Digital Telepathy as a New Media for Translating Visual Messages in Artificial Intelligence Architecture Application

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ABSTRACT
Telepathy which is a form of communication still has a questionable position for everyone. Along with the progress of the times, telepathy has become something that is possible to happen. Architecture science, which is a real study in academia, is still trying to collaborate with various concepts in other scientific fields to answer and provide solutions for an architectural case in the future. This paper seeks to exploit artificial intelligence-based architectural applications that can translate visual messages and their application in the world of architecture and IoT (Internet of Things) through new media of digital telepathy. The result expected by the researchers is that new applications can be created that provide more benefits for architects and clients.

Keywords: *Digital telepathy, Artificial Intelligence (AI), Architectural applications*

1. INTRODUCTION

Communication in the past, present and future, occurs with methods or ways that are increasingly developing. Nowadays, time and place are no longer a barrier to communication. However, in a communication still requires an effort between the communicant and the communicator, to avoid miscommunication.

In architecture, communication is known as a process of exchanging messages and information that takes place between humans as occupant and their environmental space [1]. Communication includes both the transfer and the understanding of meaning. According to Effendy communication in terms of its components is a communicator, message, media, communicant and effect [2]. These five components are the main material for the cause of the communication process. There are various forms of studies in communication, let's say media analysis, which is a study that studies the ways, paths, and can be called the container of a message, so that the communication process can occur.

In a communication, sometimes a tool is needed to convey a message to be conveyed. According to experts, there is many form of communication through telepathy. Telepathy is a form and way of communicating between minds. It can be said that communication is an ability to communicate without any time, place and time limits effort or physical effort between people. Research on telepathy has been done by many people, in an effort to get an idea of the progress of communication in the future. One of the developments in digital technology in the future is Internet of Things (IoT) that will lead every knowlegde to adapt to it.

This paper attempts to explore architectural applications based on artificial intelligence that can translate visual messages and their application in Architecture and IoT (Internet of Things) through the new media of digital telepathy and trying to collaborate with various concepts in other scientific fields to answer and provide solutions for an architectural communication case in the future. The expected results by the researchers is new ideas about apps or tools that can be created to provide more benefits, especially in the field of communication for architects and clients.

2. METHODS

The method used in this research is an exploratory research method which is an initial research and aims to get an overview of a research topic that will be investigated further [1]. Exploratory research is used to get ideas about the main problem in more detail and to

develop existing hypotheses [2]. Data collection techniques in exploratory research can use open interviews and the study of various books. When open interviews are conducted, researchers can ask in-depth questions that are closely related to the object under study [3]. However, in this case the technique chosen by the researcher in collecting data is by examining various sources through books and online media.

Humans are social creatures who depend on other creatures and their environment. One of the liaisons in connecting someone is to carry out a communication [4]. Communication is a crucial skill, where communication can occur verbally or non- verbally [5]. Communication is also part of the art and the process of creating or sharing ideas effectively through the wealth of ideas created [6]. In architecture, communication is a step in conveying ideas to clients. On the other hand, the client also needs to communicate his various wishes to the architect, so that the results of a design can be realized easily and are expected to be able to provide physical and psychological satisfaction for the client [7].

Communication is one of causes of misunderstanding between the client and the architect, resulting in an unsatisfactory design. Errors in architectural design to the client's needs are caused by the occurrence of a discontinuity between the thoughts or desires expressed by the client to the architect. It could also happen because the architect could not get the intentions and desires of his client as a result of the client difficulty of communicating the imagination contained in his thoughts orally. A doubts about what is desired, causing a different visual from the architect's thinking of the client's desired design. Therefore, a good communication tool is needed between the client and the architect in achieving design ideas.

The communication to be achieved in this paper utilizes the mystery of the brain, which is carried out with the help of other disciplines, through neurolinguistics [8]. Neurolinguistics is the proper and adequate understanding of language depending on the correlation of information from various fields related to the structure and function of language and the brain, through neurology and linguistics'. In the future it even seems necessary to add learning about 'cognition' or cognitive science. A well- articulated cognitive science is needed to provide the desired integration of two otherwise very different fields such as the study of language and neurology [9].

2.1. Digital Telepathy

Digital Telepathy is a new idea in providing a good communication experience by utilizing brain waves through the principle of telepathy. Brain waves are used to process an advance tool hardware/software as a useful follow-up to find out a client's deepest desires for a design. The use of brain waves is developed through digital telepathy and is carried out between the client and the architect, by combining ideas between two parties. The merging of ideas that occur in brain waves is translated into a visual (design) conforming to the client's wishes and architectural principles through the use of connected hardware and software.

Digital telepathy is different to traditional telepathy which describes telepathy as an attempt to read minds or control thoughts between actor A and actor B which only uses thoughts or feelings [10], digital telepathy is posibbly imagined logically and is expected to become a reality. Digital telepathy combines the principles of telepathy and digital data processing, digital telepathy can take advantage of existing technology to be developed into a new technology. The technology used is in the form of technology that can record electrical activity in the brain contained in the EEG [11] and utilizes technology that can send signals from the brain to the machine contained in the BCI [12].

In the use of digital telepathy in architecture, the main thing is the imagination of the client and the architect, based on research which shows that imagination involves many cognitive functions, learning, production tasks and memory [13]. Imagination can be defined as the manipulation of information that is not available directly by the sensor agent, imagination is a mechanism that allows to simulate sensory actions and consequences directly internal and provide benefits when doing so [14]. The thought of imagination is simulated into a hardware in the form of AR which is hardware to integrate 3D virtual objects into the real environment in real time [15].

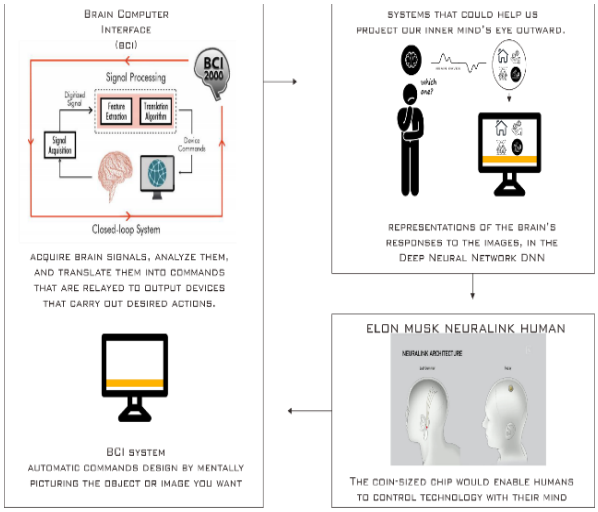

Figure 1 Shows available technologies that can be utilized for the development of digital telepathy.

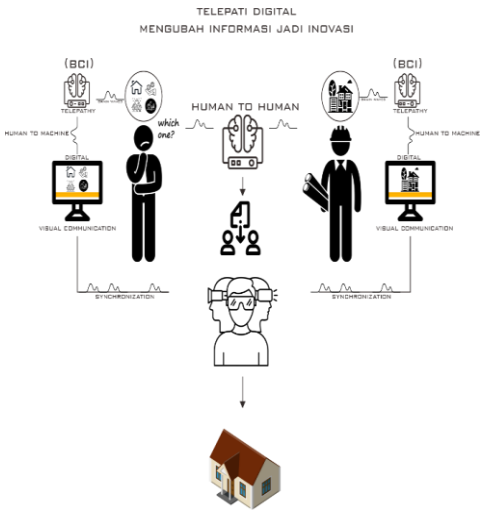

Figure 2 Digital telepathy process flow; Client→ Digital Telepathy – Architect.

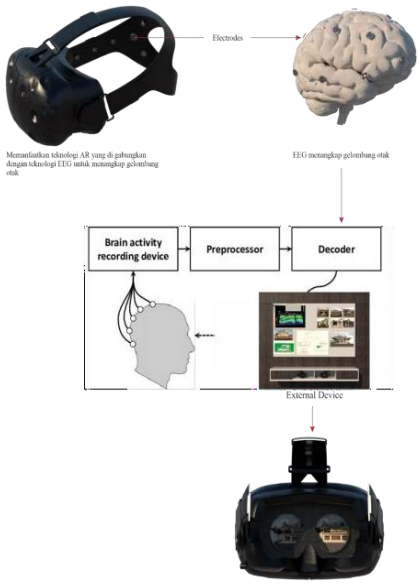

Figure 3 Utilization of EEG, BCI and AR/VR technologies in the development of digital telepathy.

3. RESULTS AND DISCUSSION

1. The client communicates/discusses with the architect using VR/AR. This communication can be done verbally (verbally) or non-verbally (imagining) (see in figure 4).

Figure 4 Verbal/Non-verbal communication.

2. Software receive information via brain waves from clients and architects (figure 5).

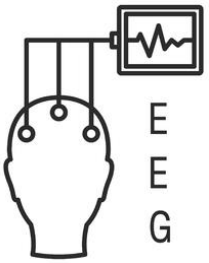

Figure 5 EEG read brain wave.

3. The client provides information regarding accurate physical and non-physical data, by imagining desire in a form to be achieved (figure 6).

Figure 6 Site information transfer by client.

4. Brainwave signals from clients are captured via BCI,

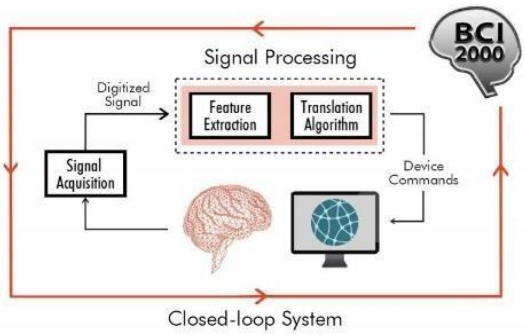

Figure 7 Brain waves are received by the BCI and displayed on the screen (data processing).

then processed by software which provide a basic overview of information related toclient needs automatically through AI, can be (figure 8):

1. Real time Visualization of size and shapesite (through the image of information obtained through communication and imagination / image of the client)
2. Visualization of the image or imagination that the client is thinking about in real time
3. Visualization is displayed on the screen to record and process data from the communication activities

carried out, the results of the recording can be used as datacorrection tools in case of data misinterpretation.

Figure 8 Brain > Brain Waves > EEG > BCI > Architect.

5. The processed brain wave signals are then transferred and captured by the architect through VR in the form of an image from the client's imagination, so that the architect can know the client's wants and needs.

Figure 9 Client imagination could be seen by architect.

6. The architect provides ideas through his mind regarding in-depth observations of the client's physical and non-physical conditions as a starting point for the design and the designed object.

Figure 10 Architect's ideas are poured into design visualizations responding to client needs.

7. This idea is then synchronized to the client's wishes and processed in the form of design images that are displayed virtually via VR to the client:

- Visualization of the design concept from the architect's mind.

Figure 11 Synchronization is done automatically based on the combination of the imagination / thoughts of the client and the architect.

- Visualization of the arrangement of architectural elements, namely points, lines, planes, spaces, shapes, textures and design principles.

Figure 12 The results are displayed in virtual form through synchronization of the client's and architect's thoughts, so the clients can experience the design experience in real time.

8. Clients provide feedback to ideas. Result of feedback This is then translated by digital telepathy into a design design based on the received data and existing design principles.

4. CONCLUSION

In short digital telepathy works for:

- Changing communication through thoughts and imagination.
- Analyze brain waves.
- Translating brain waves into two-dimensional or three-dimensional images (shown in AR).
- Transferring thoughts (the result of brainwave translation) of user A to user B and vice versa.
- Formulating the thoughts of user A and user B into one coherent thought in the initial design stage and the design concept, in two dimensions and three dimensions (shown in software design).
- The data obtained is processed intuitively by AI to determine the shape of the next design based on deep desire client (user A) and the architectural principles in mind of the architect (user B).

Artificial intelligence development is expected to be able to preserve and increase brain power in humans. The technological development to be achieved is

expected to be able to make humans able to collaborate or join the artificial intelligence they created.

Nowadays era, artificial intelligence very necessary in various activities, especially in terms of its application in the world of architecture. One form is through digital telepathy which is expected to provide a way out between the architect and the client. Therefore, new media or applications need to be developed further in order to provide benefits to architects and clients in order to be able to translate visual messages between the two parties. Thus, the miscommunication that often occurs between the two so far, can be avoided by various forms of solutions produced by the company artificial intelligence.

Artificial intelligence as a form of digital problem solving and technology does not necessarily bring a good influence. An architect is also required to be able to behold social development. Service to client needs must also be balanced, in order to enjoy life and feel comfortable living in the era of digitalization. The synergy between the technology is expected to be able to create new values to reduce the gap between people, especially in the field of architecture in the future.

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