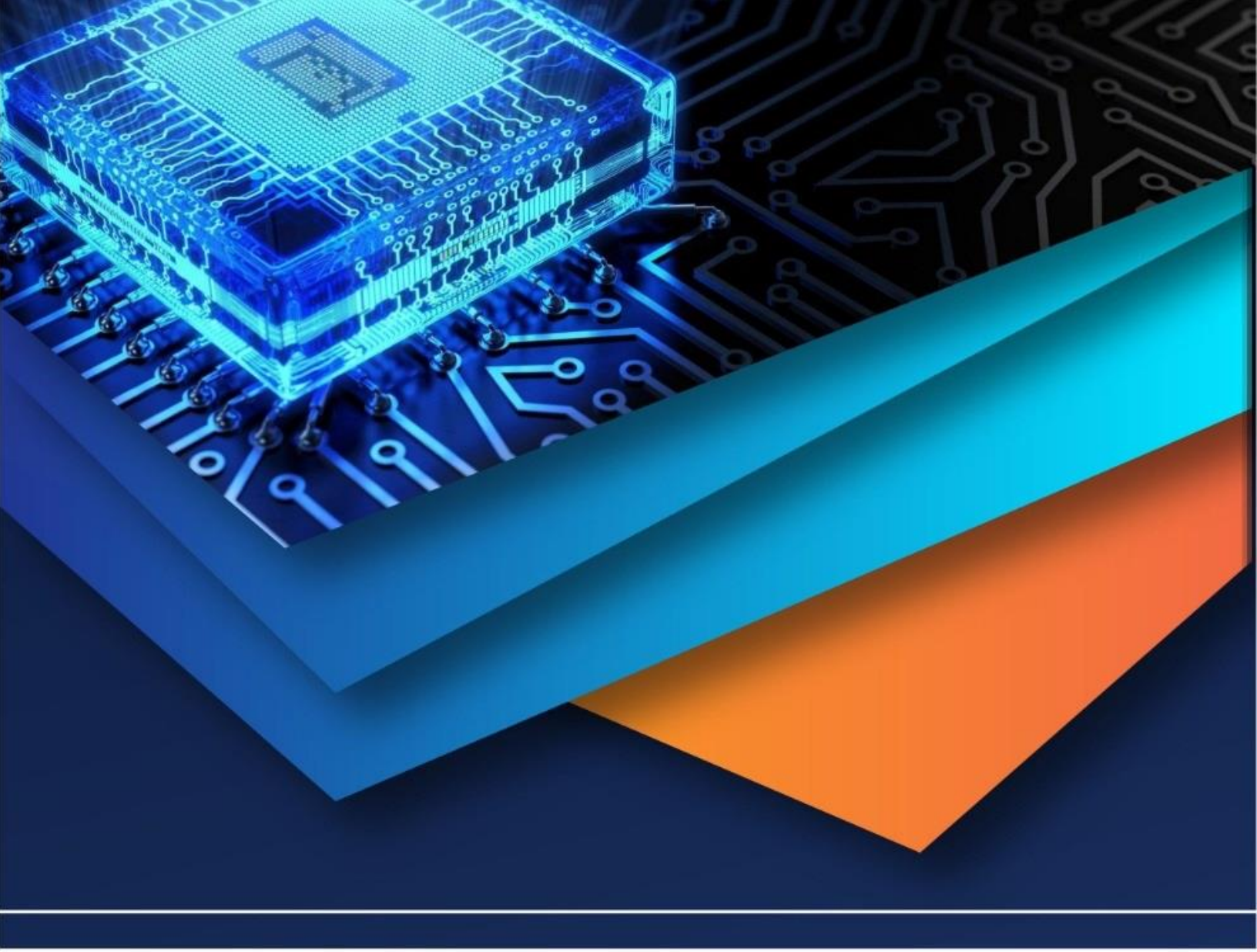
NFTs offer a suitable answer for how individuals will be able to use their property; they are more than a specialized technology. Although there are still some issues to be resolved, the concept of employing NFTs to protect AR worlds will allow for the development of a digital property aftermarket. VR and AR are frequently incorporated into Blockchain-based systems as enabling technologies that may enhance how people engage with digital material (using gaze, gestures, and other natural interfaces), e.g., to build new or enhance existing experiences (virtual stores, immersive events, etc.). The usefulness of the experience is frequently enhanced by taking advantage of psychological impacts connected to how users interact with such material in interactive, three-dimensional settings (for example, for educational and training reasons).

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