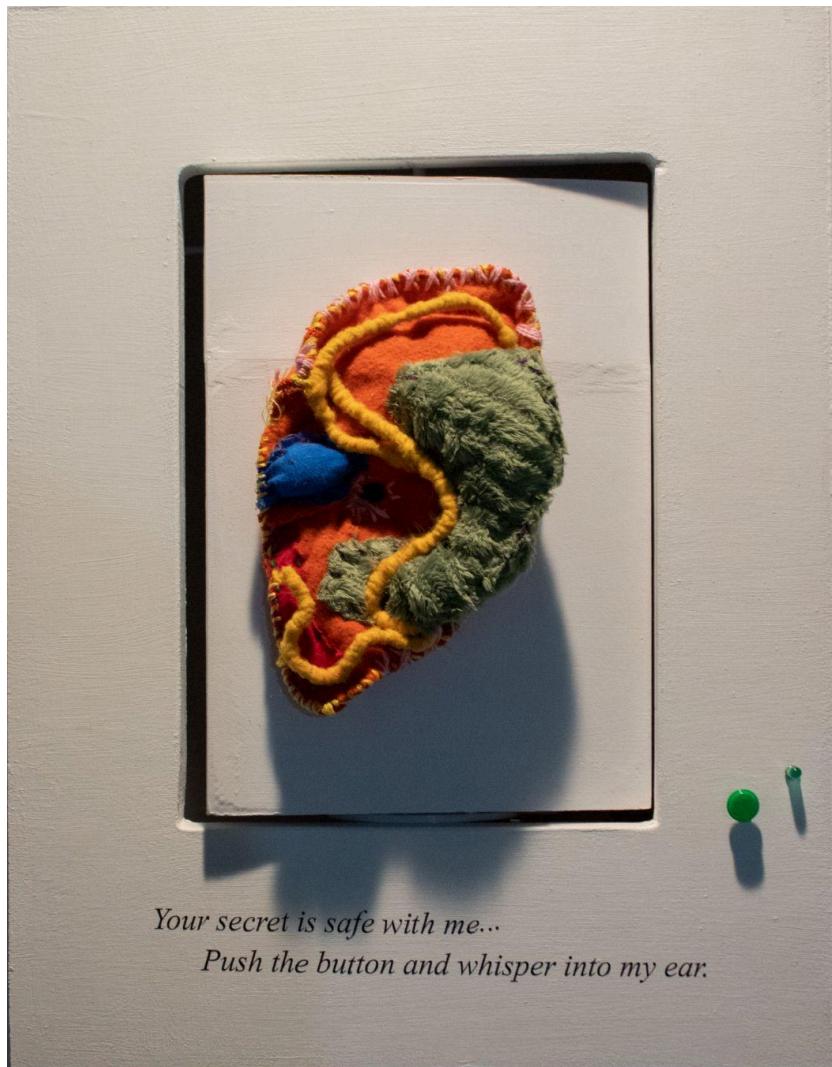


I Eat Babies

Installation manual



Your secret is safe with me...

Push the button and whisper into my ear.

Parts List

$\frac{5}{8}$" MDF for box enclosure	
Assembly reference: https://github.com/ddzdzz/tech_art/tree/main/Final_project/CAD/SLD	
6" x 13"	1
6" x 16 $\frac{3}{8}$ "	2
11 $\frac{3}{4}$ " x 16 $\frac{3}{8}$ " [Drill hole for power]	1
11 $\frac{3}{4}$ " x 4 $\frac{3}{4}$ "	1
13" x 17" (7 $\frac{1}{2}$ " x 10 $\frac{1}{4}$ "; Cutout dimensions, 4" offset from bottom, 2 $\frac{3}{4}$ " offset from all other sides) [Drill holes for button and LED]	1
11" x 3" [1 mounted to frame, 1 to wall]	2
3D printed parts, white PLA	
Download and print from: https://github.com/ddzdzz/tech_art/tree/main/Final_project/CAD/STL	
motor_mount_mk2	1
axle_mount_mk2	2
limit_mount	2
axle	1
carusel_top_mk5	1
carusel_ear_mk5	1
carusel_mouth_mk5	1
hub_mk2	1
flipper_mk4	1
button_mk2	1
Electronics	
Source code: https://github.com/ddzdzz/tech_art/tree/main/Final_project/Arduino_code	
Arduino Uno R3	1
SeeedStudio SD Card Shield V4	1
8 GB microSD card with SD card adaptor	1
12V 75RPM 3kgfcm Brushed DC Geared Motor with Encoder [SPG30E-60K]	1
Solarbotics motor controller [L298]	1
Limit Switch [DB2C-A1LB]	2
Speaker (8 ohm, 0.5W, 2 inch)	1
Adafruit Class D Audio Amplifier [PAM8302]	1
Electret Microphone Module [MAX4466]	1

LED, green 5mm	1
200 ohm resistor	1
Tactile button, 12mm x 12mm x 12mm [1009]	1
Breadboard, 1 x 830	1
9V wall adapters (one for arduino, one for motor with exposed wires)	2
Jumper wires, assorted	~15
22AWG stranded wire, red and black	N/A

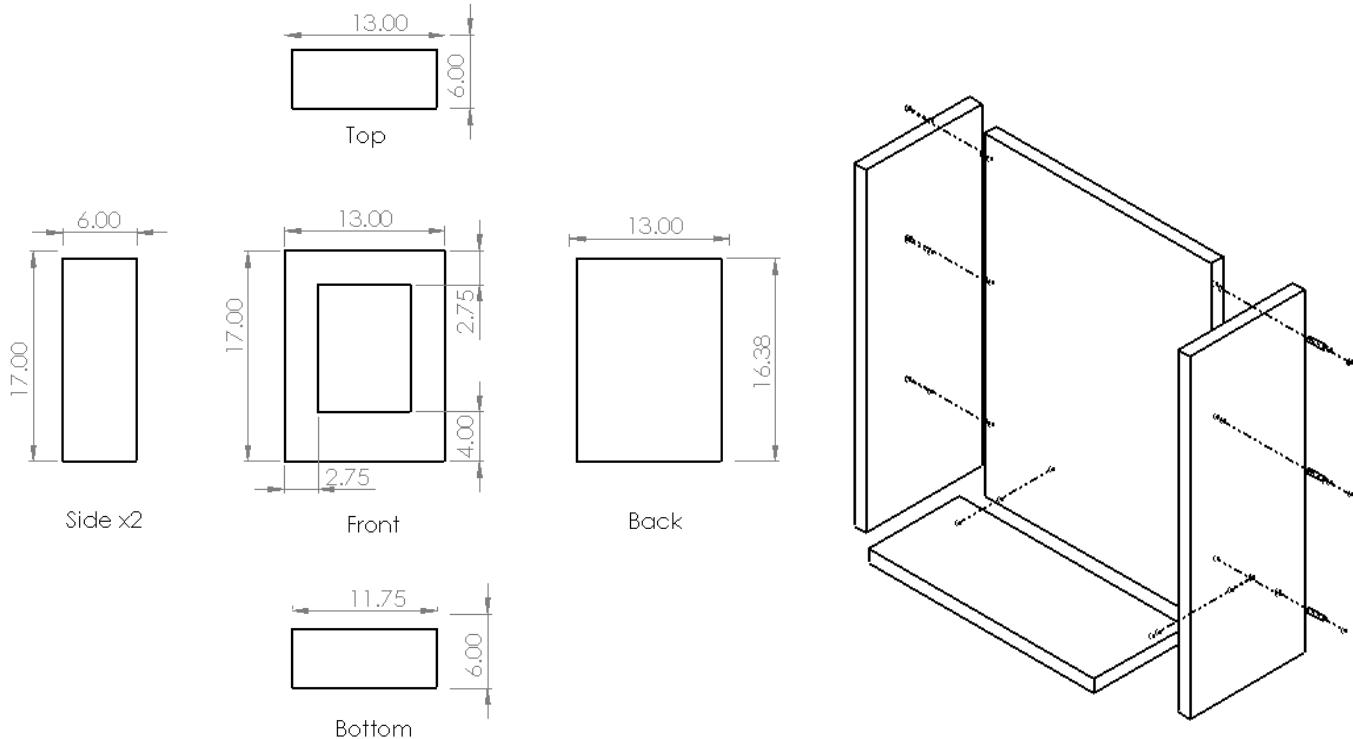
Miscellaneous

Paint, black and white	N/A
Wood primer	N/A
Drywall compound	N/A
Wood glue	N/A
Superglue	N/A
Hot glue	N/A
Mounting tape	N/A
M3 Screws (6mm or less for motor)	14
Twist Ties	~10
Bushing, 6mm ID x 10mm OD, 4mm depth	3
Green tactile switch cap	1
White shelf bracket	1
White cable covers	1
White cable tie mount	~5
Cable ties	~5

Sculpture Assembly - Frame

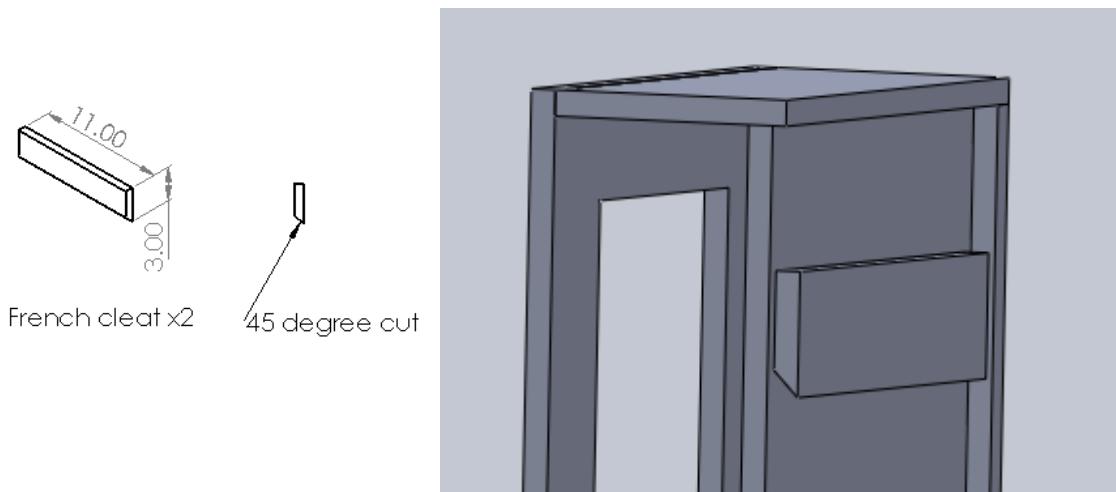
All source files can be found on [Github](#). For a visualization of the full sculpture assembly, see /Final_project/CAD/SLD/full_assem_mk6.SLDASM and /Final_project/CAD/Visual/assembly.mp4.

1. Cut MDF pieces to size and attach the back, bottom and side pieces together by applying glue along contact edges. Insert nails using a nail gun for additional reinforcement. The front piece has an inner cutout that will require a drill, jigsaw, and router to cut and smooth.

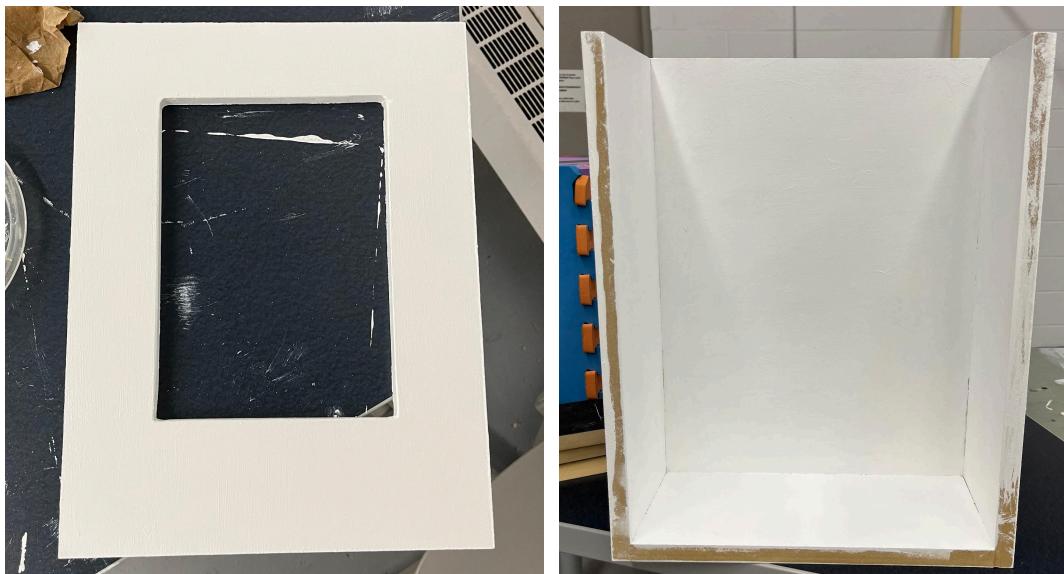


Dimensions are in inches.

2. Cut 2 french cleats to size and glue one piece to the back of the frame with the angled edge on the bottom towards the frame. Mount the other piece to the wall about shoulder height with the angled edge facing up towards the wall.



3. Prime and paint the inside and outside of the box, the front piece and the top piece white. Apply as many coats as needed to achieve an opaque white finish. The edges of the box do not need to be painted as they will be covered by the front and top pieces.

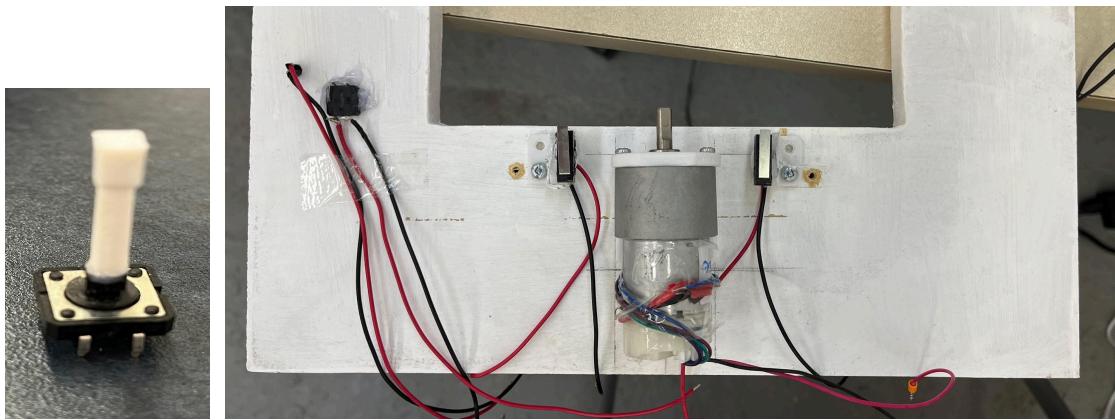


4. On the back side of the frame at the bottom, draw a line down the middle and 2 lines 2 cm away on either side. Draw a horizontal line 1 cm below the cutout. Place part motor_mount_mk2 against the markings and secure to the frame with screws.

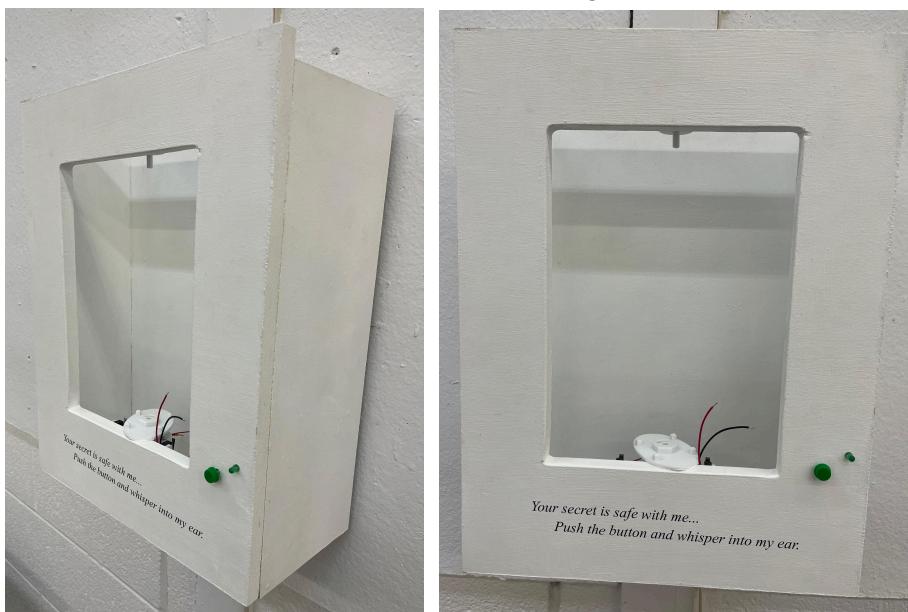


5. Mark the middle of the top of the frame and secure 2 axle_mount_mk2 using screws, with the screw side facing towards each other. Superglue a bushing to each axle mount.
6. Place limit_mount about 2 cm away on either side of the motor mount. Align the top edge with the motor mount and secure with screws.

7. Use a #9 drill bit to drill a hole through the frame for the LED and a #5 drill bit for the button. Expand the button hole to 8 mm in diameter from the back side but do not drill all the way through. Keep at least $\frac{5}{8}$ " from the edge of the frame.
8. Solder ~10 cm long wires to the limit switches and ~15 cm long wires to the LED and button.
9. Attach the motor to the motor mount with screws and the limit switches to the limit switch mounts with zip ties. Hot glue button_mk2 to the button, hot glue the button to the frame from the back and place the button cap on from the front. Feed the LED through from the front.

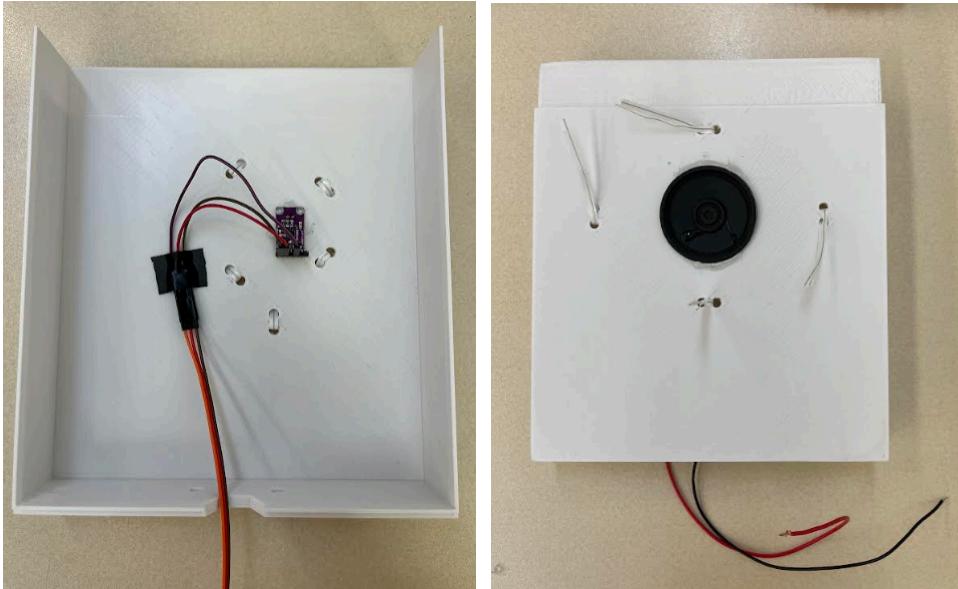


10. Temporarily wire the button and LED to a breadboard and Arduino and run /Final_project/Arduino_code/Test Code/button_led.ino to test the connection. Do the same for the motor, motor controller and limit switches by running /Final_project//Arduino_code/Test Code/test_motor.ino. Wiring schematic can be found on page 8.
11. Cut text /Final_project/text_graphic.png from vinyl and transfer it onto the bottom part of the frame.
12. Glue the frame to the rest of the box and hang it onto the wall.



Sculpture Assembly - Carousel

13. Solder about 20 cm long wires to the speaker and microphone. Hot glue the speaker and mic to carusel_mouth_mk5 and carusel_ear_mk5 respectively.



14. Thread zip ties through the mounting holes on the 2 carousel pieces.
15. Close the 2 pieces together and slot carusel_top_mk5 over the top.
16. Attach the SD card shield and SD card to the Arduino. Temporarily wire the speaker, amplifier and mic to the Arduino and test the connection by running /Final_project/Arduino_code/Test Code/sd Speaker_mic.ino. Wiring schematic can be found on page 8.
17. Fill any cracks with drywall compound and sand and paint the carousel white. Paint the area around the speaker black.
18. Thread the loose wires through the hole of hub_mk2.

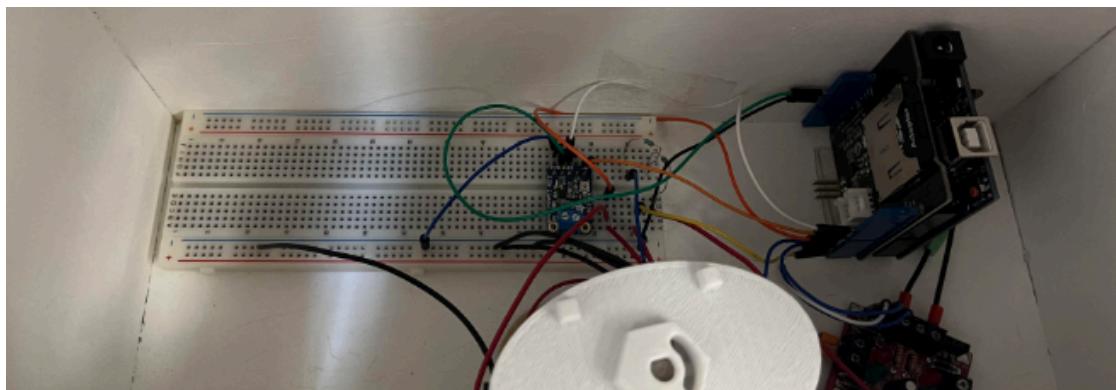
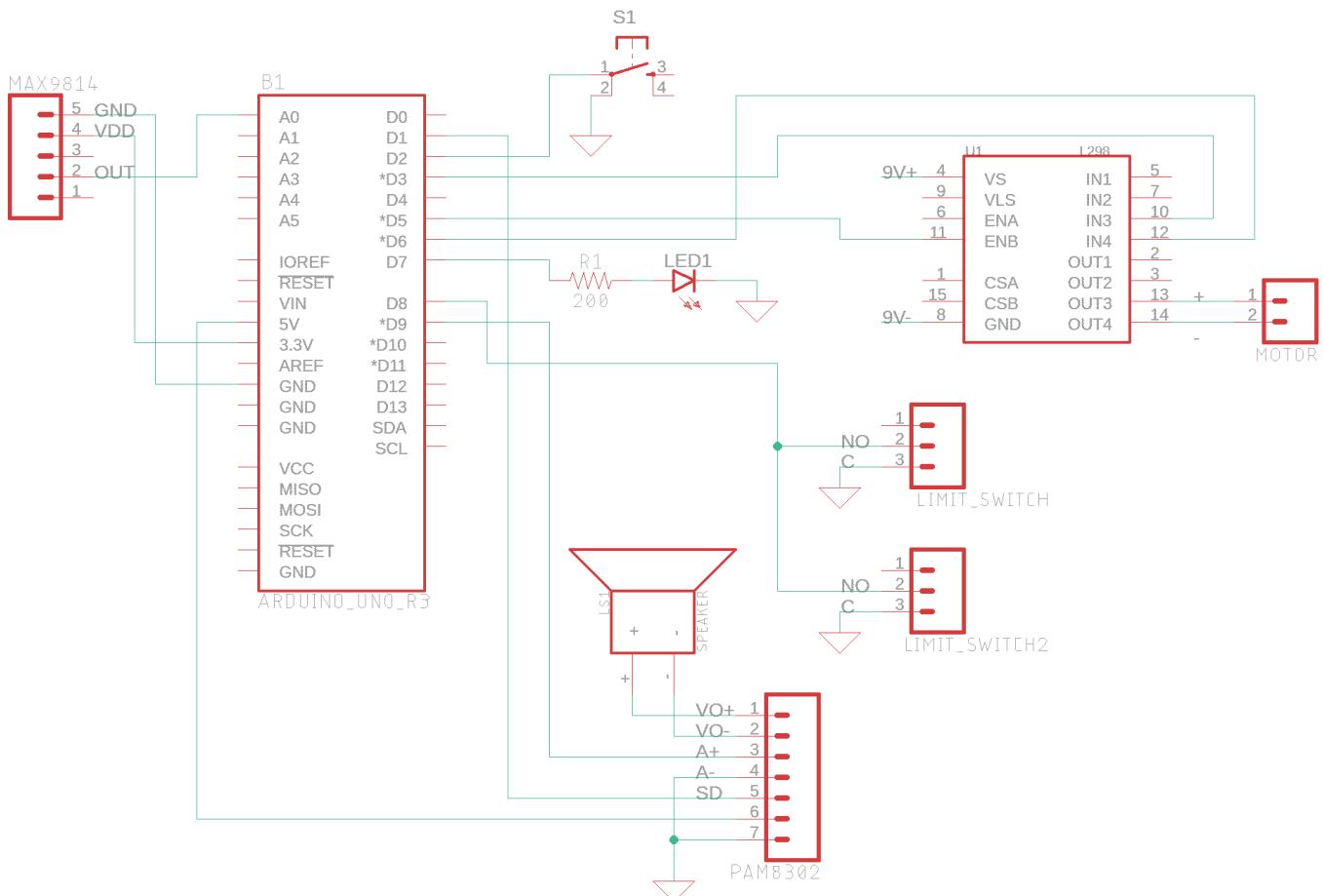


19. Attach the ear and mouth sculptures to the carousel using zip ties and hot glue.

Sculpture Assembly - Electronics

20. Drill a 1 cm hole through the bottom right corner of the back piece. Feed the motor power cord through and connect it to the motor controller. Connect the motor to the motor controller.
21. Upload /Final_project/Arduino_code/Final_Project_Code.ino to the Arduino, feed the arduino power source through the hole and connect it to the arduino.
22. Secure the breadboard, arduino and motor controller to the bottom of the box with mounting tape, and complete wiring following the schematic below. Wires must not stick out over the cutout, tape them to the box as needed.

Wire components to the SD card shield stacked on top of the Arduino.

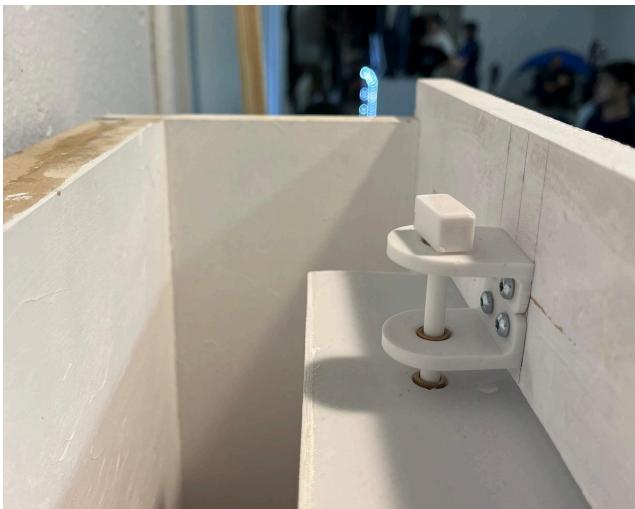


23. Mount flipper_mk4 to the motor shaft followed by hub_mk2 with wires from the carousel still attached. Connect these wires to the breadboard and arduino and make sure that they have enough room to rotate 180 degrees inside the box.



24. Hold the carousel upright with the ear side facing towards you and push it into the cutout from the front. Align it with hub_mk2 and push down until you hear a click.

25. Push axle through axle_mount_mk2 into the top of the carousel and close everything up by placing the top piece. The top piece is removable to facilitate troubleshooting.



26. Connect power sources to an outlet.

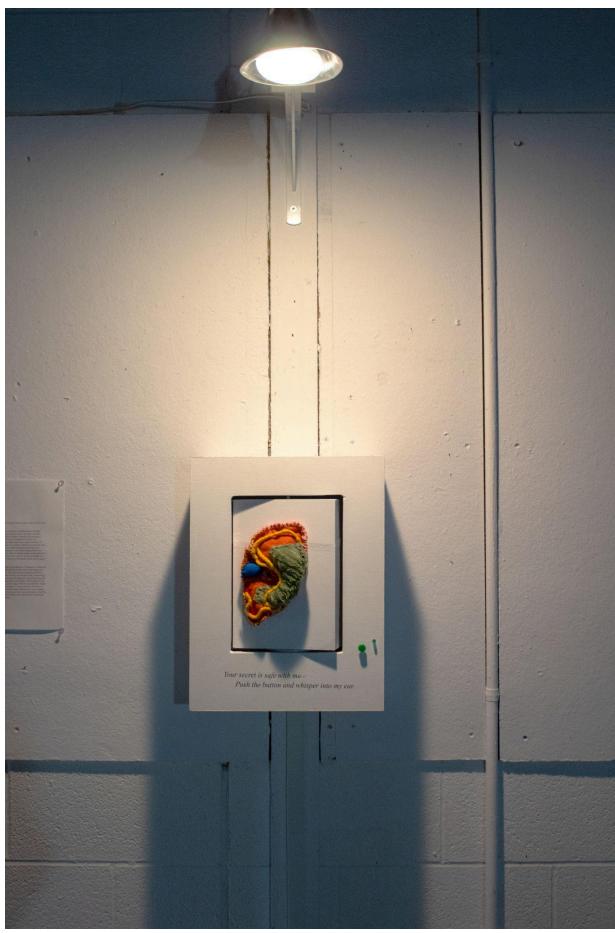
Installation

27. Attach a white shelf bracket about 1.5 feet above the sculpture.

28. Screw a piece of white scrap wood to the shelf and clamp the lamp onto the edge. Route the lamp cord along the wall to an outlet and secure the cord to the wall with cable tie mounts and cable ties. Trim off excess cable ties.

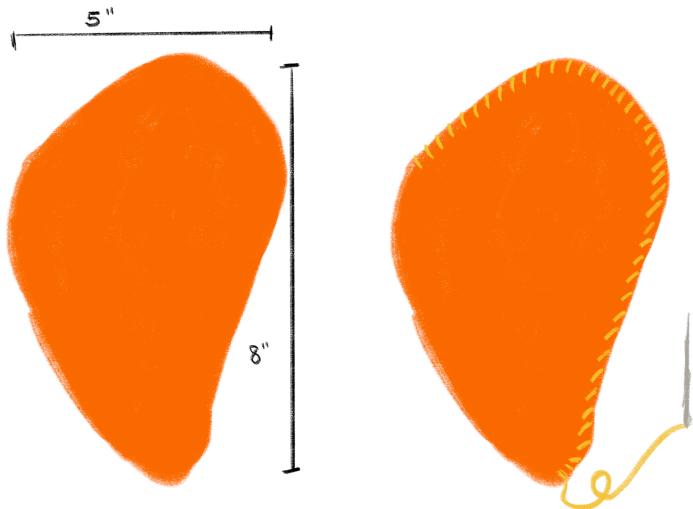


29. Hide all wires with cable covers.

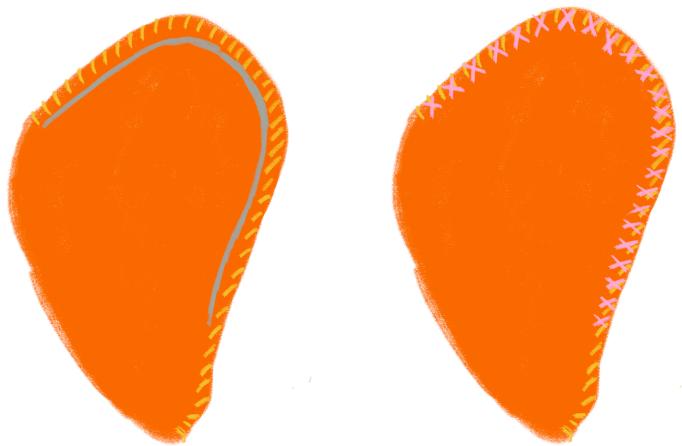


Soft Sculpture Construction - Ear

1. To form the general shape of the ear, cut 2 pieces of orange fabric. Dimensions should measure 8" in length and 5" in width. Using a yellow fabric string, perform a running stitch to join the two pieces together. Leave an opening to allow for stuffing.



2. Take 12" of 18 gauge gardening wire and insert it into the ear — between the two layers of fabric. Bend the wire using the inner edge as a guide. With a pink fabric string, secure the wire in place using a catch stitch.



3. Cut approximately 16" garden wire. Take yellow yarn and form a double knot on one end of the garden wire. Wrap around the length of the wire with yarn, circling 3-4 times as it moves down. This will form the outer cartilage. Shape the wire as needed and trim the excess length off with pliers. Repeat this step with an 8" piece of wire. Place the two pieces of "cartilage" aside.



4. With the green fabric, cut 2 inverted ‘c’ shapes. Sew the two pieces together using a running stitch and purple fabric string. Leave a space and insert polyester fibre before enclosing the remaining shape. Attach the green shape to the right side of the ear by sewing along the inner edges to the orange fabric.
5. Cut a small piece of red fabric. Sew a running stitch along the edges onto the bottom left base of the ear using green fabric string. Stop halfway to insert polyester fibre before continuing.
6. Using an oval shaped piece of the blue fabric, attach it to the left-middle edge of the ear using a running stitch and purple string. Stuff with polyester fibre halfway, and continue.
7. Create a hole with scissors, adjacent to the blue shape. The diameter is approximately $\frac{3}{4}$ " — wide enough to expose the sound sensor that sits below the sculpture. Stitch along the edges with a pink running stitch to seal the sculpture.
8. Take the two pieces of wrapped garden wire from Step 3. Beginning with the longer wire, start above the sensor hole and mould it so the wire follows the edge of the outer ear. Take the shorter piece and bend it into the shape shown in the diagram below. Attach the “cartilage” to the ear by sewing knots throughout the length — hidden under the green mount
9. Finish off by adding a bit of polyester fibre in between the orange layers of fabric and secure the edges using the same yellow string and running stitch.
10. Trim away excess fabric or string if applicable. All stitches should be double knotted from the back to secure the sculpture and prevent visual disruption.



Soft Sculpture Construction - Mouth

1. Begin by cutting the top lip out of the red fabric. Attach the two layers using a running stitch and blue fabric string. Add the polyester fibre stuffing into the sculpture stitching all the way. Repeat for the bottom lip following the given dimensions.
2. Attach the top and bottom lip by performing a running stitch, sewing together the corners of the mouth.
3. Cut a "U" shape from the green fabric to create a tongue. With 10 inches of garden wire, bend along the bottom edges of the fabric. Trim the excess wire off with a pair of pliers. Using an orange string, fold the edge of the green tongue so it wraps around the wire and sew it into place (running stitch). Bend the tongue so it curves upwards slightly.
4. Using the remaining fabric scraps, cut small pieces of circles. Blue circles can be stitched onto the lips using pink string. Green and orange circles should be super glued onto the lips due to their material.
5. Trim away excess fabric or string if applicable. All stitches should be double knotted from the back to secure the sculpture and prevent visual disruption.

