# Robotic Arm Workshop

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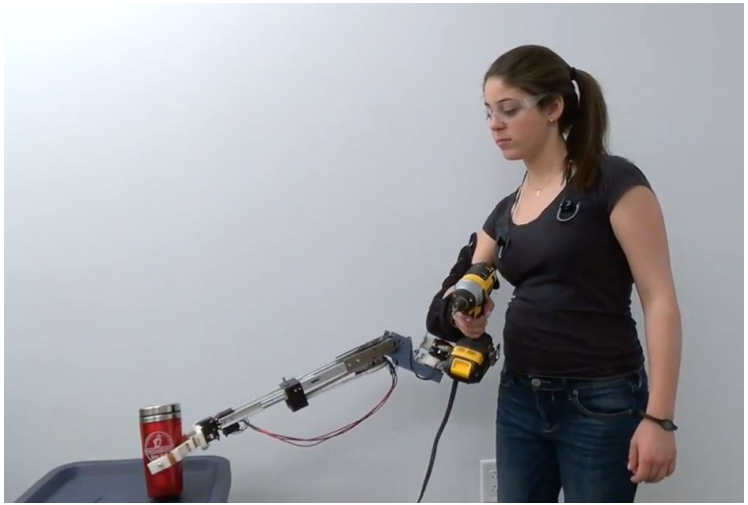
# Robotic Arm Uses

- Automate welding, placing and picking, painting, etc
- Pretty much can be used for anything you use your arms



# Robotic Arm Uses at UNF

- PANDA Emika at the UNF Robotics Lab: 7 Degrees of Freedom (DOF)
- Medical: EMG Purposes


# Assembling the Gripper

# Assembling the Supports

Step 1: Gather your materials

Step 2: Line up the supports with the bottom hole of the left gripper. Make sure the inside of the gripper is faced right

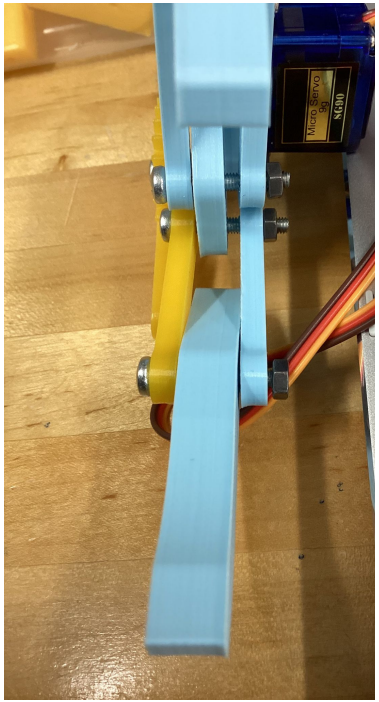
Step 3: Put the screw into the holes (You may need to use the screwdriver)

Step 4: Put the nut onto the back of the screw you just inserted

Step 5: Align the supports to the bottom hole of the gripper base

Step 6: Insert the screw through the hole

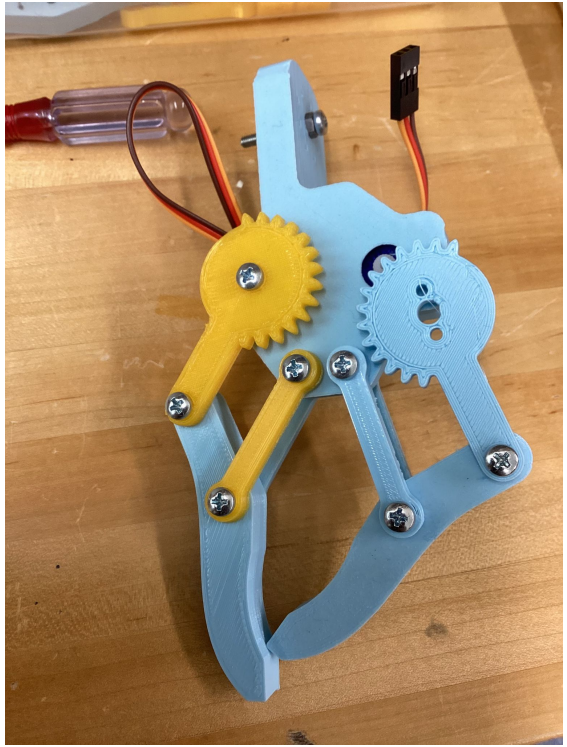
Step 7: Put the nut onto the back of the screw. You don’t have to tighten down all the way



Step 8: Align the top hole of the gripper finger and the gear hole

Step 9: Insert the screw through the hole

Step 10: Tighten the nut onto the back of the screw



# How the Gripper Works

The mini servo motor on the back of the gripper base rotates which moves the right gear. The right gear moved the left gear which in turn opens and closes the entire arm. The supports keeps the gripper fingers in place.

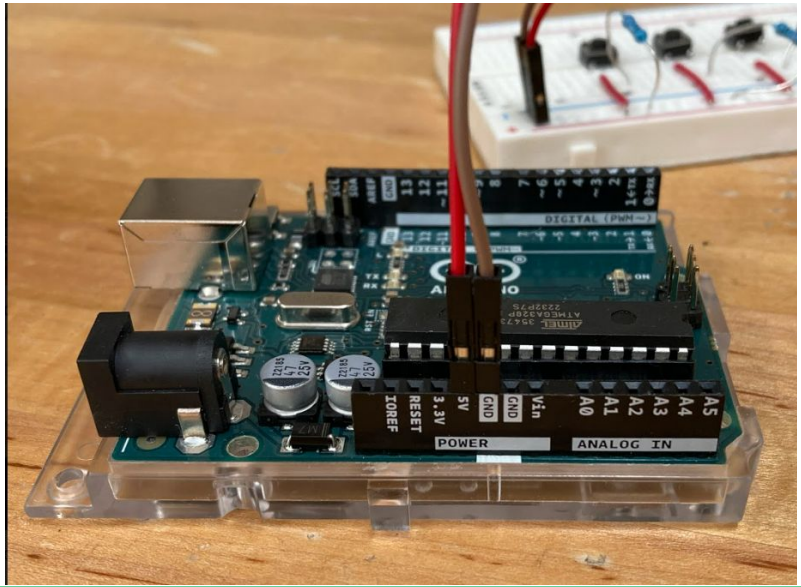
# Assembling the Electronics

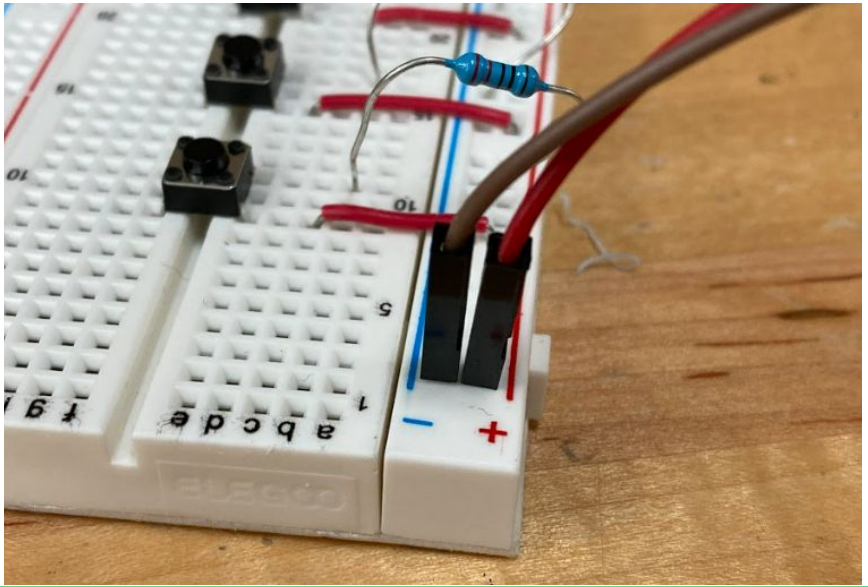
Step 1: Using the BROWN wire, attach one end to the Arduino pin labeled “GND”.

Step 2: With the other end of the BROWN wire, attach it to the negative column (top row to the left, under the BLUE negative sign)

Step 3: Using the RED wire, attach one end to the Arduino pin labeled “5V”

Step 4: Attach the other end to the positive column in the breadboard (RED)



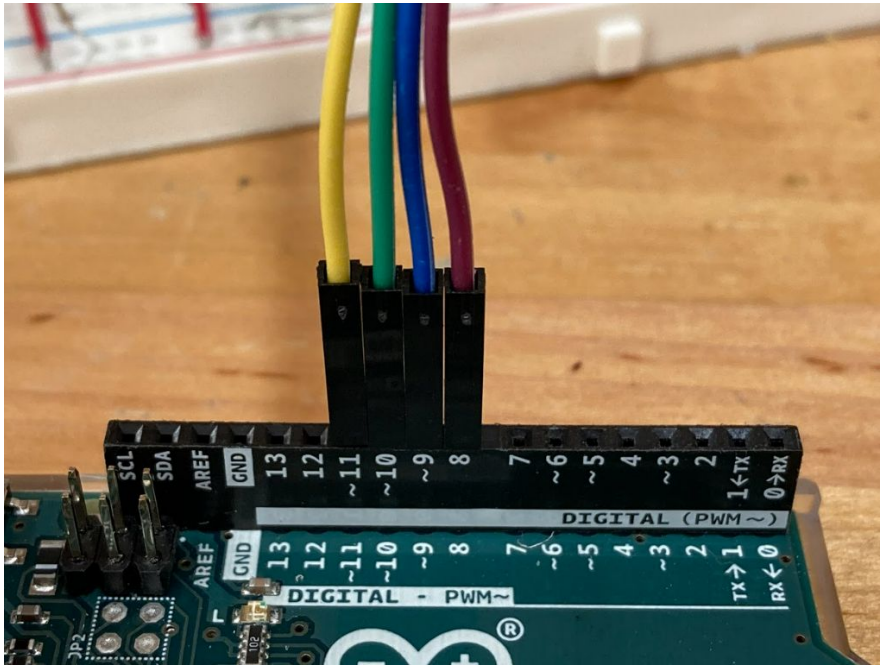



Step 5: Take one end of the PURPLE wire and plug it in PIN 8

Step 6: Take one end of the BLUE wire and plug it in PIN 9

Step 7: Take one end of the GREEN wire and plug it in PIN 10

Step 8: Take one end of the YELLOW wire and plug it in PIN 11

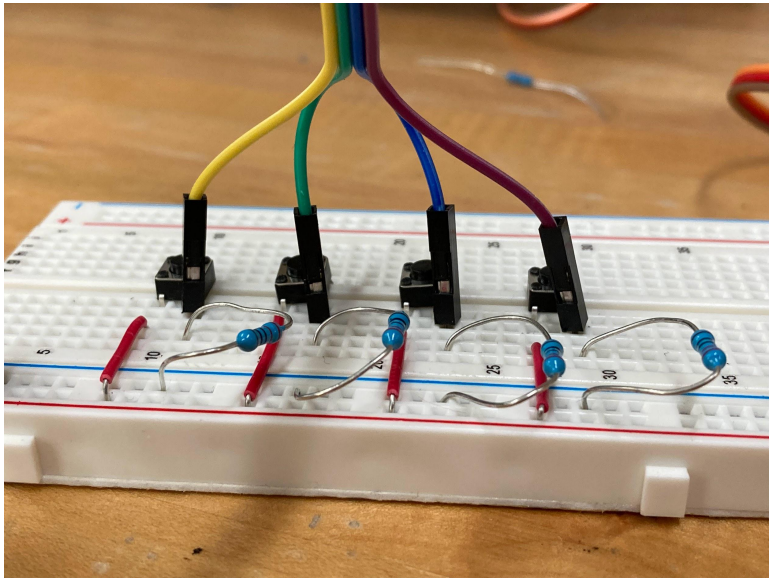


Step 9: Take the other end of the PURPLE wire and plug it next to the FIRST BUTTON (LEFT)

Step 10: Take the other end of the BLUE wire and plug it next to the SECOND BUTTON

Step 11: Take the other end of the GREEN wire and plug it next to the THIRD BUTTON

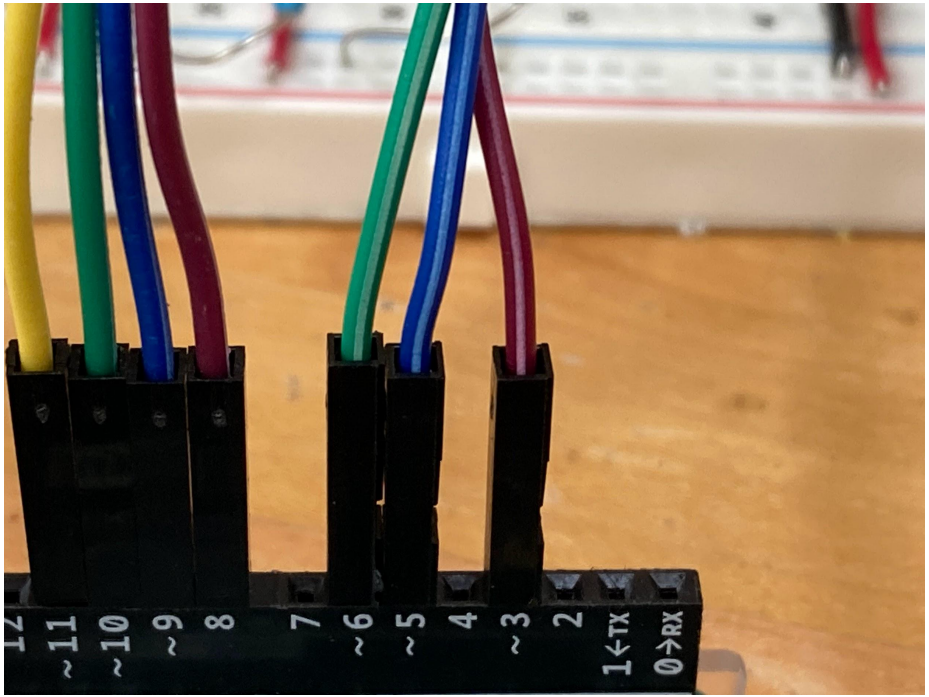
Step 12: Take the other end of the YELLOW wire and plug it next to the FOURTH BUTTON (RIGHT)



Step 13: Insert new PURPLE wire into PIN 3

Step 14: Insert new BLUE wire into PIN 5

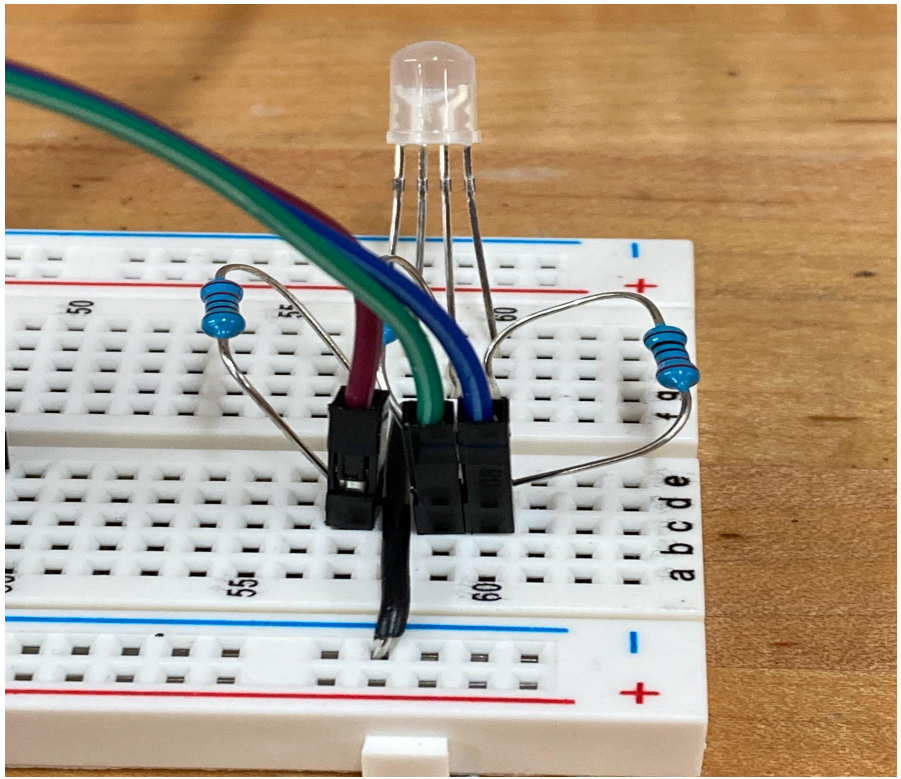
Step 15: Insert new GREEN wire into PIN 6



Step 16: Insert the other end of the PURPLE wire into the single pin next to the black wire

Step 17: Insert the other end of the GREEN wire into the hole on the other side of the black wire

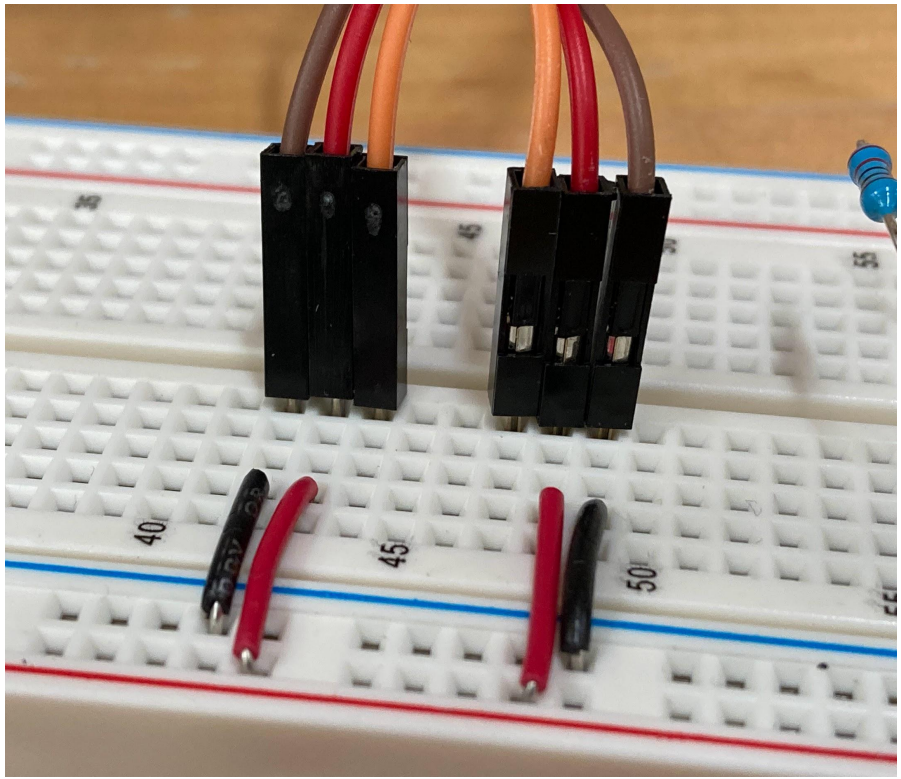
Step 18: Insert the other end of the BLUE wire into the last remaining hole



Step 19: Plug the BROWN servo motor wires with the BLACK wires

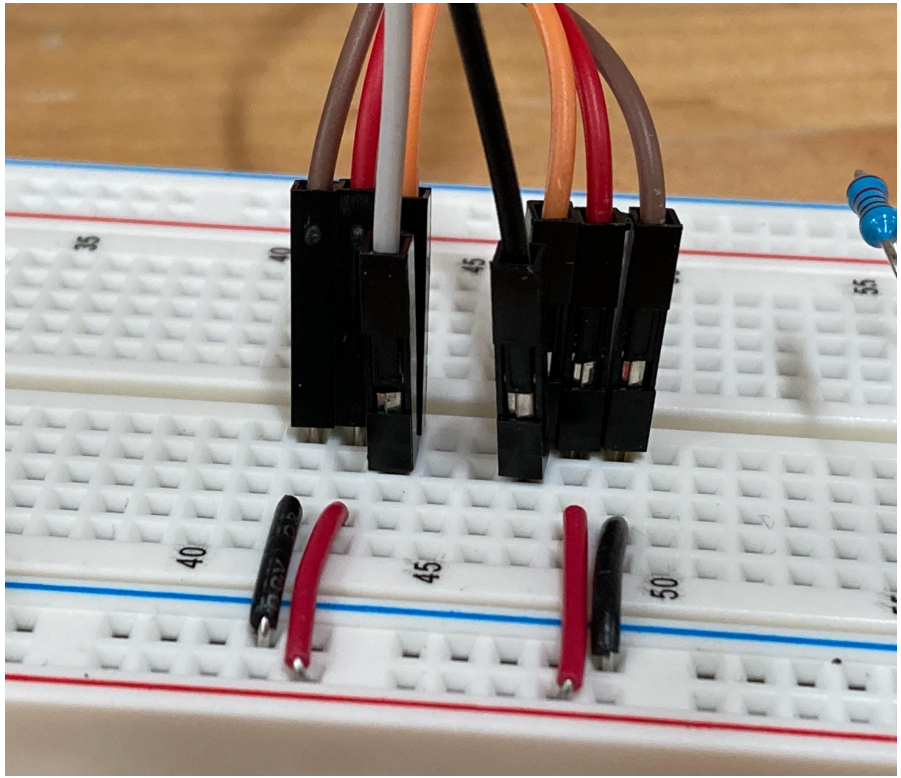
Step 20: Plug the RED servo motor wires with the RED wires

Step 21: Plug the ORANGE servo motor wires into the holes NEXT to the RED wires



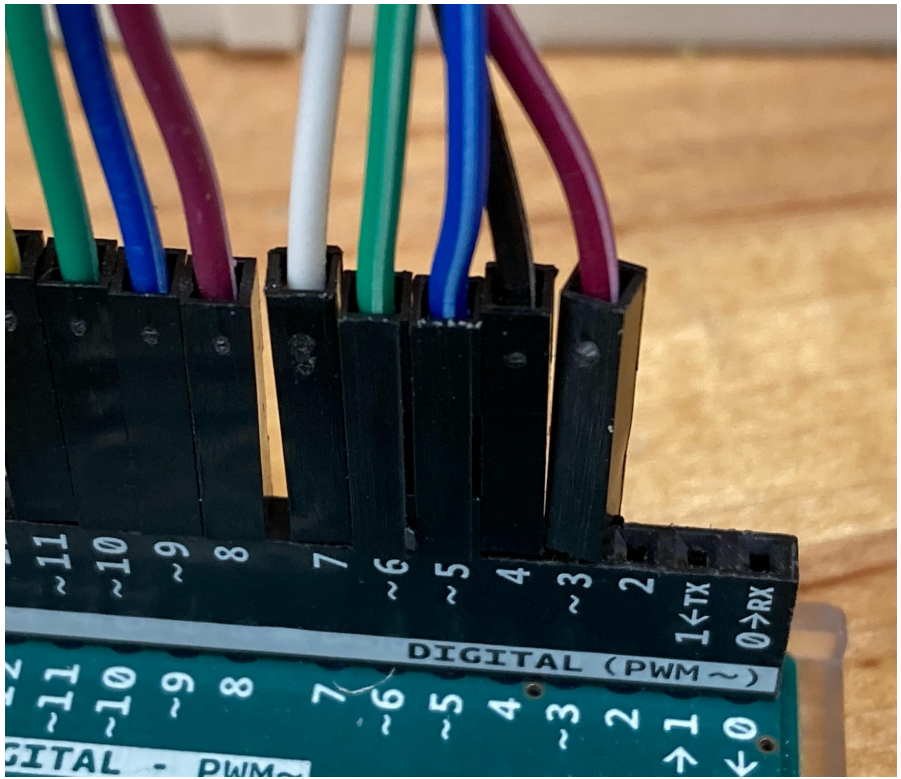
Step 22: Plug the WHITE wire with the LEFT ORANGE wire

Step 23: Plug the BLACK wire with the RIGHT ORANGE wire



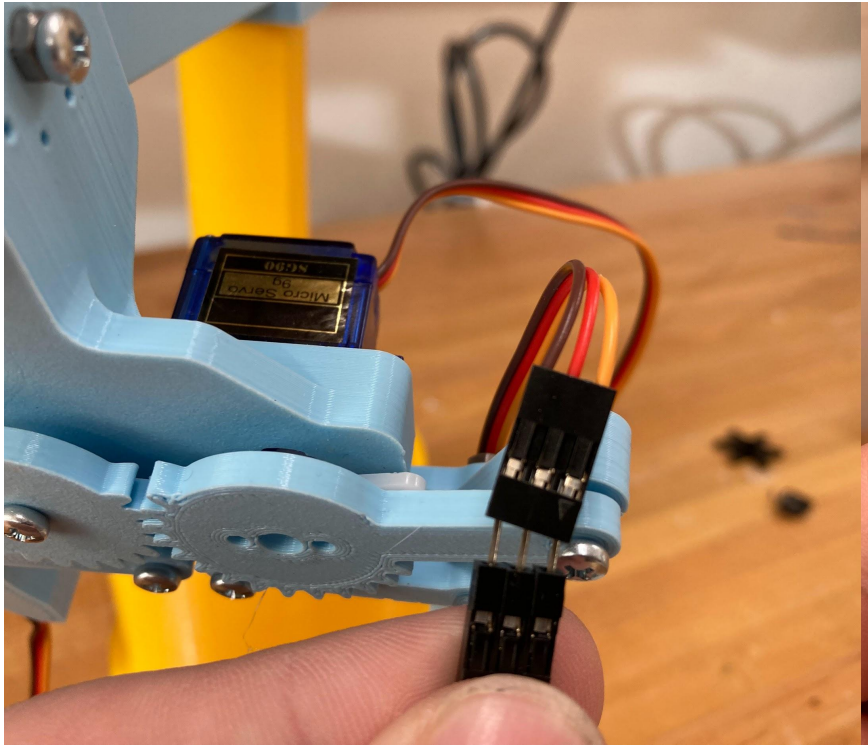
Step 24: Plug the other end of the WHITE wire into PIN 7

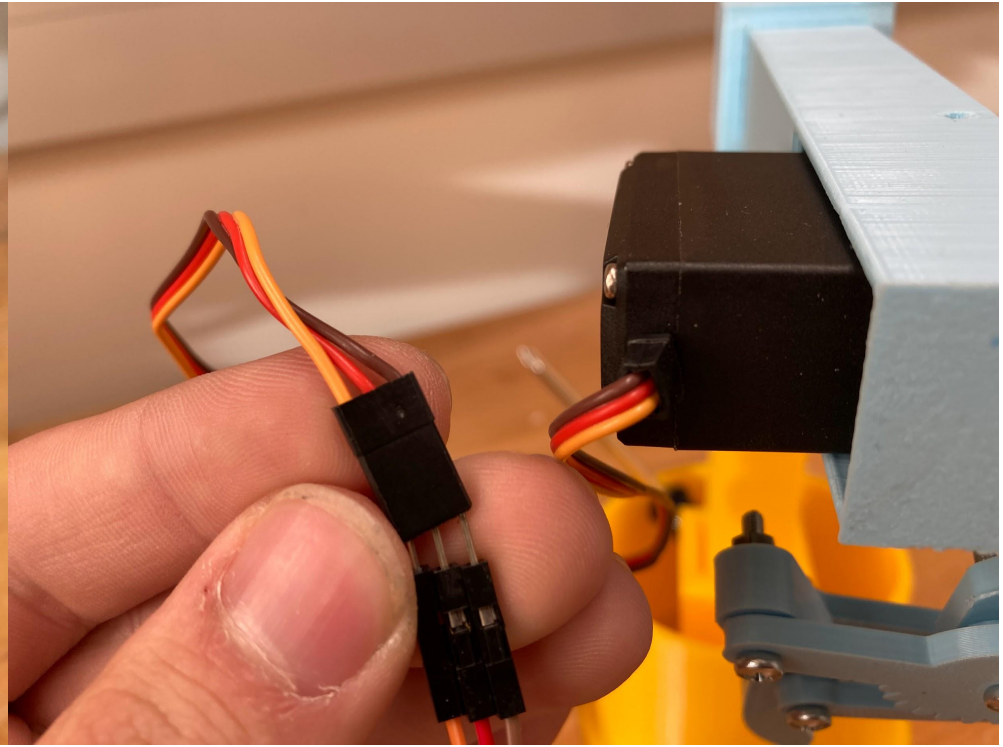
Step 25: Plug the other end of the BLACK wire into PIN 4



Step 26: Plug the CLAW servo into the RED, BROWN, and ORANGE wires connected to the BLACK wire

Step 27: Plug the WRIST servo into the RED, BROWN, and ORANGE wires connected to the WHITE wire



# LAST STEP AFTER ALL WIRING SLIDES

Step 28: Plug the battery into the arduino


If not working, hit the RESET button