

# Mixed Soundscape and Cityscape

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**Abstract**—We created an interactive art “Mixed Soundscape and Cityscape”. This artwork provide users an experience for rearrangement and observation of the environmental sounds, providing users with an opportunity to rethink the region based on the placement of these sounds. The users move the objects, which correspond to environmental sounds, on the table to reconfigure the soundscape and appreciate them. This artwork exhibited at the “TAMAable Exhibition” held in Tama City, Tokyo, Japan.

**Index Terms**—Soundscape, Interactive Art, Sound Art

## I. INTRODUCTION

We created an interactive art “Mixed Soundscape and Cityscape”. This artwork provide users an experience for rearrangement and observation of the environmental sounds, providing users with an opportunity to rethink the region based on the placement of these sounds. The users move the objects, which correspond to environmental sounds, on the table to reconfigure the soundscape and appreciate them. Additionally, graphics representing the environmental sound are projected at the position of sound. Figure 1 shows an overview of this artwork.

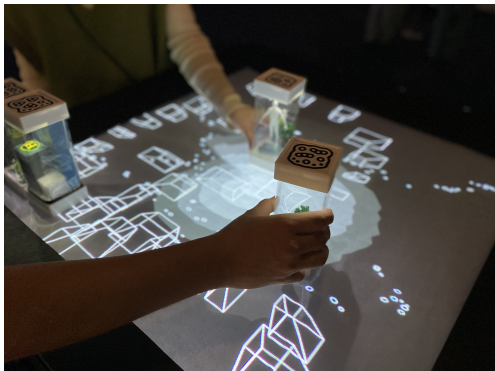


Fig. 1. Overview of Mixed Soundscape and Cityscape

## II. CONCEPT

The users can manipulate objects represented by mountains, rivers, buildings, and a listening point. The mountains, rivers, and buildings are objects used to reconfigure the corresponding environmental sounds (hereafter referred to as sound objects). The listening point object is used to specify coordinates in the virtual space to appreciate environmental sounds. The users can place environmental sounds in the virtual space by

manipulating these objects and appreciate the environmental sounds from any position. This system and interaction allow users to observe local environmental sounds more deeply. David Gunn’s “FOLK SONGS for the FIVE POINTS” is another artwork that deals with environmental sounds, similar to this artwork. Their artwork focuses on the diverse cultures within the city. However, our artwork focuses on the history of the city.

## III. SYSTEM

This artwork is composed of a marker tracking system, a graphics generation system, and an environmental sound synthesis system. The marker tracking system uses reactTIVision, the graphics generation system uses openFrameworks, and the environmental sound synthesis system uses Apple’s Scene Kit. Sound object and listening point object has marker attached to them, and reactTIVision’s camera application reads markers information to detect position and markers type. The reactTIVision sends this marker information to the graphics generation system via the TUIO protocol. The graphics generation system generates graphics and projects them onto the table when the marker moves a certain distance. When the graphics are generated, the type and coordinates of the environmental sound are sent to the environmental sound synthesis system via the OSC protocol. The environmental sound synthesis system receives the type and position of the environmental sound, it places the environmental sound object in the virtual space and outputs the synthesized environmental sound to the headphones.

## IV. CONCLUSION

This artwork exhibited at the “TAMAable Exhibition” held in Tama City, Tokyo, Japan on February 11-12, 2023. During the exhibition, environmental sounds collected through field recording of the rivers, streets, and mountains in Tama City were used as the environmental sound data. Many of the visitors were residents of Tama City. They were looking back on the history of the Tama City development through this artwork. These responses suggest that the environmental sounds were effective in helping the users understand the history, culture, and landscape of the area.

## REFERENCES

- [1] David Gunn, “FOLK SONGS for the FIVE POINTS”, <https://www.commarts.com/webpicks/folk-songs-for-the-five-points>, (accessed 2023-03-26).