

EaTheremin

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INTRODUCTION

Many research projects on food environments (e.g., dining tables and dishes) have been proposed recently [1] [2]. In contrast, we focused on the eating act itself, and proposed a fork-type instrument, *EaTheremin* (Eat + Theremin), which enables users to play various sounds by eating foods. These sounds are changed, according to resistance values of foods attached on the fork.



Figure 1: An usage example of EaTheremin.

EaTheremin

EaTheremin is a fork-type instrument that generates various sounds when a user eats something. The sounds are changed in dependence on the resistance value of the food stabbed by the fork. Since the resistance value often varies by several features of foods (e.g., types, length, or thickness) and movements of the user, we believe our system works as a new entertainment system using the eating act (Fig. 1). We developed two prototypes, *Analog EaTheremin* and *Digital EaTheremin*, which generate sounds in different manners. Analog EaTheremin generates simple sound (sine wave) as shown in Fig. 2. The frequency is changed by the resistance values of the food and human body. This prototype can respond quickly and sensitively to various actions of a user while eating: movement of the fork, tan, tooth and mouth. Digital EaTheremin generates pre-recorded sounds (e.g., onomatopoeic words) in proportion to the resistance values (Fig. 3). This prototype responds only when a user touches foods to his/her mouth; that is, the system generates a single sound by each bite. This interaction may help users to eat foods rhythmically and smoothly.

Demonstration

We will prepare at least 4 Analog EaTheremins and 2 Digital EaTheremins for the demonstration. Since each device works standalone, at least 6 audiences can play our sys-

tems while eating simple foods (e.g., cheese sticks) at the same time. Moreover they can also use EaTheremin as a communication tool for a couple or friends: when one person provides foods for the other while holding his/her hand, the system can generate sounds in proportion to resistance values of foods and their bodies. Our system needs only less than 30 minutes for setup and only about 2m by 2m (width/depth) for space.

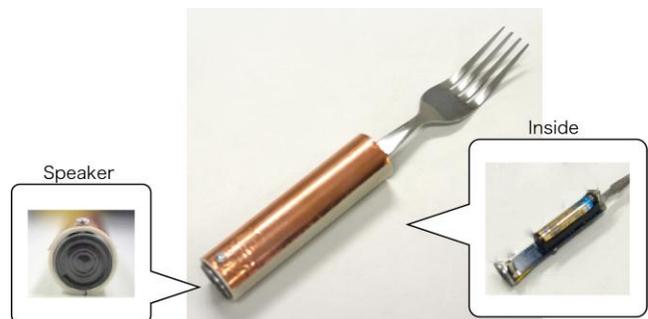


Figure 2: The prototype of Analog EaTheremin.

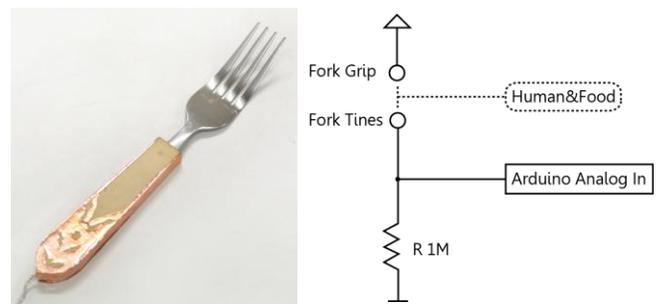


Figure 3: The prototype and circuit schematic of Digital EaTheremin.

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