Final Presentation

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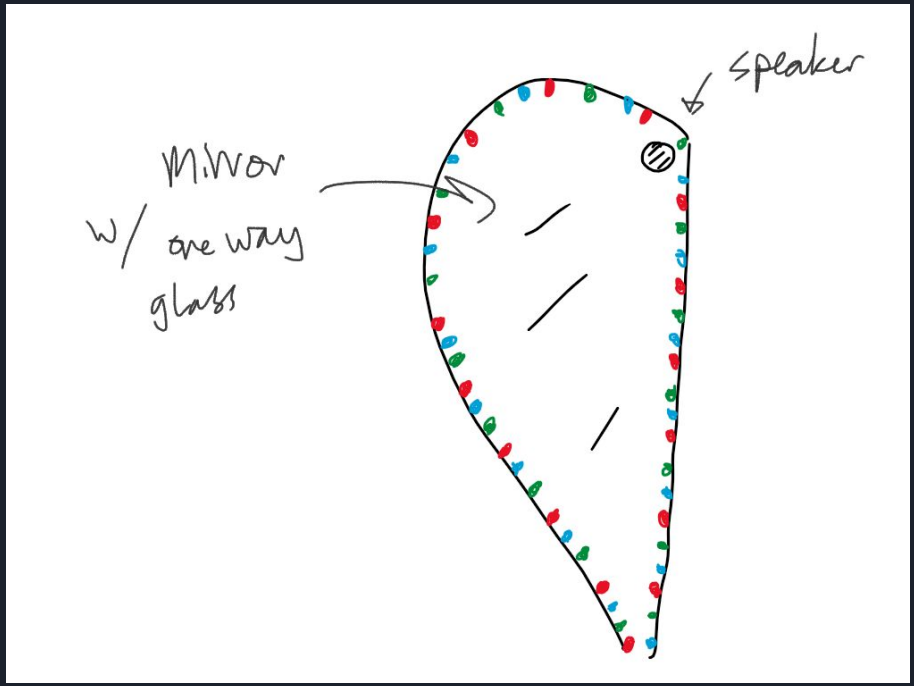
Heart-Shaped Box

Concept

Music can help relieve emotional stress

Once the box is opened, a small light show with music begins playing

Sound activation gets the audience/user engaged

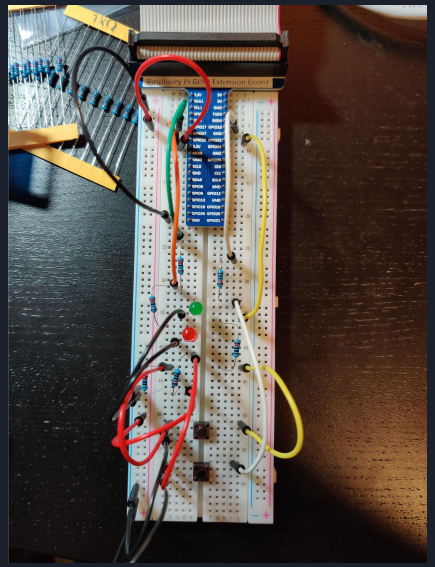


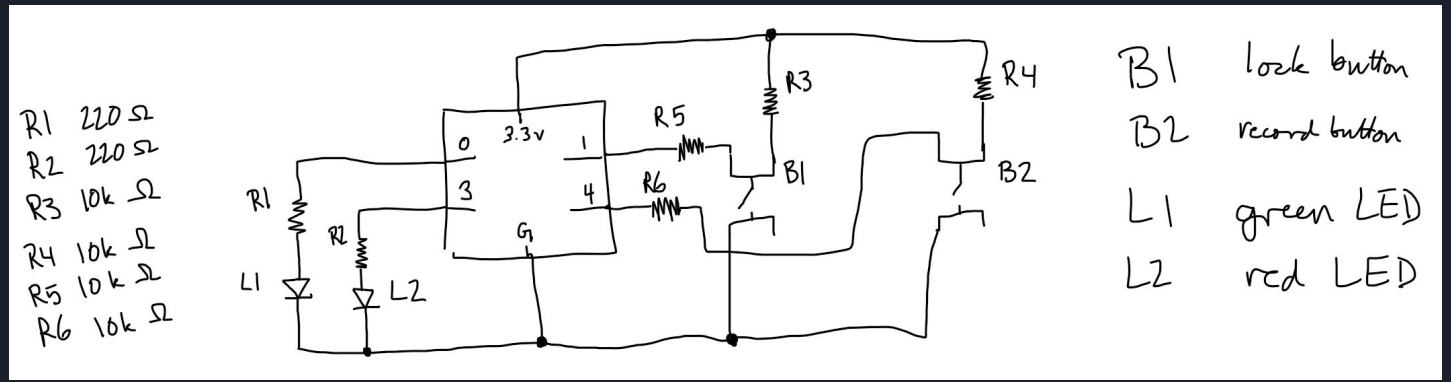
Circuit Control

Circuit design for controlling the box

Has two buttons for inputs and LED indicators to demonstrate outputs

Implemented using WiringPi





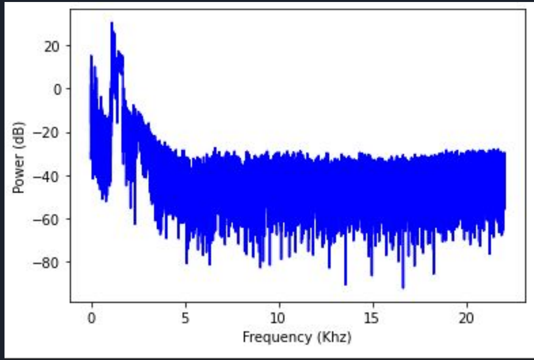
Analysis of sound

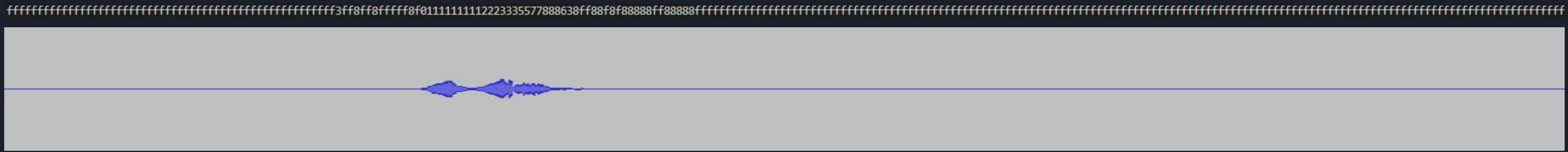
I am using SciPy to read data from a wav file and analyze the data to produce a string representation of its pitch and time information

I split the wav file into equal sized chunks over time and determine the highest power frequency in each chunk using FFT

For each chunk, the highest power frequency is converted to its MIDI value, which is modded by 12 to account for different octaves

This gets turned into a hex value (0 - B) and concatenated to a string (F is for chunks with no significantly powerful frequencies)





Milestones

Week 7 (2/17)

Connect microphone and record input - In progress

Week 8 (2/24)

Use Pd pitch recognition or find another library - Complete

Week 9 (3/3)

Implement audio to string algorithm - Complete

Week 10 (3/10)

Implement string comparison - In progress