International Journal of Religion
2024
Volume: 5| Number 4 | pp. 421 – 428
ISSN: 2633-352X (Print) | ISSN: 2633-3538 (Online)
ijor.co.uk
DOI: https://doi.org/10.61707/92nmmd28

A Study on the Algorithm Configuration for Sharing Career Experience in a Metaverse Platform

Taeyang Kim[1]

Abstract

This study relates to a system for providing an experience sharing platform in a metaverse environment. In more detail, it is about an experience-sharing platform providing system that enables users to share and trade each other's experiences based on metaverse by allowing users to share information about their careers with each other in a metaverse environment. The algorithm proposed by this study is largely composed of a metaverse interface and a main server. The metaverse interface includes a motion generation unit that generates user motion information according to a signal received through a user terminal owned by a user, an avatar generation unit that generates an avatar that moves in conjunction with the user motion information, and a space generation unit that creates a virtual metaverse space for displaying at least one avatar. The main server is largely composed of input of requirements, matching, experience sharing, and cost payment modules and databases. In addition, the position control and area division module are also composed of the main server including a satisfaction reflecting movement, a virtual horizontal line generation, and an additional division processing parts, which are lower configuration algorithms of them.

Keywords: *Metaverse, User eXperience(UX), User Career, UX sharing, Platform.*

INTRODUCTION

Recently, virtual reality (VR), augmented reality (AR), and mixed reality (MR) technologies using computer graphics technology have been developed. Virtual Reality (VR) is an advanced, human-computer interface that simulates a realistic environment [1]. Augmented Reality (AR) is a variation of Virtual Environments (VE), or Virtual Reality as it is more commonly called [2]. In other words, virtual reality technology refers to a technology that uses a computer to build a virtual space that does not exist in the real world and then makes the virtual space feel like reality. In addition, augmented reality or mixed reality technology refers to a technology that adds computer-generated information to the real world, that is, a technology that allows users to interact in real time by combining the real world and the virtual world. Among them, augmented reality and mixed reality technology are used in combination with technologies in various fields (e.g., broadcasting technology, medical technology, and game technology). Examples of the use of augmented reality technology in the field of broadcasting technology include natural changes in the weather map in front of weather forecasters on TV, or inserting and transmitting advertisement images that do not exist in the stadium in sports broadcasting. In particular, these augmented reality and mixed reality technologies are implemented and provided as various application services with the advent of smart devices.

Meta-verse is a representative service that provides augmented reality or mixed reality to users. This metaverse is a combination of "Meta," which means processing and abstraction, and "Universe," which means the real world, and means a three-dimensional virtual world. Metaverse is an advanced concept than the existing term virtual reality environment, providing an augmented reality environment in which virtual worlds such as the web and the Internet are absorbed into the real world. The word 'metaverse' was first coined in a piece of speculative fiction named Snow Crash, written by Neal Stephenson in 1992 [3]. In this novel, Stephenson defines the metaverse as a massive virtual environment parallel to the physical world, in which users interact through digital avatars [4]. Since this first appearance, the metaverse as a computer-generated universe has been defined through vastly diversified concepts, such as lifelogging [5], collective space in virtuality [6], embodied internet/ spatial Internet [7], a mirror world [8], an omniverse: a venue of simulation and collaboration [9]. Based on this basic concept, this study proposes an algorithm design for an experience sharing providing platform in a metaverse environment where the users can share each other's experiences or careers through

[1] Daejin University, Gyeonggi, South Korea. (Corresponding Author/ E-mail: tyknnc@daejin.ac.kr)

avatars.

MATERIALS & METHODS

The system proposed in this study basically includes a main server and two users' terminals (2), (3). The main server (1) can serve as a management role for a metaverse interface that creates a metaverse space, while matching experts and users, and providing interactive conversation functions between matched experts and users in the metaverse space. In other words, the main server is the subject of the experience sharing platform providing system in this study. It can be said that, in other words, the main server (1) becomes a system.

The main server (1) includes a server PC and a network communication network as a series of subjects for implementing the present system. In addition, the main server (1) may execute the programs which are modules, subs, interfaces and parts that can be performed on a central processing unit based on hardware equipped with a central processing unit (CPU) and storage means such as memory and hard disk. This configuration of module, part, or interface refers to a configuration of software running through CPU and memory while installed and stored in the storage means of the main server (1), or hardware such as FPGA or ASIC. Figure 1 is a conceptual diagram showing the schematic configuration of this system.

In this case, the configuration module, part, or interface is not limited to hardware, but may be configured to be on a storage medium that can be addressed or to play one or more processors. For example, module, sub or interface includes components such as software components, object-oriented software components, class components, and task components, processes, functions, attributes, procedures, subroutines, program code segments, drivers, firmware, microcode, circuits, data, databases, data structures, tables, arrays, and variables. The functions provided in such a module, part, or interface may be combined with a smaller number of components or further separated into additional components. In addition, the main server (1) refers to all types of hardware devices including at least one processor, and may be understood as including a software configuration operating on the corresponding hardware device according to embodiments.

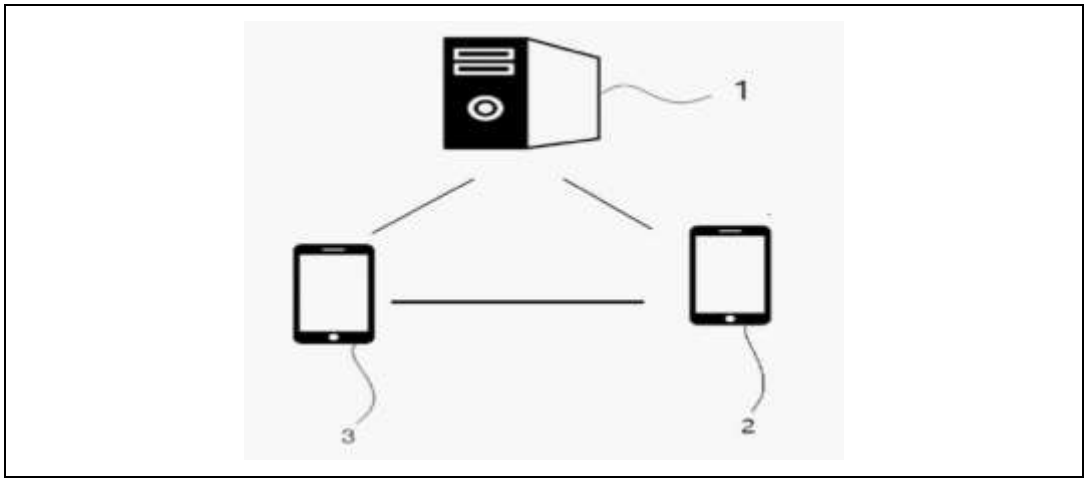

Figure1. Conceptual Diagram for the overall system

The system proposed in this study largely includes a metaverse interface and a main server. The metaverse interface performs a function of generating a metaverse space and providing it to a user terminal, and more specifically, includes a motion generation unit, an avatar generation unit, and a space generation unit. The main server largely includes a database, a location control module, and an area division module. Specifically, the main server consists of a database, a requirement input module, a matching module, an experience sharing module, and a cost payment module. The position control module includes a detailed arrangement part and a satisfaction reflecting moving part including the distance control part. As the last module of the main server, the area division module consists of a virtual horizontal line production unit and an additional division processing unit. The detailed configuration with overall system is in shown in the figure 2.

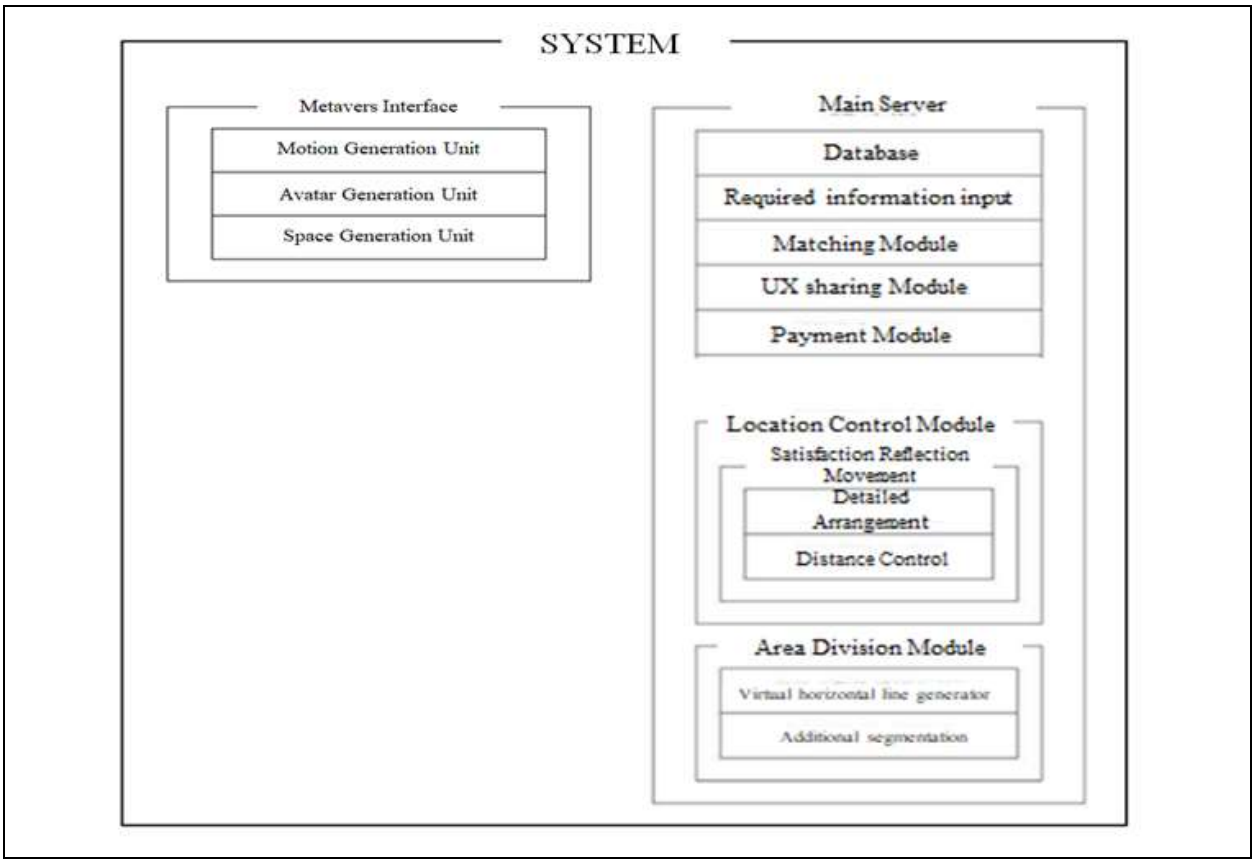

Figure2. Configuration with overall system

RESULT

Metaverse Interface

In the metaverse interface, the motion generation unit generates user motion information according to a signal received through the user terminal (2) possessed by the user. This is to generate user motion information including the user's movement or direction and degree of movement according to an operation signal for the touch screen display of the user terminal (2) or an input signal using a mouse or keyboard. Touch or drag-and-drop operation through a touch screen display, movement or click of a mouse, and direction key operation of a keyboard can all be signals. Accordingly, the motion generation unit generates user motion information about the movement or behavior of the avatar according to a signal received through a touch screen display, a keyboard, or a mouse provided in the user terminal.

The avatar generation unit generates a moving avatar in conjunction with the generated user motion information. In this case, the avatar may have a human shape, or may have a 3D animation character or an animal shape. The avatar may move in conjunction with the user's motion information. When the user instructs the character to move to the left through the keyboard, the avatar moves to the left, and if a specific direction is clicked through the mouse, it can be said to move in that direction.

The space generation unit generates a metaverse space in which an avatar is displayed, and displays the generated metaverse space on the user terminal (2). In this case, the metaverse space is a three-dimensional space, and at least one avatar or many of avatars are displayed on the metaverse space. The metaverse space may be composed of various contents regardless of indoor/outdoor space. Preferably, the system may provide a metaverse space suitable for a user's characteristics accessing the metaverse space or suitable for a user's taste. Furthermore, in order to have such a metaverse space, this system may have a separate metaverse server, or the main server may

also serve as a metaverse server.

Main Server

In the main server, the database stores career information on the field of work and career of an expert. It allows experts to enter career information on their work, career, and professional fields through their PCs, smartphones, and tablet PCs, and then stores the entered career information in a database. Therefore, the database may be said to perform a storage role for the input career information.

The necessity input module performs a function of receiving consultation necessity information from the user terminal (2) possessed by the user. At this time, the consultation necessary information is what the user wants to know about a specific task, and may be what the user is curious about a specific task. In other words, the content becomes various information to be curious about the job, such as the ability required for a specific job, the time to get used to the job, the salary information of the job group, and even the certificates needed for the job. In addition, all questions that can be entered in text without restrictions on the type can be information requiring consultation. Therefore, the information required for counseling is related to a specific job (job group, job group, industry, business status). It is based on the inclusion of the name and the inclusion of information that the user wants to know about the job along with the name of the job.

The matching module compares the input counseling required information with the expert's career information stored in the database, and extracts a specific expert from the experts stored in the database based on the compared results and matches the use. At this time, in extracting specific experts through the matching module, the names of occupations, occupations, business types, and industries that users are curious about are included. Therefore, the matching module can extract and match only experts who match the job group, job group, business type, and business type of counseling-required information entered from multiple experts stored in the database. In other words, the content of the text included in the counseling need information and the career information of experts stored in the database are compared, and experts who match the counseling need information entered by the user are extracted and matched with the user.

The experience sharing module simultaneously displays avatars of users and experts on the generated metaverse space, and provides interactive conversation functions through avatars, enabling experience sharing between them. This is linked to the metaverse interface, where avatars moving through user motion information input from user terminal (2) and avatars moving through user motion information input from expert terminal (3) are displayed in the same metaverse space, so that experts can share their job experiences. Through this experience-sharing platform providing system, experts can share their career experiences to users who are curious about the job and experience in a metaverse environment. This allows experts and users to freely share each other's experiences while providing an environment that feels as if they are facing each other in a virtual environment without actually facing each other.

At this time, users can pay a certain level of cost to share their experiences with experts. In this case, the main server may include a cost payment module that receives payment for entering the metaverse space of the user terminal (2). This can be said to be a purchase cost to purchase a kind of expert experience. The user terminal (2) can pay a predetermined fee through the cost payment module and enter the metaverse space where the expert's avatar is located in order to receive the content of the experience or career the user wants. Furthermore, the paid cost may be provided to the expert. By enabling experience transactions through metaverse as well as simple sharing of experiences, new economic activities can occur by allowing experts to sell their experiences and abilities to those who need them rather than simply sharing them. By allowing such paid expenses to be paid to experts, in the case of expert avatars generated in the metaverse space, experience values can be accumulated according to the paid expenses to raise the level. This can visualize the expert's reliability by giving the expert's avatar experience according to the cost paid to the expert, raising the level of the expert's avatar, and displaying the level on one side of the expert's avatar displayed on the metaverse space. This can increase the credibility of experts, and furthermore, experts can contribute to the creation of profits by enabling more active promotion of experience sharing through their accumulated experience values. In addition, the user pays a fee to receive experience sharing and enters the metaverse space, which may add a refund configuration that

allows the user to refund the payment while performing various activities on the metaverse space. To this end, users may be able to get a refund on the paid expenses as they participate in the event, such as playing games or watching advertisements, within the metaverse space. This allows not only experts but also users to generate profits within the metaverse space, providing another revenue generation model by enabling this metaverse platform to generate profits based on various activities rather than just a space to share experiences.

The main server also includes the location control module to control each location when an expert avatar and a user avatar are placed. This may be basically done through the operation of expert terminals (3) and user terminals (2), or the location may be controlled by a system administrator. By allowing the position of avatars of experts and users to be controlled respectively in the metaverse space, it is possible to provide a moving realistic avatar rather than a fixed avatar in the metaverse space, thereby realizing a more concentrated metaverse space.

The satisfaction-reflecting moving unit additionally included in the location control module can control in more detail in which placement area the avatar of the expert is placed. The satisfaction reflecting mobile unit may perform a function of disposing and processing an expert avatar in any one of a plurality of placement areas according to the satisfaction level input from the user terminal (2). At this time, the satisfaction level may have a value of more than 0 and less than 100, and the closer it is to 100, the more the avatar of the expert can be placed in the placement area close to the center area. Through this logic, experts' avatars can be placed around the user's avatar, but experts can be encouraged to share more sincere experiences. This is because the distance between the expert's avatar and the user's avatar is automatically controlled according to the satisfaction level entered by the user on the metaverse space.

Furthermore, the satisfaction-reflecting mobile unit may include a detailed arrangement part that arranges and processes an expert avatar in one of a plurality of detailed areas according to conversation input among the expert terminal (3) and the user terminal (2). Through such a detailed placement part, the position of the avatar of the expert is adjusted according to whether a specific avatar is spoken on the detailed area in which the placement area is divided, thereby increasing the concentration of the specific avatar in the metaverse space.

Additionally, it is said that the placement area is further divided and processed in the detailed area, and it is possible to control the location of the avatar of the expert in more detail even within a specific detailed area by reflecting satisfaction. To this end, the satisfaction reflecting moving unit may include the distance control part. This allows additional control of an expert's avatar position in detail based on the central area centered on the user's avatar position, thereby adjusting the expert's avatar closer or farther than the user's avatar within a specific detailed area. For detailed control, a reference is required, which is calculated through the correction distance. As described above, the correction distance is calculated based on the satisfaction between 0 and 100 input from the user terminal (2), the total number of conversation inputs from the expert terminal (3) and the user terminal (2), and the time required after entering the metaverse space. Therefore, the distance control part, which can be included as a detailed configuration of the satisfaction-reflecting mobile part, not only divides and processes the placement area according to satisfaction, but also allows the user's avatar and expert to display the conversation time intuitively. The distance control part may enable detailed control of the position of the avatar of the expert within a specific detailed area according to the distance index calculated according to Equation 1.

Formula 1

$$S = O \times \sqrt[3]{\frac{log\sqrt{tn}}{sln(c)}}$$

S is the calibration distance, O is the reference distance for a particular detailed area, and S is $o<s\leq1.0$ as satisfaction weight with a written satisfaction, t is the time required after entering, and c is the satisfaction level input to the user terminal, $0<S\leq100$, n means the number of conversation inputs.

Figure 3 is a conceptual view illustrating a screen divided into a central area and an arrangement area. According

to figure 3, this system may control an arrangement structure in which an avatar of an expert and an avatar of a user are disposed in a metaverse space. In the case of the layout structure, the screen on which the metaverse space is output is divided, and the user's avatar and the expert's avatar are placed on the divided screen, which can be controlled. To this end, basically, the main server may include an area division module. The area division module performs a function of dividing a screen in which a metaverse space is output into an area where a user's avatar is placed and an area where an expert's avatar is placed. The area located at the center of the screen becomes the center area where the user's avatar is placed, and is divided into multiple concentric arrangement areas with the center point of the center area as the center. Many of concentric circles focusing on the central area become the arrangement area, and an expert avatar is disposed in the arrangement area. Therefore, the avatar of the expert is placed in any one of the concentric circles centered on the location where the user's avatar is placed, and the avatar of the expert is placed in any one of the placement areas so that it can move only within the placement area.

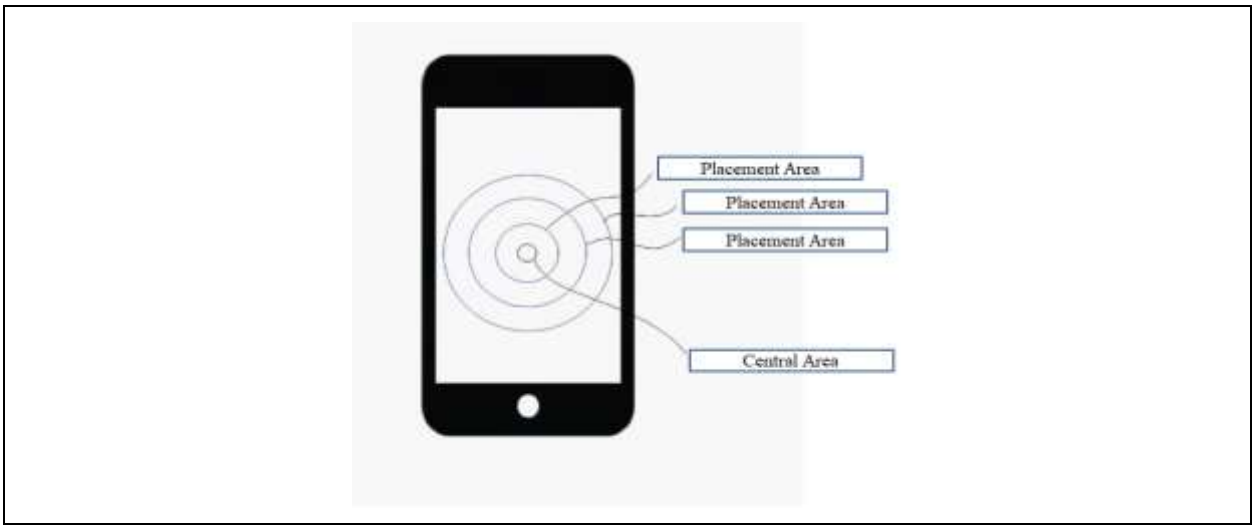

Figure3. Conceptual view illustrating a screen divided into a central area and an arrangement area

Figure 4 is a conceptual diagram including division into detailed areas. Referring to figure 4, the present system may add a configuration of additionally dividing the arrangement area into a detailed area. To this end, the area division module may include a virtual horizontal line generation unit and an additional division processing unit. The virtual horizontal line generator generates a virtual horizontal line on the screen with the center area as a center point. As shown in the figure 4, a virtual horizontal line passing through the center point of the central area is drawn, and a virtual horizontal line is generated in a horizontal direction to divide both the central area and each arrangement area into two. The additional division processing unit further divides each area into a plurality of detailed areas based on the virtual horizontal line, which divides each area forward and backward based on the virtual horizon line into two parts. That is, the front side and the rear side are divided based on the virtual horizontal line, and accordingly, each area is divided into two front and rear sides.

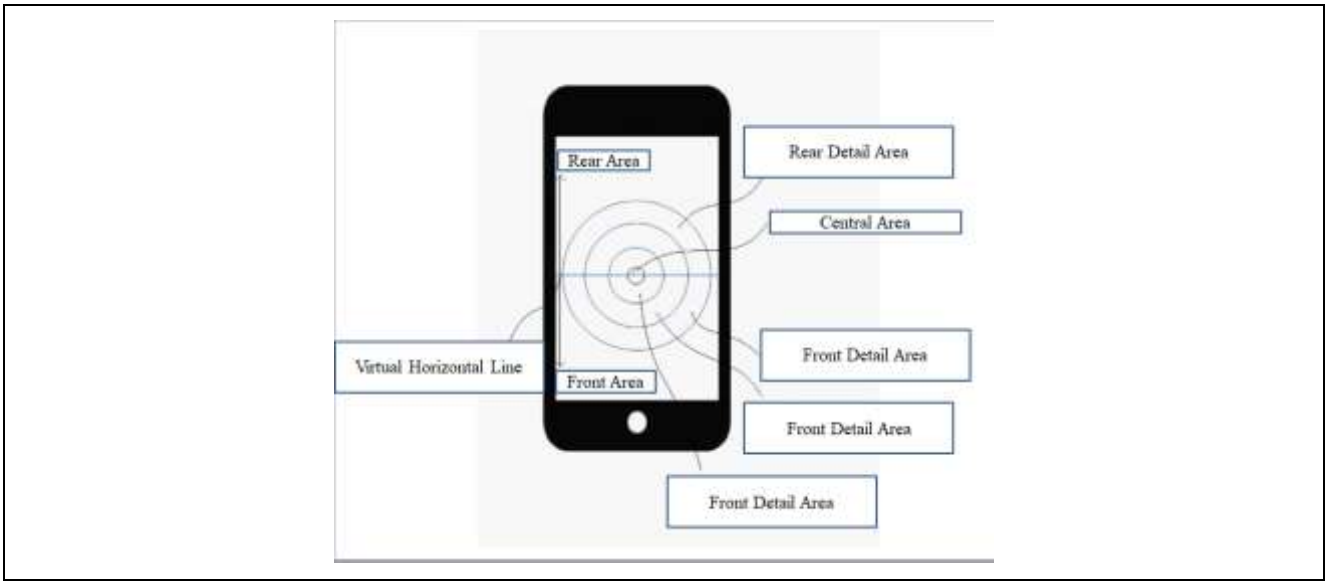

Figure 4. Conceptual diagram including division into detailed areas

DISCUSSION

The experience sharing platform using metaverse proposed in this study can be expected to have the following effects. 1) In a metaverse environment, experts can share their career experiences to users who are curious about their jobs and experiences, giving them a virtualized environment that feels as if they are face-to-face and free to share each other's experiences. 2) By allowing the position of avatars of experts and users to be controlled respectively in the metaverse space, it is possible to provide a moving realistic avatar rather than a fixed avatar in the metaverse space, thereby realizing a more concentrated metaverse space. 3) By allowing experts who share experiences or users who share experiences to generate profits on the metaverse space, the metaverse platform can function as a space for revenue generation, not just a space for consumption. 4) The distance between the expert's avatar and the user's avatar is automatically controlled depending on the satisfaction level entered by the user on the metaverse space, which can encourage experts to share more sincere experiences. 5) It is possible to increase the concentration of a specific avatar in the metaverse space by adjusting the position of the expert's avatar according to whether a specific avatar is spoken or not.

Acknowledgement

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea(NRF-2023S1A5A2A01078140)

REFERENCES

J.M. Zheng, K.W. Chan and I. Gibson, "Virtual reality," Ieee Potentials, pp. 20-23, 1998.

Julie Carmigniani, and Borko Furht. "Augmented reality: an overview." Handbook of augmented reality, pp.3-46, 2011.

Judy Joshua. Information Bodies: Computational Anxiety in Neal Stephenson's Snow Crash. Interdisciplinary Literary Studies, 19(1):17–47, 2017. Publisher: Penn State University Press.

LH Lee, T. Braud, P Zhou, L Wang, D Xu, Z Lin, A Kumar, C Bermejo, P Hui. "All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda. " arXiv preprint arXiv:2110.05352. 2021 Oct 6.

Anders Bruun and Martin Lynge Stentoft. Lifelogging in the wild: Participant experiences of using lifelogging as a research tool. In INTERACT, 2019.

William Burns III. Everything you know about the metaverse is wrong?, 2018.

Kyle Chayka. Facebook wants us to live in the metaverse, 2021.

Condé Nast. Kevin Kelly

Nvidia omniverse™ platform, 2021.

Megan Lang, J. S. (2022). The Economics of Women's Entrepreneurship, 1–45.

Sawad, B. (2022). Effect Of Microfinance On Entrepreneurship Development: A Case Study Of Kanchanpur District By:, (8.5.2017), 2003–2005.

Tarisha, A., Ardi, K. H., Fatkhurrahman, I. N., & Margaretha, F. (2021). Financial Literacy on Saving Behavior in MSMEs with Social Influence as an Intervening Variable. Oktober, 5(2), 24–37.