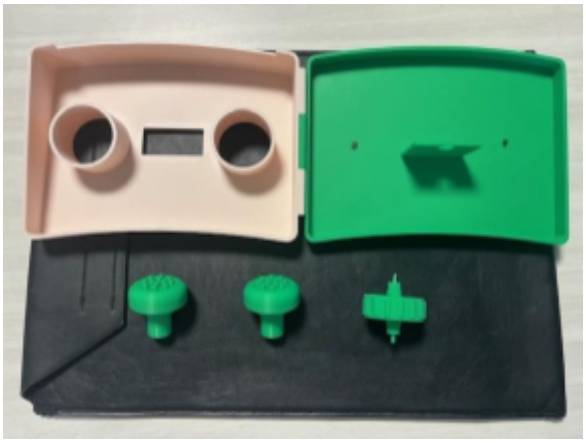
Foot Mouse Assembly Instructions

Step 1: Build the Base

Locate the base and lid (parts A and B). Line up the hinges as shown in fig. 1, and Insert the hinge rod C into the hole, making sure that the rod is all the way through both pieces. Verify that the lid opens and closes smoothly, though you should expect to only open it rarely for repairs.



Step 2: The Scroll Wheel

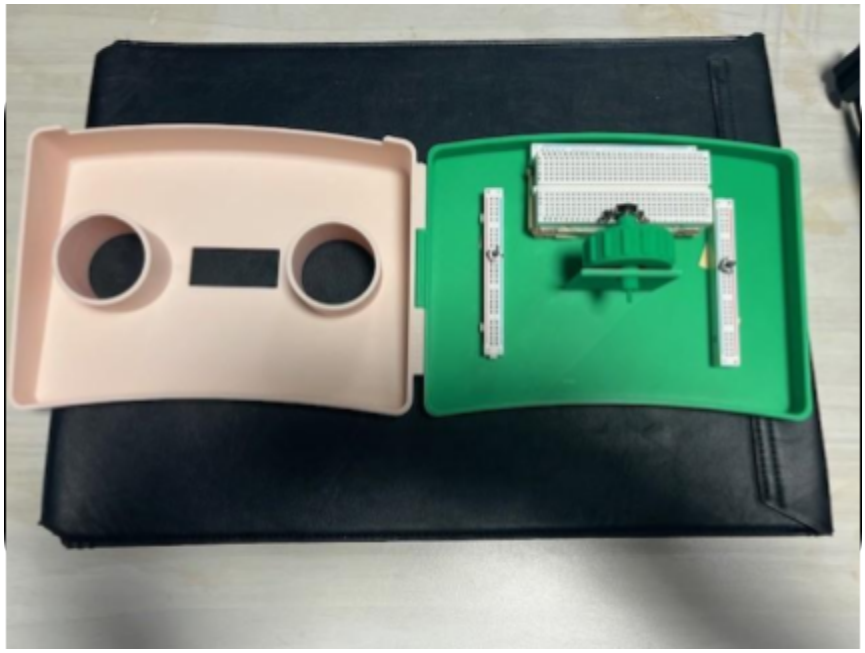
Locate the Quadrature Encoder (part D), the large breadboard (part E), and the 3D printed Scroll Wheel (Part F). Start by pressing one thin end of the encoder firmly into the small hexagonal hole in the side of the encoder. When properly inserted, the scroll wheel should rotate the small disc inside the encoder. Insert the three pins of the Encoder into the holes shown in fig. 2, taking care that the orientation matches the image.

Step 3: Inserting the Buttons

Take the button switches (2x) (part G), and insert them into the narrow breadboard strips (2x) (part H). Again, pay special attention to the orientation of buttons with respect to the ground and power rails on the breadboard, following the wiring diagram in figure 3.

Step 4: Insert the Breadboards

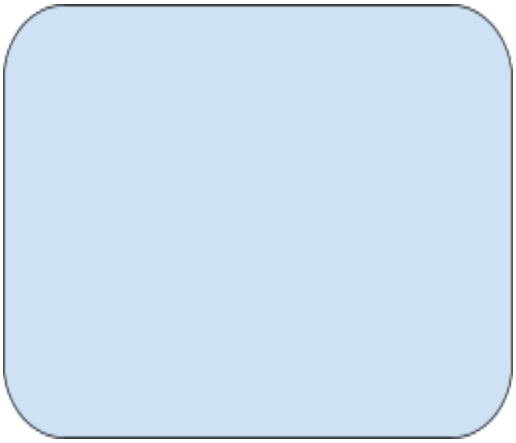
Now that you have created three breadboard assemblies, it is time to insert them into the housing. Begin by inserting the button rails (parts G and H), into the marked slots on the right and left of the board. When inserting the breadboard strips make sure that the rail colors (blue is ground and red is power) match the diagram shown below in figure 4.



Next, insert the scroll wheel assembly into the marked spot in the center of the board. When inserting, angle the breadboard such that the outer axle of the scroll wheel can make its way into the support hole. With the breadboard correctly inserted, you should be able to turn the scroll wheel in both directions with minimal resistance.

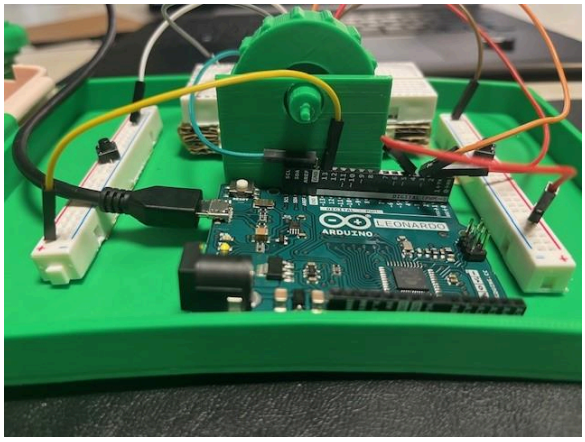
Step 5: Placing the Arduino

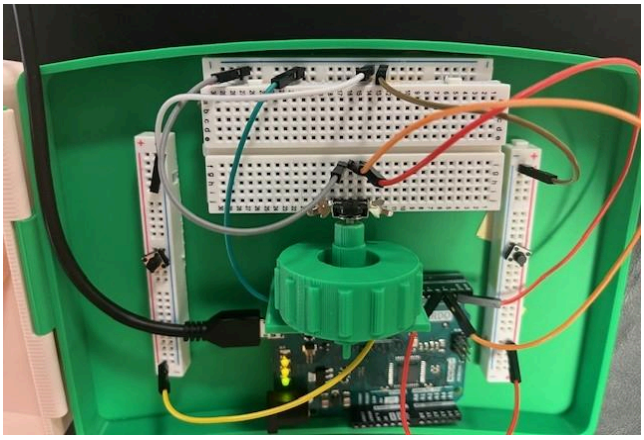
Place the Arduino Leonardo (part I) into the marked spot between the scroll wheel and the sidewall. You may need to press firmly to ensure that the arduino is situated with a snug fit.



Step 6: Wiring

Take X male to male to wires (part J) and insert them according to the wiring diagram below.





Step 7: Soldering the Mouse Sensor

For those that have never soldered before, soldering may seem very daunting. Fortunately, the soldering required for this project is extremely simple and can be accomplished with only a soldering iron and solder (preferably unleaded with flux but any solder will do).
Take the insulated cable (part K) and cut off two, 2-3 foot long sections. Using wire strippers or a careful exacto knife, remove the insulation from the wire housing and all four wires inside. After carefully separating out the wires, insert them into the mouse sensor (part L) as shown in the following video, starting on one side and working your way across, taking time to ensure that the solder joints are secure and resoldering as necessary.

IMG_4264.mp4

After the wires are connected, carefully connect the wires as shown in the wiring diagram. Being careful that the color and orientation is aligned. To connect the wires to the breadboard, simply insert the pre-tinned ends into the female headers.

Finishing Touches

After the wires are inserted, take the button and springs (parts M and N) and place them over the button switches. Insert the long cable connecting the arduino to the computer (part O), and close the lid making sure it is secure.

Now, open the arduino_code.