A web system for creating and sharing 3D auditory contents

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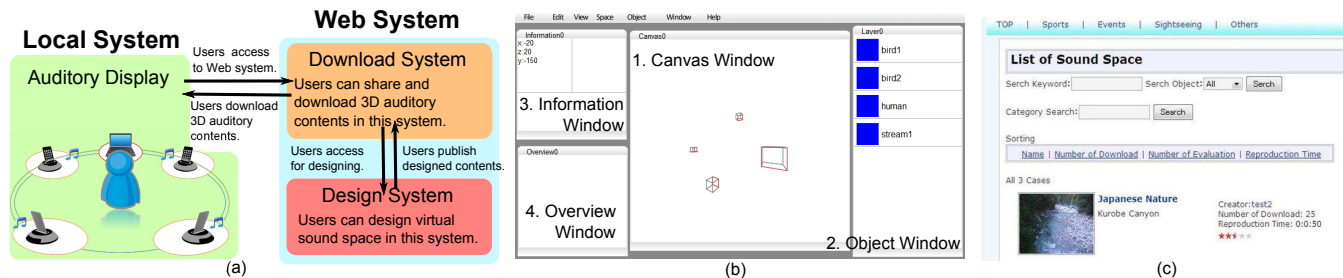
Figure 1: *(a)System Overview, (b)Design System, (c)Download System*

1 Introduction

Recently, 3D movies such as "Avatar" have been popular because they can provide hyper reality. Most of these movies require special facility such as IMAX 3D. Therefore it has been difficult to introduce these movies to home environment. However, 3D TV for individual use has already been developed and is expected to become popular in a few years. In such situation, the demand of 3D contents for those systems will be higher and higher. However it is very difficult to create such contents because it requires exclusive tool, high technique and much cost.

To solve these problems, some systems for creating 3D contents have been proposed. For example, van den Hengel et al. have developed the system that can generate a 3D model by tracing a material shape on video images[van den Hengel et al. 2007]. For creating 3D auditory contents, the system that can generate contents for surround audio system by manipulating virtual sound object with real hand has been developed[Hughes 2009]. However these systems still require special tools and techniques.

Therefore, in this research, we focus on 3D auditory content at first, and develop a web system that realizes to create and share 3D contents easily. In this system, user can design virtual sound space with an operation like paint software on a web browser and share them on the internet. Moreover user can enjoy the created contents with our 3D auditory display[Takahashi et al. 2009] that is composed of mobile devices (iPhone, iPod touch and PC), and that realize to place speakers in any 3D positions and numbers at low cost.

2 Overview of our web system

Our system is composed of "Design System" for designing virtual sound space, "Download System" to download designed sound space, and "Auditory Display" that we have already developed. Fig.1(a) shows system overview. The system is divided into a system on the internet and a system in local environment.

The design system (Fig.1(b)) has been developed by Ajax technology and GUI of the system has an appearance of paint soft. Therefore, users can design sound space as if drawing a picture with-

out special knowledge. To design virtual sound space, firstly, users enter some information to the input form and create new project. The canvas window (Fig.1(b)-1) is displayed after creating a new project. To create a new sound object, users open the input form, and enter "Object Name", "Sound Source File", "Position of Sound Source" and other options. If users want to move sound object, users just only drag and drop the sound object on the window. In case of setting animation, users set a time line bar, base point and moving path on the same canvas window. By repeating these procedures, users can design virtual sound space. After designing, users save it and publish them on the internet.

Fig.1(c) shows the download system for downloading and sharing 3D auditory contents. This system enables to download contents by searching for information of contents ("Creator's Name", "Creator's Comment", "User's Comment for Evaluation", "Tags", etc). Users search the contents with these keywords, and save the packed data into local auditory display. After downloading the contents, user enjoy them by our auditory system that was placed in favorite position and numbers of speakers.

3 Future Works

In future work, we will develop the system that can design and share not only sound space but also visual space by using multimodal device that integrates head-mount-display and our auditory system. With these systems, it will be possible to create and share audio-visual 3D contents on the internet.

References

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