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# Tongue Music: The Sound of a Kiss

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## Abstract

In this paper we examine the *Tongue Music* project: a performance-instrumental that makes use of the human tongue to yield amorous sounds, either by solo using a primary tongue controller or as a duet (*The Sound of a Kiss*) pairing a tongue controller and a receiver. We describe the design of the system and how the participants use the technology in a creative way to produce music.

## Keywords

Creative and expressive art experience, human-computer interaction, interactive environment

## ACM Classification Keywords

H5.1. [Information interfaces and presentation]: Multimedia information system; H5.2. [Information interfaces and presentation]: User interfaces, input devices and strategies, interaction styles; J.5 [Arts and humanities]: Fine arts, performing arts

## General Terms

Design, experimentation, performance

## Introduction

Digital technologies are changing our everyday lives. These innovations are also changing the way we participate in art projects [2]. We are inspired by corporeal interfaces in health and medical care systems such as in the EyeWriter Project [6] and the Tongue

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Drive System [3]. The EyeWriter Project is an eye-tracking device to help graffiti writers and artists with paralysis resulting from Amyotrophic lateral sclerosis (ALS) creating graffiti solely with the use of their eyes. Similarly, Tongue Drive System researched for medical supporting device is an interface to move the wheels of a wheelchair with use of one's tongue. These devices influenced the development of *Tongue Music*, an experimental project that allows participants to play music by moving their tongues. However, unlike the EyeWriter Project and Tongue Drive System, the *Tongue Music: the Sound of a Kiss* seeks to sonify the emotional experience of a kinetic act rather than attempting to help a physical disability. We describe the project in detail and then discuss the experiences and outcomes of the participants' performance.

### Project Description



**figure 1.** Tongue Music: Solo

#### Implementation

The *Tongue Music* interface has two components: a customized headset that functions as sensor receiver and a magnet that provides sensor input: magnetic

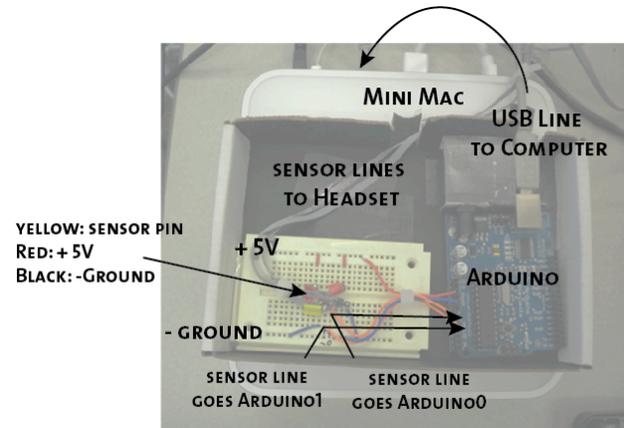
field sensors are attached to the end of the headset, positioned in front of the mouth and the participant affixes a magnet to her tongue with *Fixodent*. As the participant moves her tongue, this creates varying magnetic fields, which are used to generate a variety of rhythmic tunes.



**figure 2.** Tongue Music (The Sound of a Kiss): Duet

*Tongue Music* can be played by one participant (See figure 1). But as with kissing, the performance is more engaging when two participants (See figure 2) share the interface. When there are two performers, one person wears the headset and the other attaches the magnet to her tongue. The performers then kiss to

create sounds as a collaborative affair. Through this interaction, a kiss is translated into music.



**figure 3:** Hardware top view

#### Hardware/Software

Hall Effect Sensors communicate the magnet's movement to an Arduino microcontroller [1] (See figure 3). A computer runs Processing software [4] which captures the input data and passes it on to Pure Data [5] via OSC (open sound control). We convert signal to sound in Pure Data software. The system triggers ten minor and major notes as well as ambient sound. The musical composition is determined by how far one's tongue is away from the other's lips/tongue and the couple's style of kissing.

#### Demonstration

We demonstrated *Tongue Music: The Sound of a Kiss* at *Art under the Bridge Festival* held by DAC (Dumbo Art Center), Brooklyn, New York. The festival ran for three days, Sep 25 to Sep 27, 2009, and we performed

*Tongue Music* during that time. We interviewed 25 couples after they had performed *Tongue Music* to solicit feedback about the project. Participants ranged in aged from 18 to 43 years old and represented a wide spectrum of occupational, ethnic, and gender-minority groups. The majority of participants (24 out of 25) gave very positive feedback. Many even asked where they could purchase the *Tongue Music* device.



**figure 4:** Demonstration at Art under the Bridge Festival

### Conclusion

*Tongue Music: The Sound of a Kiss* can be thought of as a sonic representation of the abstract concept of love. Love is a complex emotion, so representing it is a daunting task. Most of us agree that kissing is a natural expression of affection. We hope experiences like *Tongue Music: The Sound of a Kiss* can reveal and expand the affectionate bond between people. The positive response to the project has encouraged us to continue developing tongue-interface musical instruments.

### Acknowledgements

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