RhythmFish (Inter-organism Improvisation & visualization Product Design)

배상민
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1. Introduction

"Most people don't have any idea of what improvisation is?. It means the magical lifting of one's sprits to states of trance? It means experiencing oneself as another kind of living organism, much in way of plant, tree the growth, you see, that's what it is.. It has to do with religious forces"
Cecil Tayor, quoted in Michael Ventura, Shadow Dancing in the U.S.A.

Every atom of every organism vibrates and produces sound waves, whether we can hear them or not. RhythmFish is a conceptual product design that permits communication between two organisms, man and fish, based on these vibrations. From the feedback loop created in the communication, the content of the communication is visualized in a graphical interface that reveals patterns, rhythms, and harmonies particular to the nature and form of the communication both from the side of the fish, and from the side of the human. In this way we gain insight into the interconnected nature of all things, based on their sonic vibrations.

The unique sound or vibration of each organism, while maintaining its own function and character, contributes to a universal harmony. Did you ever consider that plants and grass emit sound? Did you ever wonder why we feel better in a natural setting such as a garden or a public park? Do you know why some farmers play classical music for their plants? I believe that the answer lies in the harmony of natural sounds emitted by all organisms in nature, in particular biosonic and infrasonic sound. Therefore, my research and exploration is in four parts. First the different kinds of sound in terms of its frequency level (infrasound, sound, biosound) are explored. Next is how vibration/sound affects us both physically and also spiritually. Finally, research is presented regarding improvisation in terms of sound. This section will cover the general meaning of improvisation and the methods of improvisation within an organism

2. Research

Infrasonic Sound

There are 3 kinds of sound in terms of its frequency level, infrasound, sound, and ultrasound. The low frequency sound that is below 20HZ is called Infrasound.

Infrasound is inaudible to human hearing, being of pitch below 15 cycles per second-the bottom of human audibility. Infrasound is not heard; it is felt. Infrasound is all around our life no matter whether we feel it or not. Natural phenomena such as thunder, earthquakes, volcanic eruptions, ocean waves, waterfalls, winds and auroras are prodigious generators of infrasound. Animals and sensitive humans keenly feel these ultra low-pitch earthquake sounds. Actually certain fish can hear and communicate with infrasonic vibration because infrasound is able to travel long distances with virtually no reduction in impact. For example whales can communicate each other over great distances.
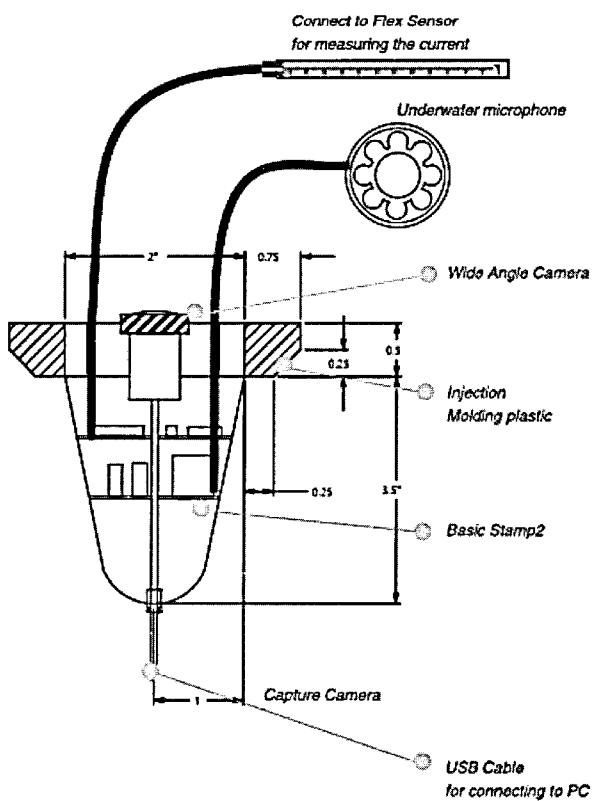
Infrasound also affects our body physically and emotionally. Sometimes we hear of people very sensitive to weather. This is related to infrasound in nature. The infrasound of seasonal winds and weather patterns produces illness in certain persons. Symptoms include anxiety and depression, emotional tension, irritability, disorientation, accident-proneness, nausea and diarrhea. Not much acoustic power is required for infrasound to produce extreme and sustained physiological and psychological symptoms

3. Design Process.

In this chapter, I will explain the process of my project and concept. From the research, I know that all objects and organisms make a frequency/vibration and therefore sound. I have created a new water tank system, which can provide sound and image by an organism's

movement and behaviors. This device is able to attach any kind of water tank and capture the organism's movement. The product design includes both a hardware and a software component. The hardware is a wide-angle video camera (USB based) to capture the organism's movement, and an underwater speaker to output the vibration. Various sensors measure the current in the water tank. The software processes the sounds and creates a visualization of them based on the input data.

The hardware includes a wide-angle (40`-85`) USB-based camera to capture the jellyfish and the humanÕs movement. The device contains the basic stamp kit inside and is attachable to any clean surface. A person will be attached via this device to any kind of watertank and connected to a PC through the USB port. <Diagram02>,<Drawing01,02>

Connect to Flex Sensor
for measuring the current

Underwater microphone

Wide Angle Camera

Injection
Molding plastic

Basic Stamp2

Capture Camera

USB Cable
for connecting to PC

<Capture Camera Section>

2. Software
The software is a simple program and will be able for free download from the internet. It contains the function to create certain patterns and sounds by capturing real time data. It creates several kinds of different abstract patterns and sounds composed and operated by the interaction and communication between the jellyfish and a human. A person can also customize it by updating the software with new sounds and patterns, and/or they can

make use of the recording function. I made the prototype model writing Lingo in Macromedia Director 8.5, the Director X-tra (Tracking color) , and TTC Pro v 1.3 (to capture the organismÕs movements).

<How RhythmFish Work>

<Installation>
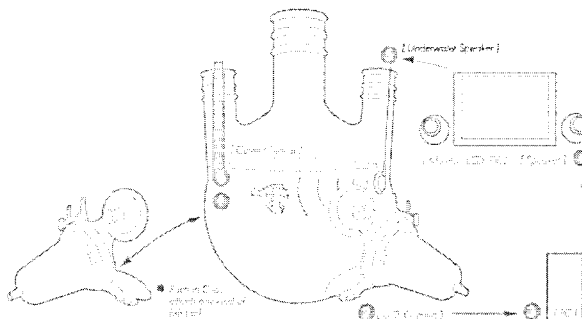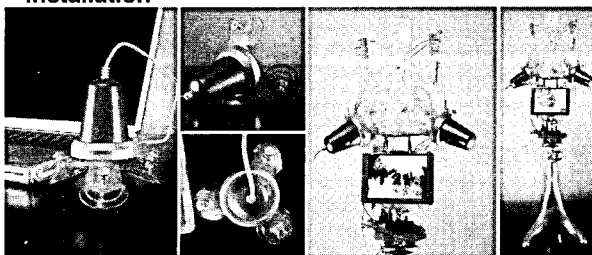
4. Conclusion

The project has two tangible parts: hardware (product design) and software (a sound visualization program). The organisms involved are people and fish, and the design of the project permits communication and harmonic improvisation between them. Vibration is the medium of interaction, and I chose it for its universality in the physical, emotional, and spiritual realms, and for its ability to effect an immediate result in both man and fish.

Based on my research, I believe that the nature and structure of sound vibration is essential to physical, mental and spiritual well-being. This thesis is part of an ongoing effort to create designs that utilize the beneficial nature of sound toward the improvement of people's lives. Artists, musicians, doctors, and healers should consider incorporating a broad view toward their craft that goes beyond the standard, and strives for total harmony in life by making use of the fundamental vibratory essence of sound, which permeates all things.

Reference

Pressing, J. 1992. Synthesizer performance and real time techniques.

Camurri, A. 1995 Interactive Dance. Music System.