

Name of Installation: Sundial
Artists: Jennifer Hsu, Eoin Callery,
Alexandra Hay

Description

Modeled on circadian type cycles, *Sundial* deals with offset lighting and sound cycles. The way we sense time is through our individual perspective coupled with the tools we impose on its measurement (scaled chronological devices like clocks and calendars). The purpose of *Sundial* is to defamiliarize our habitual processing of time.

Upon entering the space, a person's image is altered by use of the depth camera available on the *Xbox Kinect*, a motion sensing input device. The *Kinect* is positioned at the apex of the V-shaped entrance (see diagram). The depth image captured by the *Kinect* is filtered and delayed in real-time, and then projected onto a wall of the installation, displaying a history of the observers that entered the space. The initial image reading casts the first shadow of the sundial and influences all further events that occur during an encounter with the installation.

The sound of the space is constructed using samples of the *Kinect's* movement, ground hum, and the fan of the projector. These sample were then slightly detuned against their source materials. In addition to these samples, a convolved and time-stretched recitation of sunrise and sunset times in the month leading up to winter solstice fades in and out, an almost perceptible human voice. The totality of the sounds are kept at a relatively low level so that they can interact with the background ambience of the space and something of its environs.

Various parameters of the lighting and sound, including intensity, volume, pitch, and time-stretching, are subtly altered by readings taken from multiple cadmium-sulfide photoresistors which are strategically placed throughout the space. In particular, the inaccuracies and nonlinearity of the analog sensors produce chaotic shifts in the sonic material. One's perception of the space is further altered by the reflections created by the offset mirrors that are placed at various points of the interior walls of the installation. As a result, the combination of these multiple audio and visual *shadows* cast by the autonomous elements and those of the participants within the installation disrupt the readings of the photoresistors, providing each participant with a unique experience. This re-metabolizing of the tools of measurement presents a further awareness of the temporal relationships within the space. The relationship of the various circadian cycles - and the participants affect upon them - will only become apparent upon a prolonged and conscious examination of the space and their sensory experience; a process of voluntary refamiliarization and contextualizing the encounter.

Space

Sundial constructs a room within a room, and the impermanence of the materials used to create this space render it adaptable to a number of locations. The smallest space required would be 25 square feet, but maximum affect results from installing the work in a space approximately 200 square feet, preferably with high ceilings (9-15 feet). The *mirror walls* need to be circa $\frac{3}{4}$ of the total wall height, so fabrication material requirements will change accordingly.

Equipment

*** indicates equipment not already in our possession**

Hardware

Kinect

Rear projector

Two arduinos: 1 for lights, 1 for sound and 3 cadmium-sulfide photoresistors
transformers for the dimming circuit

Transformers: two PowerSSRTails, two ZeroCrossTails, two 10K resistors

Two laptops

1 for visuals [running C++ and Cinder]

1 for audio

4 piezo speakers

8 channel mackie-type mixer

1 near field type speaker

Cabling/circuitry

*International power adaptor

Software

Arduino sketch

PureData on Beagleboard

Cinder for the Kinect

Limiter controlled live audio feedback using Logic audio pitch shifters and spectral gate

Voice processing on Logic

Fabrication

5 sheets of drafting paper (3x11ft) [to make the screen]

Black building paper (200 feet)

60 W Incandescent globe bulbs

Light fitting fabrication materials: 10 square feet of heat-resistant pliable white plastic, steel wire (10 feet, 2mm gauge), bendable black plastic tubing (10 feet, 1.5 inch diameter)

*3 large mirror surfaces (length of about $\frac{3}{4}$ of the total wall height and about 3 ft in width)

*Two 3-seater benches

5 rolls of black fabric tape

- 2 rolls of white fabric tape
- 2 rolls of clear fabric tape
- 10 square feet of black foamcore
- 10 square feet of brown paper
- one can of white spray paint
- 2 exacto knives
- 1 stanley knife

