

# Etude 1 - Explore

*\*Disclosure: The object's' potential resistance is recorded from a multimeter with unreliable circuitry and therefore the results are estimated from multiple readings. They may or may not be completely accurate.*

## Object/Material Analysis

### 1. Asian Tea Kettle

#### Sensorial Analysis:

This asian tea kettle is composed of 3 parts - the kettle itself, a lid to close the top and a tea leaf sifter. After careful analysis of this object with a multimeter, I discovered that some parts of it had conductive potential while others didn't. In reality, since the entire kettle and its lid are made of polished ceramic, the only conductive element is the tea leaf sifter which is made of some kind of light metal.

The sifter is designed to fit snugly inside the kettle, supported by the top edge of the kettle's opening, but hangs a couple of inches from the bottom of the kettle's interior. The tea kettle as a whole is particularly heavy for its size and therefore does not allow for simple transportation/mobility. Similarly it is also quite fragile leading to a stationary application at best.

#### Conductive Potential:

Tea sifter: ~ 400 ohms

Kettle: N/A

Lid: N/A

#### Affordances:

- Liquids can be held within it
- Liquids can be poured out of its spout
- It can be held from its handle as to avoid touching the heated ceramic
- The sifter can be submerged in a liquid without touching the bottom of the kettle (this could allow for a number of possible interactions with conductive metals and/or liquid flow)

#### Constraints:



- Must be stationary due to weight and fragility

## 2. **Decorative Blade**

### Sensorial Analysis:

This decorative knife has three sharp components to it, one on each end and one protruding from the grip. These 3 elements are made from a sturdy conductive metal while the grip is made from a slip resistant, plastic-like material (non-conductive). The large blade is cut into a non-standard design (for decorative purposes) and houses a decorative decal.

The blade is generally light and easily handled. The grip is comfortable to hold and slip resistant and the blades are sharp and pointy.



### Conductive Potential:

(3) Metallic blades: ~ 300 ohms

Grip: N/A

Ornamental grip guard: N/A

### Affordances:

- Light and easily manipulatable
- The sharp blades can be used to pierce through certain soft materials

### 3. Ukulele

#### Sensorial Analysis:

The Ukulele is a light, wooden instrument that is composed of 3 sections, the base and pickup, the fret bar, the tuning head. Light but strong strings are connected from the tuning head to the pickup and can be struck to produce different notes. Metallic tuning pins (possible gold veneered) are used to manipulate the tension of each string resulting in different sounds produced when a string is struck.

The instrument is relatively light for its size but it is also quite fragile due to the hollow wooden base. It cannot endure strong impacts otherwise, the fret bar may snap or the base may rupture or pucker. Similarly, the strings are under a lot of tension and could snap if manipulated with too much strength.



#### Conductive Potential:

(4) Light nylon strings: N/A

Wooden base and pickup: N/A

Fret bar and frets: N/A

Tuning Head: N/A

Tuning Pins: ~ 350 ohms

#### Affordances:

- Produces sounds when strings are struck
- Light and portable
- Can entrance people if used properly

#### Constraints:

- Fragile and cannot endure strong impacts

## *Using the Ukulele as a Switch*

### **1. ISynesthesia:**

Augmented reality installation: by playing various different notes and/or chords, the AR device will display various colors and designs painted over reality, much like a sound activated aurora borealis. This will enable the general public to experience what very few people in the world can - Synesthesia, basically being able to visually see music as color.

### **2. Pied Picker:**

Outdoor installation: by playing nice melodies with the instrument, the user can entrance small animals (mice, squirrels, chipmunks, etc) making the small animals move around and dance on top of individual pressure plates causing connected LED lights to turn on and off in timing with the melody.

### **3. Shake Shake:**

Sound based installation: the vibrations caused by striking a chord is captured and amplified through a positive feedback loop causing the very ground to shake. These large vibrations are then captured by low sensitivity vibration sensors that activate a single tiny LED.

