Rawrshak

Unleash Your Own Reality

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Abstract

Rawrshak is a decentralized virtual gaming NFT platform that standardizes the virtual asset format allowing for asset usage across games. It facilitates a global virtual economy where unique gaming ecosystems can easily integrate. This enables economic interaction between the individual ecosystems with their own unique business models.

The Rawrshak platform creates an easy on-ramp for game developers and content creators into the NFT space. The protocol creates a global network of unique game worlds forming bridges between unique gaming cultures. This game ecosystem approach enables additional revenue sources for game developers along with increased community engagement. Standardizing the data format of in-game assets empowers cross-game asset utility and adoption. Supporting cross-game assets increases visibility for a Rawrshak-enabled game and its assets, while also increasing a game's lifetime value. Encouraging gamer participation through virtual assets rewards and community tokens introduces new interesting behavioral economic incentives.

Non-fungible tokens (NFTs) empower the transfer of virtual goods and services. Gamers can monetize their time and skills by unlocking, trading, and transferring their acquired in-game assets. Content creators and 3D modelers can sell unique virtual assets, form their own virtual brands, and sell their skills.

There are also many future applications in in-game ads, e-sports, community management, and world creation that will be built on top of the base Rawrshak protocol.

Rawrshak's goal is to redefine and democratize the economic model of video games allowing all ecosystem participants to become stakeholders in a more equitable and sustainable global gaming economy.

Games Industry and its problem

Video games have become integral to the lives of 3.1 billion people[1] all over the world. People play games for a wide range of reasons such as to relax, to express themselves, to connect, and to compete. No matter the reason, people come from all walks of life to escape the limitations of reality and to fulfill the innate human desire to have engaging experiences.

These 3.1 billion people propelled the video games industry to a whopping $139.9 billion USD in 2020. However, despite the billions of people involved, only an incredibly small fraction of people profits from their time and skills in this industry. There are only about 2000 professional gamers in the world. In addition, majority of actual gaming revenue go towards the top AAA studios and game publishers. Becoming an independent game studio is becoming less and less attractive. With the move towards cloud gaming, smaller studios will be forced to shutter or be acquired by publishers like Microsoft, EA, or Sony.

Gamers, on the other hand, are merely customers in this ecosystem and have no stake. A gamers experiences hundreds of uniquely wonderful worlds but rarely extract value. As gamers naturally move from game to game, their progress, collections, and achievements are left behind. As a result, in-game assets accrued that may be deemed valuable by others in the community become worthless once the game is dropped or the game dies.

Rawrshak Platform

Rawrshak is developing a smart contract-based decentralize NFT platform built on the idea that the economy's growth should benefit all stakeholders. Gamers, game developers, and content creators should be able to participate in the ecosystem's growth and development direction. Economic incentives for all stakeholders will serve as the foundation for new value-creating applications.

Rawrshak aims to develop a trustless game developer platform that facilitates trustless game developer collaboration. The Rawrshak marketplace, built with our smart contract infrastructure, will allow for player-to-player trading and creator-to-player sales for any virtual asset available on the platform. This marketplace enables a new paradigm in gaming where the global gaming economy will be regulated by free-market forces. Rawrshak developed an NFT asset standard allowing assets to be used across games.

Gamers are incentivized to play games they love. They can collect rare and interesting items for themselves or to sell on the open market. Because of the game-agnostic nature of the Rawrshak assets, gamers can use their assets in any Rawrshak-enabled game. Gamers monetize their skills, achievements, and time spent in games. Game developers and content creators are incentivized to create interesting assets borne from their

intellectual property. Creators manage the supply and demand for their tradable content using their in-game mechanics as well as through Rawrshak on-chain systems. Creators will be able to upload their assets, deploy their NFTs, hook it into their game through the Rawrshak SDK and runtime libraries.

Target Audience

Gamers

Gamers are individuals or groups that play games to socialize, relax, and have fun. The Rawrshak platform is designed to be usable for the spectrum of casual to hardcore gamers. Rawrshak enables true ownership for assets that gamers acquire when playing games. With asset ownership in the form of Rawrshak NFTs, they can use their assets in any Rawrshak-enabled game, sell them in the marketplace, or use them to craft more interesting assets. With their collections from all over the gaming worlds, they can express their authentic themselves wherever they go.

Over time, the collective buying power of gamers can have a real influence on the development of games and content. The Rawrshak gaming network opens new opportunities for gamers to engage, discover, and influence new worlds.

Game Developers

Game developers are skilled individuals or studios that create video games. Because there is a wide range of genres in games, the game developer can decide how deeply they want to integrate with the Rawrshak platform. There is no requirement on how much of the Rawrshak platform the developer should use. It should depend on the needs of the game and the developer's business model. The Rawrshak SDK and runtime libraries lowers the learning curve for developers to integrate NFTs into their games.

Value for Game Developers:

- Additional steady stream of revenue through primary and secondary asset sales, and other future revenue streams
- New token-based game mechanics and behavioral incentives
- Rawrshak-enabled games network effect

Once they have deployed their assets into Rawrshak NFTs and integrated Rawrshak libraries into their game, the platform will provide tools for them to manage their creations and their economies. Because players can bring in their own assets, this allows game developers to focus on developing their game and creating unique content.

Content Creators

Content creators are skilled individuals that create NFT content such as 3d goods, image textures, voice lines, animations, and music. The Rawrshak platform and tools are open to the public so anyone can create and distribute their own custom content.

Streamers, 3D modelers, artists, celebrity figures, and brands are also categorized as content creators. They can set up their own store and sell their own virtual merchandize. The Rawrshak platform is a tool for them to increase engagement and grow their community. They can promote their brands, ideas, and creations to a wide gaming audience.

As with game developers, content creators not only get revenue from the sale of their assets but also royalties for all future secondary asset sales. The market demand for the creator and creations will affect the price of these goods so they need to manage the quality of their assets and their reputation.

Technical Considerations

We are developing the Rawrshak Protocol infrastructure on top of Ethereum, the most used and secure decentralized computing network. Rawrshak will launch directly on layer-2 solution (**Polygon, Optimism**, **Abitrum**, or **ImmutableX**) for scalability, high transaction speeds, and low transaction fees. The goal is to launch on at least 1 L2 solution and expand later based on user demand. **Chainlink**'s Verifiable Random Function can eventually be used to generate on-chain randomness. **Arweave or Filecoin** will be used for decentralized permanent data storage. **The Graph** will be used for Ethereum on-chain data indexing.

Ethereum Smart Contract benefits:

- Allows complex chain of transaction conditions
- Trustless and secure digital assets
- User solvency verification
- Automated asset distribution

Ethereum Token standards to be used:

ERC-1155 Non-Fungible Tokens (NFT)

- Allows for tokenization of in-game assets onto the public Ethereum blockchain
- Efficient asset data management

ERC-20 Fungible Tokens

- Smart Contract representation for Virtual Currency

Rawrshak will launch initially for **Unity Game Engine** with the expectation of eventually launching for **Unreal Engine 5 and Godot Engine**. The Rawrshak SDK and runtime libraries use technologies including **Nethereum** and **WalletConnect**.

Virtual Asset Standards

The virtual asset standards that are being proposed creates a guide for content creators and game developers on how to make cross-game loadable assets. As game engines have

different data formats they can load, the first version of the standards proposed is per game engine.

NFTs are organized into several common categories including, but not limited to, 2D images, static objects, audio, texts, animations, and avatars. Each category has proposed requirements including asset scaling and orientation, data formats, metadata, logical grouping, etc. Each category may have subcategories that have further requirements. We will provide tools to verify requirements before deploying to an NFT. The asset data is packaged and uploaded to the decentralized permanent storage for distribution. The asset's standardized metadata is then deployed to the NFT.

Rawrshak-enabled games will initially use default asset models as runtime placeholders for NFTs. When users bring in their NFTs or use unlocked NFTs, the game will download the necessary packages (if necessary) using information from the NFT metadata. It will then hot swap the placeholder assets with the downloaded assets.

There are many types of assets that can be turned into tradeable NFTs including:

- Titles, Trophies, and Achievements
- Static Collectibles
- Soundtracks and Voice lines
- Emotes and Taunts
- Unlockable characters and items
- Cosmetics
- Access tokens (to locked content or DLC)
- In-game consumables (boosters)

Non-Fungible Tokens (NFTs) and Smart Contracts

Virtual assets are represented as non-fungible tokens using ERC-1155 standard on the Ethereum blockchain. Each NFT represents the ownership of an instance of a virtual asset. Content creators create and deploy NFTs using our tools by providing asset information required by the asset standard. Creators can issue NFTs according to their desired issuance rate and market management schemes. All NFTs are permanent on the blockchain so a creator needs to be careful when deploying. The creator can update their assets, but the asset owner can opt to use which version of the asset they would like to use in-game. This allows the owner full control on how they want to use their assets. Only the owners of the minted asset can burn the NFT.

Rawrshak's NFT Smart Contracts are designed for video games and on-chain game mechanics. The Rawrshak protocol is designed to be future proof and have pluggable systems integrate easily. Future Rawrshak projects will be able to use current Rawrshak NFTs without work on the part of the game developer. Since the Rawrshak NFTs follow

the ERC-1155 standard, it can also be used in any Ethereum project that use ERC-1155 NFTs including OpenSea and NFTX.

Rawrshak Infrastructure

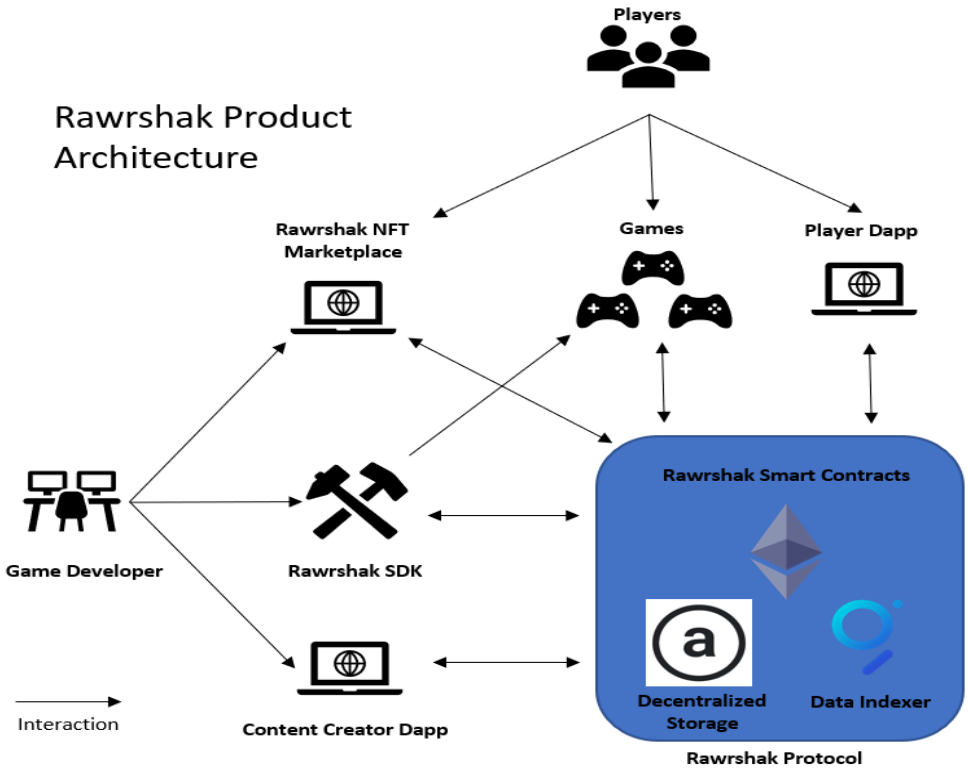

Figure 1. Rawrshak Product Architecture

Rawrshak SDK and Runtime Libraries

The Rawrshak SDK is a game engine editor plugin that will allow game developers to create and deploy Rawrshak NFTs for their games. Initially, Rawrshak is focused on Unity, but will expand to other game engines. A Rawrshak Project will be provided where developers and content creators can load their asset, modify it to fit the standards, and deploy it as an NFT without having to write smart contracts. The SDK will be used to manage, update, and mint NFTs.

The runtime libraries consist of tools such as wallet managers, smart contract API, asset package downloader, and GraphQL queries that a game would need to interact with the Rawrshak protocol. This allows developers to easily integrate Rawrshak NFTs with their game.

Rawrshak NFT Marketplace

The Rawrshak NFT marketplace is built on Ethereum smart contracts. The marketplace only supports Rawrshak NFTs because the marketplace is only for gaming assets. With

gaming assets, the flow of assets should be quick and simple. The marketplace will launch on an L2 solution directly and will start off with low fees between 0.5% and 2.5% per transaction. All protocol fees are managed by the decentralized autonomous organization. Since the Rawrshak NFT Marketplace is a decentralized application, it will be accessible to any Ethereum wallet.

Player Inventory Decentralized Application

A gamer can use any Ethereum wallet to connect to the player inventory DApp. All asset transactions on the platform will be processed using the connected wallet. Gamers will be able to view and manage all the virtual assets that a wallet owns in an organized manner. A transaction history will also be available in the DApp. They can calculate the value of their assets based on prices on the Rawrshak NFT Marketplace.

Content Creator Decentralized Application

The content creator DApp is a where the content creators can manage the NFTs that they have created. Creators only need to connect their Ethereum developer wallet to the DApp. Creators can mint NFTs and put them up for sale in the marketplace. They can also create claimable links for asset distribution. The DApp shows a data dashboard for individual NFTs and aggregate NFT statistics for the creator.

Future Protocol Extensions

The Rawrshak Protocol is built to be the foundation of a decentralized gaming ecosystem platform. Once the platform is established, these protocol extensions would be the next projects that the Rawrshak development team or DAO-funded commissioned teams could tackle to grow the ecosystem into a robust multi-reality metauniverse and increase its economic moat.

Asset Management Systems

The Asset Management Systems are asset sink mechanics that are built into the protocol. Over time, as players increase their engagement, asset supply will continue to rise and therefore prices and demand will decrease. To combat oversupply, asset sinks were created to increase demand and burn excess supply. The increased demand for cheap assets can introduce a base price for these items.

Two proposed on-chain mechanics available to the developer:

1. Crafting: Burns a specific set of items to mint a new item
2. Loot box: Burn items for Loot Box credits to open a loot box for a chance to receive random loot box item(s).

Content Security System

As the barrier to entry for creating gaming NFTs have been lowered, the ecosystem becomes vulnerable to malicious actors through scams, unsavory and illicit content, and

general spam. The content security system would be a way for developers to register their contracts onto a registry smart contract where they would need to lock collateral for them to participate. Content that is found in violation of the smart contract's listed rules would have their collateral slashed. The protocol would integrate with a 3rd party subjective disputes systems such as Aragon Court.

Esports Management System

Smart contract-based e-sports management tools would help developers and community managers create and manage their competitive leagues and tournaments. It will implement features like gamer digital currency buy-in and automated rewards distribution. The tool enables developers and players to create official and unofficial tournaments, set rules and rewards, and easy registry for players. The product could also have automated sponsor matching and in-game ad placements, thereby increasing the tournament rewards.

Automated In-game Advertisement System

Since 2D and 3D assets are standardized, brands can create Ads assets they can push into the automated advertisement system. The Ads system will push these ads into registered games and hot swap them into live gaming sessions. The system would distribute payment to both game developer and gamers. Players can opt out of ads if they wish.

Community Tokens System

Community tokens add experimental value to game ecosystems. It allows game developers to reward their gamers with tokens for use in-game. They may or may not have monetary value, as judged by the market. It is up to the game developer on how to reward their player base and how the community token is used within the game. For gamers, they receive loyalty rewards and can participate in the success of the community. As the community and token benefits grow, demand, and therefore value, for these tokens may also grow.

Streamer Tools

Streamers live by playing games and receiving support from their fanbase. By playing Rawrshak-enabled games, they can acquire NFTs. The streamer tools protocol extension would allow streamers to make unique assets out of acquired assets by wrapping the acquired NFT into an ERC-721 NFT. They can then modify the new NFT's data to include their own lore and add their own royalties. The new NFTs would essentially be digitally signed memorabilia of the streamers.

World Creator

The World Creator is a Unity game where players can load a "world" and they can design the interior with the NFT assets that they have collected and purchased throughout their gaming career. They can place NFT art pieces, trophies, unlockable assets, commissioned

pieces, and other assets that support our asset standard. They can create a world smart contract that can save the level design and hold their assets. They can invite others to come and experience their world and share their accomplishments.

Decentralized Finance Projects

Decentralized Finance (or DeFi) is the next generation of financial tools. These NFT assets and the world smart contract above can be used for interesting DeFi experiments. For example, a group of people can pool together their assets into a world contract, create a token that represents share in that world contract and sell a portion of those tokens for liquidity. They can also use the world contract as collateral for lending based on the value of the assets owned by the world contract. They could generate viewing or entrance fees for people who want to view their world contract. There are many possible financial experiments that can be implemented on top of the Rawrshak Protocol.

Unreal Engine, Godot Engine, and Custom Game Engine Launch

The next logical step would be to extend the protocol to include Unreal Engine and Godot Engine. The Unreal Engine is the biggest commercial game engine and is used by thousands of games. After that, interested publishers and studios would need to reach out for us to support their game engines. EA's Frostbite engine and Amazon's Lumberyard are ideal candidates for support.

Summary

As more and more people become gamers, the gaming industry is set to grow by leaps and bounds in the coming years. Despite that, the gaming ecosystem is not as equitable as it should be. Majority of the wealth and value generated goes to well-funded game studios and game publishers.

Rawrshak aims to build a more equitable and sustainable global gaming economy that lowers the barrier to entry for games and benefits gamers, content creators, and game developers. By allowing true player ownership, Rawrshak unlocks the value of virtual assets. Gamers will be able to monetize their time, skills, and luck. A gamer should have the freedom to use their asset collections however they see fit.

A global ecosystem allows game developers and content creators to experiment with their gaming ecosystem while being connected to a global audience of gamers. The Rawrshak economy creates a strong network effect increasing engagement and gamer retention. Game library growth and player growth creates a vicious cycle for the Rawrshak platform.

We invite you to join and discuss with us with how we can help your platform adapt this new economic ecosystem!