Sound-enhanced Landscape Album for Smart-phone

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ABSTRACT

In this paper, we propose a system of sound-enhanced landscape album for smart-phone. This system is able to provide landscape image and environmental sound for user designated place. This system is consists of a server and a mobile client terminal. Functions that need high computational costs, such as generating environmental sound, are processed in server side. Because result generated by the server is sent to client side through a network, a mobile client can provide landscape image and environmental sound in real-time manner.

Keywords

Environmental Sound, Landscape Image, Virtual Reality, Cloud Service;

1. INTRODUCTION

Recently, location-based navigation system such as google street view grows popular. These systems enables us to provide user experience even if user never seen before.

However, because these systems generally utilize just visual information, it has limitation to provide virtual experience to users. If environmental sound can be provided to users as acoustic information with visual information, virtual experience is richer. Due to these reasons, we proposed environmental sound generation method for arbitrary location in [1]. This method generates environmental sound for designated location by predicting and synthesizing sound sources. Sound sources are predicted by using objects that exist near designated place from geographical information.

In this paper, we propose and implement a system of sound-enhanced landscape album for smart-phone by adapting proposed method. This system potentially provides a rich user experience for arbitrary location. For computational cost issue, this system is implemented as server-client system.

2. IMPLEMENTATION

In this system, a mobile client designates a location and requests to the server. Cloud server retrieves landscape images and generates environmental sound and sends back to the client. Proposed system is consists of three functions (see figure 1).

(1) Display Landscape image
This function provides landscape image taken near the designated location.

(2) Generates Environmental Sound
This function generates and provides environmental sound near the designated location.

(3) Comments for the sound environment
This function provides comments for the sound environment by life-like agent.

Especially "(2) generate environmental sound" leads to high computational costs due to prediction of sound environment and synthesis of sound sources. Therefore, sound generation process is implemented in server side. In client side, user selects a location on a map screen, user interface moves to screen of provisioning landscape image and environmental sound (see figure 2).
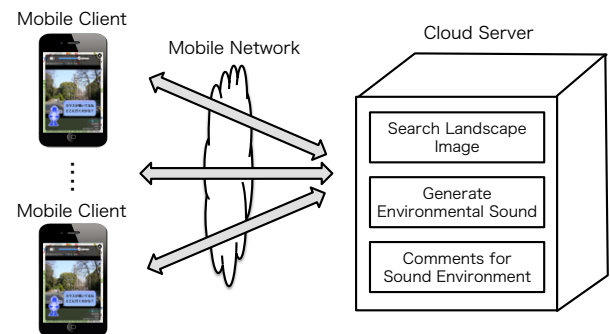

Figure 1. Overview of proposed system.

Figure 2. Screen shot of mobile application. (Left: location selection screen. Right: play image and sound screen)

3. CONCLUSION

In this paper, we proposed a system that can provide rich user experience by using not only visual information but also acoustic information. For solving a cost issue, this system is implemented as server-client system.

4. REFERENCE

[1] Satoshi Innami, Hiroyuki Kasai: On-demand Soundscape Generation Using Spatial Audio Mixing: 29th IEEE International Conference on Consumer Electronics (ICCE2011), Las Vegas, USA, pp.29-30, 2011.