Tweet Harp: Laser Harp Generating Voice and Text of Real-time Tweets in Twitter

Ayaka Endo Takuma Moriyama Yasuo Kuhara

Media Arts Studies, Graduate School of Arts, Tokyo Polytechnic University
1583 Iiyama, Atsugi, Kanagawa, Japan

m1171014@st.t-kougei.ac.jp mail@latestworldmusic.com kuha@t-kougei.ac.jp

ABSTRACT

Tweet Harp is a musical instrument using Twitter and a laser harp. This instrument features the use of the human voice speaking tweets in Twitter as sounds for music. It is played by touching the six harp strings of laser beams. Tweet Harp gets the latest tweets from Twitter in real-time, and it creates music like a song with unexpected words. It also creates animation displaying the texts at the same time. The audience can visually enjoy this performance by sounds synchronized with animation. If the audience has a Twitter account, they can participate in the performance by tweeting.

Keywords

Twitter, laser harp, text, speech, voice, AppleScript, Quartz Composer, Max/MSP, TTS, Arduino

1. INTRODUCTION

Words are a useful tool for communication to convey a greeting, thought, feeling, and emotion. In particular, poetry is a rich form of word expression, which sometimes sounds like a song. For example, Haiku, which is traditional Japanese verse constructed by syllables, resembles a song when it is read out even without a melody, because words have accents, intonation, and rhythmical phrases. That means that the sounds of spoken words are an attractive resource for composing music containing various human emotions.

Numerous people now use Twitter around the world as a tool for communicating with others. They tweet short words about daily trivia and opinions to share them with others. Someone is always tweeting somewhere, and it creates a huge pool of words reflecting the human mind and heart. The tweeted words themselves are just text data; however, when they are spoken with human voices, they resemble poetry and song.

We propose a system that generates sounds using human voices speaking words and a laser harp. We use the words in the pool of tweets from Twitter's web site [1] as the material for music.

1.1 Twitter Application

Many Twitter client applications have been developed, and some of them have entertaining aspects for enjoying tweeting. Fu_life [2] is Twitter client game software that allows users to grow flowers by tweeting and enjoy watching various colors and shapes. As for a musical performance using Twitter, TweetDreams [3] is a musical composition system that generates real-time sonification and visualization of tweet data retrieved from Twitter. The melodies are computed and derived from tweet data. Therefore, the generated sounds are not the voices uttered by humans.

1.2 Laser Harp

For a musical performance interface we use a laser harp, which is an electronic musical instrument with laser beams that are similar to the strings of a harp.

In this work, a performer plays a laser harp to make the sounds of voices speaking of the latest tweeted texts sent out in Twitter and display the texts with graphical effects on the screen as if they are floating in midair.

Spoken voices are uttered by our tongues in the air and we cannot touch and see them. Similarly, we cannot hear texts tweeted in Twitter as voice sounds. Meanwhile, by playing the laser harp, we touch a laser beam in the air like a harp string for generating a sound. In this work, when you touch a laser beam string as if touching a tweet in the air, you can hear its voice and see its text. We regard the laser harp as suitable for sounding tweet voices.

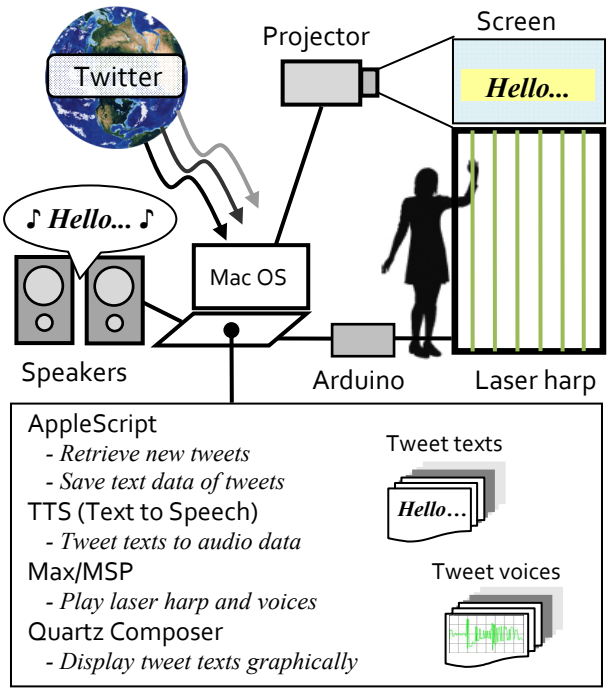

Figure 1. Diagram of Tweet Harp.

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2. METHOD

2.1 Overview

In this work, the latest tweets in Twitter are downloaded in real-time. When a performer plays the laser harp, the speech voices of tweets are sounded as music and the texts of tweets are displayed as letter strings on a screen. The laser harp has six strings, which correspond to six tweets. Demonstrations are shown on our website [4].

2.2 System Configuration

This work is configured with a laser harp, Arduino, a screen, a projector, speakers, and a Macintosh computer with AppleScript, Quartz Composer, TTS, and Max/MSP (see Figure 1). AppleScript is used for obtaining tweeted texts from Twitter's web site and converting them to audio files like the human voice speaking them with Mac OS built-in TTS, which is Text to Speech technology. Max/MSP controls the laser harp through Arduino. If a performer touches a harp string which is a laser beam, the corresponding audio file of a tweet is played by Max/MSP. Simultaneously Max/MSP sends a MIDI signal to the Quartz Composer, which displays the text of a tweet graphically on the screen.

2.3 Tweeted Text

The AppleScript program queries Twitter for any tweets containing six pre-specified hash tags corresponding to six harp strings. As soon as a new tweet arrives, it is stored in the computer memory as a text file. Simultaneously, the voice of the tweeted text spoken using TTS, which works with AppleScript, is saved as an audio file. Therefore, the six text files and six audio files according to the pre-specified hash tags exist in the system and they are kept up to date as the latest tweets.

2.4 Voice of Texts

The six saved audio files of tweeted voice are assigned to six harp strings. Each voice file is played when the corresponding string is touched. The TTS technology has more than twenty types of male and female voices. These voices are selected randomly in our system for increasing the variety of sounds. We adjust the speaking rate to slow down and speed up to adapt to the musical expression. Additionally, for enhancing their artistic contents, a performer can use sound effects such as a delay and pitch shift by handling a MIDI controller.

2.5 Graphics of Texts

The text of a tweet is displayed on the screen in synchronization with the voice of the tweet triggered by touching a harp string. Quartz Composer reads the text file of the tweet and visualizes it as an animation movie of the text with some visual effects. For example, a text slides across the screen, and another spins by changing its size around the screen. Additionally, Quartz Composer renders some abstract animation in the background to increase graphical attraction.

3. PERFORMANCE

3.1 Performer

While a performer is touching a harp string, the corresponding voice of the tweet continues to sound as loop music with the animated text. When the performer releases his touch, they vanish together. Multiple voices and texts can be sounded and visualized at a time if multiple strings are touched. As voices and texts are updated constantly, we can enjoy dynamically changing sound and animation reflecting the latest tweets of Twitter in real-time.

Moreover, a performer can change the hash tag by operating the computer during the performance. Therefore, the mood of the performance is controllable by changing the topic of the tweet.

If you want to visualize laser beams for promoting the graphical attraction, we should use a fog machine generating mist in a dark room.

3.2 Audience

The audience, who has mobile devices and a Twitter account, can participate in the performance. They are encouraged to tweet with the specified hash tag during the performance. At the moment of tweeting, their texts are included as a part of the piece of sound and movie. Furthermore, anyone in the world who tweets during a performance may become an unintentional collaborator as their tweets become part of the performance.

We conducted demonstrations of this work (see Figure 2). Both the performers and audience enjoyed the performance listening to tweeted voices and watching tweeted text animation.

4. CONCLUSION

A human voice is a brilliant musical instrument as a natural gift for everyone, and words are a basic tool for us to communicate with others. We used words tweeted from all over the world in Twitter sites as the source for musical expression, which include various thoughts, feelings, emotions, etc.

The performance is based on the latest tweets in real-time, which means that we cannot anticipate what kind of music will be generated. It promotes the element of surprise in the performance. Not only specifying hash tags for querying Twitter, we can also use a keyword for the timeline of a specific person, which varies the performance.

At present, the voices are spoken by TTS in English only. We will support various voices in additional languages, which will make the performance more interesting.

In the near future, we will improve the musical expression and operability for the performance.

5. ACKNOWLEDGMENTS

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6. REFERENCES

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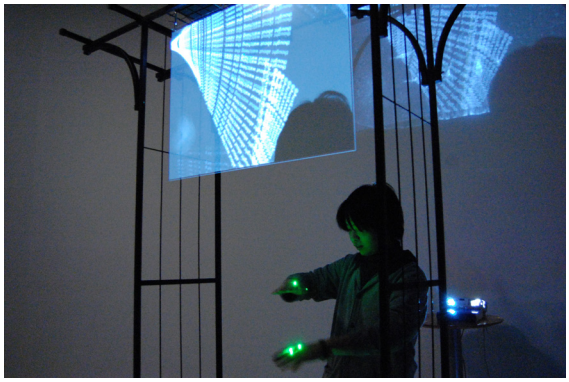

Figure 2. Performance of Tweet Harp.