# Portfolio

## Jill Schmid

Dean's List industrial design student at Rochester Institute of Technology with professional experience in design, manufacturing,  and teaching

# Contents

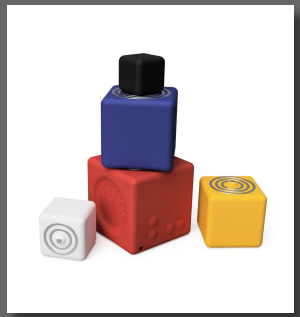
# Experience

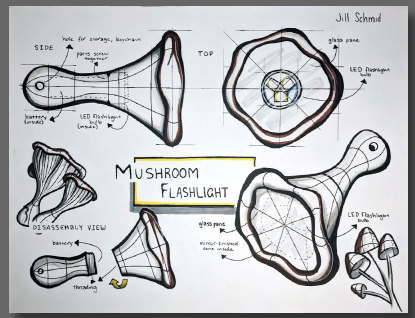
I am an Industrial Design major with a minor in Manufacturing Systems at Rochester Institute of Technology. With knowledge and work experience in both design and manufacturing, I have a broad understanding of product development. Industrial design areas I have particular interest in include musical instruments, children's toys, and architectural features.

At 16, I started an internship at Nova Labs, a makerspace in the DC metropolitan area. In this internship, I was given the opportunity to learn about digital fabrication, prototyping techniques, woodworking, and metalworking as I helped maintain and improve the makerspace. I was later hired by the makerspace as an instructor for their makerschool summer program, where I taught students CAD, laser cutting, vinyl cutting, 3D Printing, electronics, and other related skills for two summers. While in college, I work at the Fab Lab, where I manage, troubleshoot, and run digital fabrication requests for various processes, including 3D printing, vinyl, waterjet, and laser cutting, and CNC routing.

Website and expanded portfolio: www.JLLSCHMD.com


HEX BLOX




Jill Schmid
SIDE
TOP
MUSHROOM FLASHLIGHT
DISASSEMBLY VIEW

# Featured Projects


## Hex Blox

*Toys, packaging design, prototyping, CAD*

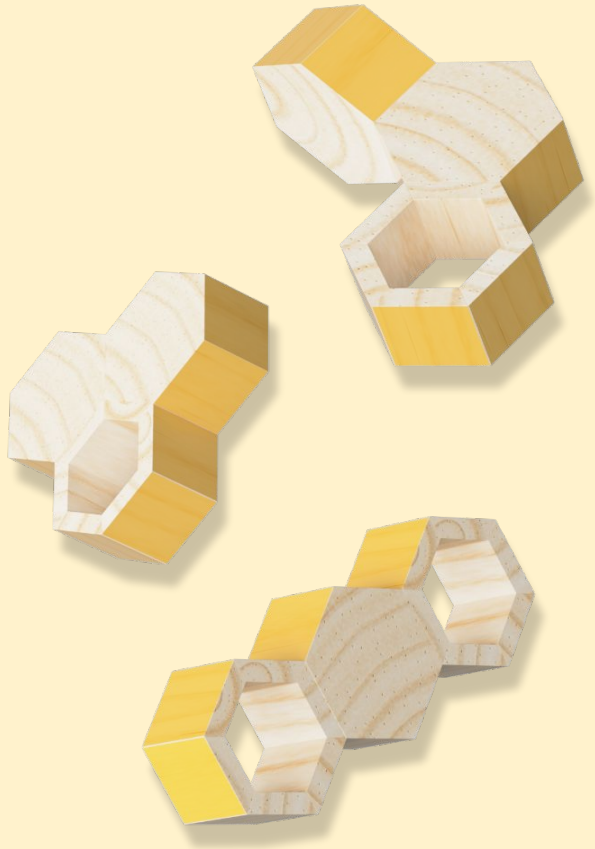
## Kumiko Lamp

*Lighting, Woodworking, CAD Designs and Drawings*

## Audio Synthesis Blocks

*Electronics, Programming, 3d Printing, Rapid Prototyping*

# HEX BLOX




Made from natural, sustainable materials

Designed to last, and to keep children's interest as they grow

Helps with children's brain development

# HIVEToys

In 1933, researcher & educator Harriet Johnson observed seven distinct “stages” of block play that children engage in throughout their development:

**1.** Pre-building & Exploration

**2.** Towers & Rows

**3.** Bridges & Passageways

**4.** Enclosures

**5.** Symmetry & Balance

**6.** Representational Structures

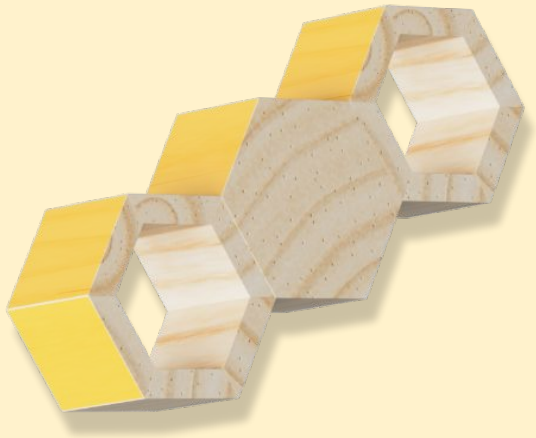
**7.** Complex Planned building

Many existing specialty block sets cater to a specific stage, which children will quickly outgrow.

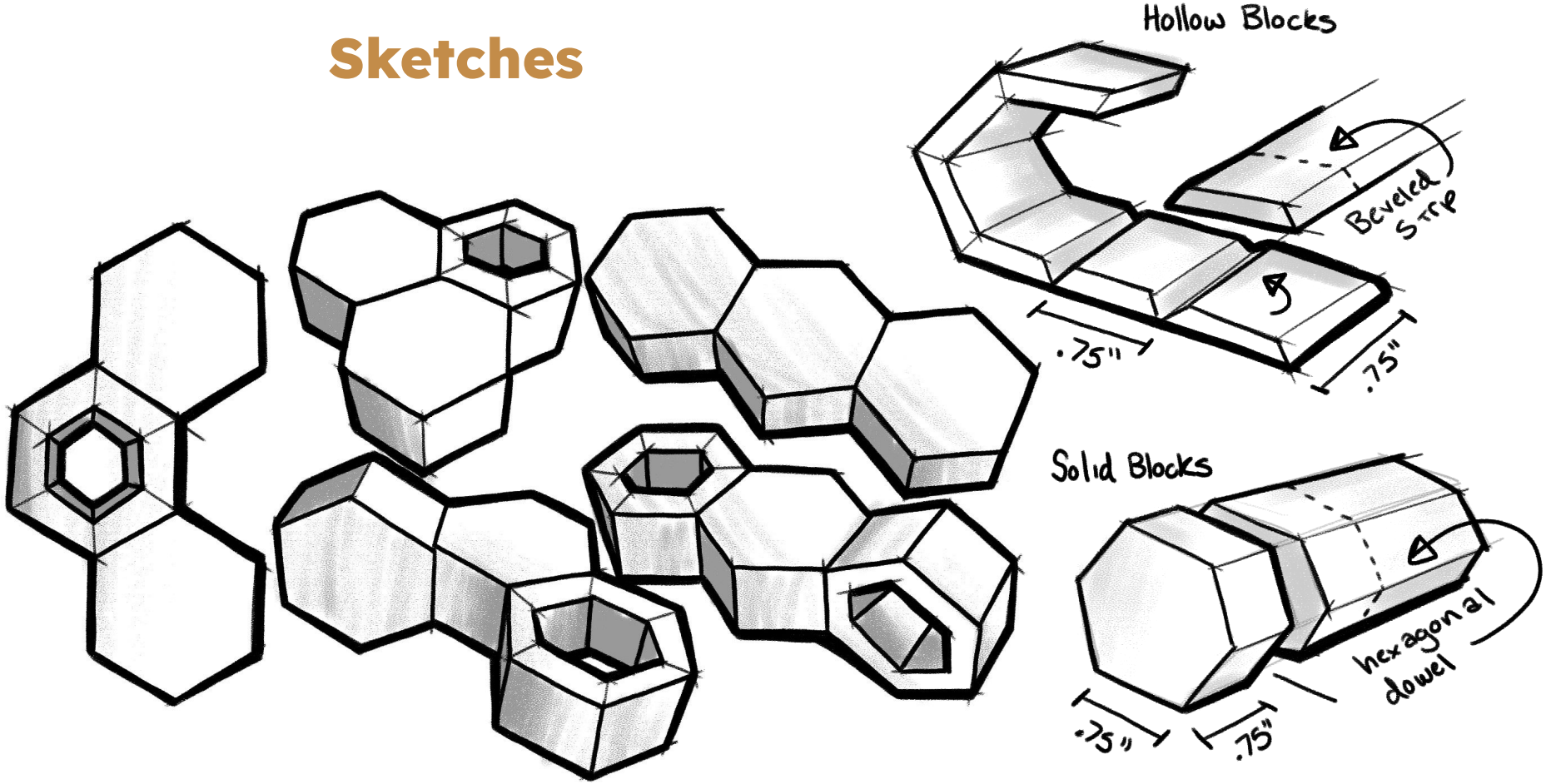
**Hex Blox is a sustainably produced specialty block set that offers interest to children in all stages of development**

# Colors, Materials, & Finishing

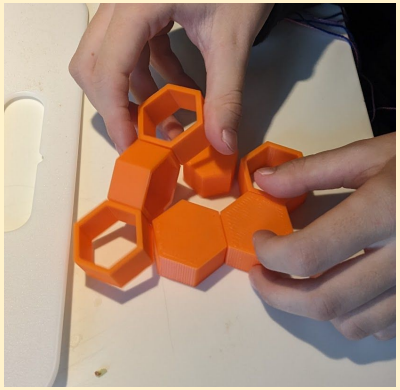
The blocks are made from pine and finished with non-toxic paint and food-safe oil

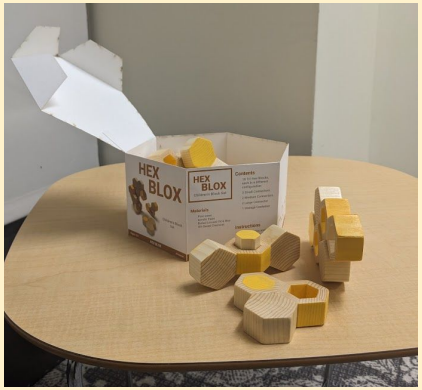


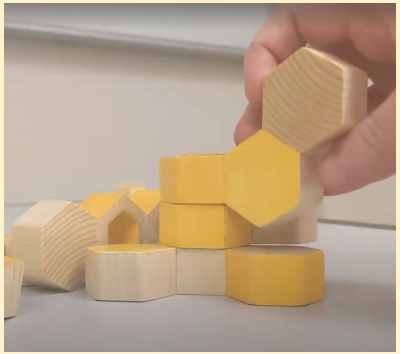
# Sketches

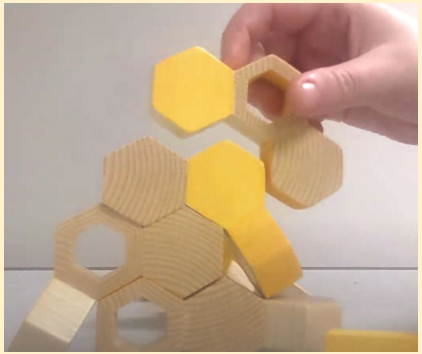

Hollow Blocks
Beveled Strip
.75"
.75"
Solid Blocks
Hexagonal dowel
.75"
.75"

# Prototyping

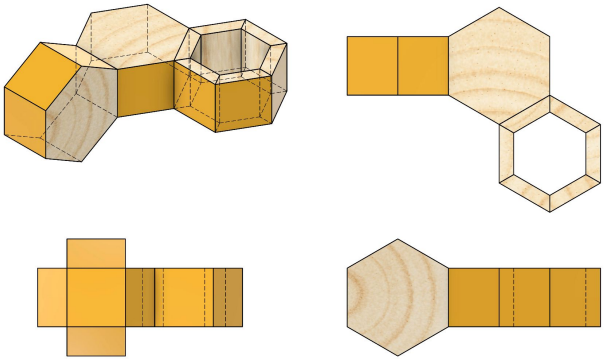


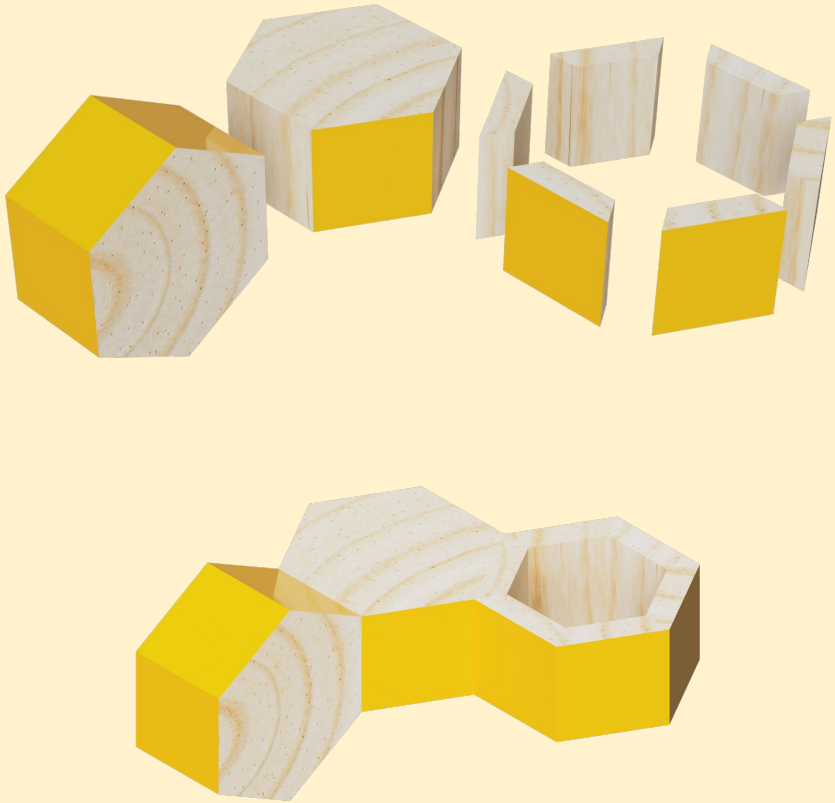




# Construction





# HEX BLOX

Children's Block Set

Ages 3+ | HEX BLOX | Jill Schmid

# Kumiko Lamp

## Elegant Tabletop Lighting Solution

**Winner of 2022 National Silver Medal, Scholastic Art & Writing Awards**

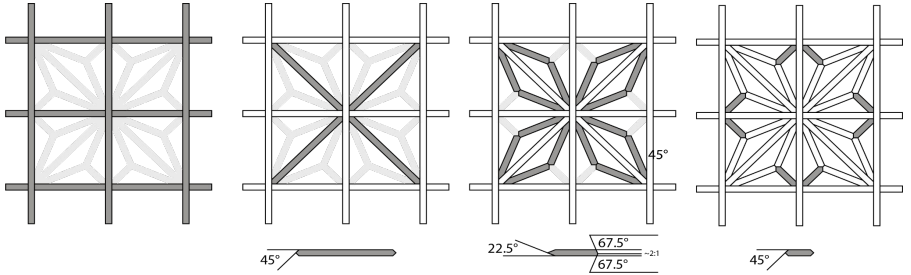
Kumiko is a traditional Japanese woodworking technique where a design is made using thin strips of wood cut at precise angles and tension-fit inside a lattice grid. It is typically used to make screens and room dividers, as well as smaller feature panels.

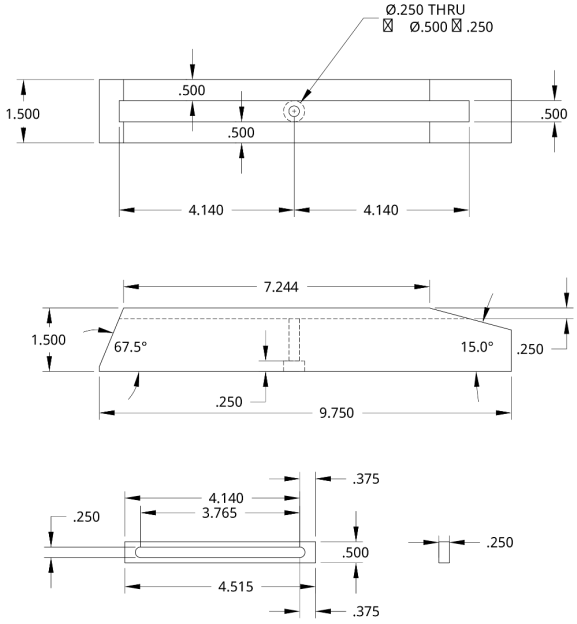
# Materials

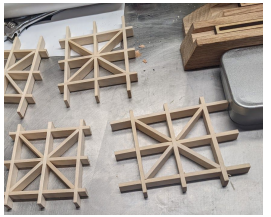
Prototype

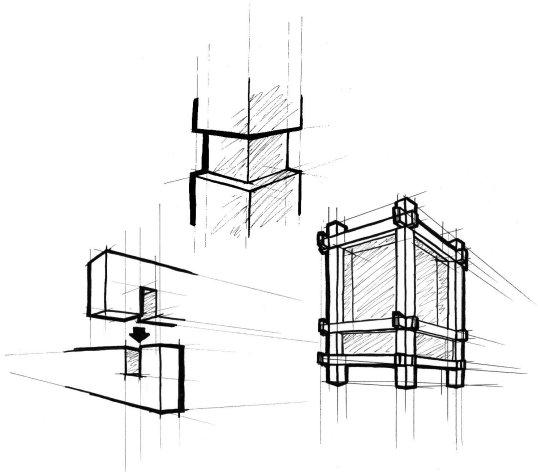
# Creating Kumiko Sections

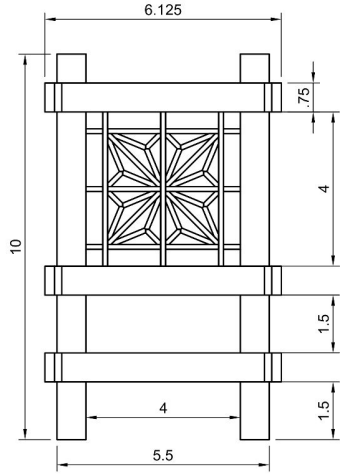
Traditionally, the precise angles used in kumiko designs are achieved using a chisel pressed against an angled block. A channel keeps the wooden strip in place, and a sliding stop block controls the piece's length.

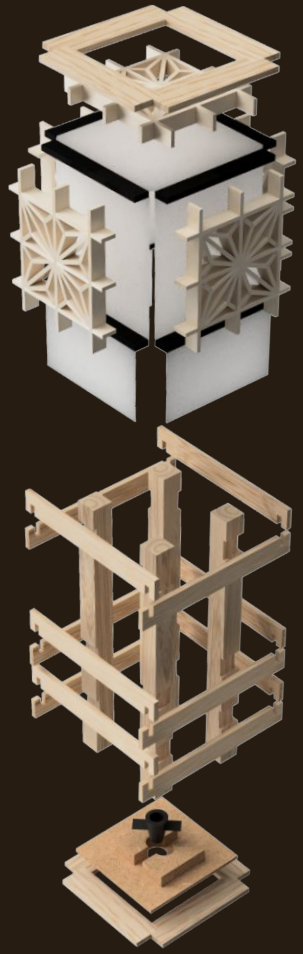


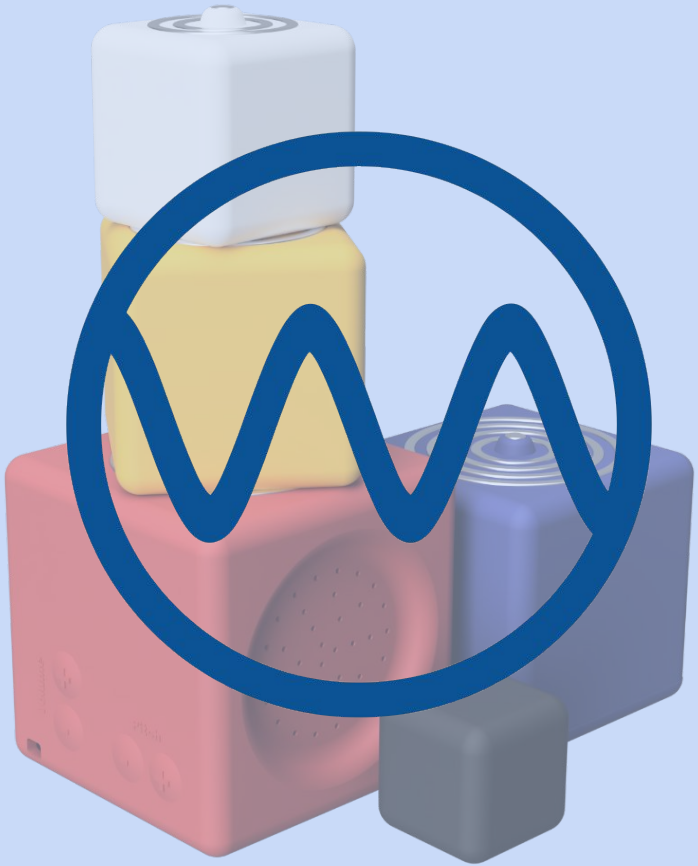




# CAD Renderings & Drawings

# Synthesis Blocks



# Synthesis Blocks

Synthesis Blocks are a teaching tool that demonstrates how additive synthesis can be used to generate tones for electronic instruments.

Synthesis Blocks use additive synthesis, which creates timbre by adding together multiple pure sine tones. In its simplest form, it contains a fundamental tone and a series of harmonic tones which decrease in volume.

Base block will play a pure sine-wave fundamental tone

With each additional block that is stacked, a new harmonic is added

By stacking only certain blocks, different combinations of harmonics can be achieved

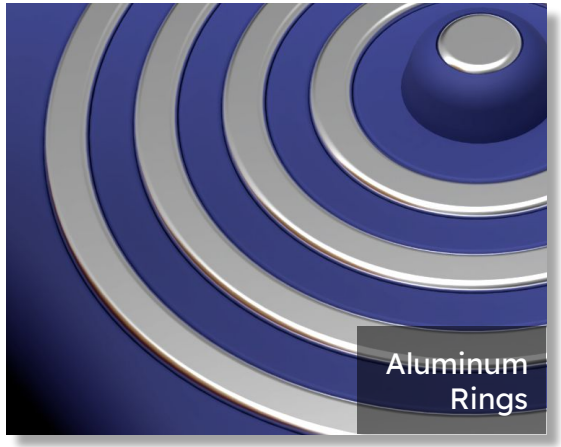
# Colors & Materials

Red Plastic

Blue Plastic

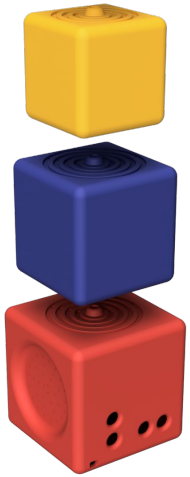
Yellow Plastic

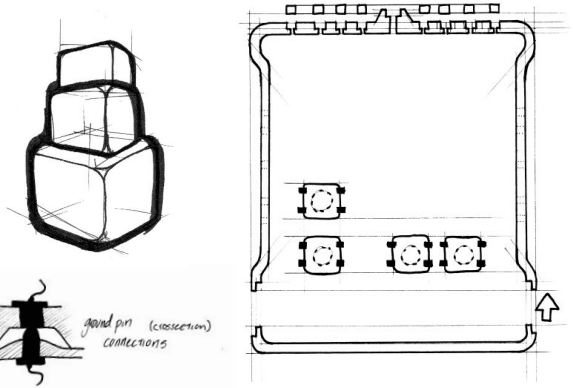
Black Plastic

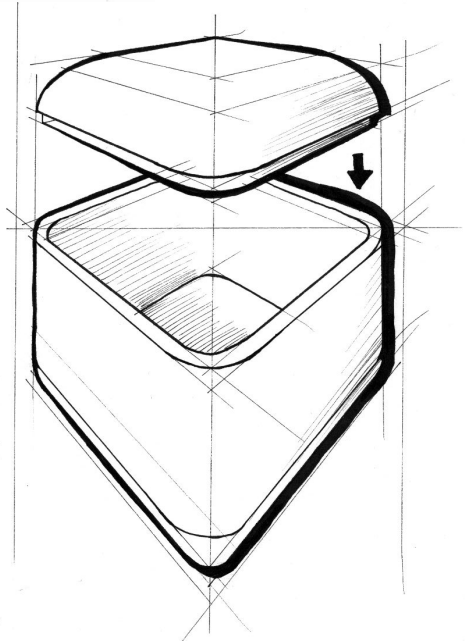


# Ideation & Prototyping

3d printed prototypes to demonstrate tactile, electronic, and software functionality

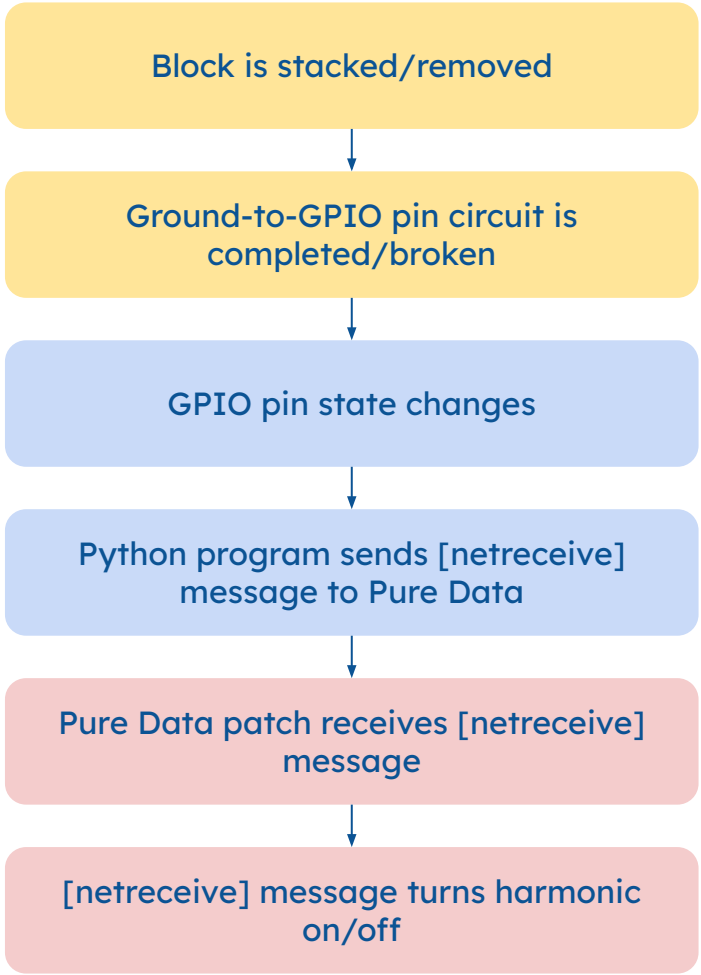




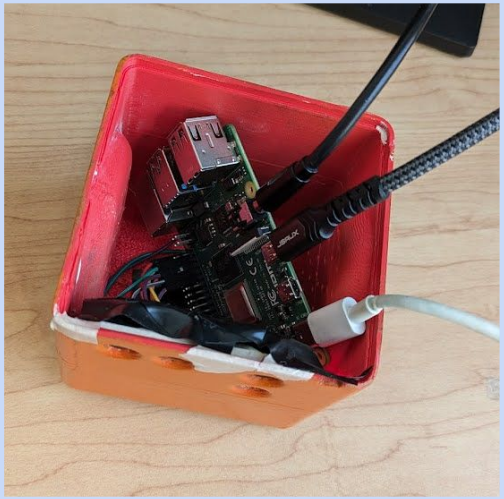
A Raspberry Pi microprocessor, speaker, and all active electronics are housed in the base block.

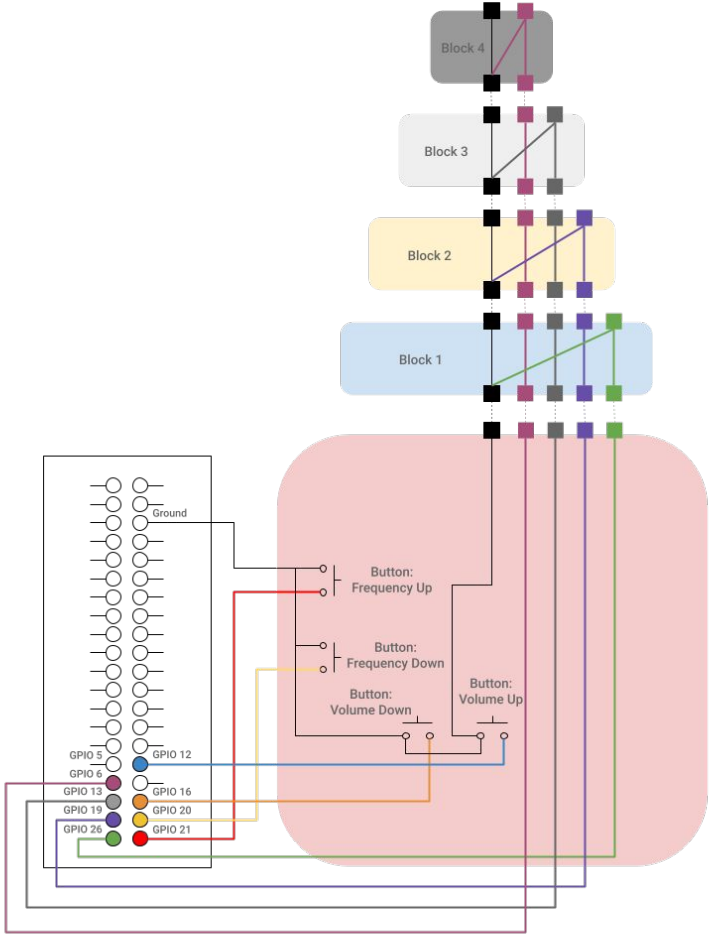
Blocks connect to Raspberry Pi GPIO pins, then a Python program sends a message to a Pure Data synthesizer patch.



# Electronics

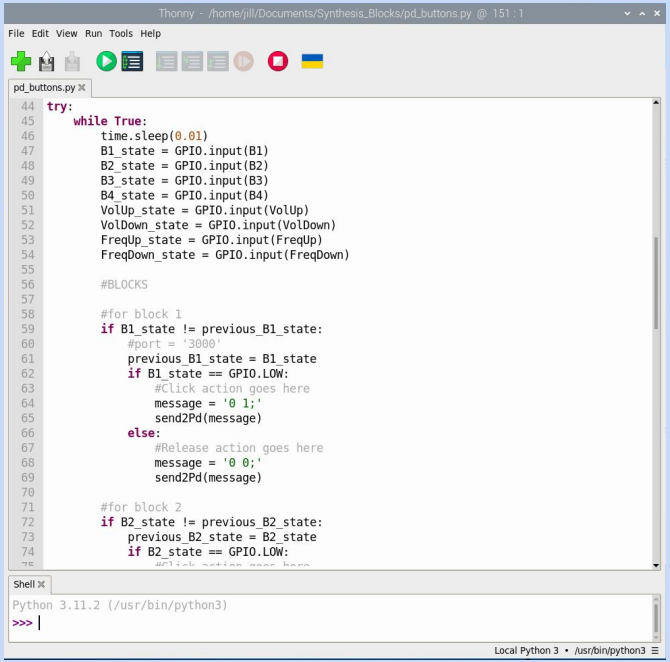
The blocks work as switches: when placed, the outermost ring of each block connects with the ground, which identifies the block placed and changes the GPIO pin state.

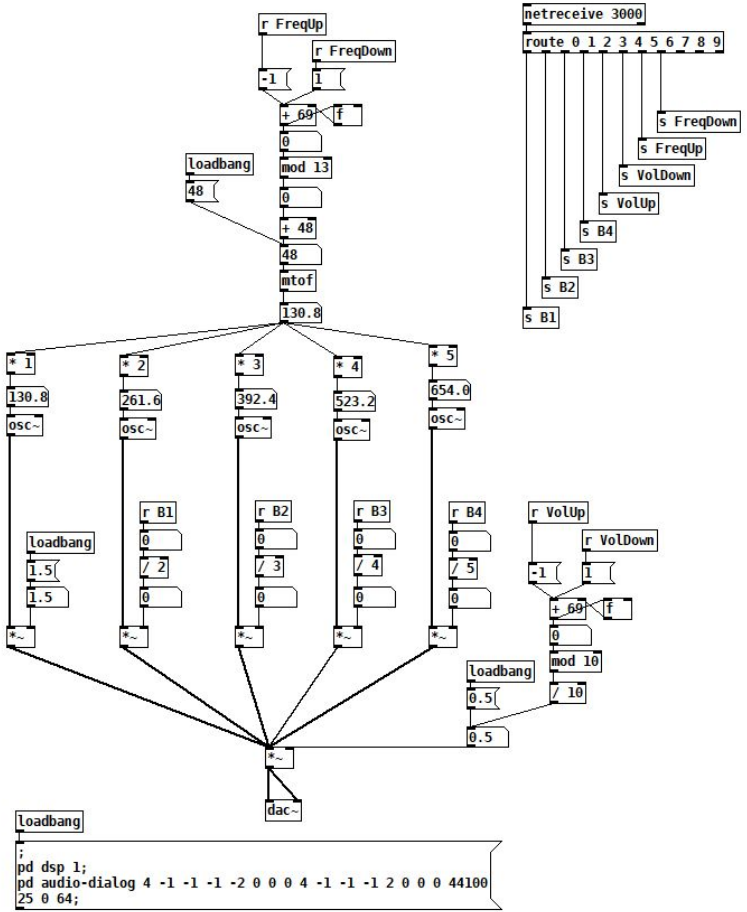


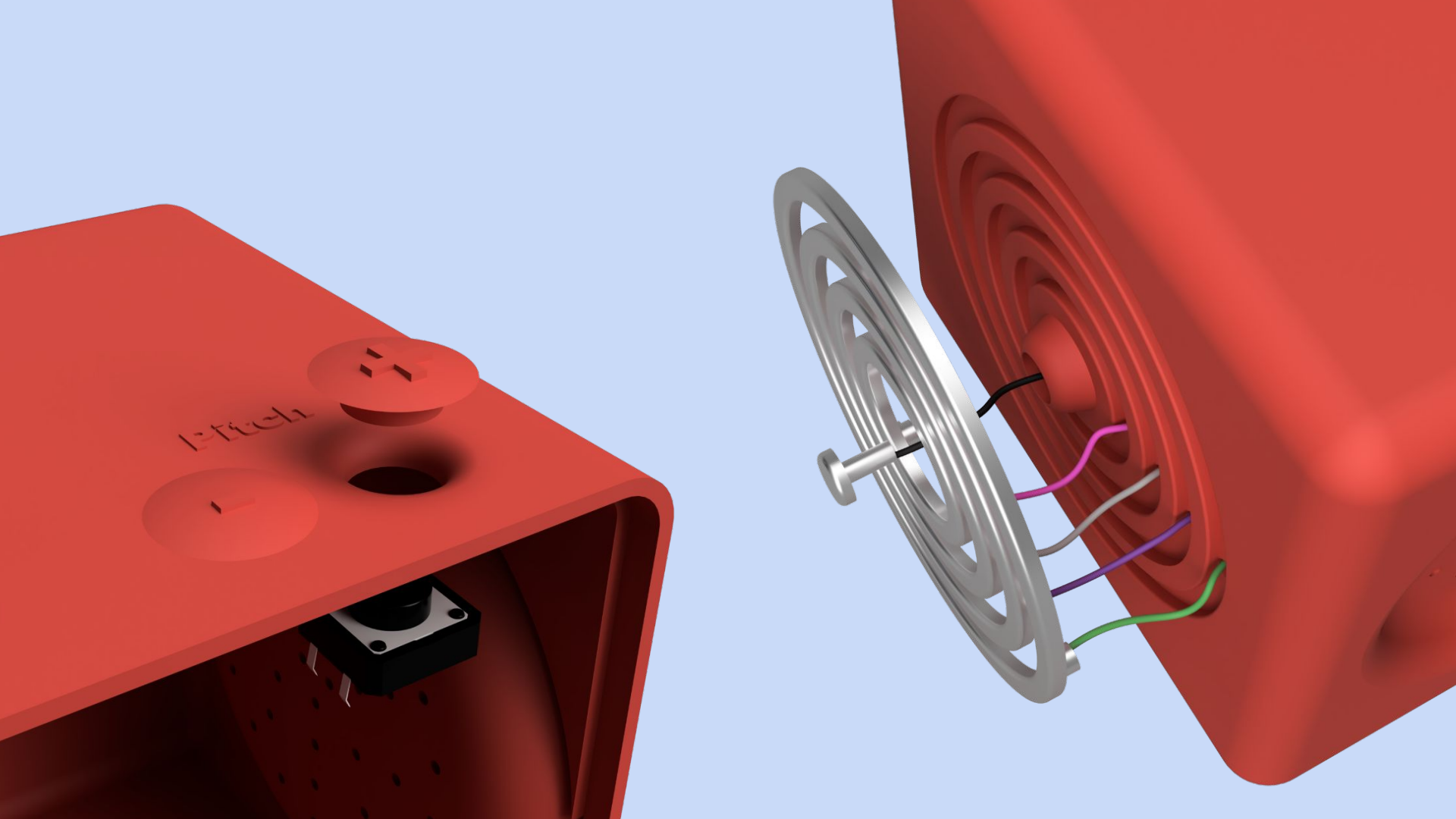


# Programs

A Python program is alerted to the GPIO state changes, and sends a message to Pure Data, which changes the sound according to the message.




Pitch

# Jill Schmid

**Website & Expanded Portfolio:**
**www.JLLSCHMD.com**