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Seed Dispenser Prototype



by varsvisualizes

This is a cardboard prototype for a seed dispenser that would be integrated into the interactive mural designed by [NYU's Designing for Creative Physical Computing VIP team](#). For more information, click [here](#)!

Supplies:

- Arduino UNO
- Servo motor
- Trimpot
- Screwdriver
- 2 rectangular cardboard pieces
- Craft knife
- Marker
- Object with a circular base (optional)
- Hot glue
- Laptop



Step 1: Trim the Cardboard

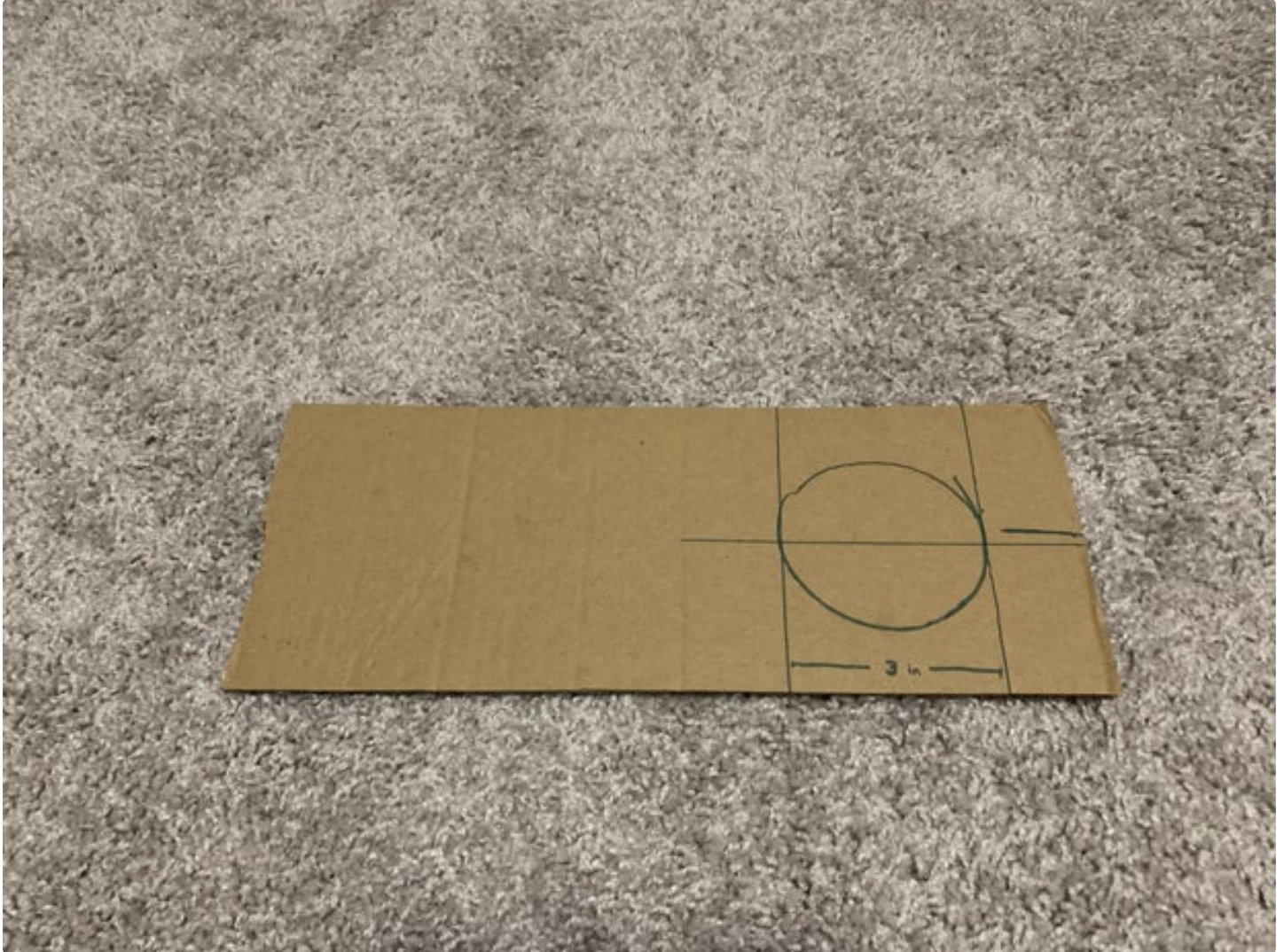
I pulled two pieces of cardboard from some packaging. Using a craft knife I trimmed the pieces to approximately 13 inches long, each. The cardboard pieces have the dimensions of 13" x 5". One piece of cardboard will lay on top of the other.

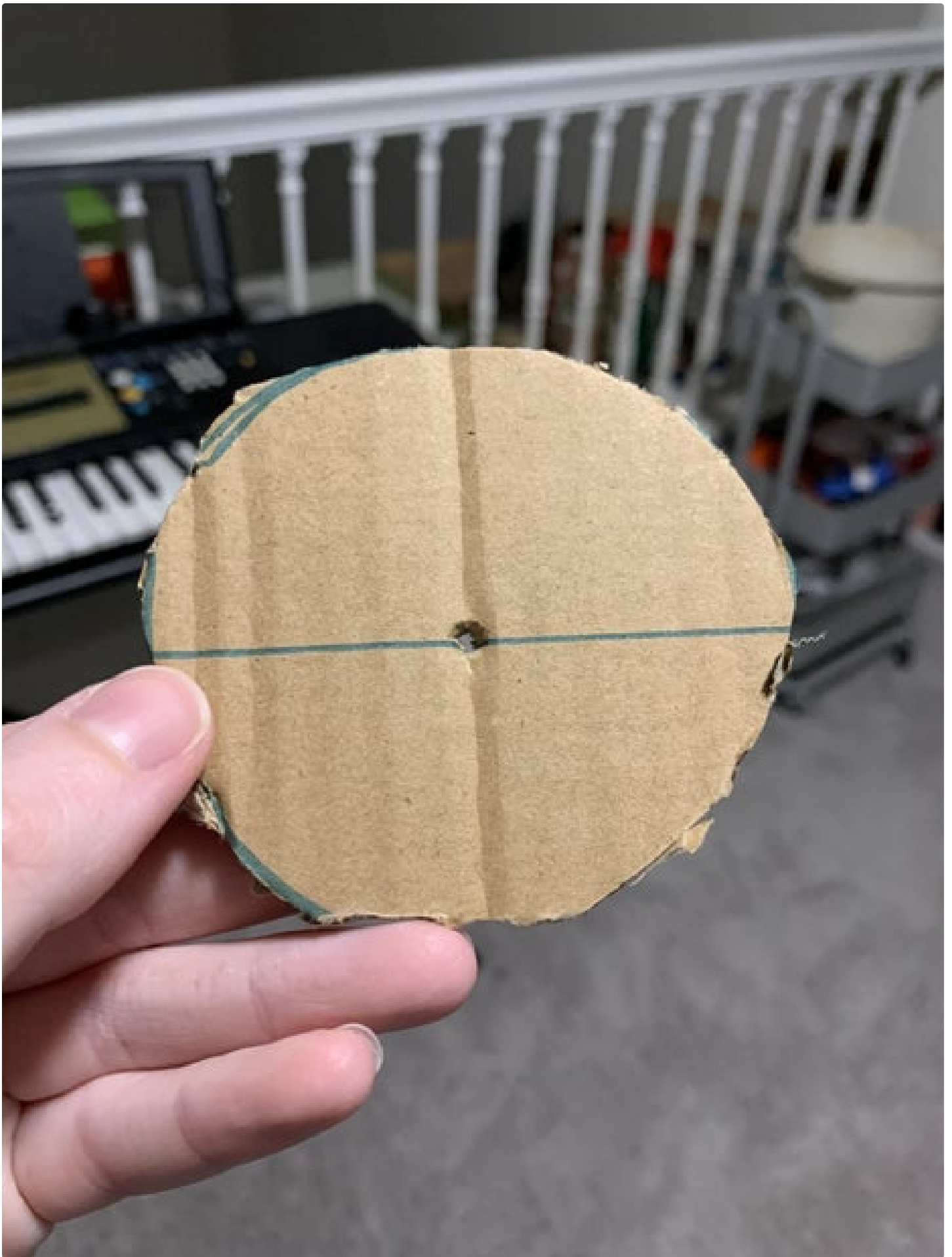




Step 2: Draft and Cut the Wheel

Select the uglier cardboard piece to cut out your wheel. I used a water bottle to trace a circle on the cardboard, which came out to a diameter of 3 inches. I cut the wheel out of the cardboard with the craft knife. Feel free to trim around the sides to make the wheel as circular as possible--I did this throughout the rest of the process. I used the knife to piece a hole in the center, where I would later stick the fin for the servo motor.

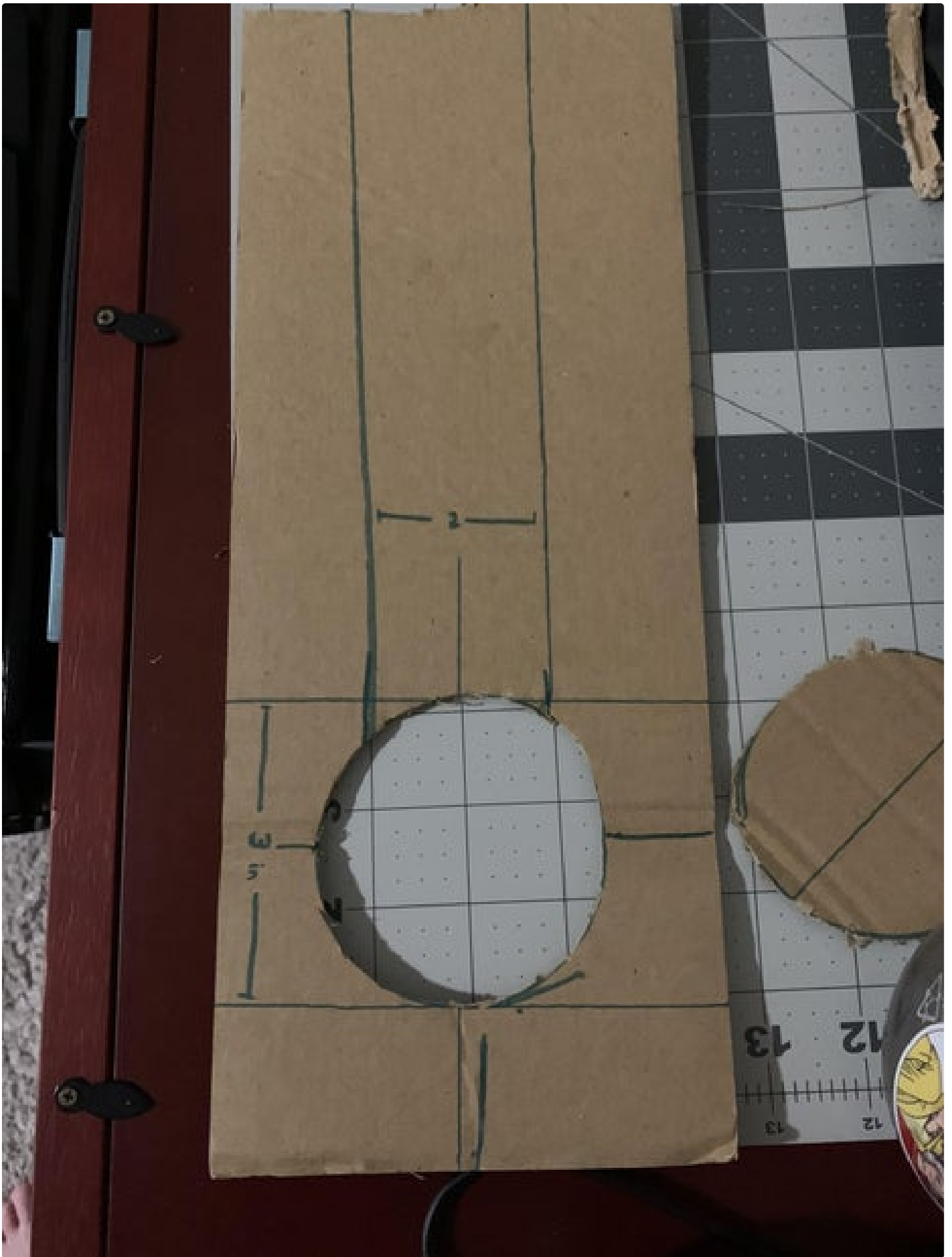


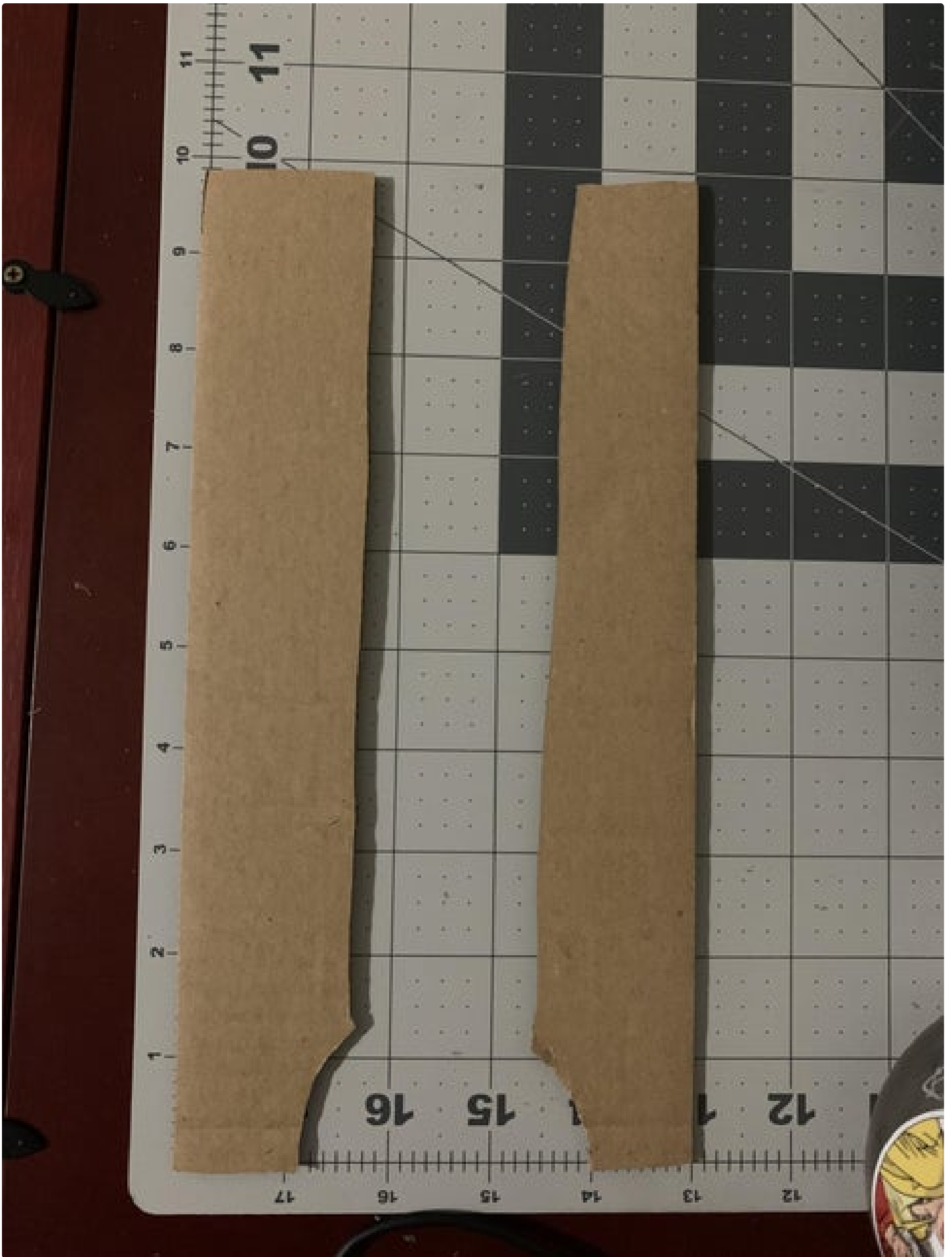


Step 3: Draft and Cut the Rails

You'll need rails to slide the seeds down onto the wheel, like a chute. I traced the rails on the cardboard that I used to cut the wheel, and I designed them to fit around the wheel so the wheel could be better secured. The distance between the rails would be 2 inches, cupping half an inch on either side of the circle.

Once the pieces were cut out, I hot glued the rails to the uncut piece of cardboard.







Step 4: Cut a Notch in the Wheel

We need a notch in the wheel to catch the seeds as they slide down the chute. I placed the wheel between the rails in what I planned to make the neutral position, and I traced a semicircle connecting the edge of each rail. Once the semicircle was traced I cut it out with the knife.

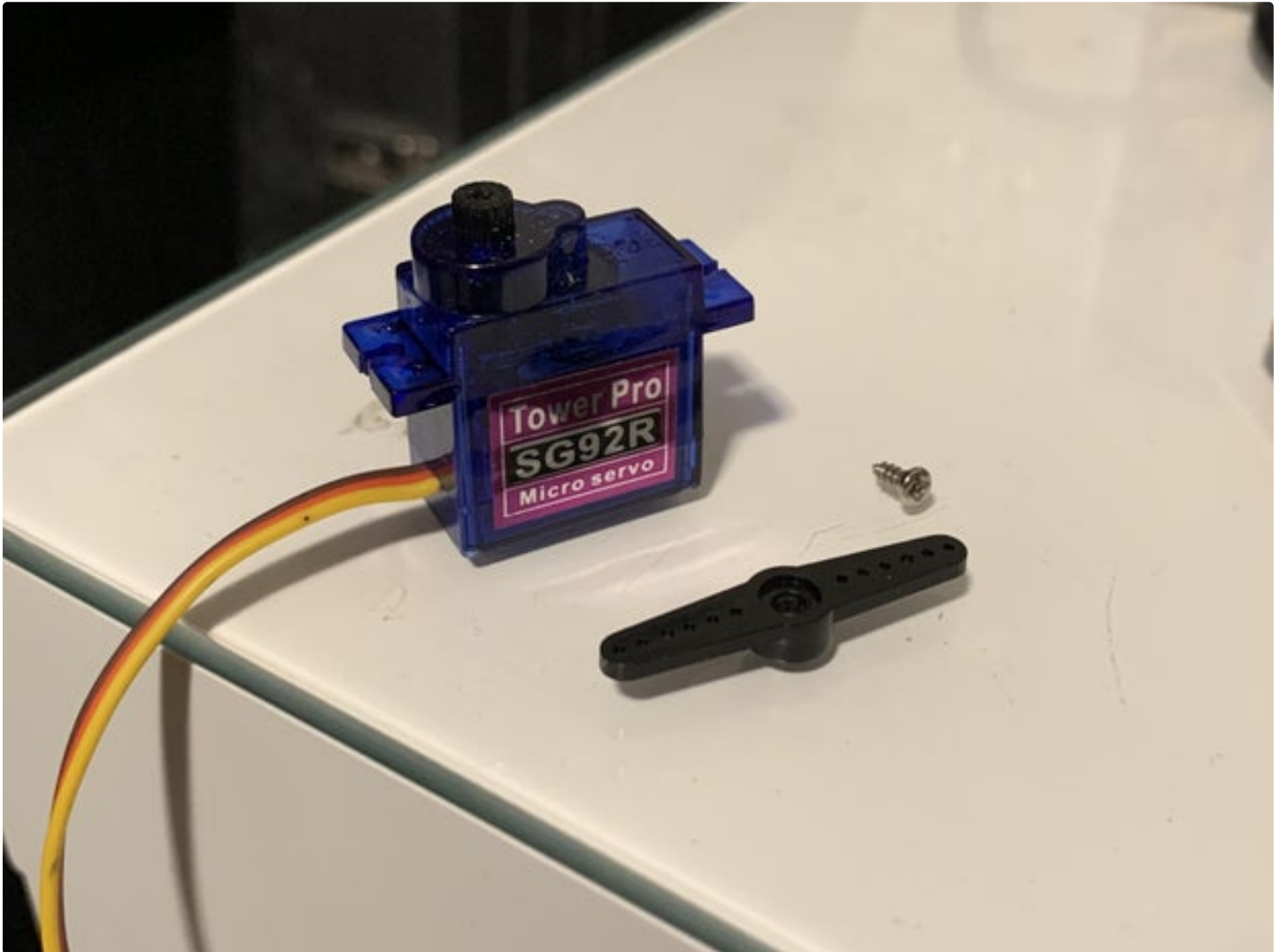


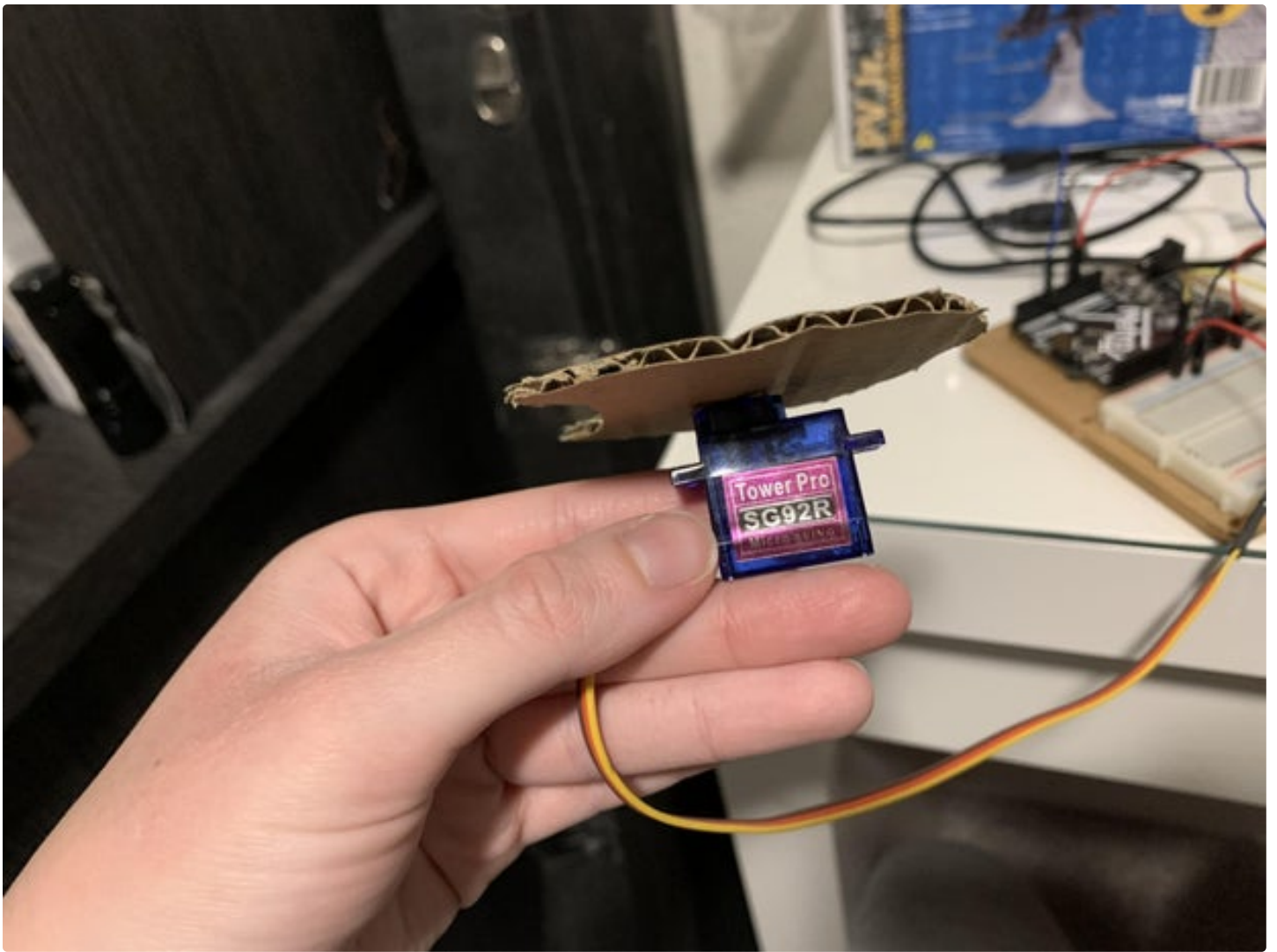


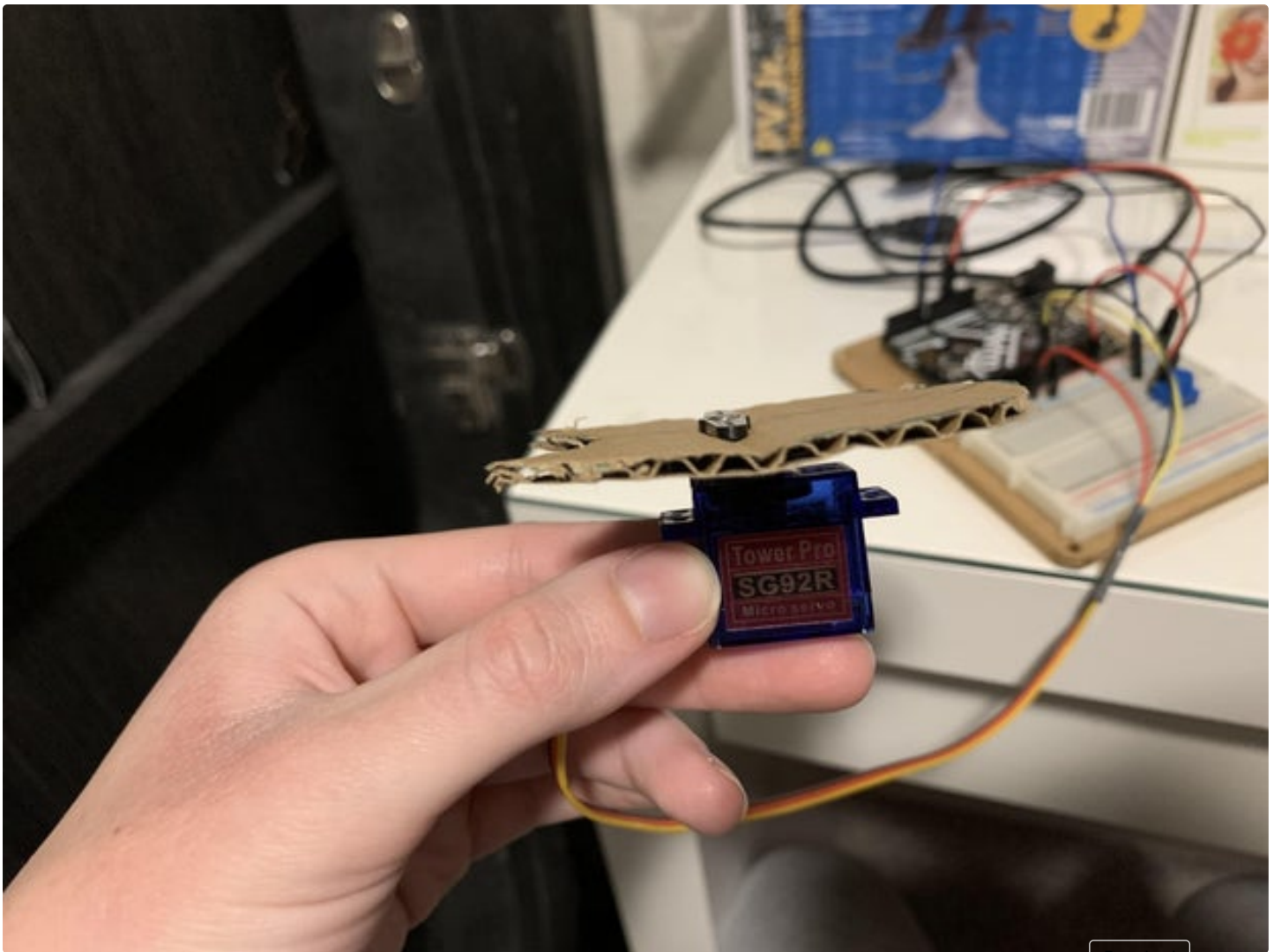
Step 5: Attach the Wheel to the Servo Motor

Press the fin of the servo motor into the hole on the wheel. It should reach through to the other side--if not, widen the hole with a pencil or pen. Once the fin is in the wheel, attach the motor on the other side, and screw the motor together.

I would recommend pausing here to test that the servo rotates the wheel correctly. I hooked up the motor to the board, along with a potentiometer, and ran the Knob example code.





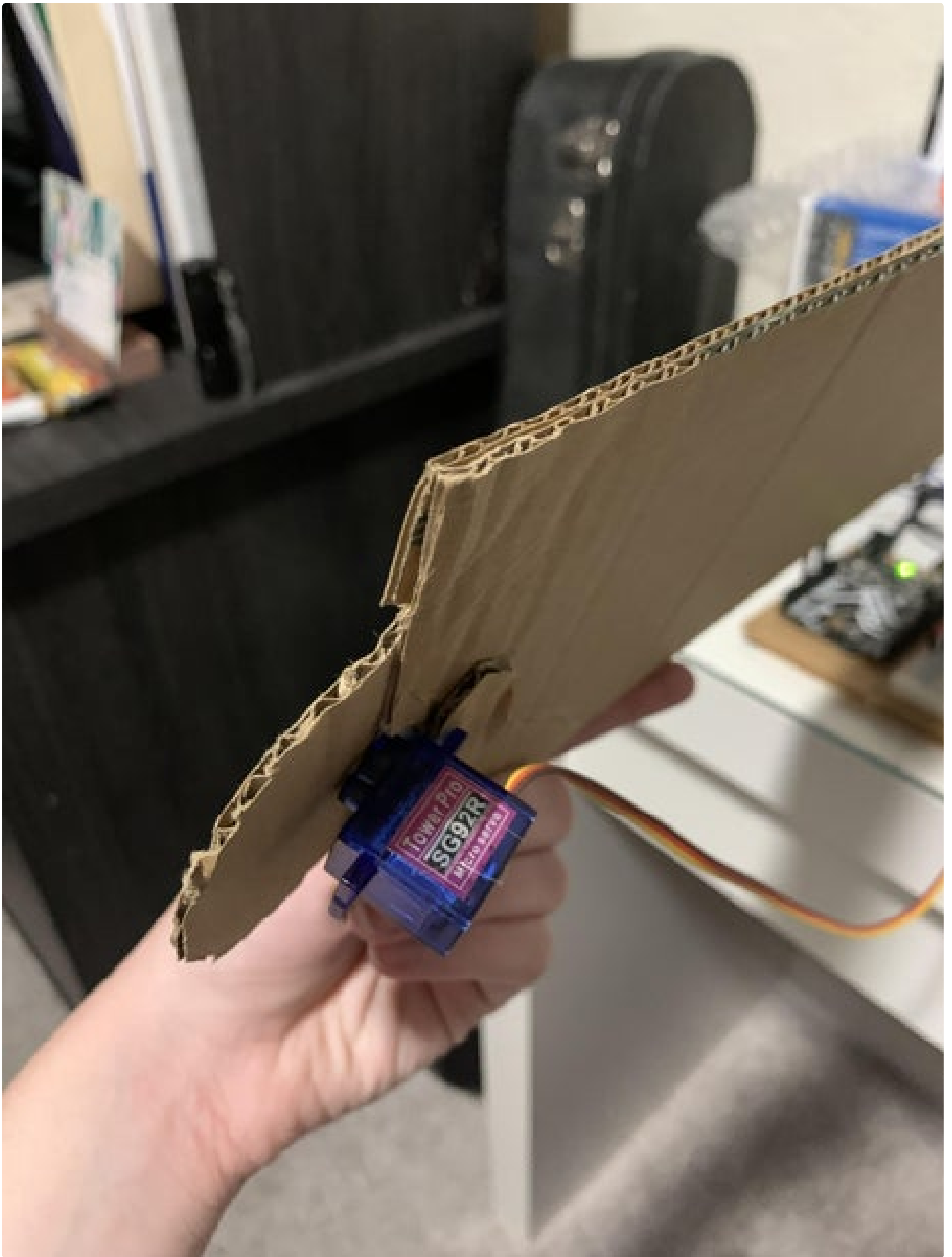
[Download](#)<https://www.instructables.com/ORIG/F15/1YY3/KWOZ01YN/F151YY3KWOZ01YN.fzz>

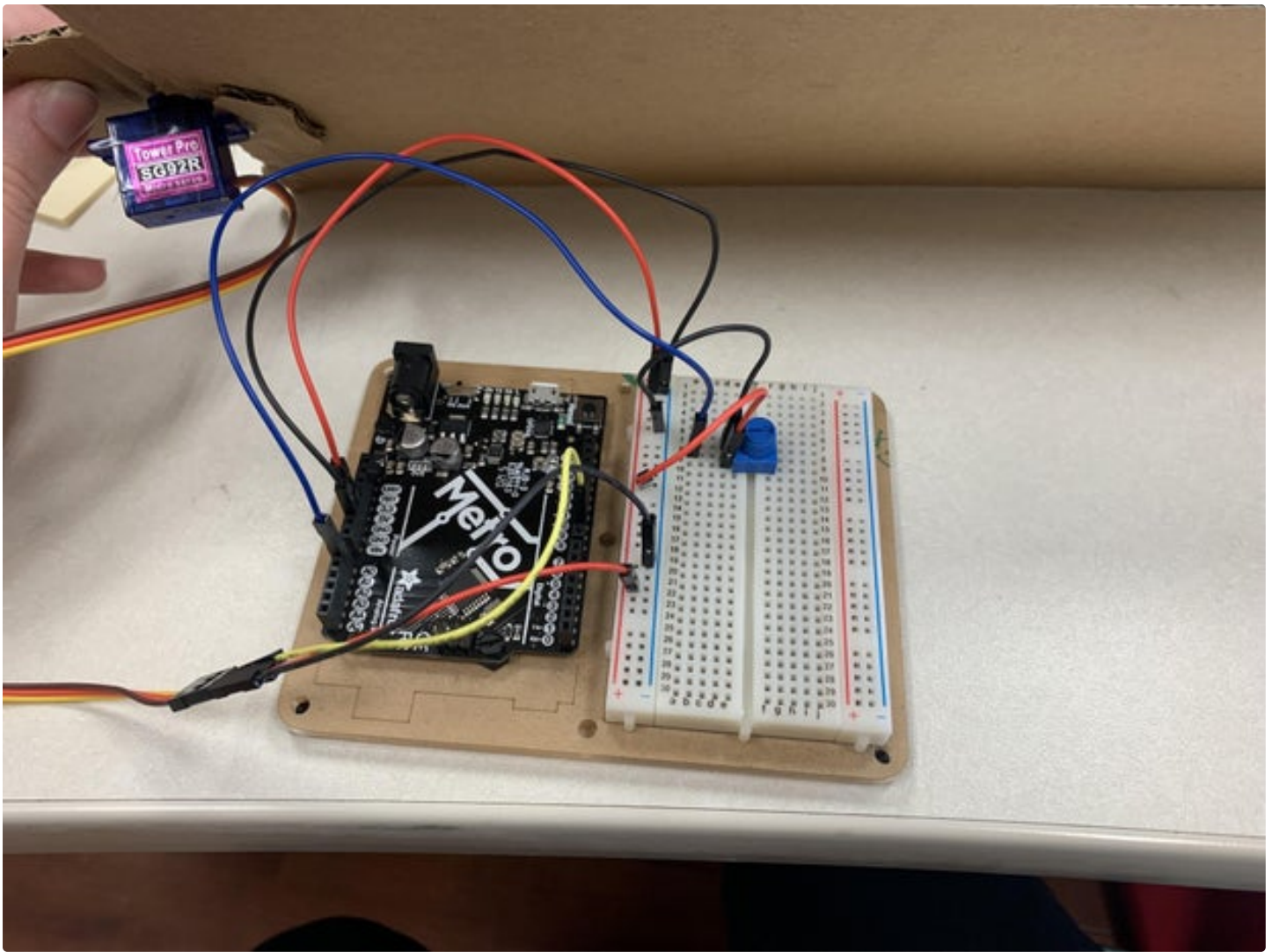
Step 6: Connect the Wheel and Motor to the Board

I initially tried to create a hole in the board where the servo would fit through, but I ended up creating a dent there instead because the motor sat too low on the circle to make a solid hole.

To stick the motor to the board, I hot glued a leftover cardboard piece to account for the space between the fin of the motor and the base of the motor, and I hot glued the motor to that cardboard piece and to the rim of the dent.







Step 7: Final Hot Glue

Finally, I noticed that when I'd rotate servo, the fin would slip and I wouldn't be able to reset the circle to the starting position. I fixed this by hot gluing the fin to the wheel. This is the current state of the prototype.

