

Exploring the Potential of Metaverse Platforms in Real Estate Transactions

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Abstract—COVID-19 has posed significant challenges to face-to-face sales of apartments and requires innovative solutions. In order to solve this problem, this paper proposes a model of a metaverse apartment sales promotion system. The proposed system utilizes the Zep metaverse platform to provide customers with virtual model houses and comprehensive real estate information. It provides various views, including satellite maps and 360° video, allowing customers to remotely explore the location of their apartments. Customers can explore the interior of the apartment via avatar, access 2D drawings and immersive 360° 3D videos. In addition, detailed sales conditions can be conveniently checked through a YouTube link, and customer convenience has been enhanced through online consultation with a sales agent. The proposed system aims to enhance the apartment buying and selling process by providing an immersive and convenient metaverse experience.

Keywords- 360° video, metaverse, sales of apartments, virtual model houses, ZEP platform.

I. INTRODUCTION

The COVID-19 pandemic has brought about significant changes in society, economy, and culture, restricting social gatherings and altering the way we live. As a result, there has been a growing interest in the metaverse[1]. The metaverse offers users the opportunity to seamlessly blend virtual and real-life experiences through customizable avatar characters. It provides a wide range of services, including education, counseling, and entertainment, and its integration is being explored in various fields.

One such field is real estate, where metaverse technology is being leveraged to create systems that offer virtual representations of properties for sale, allowing users to access information and engage in online consultations and sales processes within the metaverse. This paper proposes a model for a real estate sales promotion system that enables users to navigate virtual spaces using avatars, their digital alter egos, and access real estate sales information, online counseling, and sales support. To demonstrate the feasibility of the proposed model, an apartment model house was implemented using ZEP, a widely utilized metaverse platform.

The metaverse-based apartment model house provides comprehensive information about the apartment complex, including 360° digital video content, online consultations, and the ability to apply for sales.

Overall, this paper explores the potential of the metaverse in the real estate industry, highlighting the advantages of using avatars and virtual spaces for sales promotion and customer

engagement. By leveraging the capabilities of the metaverse, the proposed model offers a novel approach to address the challenges posed by restricted physical interactions, providing a safe and immersive environment for real estate sales and consultation.

This paper is structured as follows: Chapter 2 discusses related research in the field, Chapter 3 presents the model for the real estate sales promotion system using the metaverse, and finally, conclusions are drawn in Section 4.

II. RELATED RESEARCH

Metaverse is a newly coined word that combines 'meta', which means transcendence, and 'universe', which means the world and the universe. It refers to a virtual world based on various technologies such as AI). The term metaverse first appeared in Neil Stephenson's science fiction novel 'Snow Crash' published in 1992, and started to attract attention again when a game called Second Life was serviced. In the metaverse space, various social, economic, and cultural experiences are possible using avatars, so they are being used in various industries. Metaverse technology is also being used in libraries. As of 2022, 29 domestic libraries and 1 foreign library are operating virtual libraries within the metaverse[1]. Roblox, one of the metaverse platforms, allows users to create and play games in a social network environment, and purchase or sell items through the in-game currency, Roblox, for cash[2]. Metaverse technology is also being introduced in the field of performance, and it is a new normal for future performing arts in that performers and audiences produce and consume performances transcending

time and space by using the metaverse platform to produce, distribute, and consume performing arts. (new normal)[3]. In addition, metaverse technologies are being converged in various fields such as education, medical care, tourism, cultural contents, and advertisement[4-7]. Figure 1 shows a real-life performance in the metaverse space. The audience can enter as an avatar and enjoy it. Table 1 shows metaverse service types.



Figure 1. which a singer sings and an avatar dances accordingly in a metaverse space.

Table 1. metaverse service types

Metaverse Service Types	Highlights
Virtual Home	- Items inside the virtual home of the virtual world and real-life information devices are linked to each other. Virtual world device operations are reflected in real life.
Virtual Office	- When you enter an office in the virtual world, you will see your co-workers' avatars and can hold meetings or collaborate with them just like in real life.
Portal Services	- News, sports, and games can be used in 3D, and news anchors in 3D avatars broadcast today's news.
E-Health Cyber Hospital	- You can receive remote medical services at the E-Health cyber hospital, and emergency relief services are available if an abnormality is detected through sensors mounted on the body.
Instance Content Service	- You can purchase items from the e-commerce 3D virtual shopping mall and run them right away without a separate installation process.
E-Learning Cyber School	- It's a cyber school where you can study and take tests with 3D avatar teachers to earn your degree.
Virtual Community Integration	- You can connect the virtual world where your virtual community friend's avatar lives to your virtual world, and allow your friend's avatar to move into your virtual world.

In English, the term "metaverse" refers to a multidimensional 3D environment where users engage in communication using avatars, exchange information and goods, and participate in social, economic, and cultural activities. It is a world where both reality and unreality coexist.

The term "metaverse" is a combination of "meta," which signifies abstraction and processing, and "universe," representing the real world. It denotes a 3D virtual world that goes beyond the traditional concept of virtual reality (VR),

where elements of the web and the internet are absorbed into the real world.

In summary, the metaverse is an advanced concept that encompasses a sensory-rich 3D environment where users interact through avatars, conduct various activities, and merge aspects of both the virtual and real worlds.

Recently, metaverse technology is also being introduced to the real estate field. When analyzing search trends over the past 6 years using 'metaverse real estate' as a keyword through Google Trends or Naver Data Lab, it can be seen that interest in metaverse real estate is increasing from 2020[8-10]. Representative metaverse platforms that enable real estate transactions include 'Us 2' and 'Decentraland'. According to Metametric Solutions data cited in a CNBC report in February 2022, the sales volume of virtual real estate sold on the world's four major metaverses, Sandbox, Decentraland, Cryptovoxel, and Somnium platforms, in 2021 is about \$500 million (Hanwha 600 billion won) was investigated[11-12].

Although metaverse real estate is still in its infancy, it is highly likely to become a new paradigm for the real estate market in the future. Metaverse real estate has the following advantages over the existing real estate market. No Physical Constraints: As Metaverse Real Estate has no physical constraints, users can purchase and trade real estate anywhere in the world. Transactions are easy: Metaverse real estate is easy to trade, so users can purchase and trade real estate without complicated procedures. Various uses are possible: Since metaverse real estate can be used in various ways, users can use real estate for their own purposes. Metaverse real estate is highly likely to become a new paradigm in the real estate market in the future. Compared to the existing real estate market, metaverse real estate has the advantage that there are no physical restrictions, transactions are easy, and various uses are possible. Advantages detail no physical restrictions. You can buy and trade real estate anywhere in the world. Transaction made easy real estate can be purchased and traded without complicated procedures. Various uses are possible. You can use real estate for your own purposes. No Physical Constraints: Since Metaverse Real Estate has no physical constraints, users can purchase and trade real estate anywhere in the world. For example, a person in Korea can purchase a metaverse property in the United States. Ease of transaction: Because metaverse real estate is easy to transact, users can purchase and transact real estate without complicated procedures. For example, users can purchase real estate on the Metaverse real estate platform. Various uses are possible: Since metaverse real estate can be used in various ways, users can use real estate for their own purposes. For example, a user may use a property as an office, store, or home. Prospects of metaverse real estate. Although

metaverse real estate is still in its infancy, it is highly likely to become a new paradigm for the real estate market in the future. Compared to the existing real estate market, metaverse real estate has the advantage that there are no physical restrictions, transactions are easy, and various uses are possible. Therefore, Metaverse Real Estate is expected to create new opportunities in the real estate market in the future. Table 2. explains how to use metaverse real estate.

TABLE 2. METAVERSE REAL ESTATE UTILIZATION

Element	Outlook
Digital Property Ownership	In the metaverse, real estate is expected to be constructed, bought, and sold similar to traditional real estate
Virtual Land Development	Virtual land in the metaverse can be developed, customized, and monetized much like the physical world. Developers can create immersive virtual experiences on this digital land to attract buyers and visitors.
Eliminating Geographic Bound	Metaverse real estate transcends geographic constraints. Buyers
Efficiency	Viewing and transacting virtual real estate reduces
Innovative Marketing	Metaverse real estate allows for innovative marketing

III. REAL ESTATE SALES PROMOTION SYSTEM USING THE METAVERSE

The ongoing COVID-19 pandemic has posed numerous challenges to conducting face-to-face activities, resulting in significant obstacles in the real estate industry, particularly in the sale of apartments. In light of these difficulties, we present a solution in the form of a metaverse apartment sales promotion system model. This innovative model utilizes the metaverse to create a virtual model house, providing customers with a comprehensive online experience and enabling them to acquire the rights to sell or move into apartments.

To implement our proposed system model, we have designed a concept as depicted in Fig. 2, employing the zep platform. Within the metaverse main system, customers can explore the contents of the apartment structure by accessing different portal points. These portals grant them access to specific information about the apartments they are interested in.



Figure 2. Composition of metabus sales promotion system

The metaverse public relations system, a key component of our model, consists of several elements designed to enhance customer engagement and satisfaction. The complex view feature offers customers multiple perspectives, including satellite map views, bird's eye views, and 360° videos. These views provide customers with an immersive experience and enable them to examine the location and surrounding environment of the apartments. Fig. 3 highlights the three view types available in our system: satellite view, view map, and 360° video.



(a) satellite view



(b) view map



(c) 360° view

Figure 3. Views provided by condominium apartments

In our proposed sales promotion system, customers can navigate the virtual model house using avatars, allowing them to explore the interior and surrounding scenery. Through their avatars, customers can walk around the virtual environment and experience various facilities and natural elements, such as schools, churches, and parks.

Upon viewing the external environment, customers who wish to examine the interior structure can access portal points located at the apartment entrance, which will transport their avatars to the interior area. The internal structure can be visualized through 2D drawings, displaying the size and shape of each room, as well as 360° 3D videos.

For detailed sales information, customers can directly access YouTube content that presents the sales conditions. This feature allows customers to gain comprehensive knowledge about the sales process and specific details through video resources. Additionally, should customers desire consultation with a sales counselor, they can engage in online video chat by approaching the counselor's avatar.

Utilizing the metaverse apartment sales promotion service offers numerous benefits. By allowing customers to inspect the interior and exterior environments of desired apartments online and receive consultation at their convenience, both customer satisfaction and the reliability of the sales company are enhanced. We present the details of the apartment promotion

system using the zep platform in Fig. 4, which includes features such as real-time online consultation and a model structure system with 360° videos for each section.

In summary, our metaverse apartment sales promotion system model, utilizing the zep platform, provides a solution to the challenges faced by the real estate industry during the COVID-19 pandemic. By leveraging the metaverse, we offer customers a comprehensive virtual experience, enabling them to explore apartments, obtain essential information, and engage in consultations regardless of time and space.



Figure 4. Apartment promotion details using Zep platform

IV. CONCLUSION

In conclusion, the real estate trading system developed using the Zep platform represents a significant advancement in the real estate industry. Leveraging the power of the metaverse, this system provides a seamless and immersive experience for property trading. With Zep's robust framework, the system enables users to explore, evaluate, and transact virtual real estate properties within a virtual environment. The integration of advanced graphics and user-friendly interfaces enhances the user experience, allowing for interactive property navigation and visualization. By streamlining the transaction process, the system simplifies property acquisitions, reducing administrative burdens and ensuring secure transactions. The system's social and networking features foster community engagement, facilitating connections between real estate professionals and potential buyers. The real estate trading system powered by Zep revolutionizes the way properties are marketed, evaluated, and traded, expanding opportunities for buyers and sellers alike. It opens new avenues for growth and innovation within the real estate market. As technology continues to advance, further

enhancements to the system are expected, contributing to the continued evolution of the real estate industry in the metaverse era.

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