Sound Design for Digital Camera

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ABSTRACT

In recent years, the auditory signals of the computers, some cellular phones and so on, are designed with digital audio data. Generally, in the power of expression, digital audio data is exceeds much farther than the conventional beep sound far. So it is important to design sound fully taking advantage of that characteristic. According to this idea, I designed the some auditory signals of the digital camera with the digital audio data. I considered the functions and the characteristics of each auditory signal, before starting the sound design for the digital camera. And I invented the design method of auditory signals for the digital camera. And I imagined some situations people use the digital camera. Then I added some new functions to each auditory signal.

I will demonstrate them with some auditory signals of the digital camera at the conference space.

1. INTRODUCTION

The PowerShot S40 is the first Canon digital camera to incorporate a feature called "My Camera Settings". This feature allows users to customize settings for the start-up images, the start-up sounds, the operation sounds, the self-timer sounds and the shutter sounds. And "My Camera Settings" is incorporated in other models now. In addition, some images and sounds are provided by the bundled CD-ROM.

Figure 1. *Canon PowerShot S40*

2. FILE FORMAT OF MY CAMERA SETTINGS

2.1. Start-up image

2.1.1. *Recording image format*

JPEG [Base line JPEG]

2.1.2. *Sampling rate*

4:1:1

2.1.3. *Image size*

320*240 pixels

2.1.4. *File size*

20KB or less

2.2. Start-up sound, operation sound, self-timer sound and shutter sound

2.2.1. *Recording format*

WAVE [monaural]

2.2.2. *Bit depth*

8bit

2.2.3. *Sampling frequency*

11.025kHz/8kHz

3. ONE THEME COMPOSED OF FIVE ELEMMENTS

A My Camera Setting consists of five elements, the start-up image, the start-up sound, the operation sound, the self-timer sound and the shutter sound. By designing these five elements according to the same theme, for instance, Samba, Kabuki, Piano Trio and so on, the My Camera setting become interesting and appeal to users. This is a new concept for visual and auditory signals of the camera.

4. SOUND DESIGN OF MY CAMERA SETTINGS

Before beginning the sound design, I considered the function and the feature of each auditory signal. And I imagined some situations people use the digital camera. Since the digital audio data has more power of expression than the beep sound, it is able to add the new function to each auditory signal.

4.1. Start-up sound

As users turn on the camera, it sounds.

4.1.1. Recording time

1.3 sec. or less

4.1.2. Basic functions

It tells that the camera starts up.
It makes users pleasant when they turn on the camera.

4.1.3. New function

It makes users feel the theme of the My Camera Settings with the start-up image.

4.1.4. Characteristic

When the start-up image is on the screen, it sounds.

4.1.5. How to design

Sound designers should express the beginning of the theme of the My Camera Settings.
Allow users to feel the theme of the My Camera Settings in an instant.
Harmony with the start-up image is very important. For instance, I designed the sound of a gate bell for the start-up sound of the "Old House theme". I made gloomy tone by a major 7th interval and a diminished 5th interval. Then I made a timeworn bell sound by converting the sound of a 16bit 48kHz new bell to 8bit 8kHz.
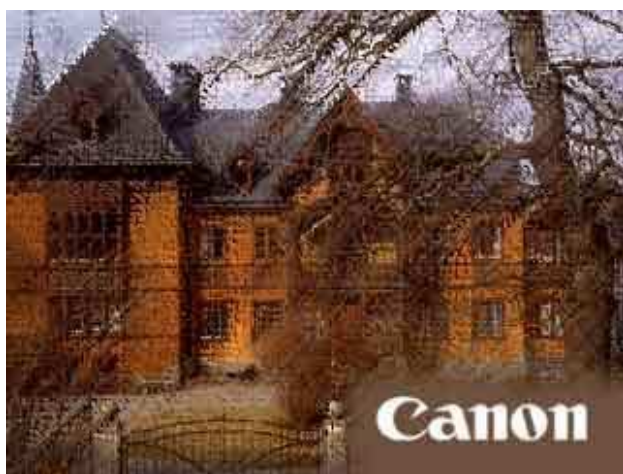

Figure 2. *Star-up image of "Old House theme"*

4.2. Operation sound

As users operate some buttons except shutter button, it sounds.

4.2.1. Recording time

400msec or less

4.2.2. Basic function

Users can check that their operations have been recognized, by hearing it.

4.2.3. New function

It makes users pleasant when they operate some buttons.

4.2.4. Characteristic

Users sound it by themselves repetitiously.

4.2.5. How to design

Sound designers should design the sound which users become pleasant, when they hear it repetitiously. I recommend using one sample of the repetition sound, for example, the sound of footsteps and blinkers. Then users feel the advance of his operation certainly.

4.3. Self-timer sound

It sounds for two seconds before the photo is taken.

4.3.1. Recording time

2 sec.

4.3.2. Basic function

It informs users that the photo will be taken in two seconds.

4.3.3. New functions

Use it instead of a call.
It let model to pose.

4.3.4. Characteristic

It sounds just before the shutter sound.

4.3.5. How to design

Use your some common calls. I used a Kabuki's shout for instance.
Sound designers should compose the short tune that models can feel the end of dancing. I composed the Samba tune for instance. And I took a photograph of a dancer. She danced with Samba self-timer sound. Then she posed at the end (of the sounds). People looked that scene. And they enjoyed and laughed. We could get a good communication by the auditory signal of digital camera.

4.4. Shutter sound

As users depress the shutter button, it sounds.

4.4.1. Recording time

400msec or less

4.4.2. Basic function

It conveys the end of taking a photograph.

4.4.3. New function

After photographing, it offers a topic of conversation.

4.4.4. Characteristics

On Single Shooting mode, users sound it by themselves.
On Continuous Shooting mode, it sounds repetitiously.
On Self-Timer mode, it sounds after self-timer sound.

4.4.5. How to design

Design it like people feel a closing and a trailing note.
Consider it sounds repetitiously.
Design interesting or/and amusing sound. For instance, I used the sound of kiss in "Happy birthday theme".
Use the sound of the celebrated soundscape, then users can tell their models about that soundscape. I went to Kotogahama, Shimane Prefecture, Japan, to record the sound of singing sand. When you walk on the singing sand beach, the sand sounds. If users have some knowledge about it, they will have good conversation. So it is more desirable to give users additional information with other means.

5. VISUAL AND AUDITORY SIGNALS AS ELEMMENT OF THE SHORT STORY

First, when users turn on the camera, they hear start-up sound. Next, as they operate the button for selecting the drive mode for example, Self-Timer, it sounds the operation sounds. And next, as they depress the shutter button, they hear the self-timer sound and the shutter sound. So sound designer may make a short story by this sequence.
I show a short story of "Old House theme" for example. As users turn on the camera, they hear a gate bell in the front of Old House's gate. So the start-up image is a view from the front of Old House's gate. Then by pushing the button several times, they advance hearing the operation sound of footsteps. And as they depress the shutter buttons, they can hear the door creaking and the sound of the shutting door by the self-timer sound and the shutter sound.

6. VISUAL AND AUDITORY SIGNALS AS NEW ADVERTISING MEDIA

The My Camera Setting can advertise like many vehicles, machines, foods, play spots, restaurants, tourist attractions and so on by the start-up image, start-up sound, operation sound, self-timer sound and shutter sound. For instance, we designed a My Camera Setting with the image of the car, the sound of the car horn, the blinkers and so on, with real car name "the BMW Z8". I suppose that users take an interest in it more than the name of "Car sounds theme". We appreciate the cooperation of BMW Japan.

Figure 3. *Star-up image of "the BMW Z8"*

7. NEW FUNCTION BY AUDIO SIGNALS

The My Camera Settings consist of five visual and auditory signals. And they are designed according to the same theme. They can make a short story.
Some operation sounds make users pleasant when users operate buttons.
Users can use the self-timer sound instead of a call.
Some self-timer sounds let model to pose.
After photographing, some self-timer sounds and shutter sounds may be a topic of conversation.
Some My Camera Settings can advertise many products, foods, play spots, restaurants, tourist attractions and so on.

8. EVOLUTION TOWARD IMAGE AND SOUND COMMUNICATION TOOL

The digital camera was called the image communication tool in Canon. And now, it evolves into the image and sound communication tool by the My Camera Settings.
It can assist to make the good communication between the photographers and their models, the various venders and users and so on.
I will design the My Camera Settings for making the many better communications.

9. CONCLUSIONS

By designing the auditory signals for the digital camera with the digital audio data, the functions of the auditory signals are extended.
And it is also possible to evolve a product with the new function with the auditory signals.

10. REFERENE

No reference.