

## Cube-type Interactive Media Art Work Implementation by Utilizing Multi-vision

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**Abstract.** This paper is connected with media art work on the basis of cube-type multi-display work in POSCO, Gwangyang. Cube-type multi-display shows a media art video on the cube-type display, focusing on the interaction of spectator. Cube-type interactive media art can set up user preference settings according to the display bezel, and can be variously utilized in the future.

**Keywords:** POSCO, multi-display, interactive, media art

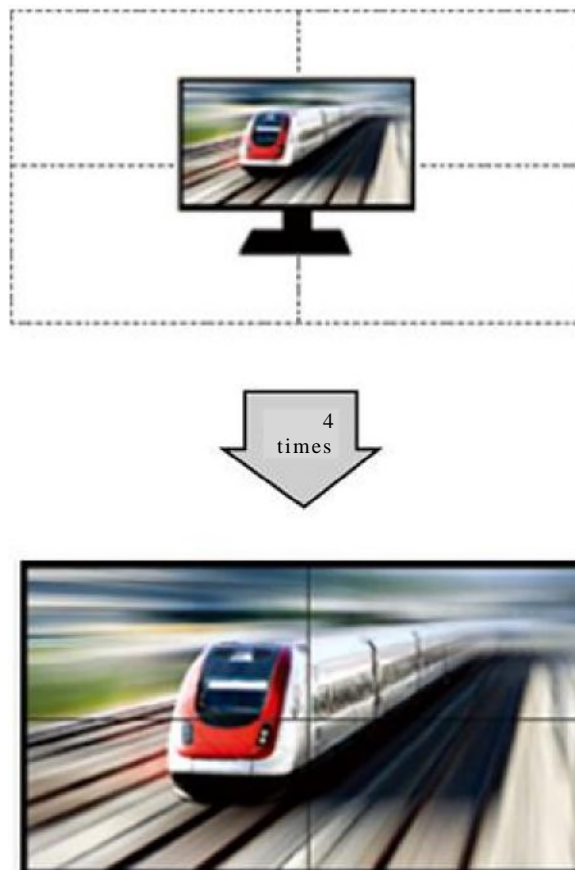
### 1 Introduction

This work is a work released and displayed in the cube-type interactive media art of POSCO promotion hall, Gwangyang, Korea. Recently, software and hardware technology development is actively in progress owing to many people's a lot of interest in and researches on the development of computer technology. [1] A display system which produced a visual effect was developed from single screen using one screen that could give reality to a user, through a multi-screen where many screens were connected and a curved screen, moreover to C6 composed of 6 screens that surrounded a user. [2] This has expandability of spectators' desiring more information and desiring to see wider screen.

Visual effect, interaction of motion, audio effect, tactile effect, and other various effects are used for giving reality to a user. What accounts for the largest portion in giving reality among these effects is visual effect.[3][4] This work was implemented by a system for visually expressing the change of image according to the increase in the size of display, connectivity using a network system, and the size of bezel in the connectivity.

## 2. Cube-type display implementation by utilizing multi-vision

Cube-type display by utilizing multi-vision is composed of 9 DIDs (Display Information Display) of 46' type. And each controller controls 2 DIDs. As each display interacts with one main server, it carries out network communication. Therefore, media art video is synchronized.



**Fig1.** Conventional multi-vision implementation method



Fig. 2. A proposed image generation method

### 3. System hardware configuration and program

This system is composed of 9 DIDs, 2 sets of touch screen, 1 controller for server, 4 user controllers, and 1 set of network hub. It has a method where 2 sets of touch screen recognize the user's touch, and then network signal is sent to the server controller, and then the server controller send a signal to each user controller. And each display had resolution of 1280\*720. And touch screen was implemented with resolution of 1920\*1080.

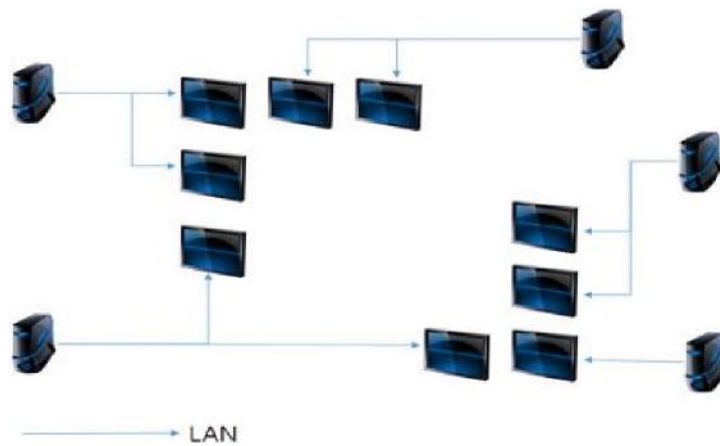


Fig3. System hardware configuration

### 4 System software design

System software is largely classified into three types. Those include touch recognition software, signal program that controls each network signal, and VIEW program that shows video on each display. Commercial version of infrared ray-type touch program was used as the touch recognition software. And PROCESSING was used as network signal program. And MAX/MSP JITER was used as VIEW program.

## 5 Conclusion



**Fig. 4.** Display implementation image **Fig. 5.** Touch input implementation image

This work is a work that connects large display of 3840\*1080 at touch input terminal to the display of 8960\*720, development of multi-vision common in our neighborhood through network.

This study developed multiple network connection software and hardware components for developing cube-type interactive display system. Individual video was selected for each display in order to show larger video than 4K video. Each interaction was implemented by using the touch, utilizing the network system. And input source was received by utilizing two touch screens. A large number of spectators were enabled to select and to appreciate media art and to find a detailed description, by utilizing the touch input of system.

We plan to devise a method of research on the increase in the size of video according to the increase in the size of display. And researches on various displays should be carried out, not being content with quadrilateral frame according to the development of hardware.

## References

1. Kang, M. K.: IR LASER gesture recognition system for using large scale multi interactive display system.
2. Cole, M., Gruening, J.: Choosing a Screen Configuration to Suit the Application, The Fourth International Immersive Projection Technology Workshop, 2000
3. Vince, J.: Virtual Reality Systems, Addison-Wesley, pp 258~281, 1995
4. Burdea, G.: Philippe Coiffet, Virtual Reality Technology, John Wiley & Sons, New York, pp 221~255, 1994