

Metaverse – The Rise of a New World

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Abstract— Metaverse is an interconnected network of 3D virtual realistic worlds which was developed with the purpose of social interaction. The Metaverse is the future of social media and connection, and the very manifestation of how people are going to interact with other social beings. The following virtual world is still developing daily until it reaches its full capability.

Keywords: Metaverse, Virtual Reality (VR), Augmented Reality (AR), Meta, Environment, 3D

I. INTRODUCTION

Metaverse is a highly complex 3-Dimensional virtual reality environment created with the purpose of social interaction for all human beings around the world. The Metaverse is just like the real world where we can interact with other beings, buy properties and real estate, invest into digital currency, and the list just goes on. The metaverse is the next generation of virtual & augmented reality where digital code of 0s and 1s take a structured form.

II. IDEA & CREATION

The term ‘Metaverse’ was derived from an old 1992 science fiction novel, ‘Snow Crash’ written by Neal Stephenson, and was a portmanteau of ‘Meta’ and ‘Universe’, meaning a more comprehensive world or cosmos.

The fundamental aspect of Metaverse is a place or environment where individual beings, represented by virtual avatars or characters just like a video game, can navigate inside the virtual space. The way we represent ourselves in an online meeting or dating site, the same way imagines a 3D representation of ourselves that has the capability to walk, talk and interact with its environment and other beings.

The Metaverse that exists today is run by many different companies such as Meta formerly known as Facebook, Microsoft, Google, Amazon. And every possible tech giant known to mankind. In 2014, Mark Zuckerberg acquired Oculus – a virtual and augmented reality tech company focused to create devices that support the concept of 3D virtual reality. This led to a huge development in metaverse as Facebook or Meta incorporated both the idea and technology to support metaverse, hence it focused on to generation of social media.

III. BACKGROUND

Several components of the metaverse we know today have been developed long back, for example the video game, ‘Second Life’ is often considered as the embarkment of first metaverse to ever exist as incorporated many features of a social media and realistic characters called Avatars.



Fig. 1: Second Life – The First Metaverse

After this many other video games were developed which adapted the concept of a metaverse such as Sim City, Minecraft, Fortnite, Grand Theft Auto, Roblox, Active Worlds.

IV. TECHNOLOGY

A. Hardware:

The main hardware technology used that are the access points of metaverse are computers and smartphones, in addition to augmented reality (AR), mixed reality (MR), virtual reality (VR), and virtual world technologies. As metaverse depends on VR technology for its access, metaverse development and wide scale adoption has been limited. Limitations of portable hardware and the need to balance cost and design has caused a lack of high-quality graphics and mobility. Lightweight wireless headsets have struggled to achieve retinal display pixel density needed for visual immersion, while higher-performance models are wired and often bulky. Another issue for wide-scale adoption of the technology is cost, with consumer VR headsets ranging in price from \$299 to \$1099 as of year 2021. Current hardware is focused on overcoming the limitations of VR headsets, sensors, and increasing immersion with haptic technology.



Fig. 2: Representation of VR headset

B. Software:

There has been no wide-scale adoption of a standardized technical specification for metaverse implementations, and existing implementations rely primarily on proprietary technology. Interoperability is a major concern in metaverse development, stemming from concerns about transparency and privacy. There have been several virtual environment standardization projects.

Universal Scene Description is a specification for 3D computer graphics interchange created by Pixar and supported by Blender, Apple's Scene kit and Autodesk 3Ds Max. The technology company NVIDIA announced in 2021 they would adopt USD for their metaverse development tools. OpenXR is an open standard for access to virtual and augmented reality devices and experiences. It has been adopted by Microsoft for HoloLens 2, Meta Platforms for the Oculus Quest, and Valve for SteamVR.



Fig. 3: 3D blueprint of metaverse

V. CURRENT POSSIBILITIES

A. NFT and Crypto Currency:

NFTs or Non-Fungible Tokens are unique digital assets which are minted and stored on blockchain. They are decentralized and independent of any controlling body. When someone buys an NFT, they are designated as the owner of that asset. These assets can be freely traded. Digital art is currently the most popular form. Although, an NFT can be anything such as music, photos, video clips, or even website domain names.



Fig. 4: Examples of Non-Fungible tokens (NFT)

This style of digital trading is unlikely to go away as the metaverse expands in coming years. It is very likely that NFTs will be the primary way to sell art and goods in the metaverse's early stages until, hypothetically, something else comes along.

Cryptocurrencies are also in the air, not to behind the NFTs they are also becoming a way to transact in the real world, but along with that, they are opening endless possibilities of being one the currencies operational in the metaverse. Bitcoins along with other cryptocurrencies run on the same blockchain technology used for minting and storing NFTs.



Fig. 5: Examples of Crypto Currencies

B. Properties and Real Estate:

As the world of metaverse rises it has also created the opportunity for digital or virtual real estate. With companies like Meta and many more coming into play they are going to incorporate many virtual real estates which are currently for sale even today. As the real estates around the world will come to an end, virtual real estate is going to be the next thing.



Fig. 6: Example of Virtual Real Estate

C. VR and AR Products:

With rise of metaverse the support of its related products will also see a boost in the coming years, products like VR Headsets and VR Suits will make a great stand out in the technology market as the users of metaverse increase day by day. New technologies based on metaverse, and its uniformity can also be expected.



Fig. 7: Current VR & AR Products

VI. CONCLUSION

As the metaverse is still under development and only used as a digital vault for storage of intellectual property at the current moment, it has endless possibilities in the coming future and sooner or later we may see a fully developed metaverse just like the movie, 'Ready Player One', an omniverse controlled by a single organization in a single space where all beings can interact and trade and live a doppelganger life.

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