

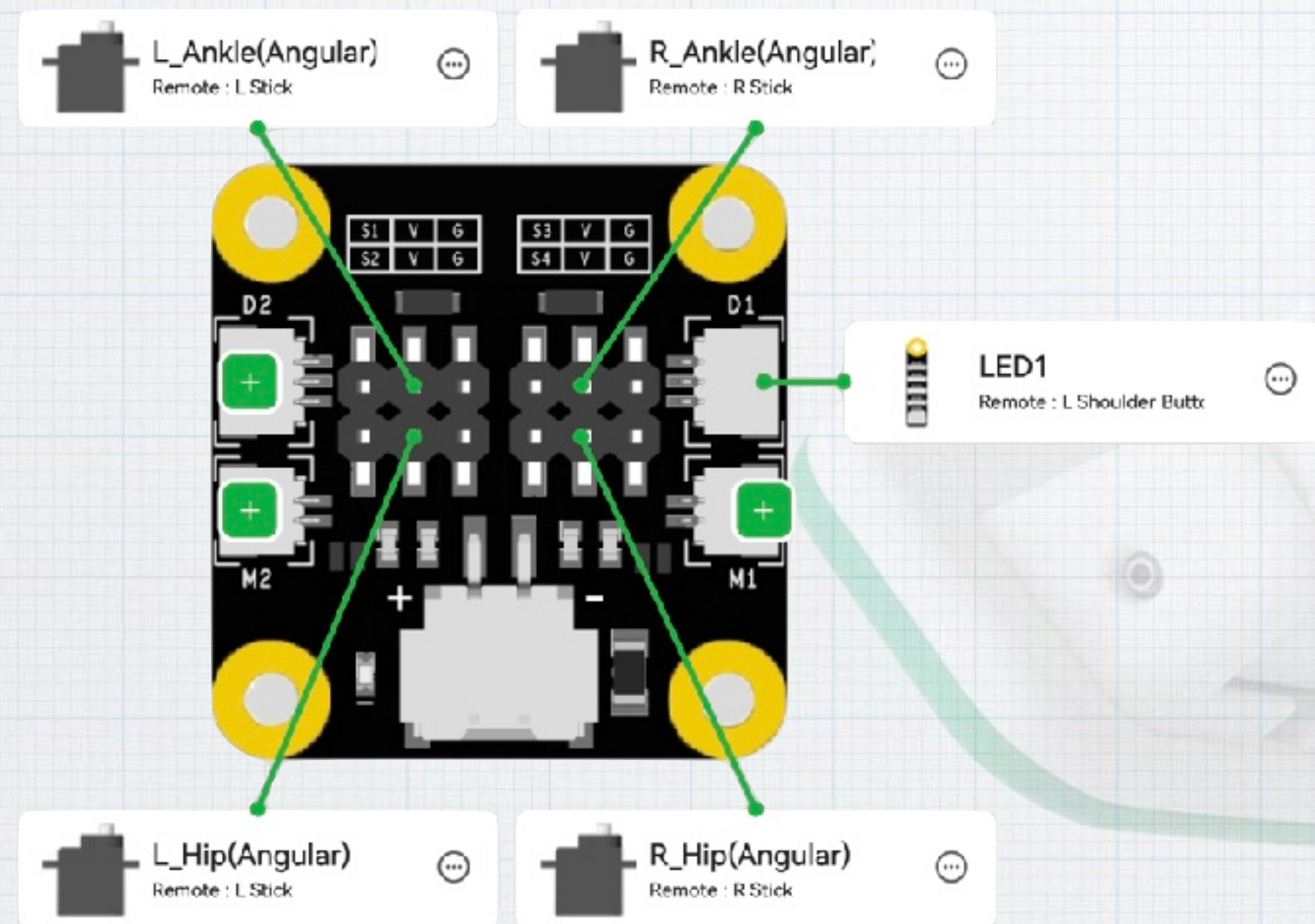


# CUBY

## REMIXABLE ROBOT



Instruction revision 1.1c



## Make sure you have everything needed available

- o All printed parts

CyberBrick components:

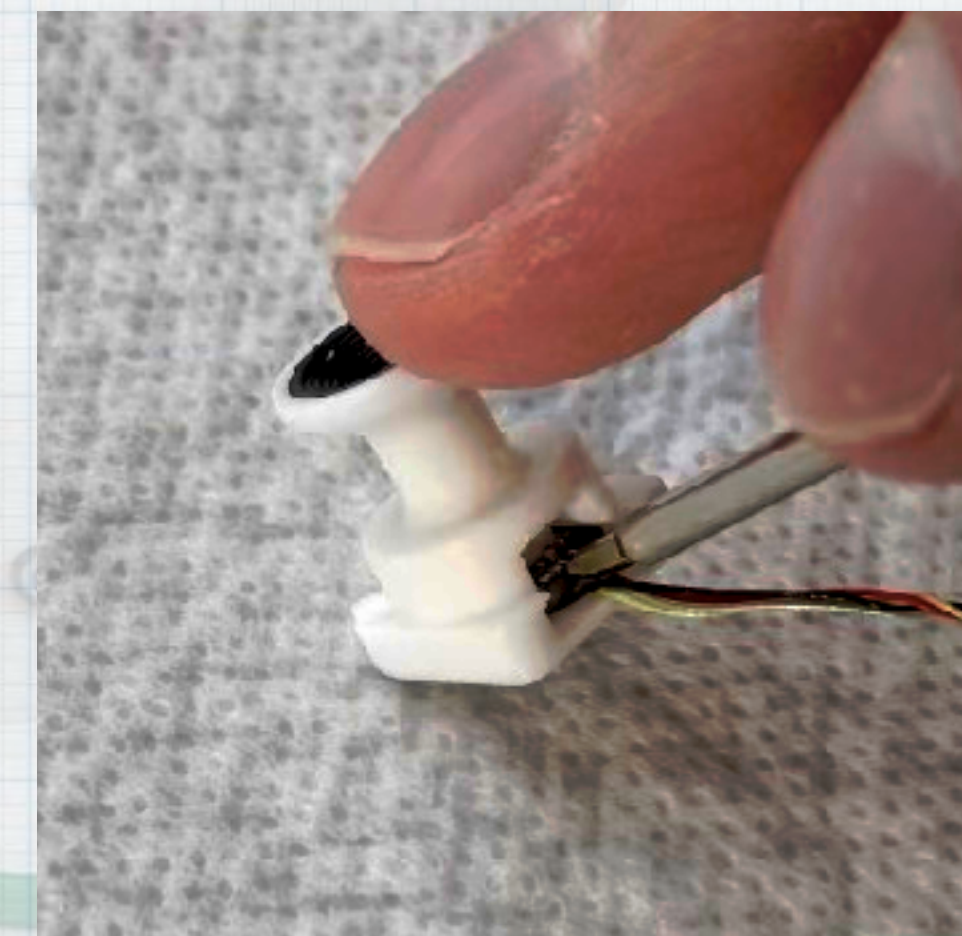
- o 1x Remote Control Receiver Shield (XA004)
- o 1x CyberBrick Core (XA003)
- o 4x 9g Positional Digital Servo-180° (PG001)
- o 1x 100mm Wire with 3Pin SH1.0 Connectors (XC006)
- o 1x WS2812 LED Hub with 3Pin SH1.0 (XA006)
- o 2x WS2812 RGB LED with IDC0.8 4PIN (KB003)
- o 1x14500 7.4V 800mAh Li-ion Battery (B-PC003)
- o 1x Power Switch Module with 2Pin XH2.54 (XA007)
- o 1x 100mm Wire with 2Pin XH2.54 (XC005)
- o 13x M2,5x6mm Screws (AA050) (one packet)
- o 4x D4x2 mm Round Magnet (CA001) (one packet)
- o 1.5mm Hex Allen key
- o Phillips screw driver for servo screws
- o Superglue (only if friction fit is not suitable)

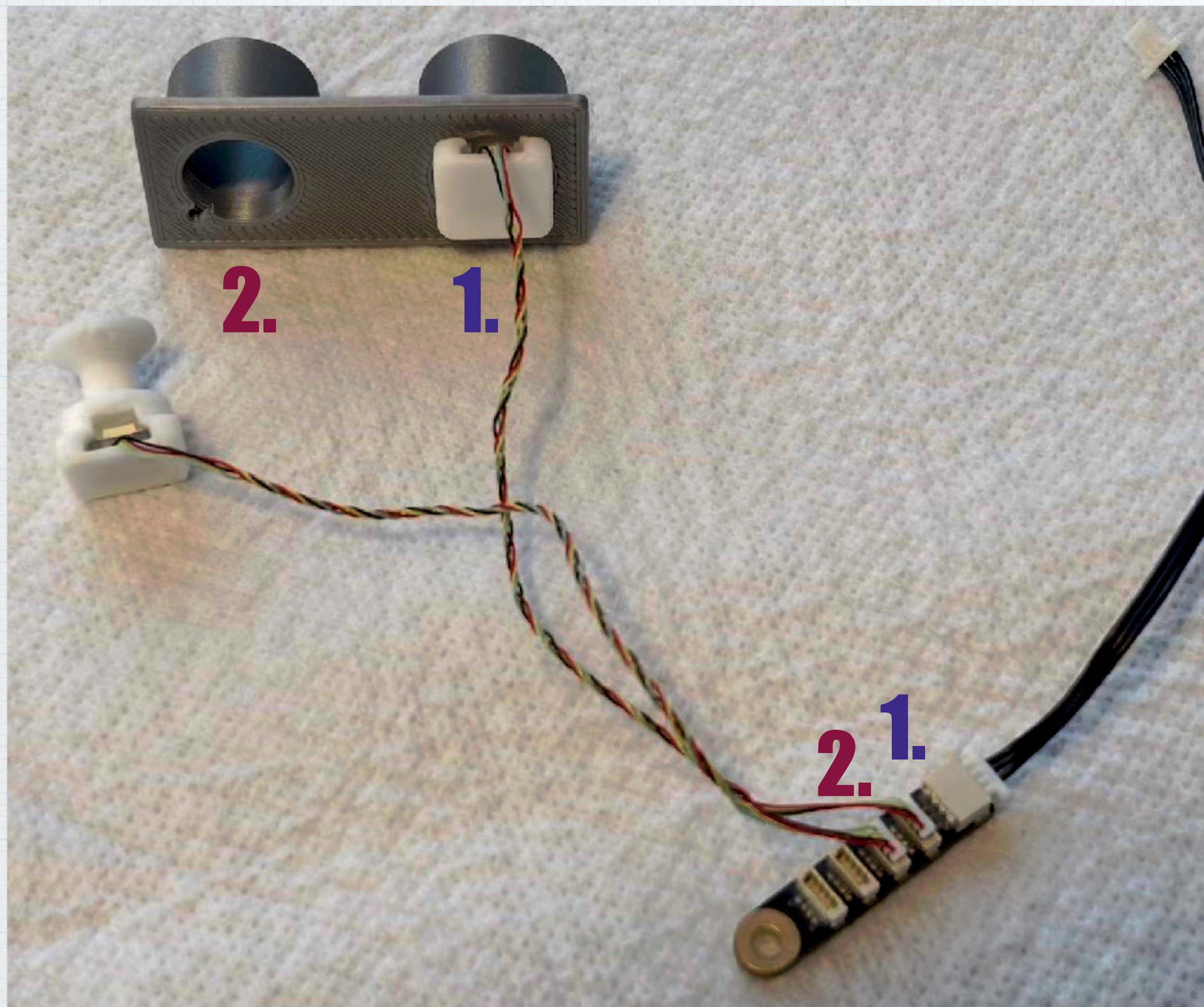


Connect black and white eye parts. They press fit together. Use glue if necessary.

Install LEDs to white eye parts. Push them in all the way carefully with a thin tool.

Connect the LEDs and 3-wire cable to LED hub.

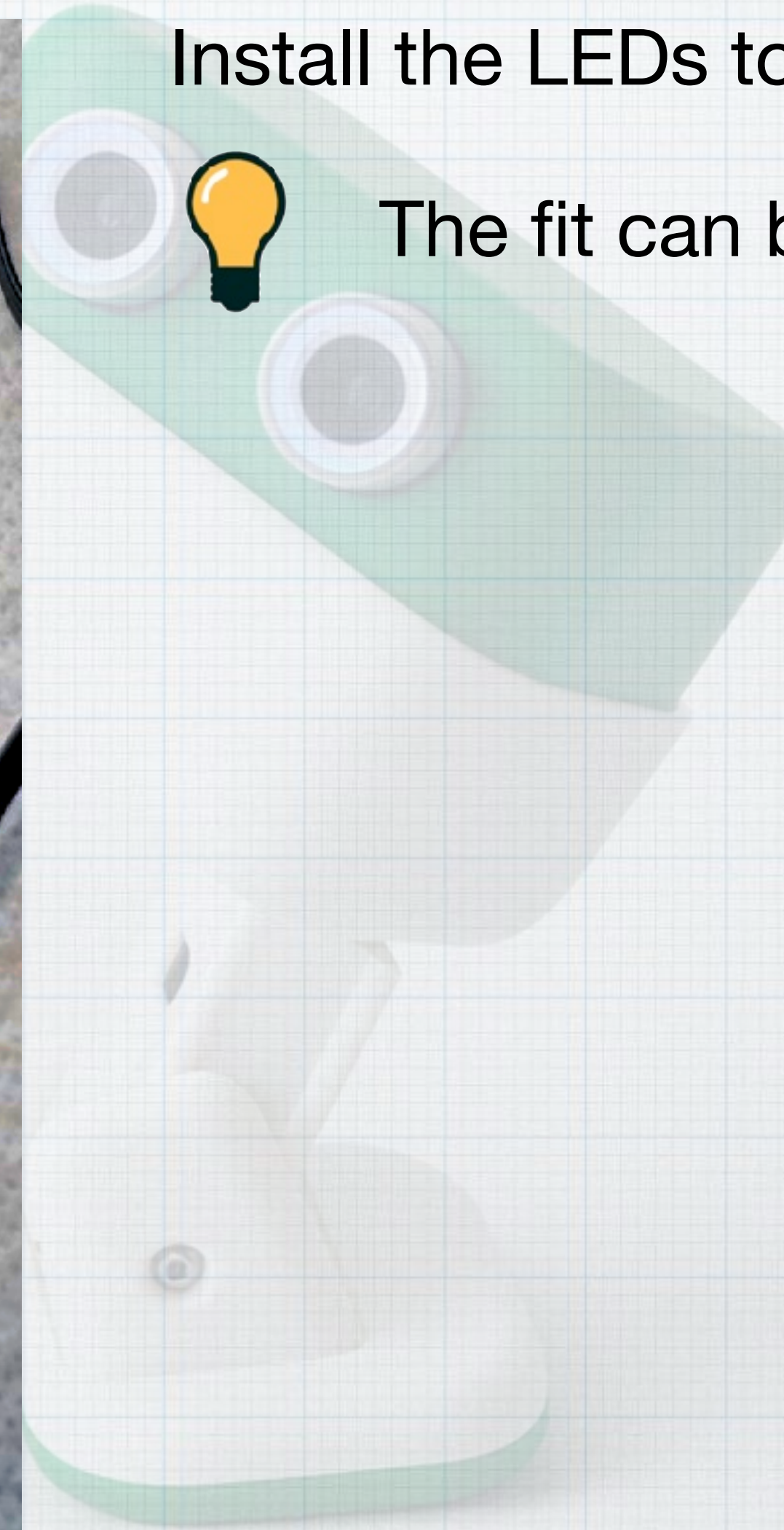




Install the LEDs to silver eye housing.



The fit can be loose.





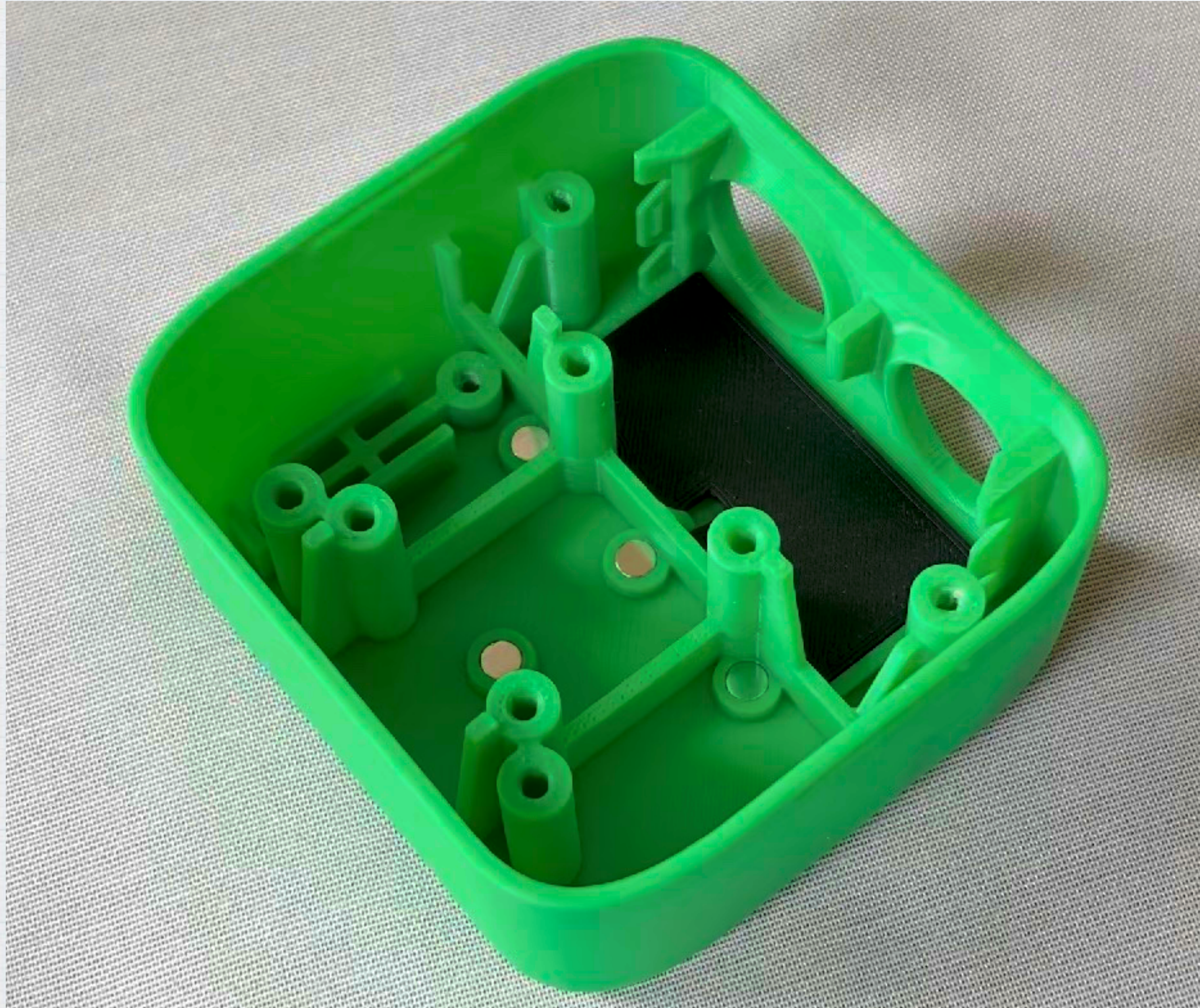
Install 4pcs D4x2 round magnets.



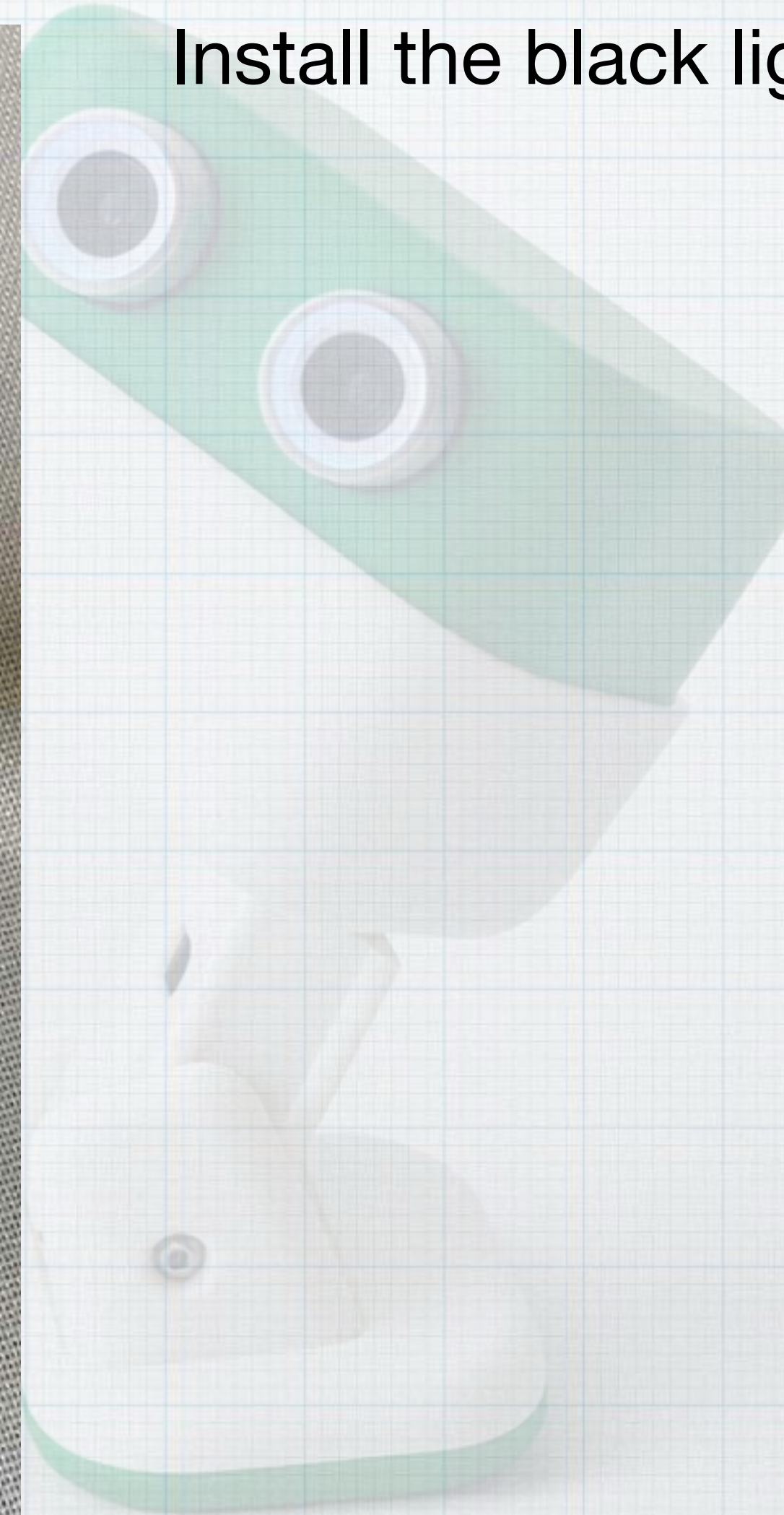
Ensure the poles are pointing in the same direction.



Add a drop of glue if the fit is loose.



Install the black light blocker in the head.





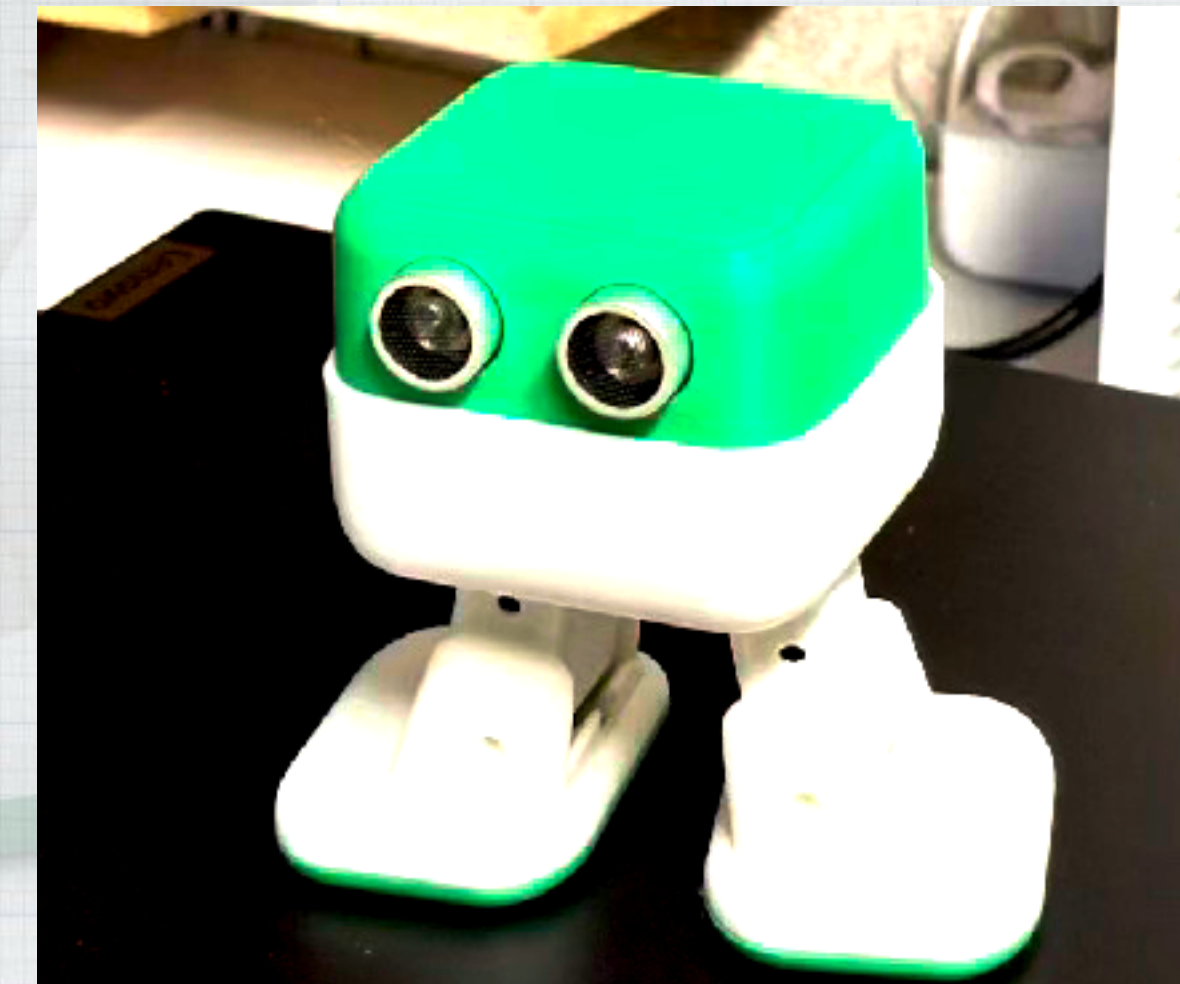
Install the eyes to the head. They snap in place.



Pay attention to the direction where the wires point!

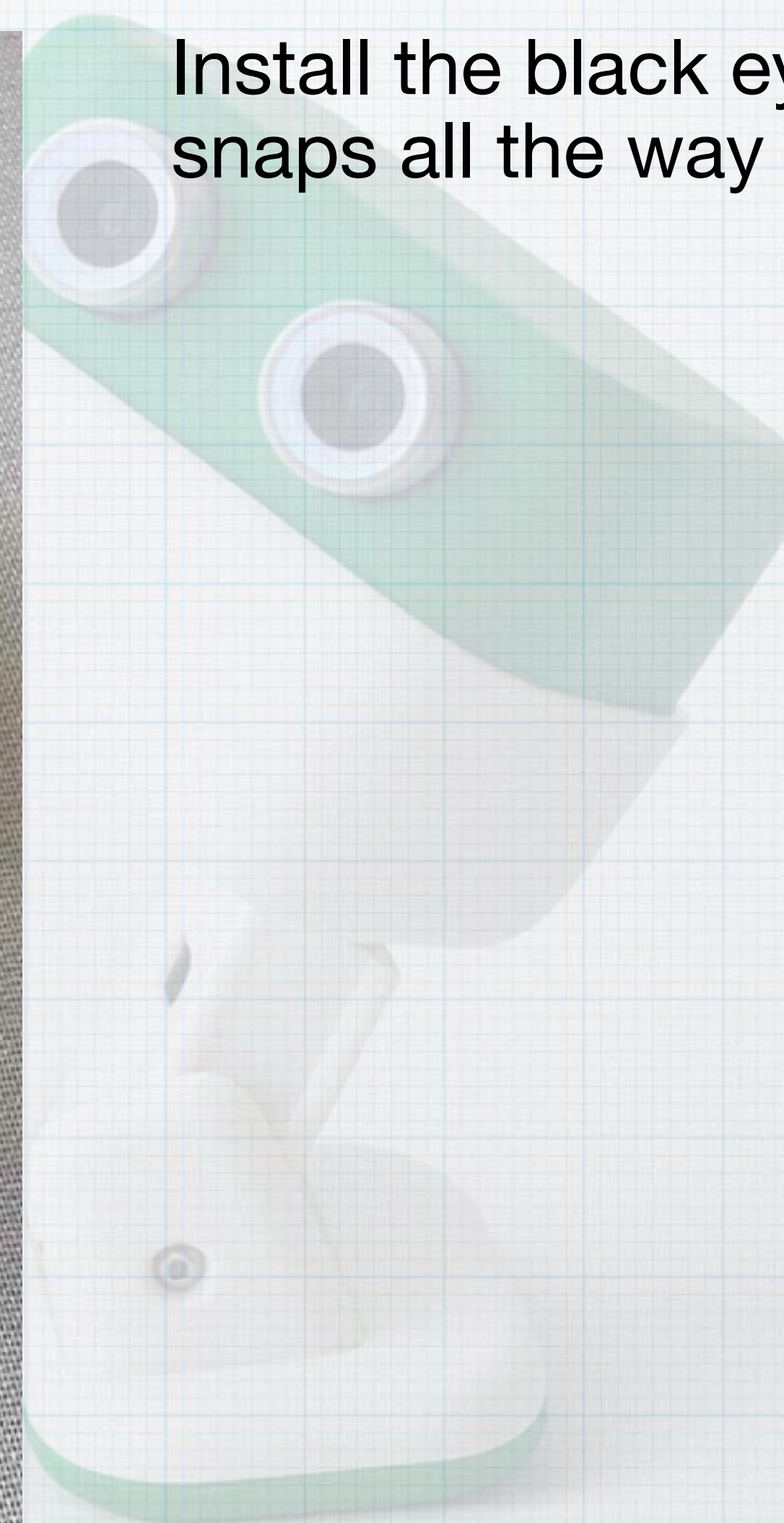


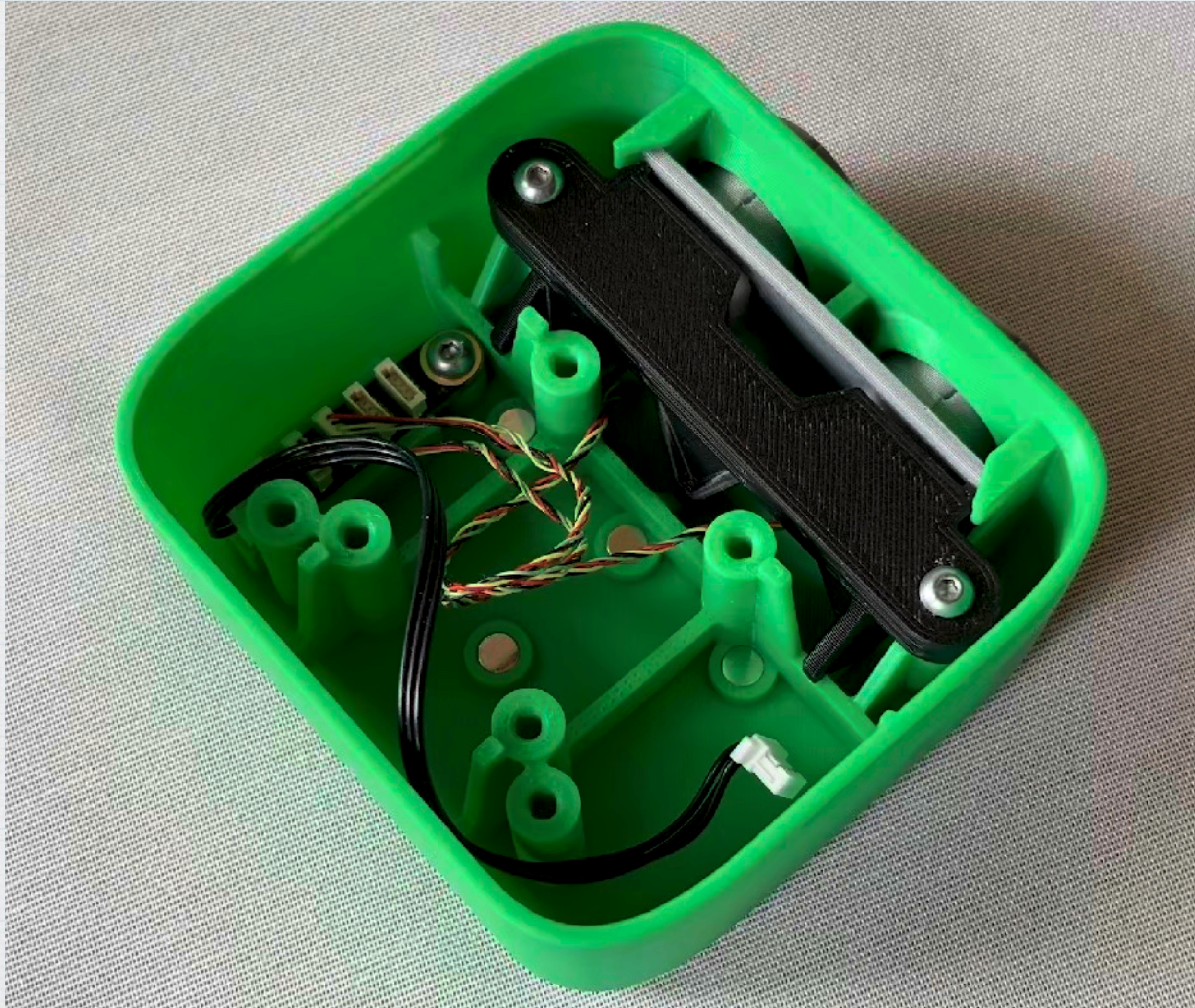
The lights can be switched to a HC-SR04 ultrasonic sensor for advanced hobbyists. (Not compatible with CyberBrick)



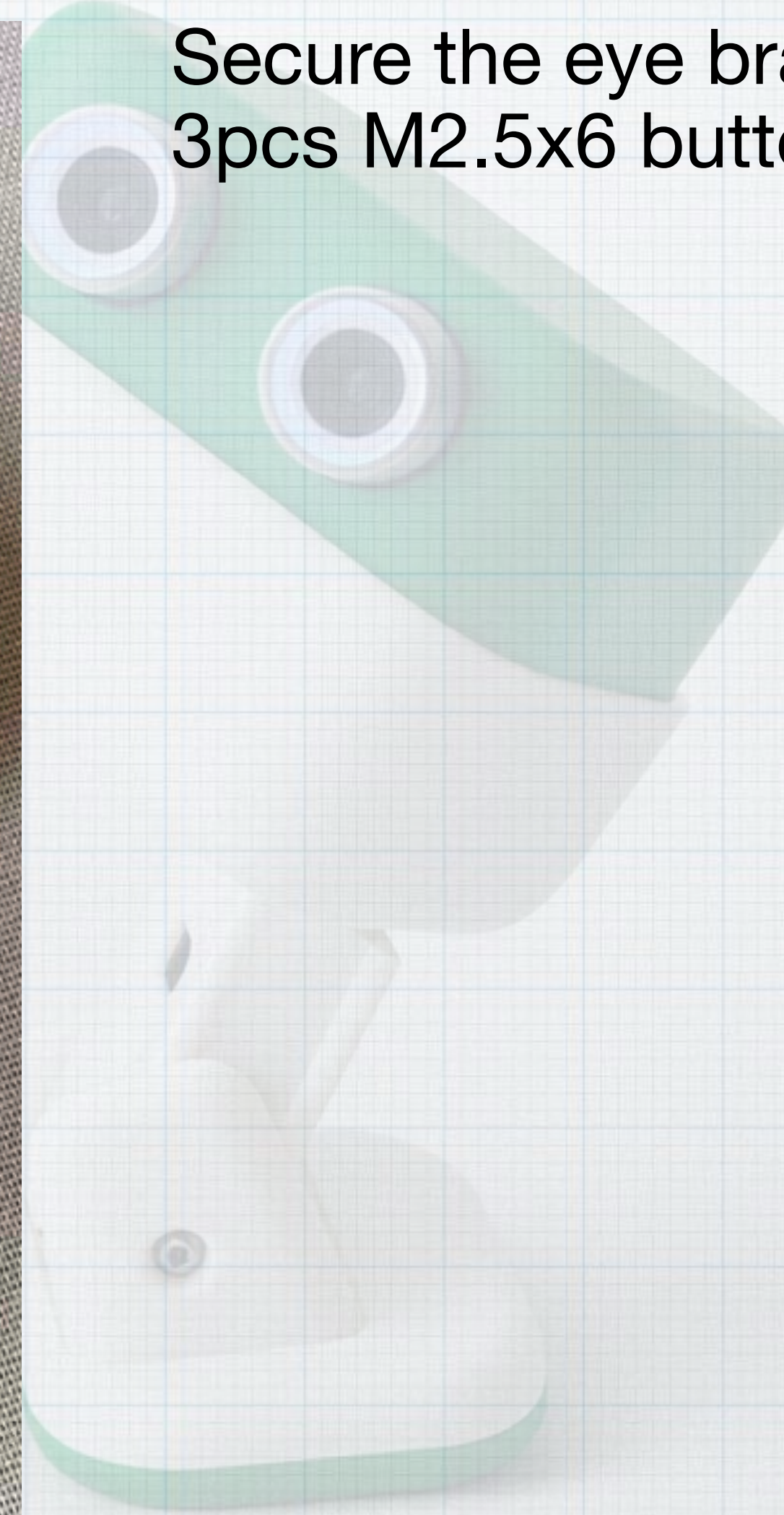


Install the black eye bracket. Make sure it snaps all the way in.



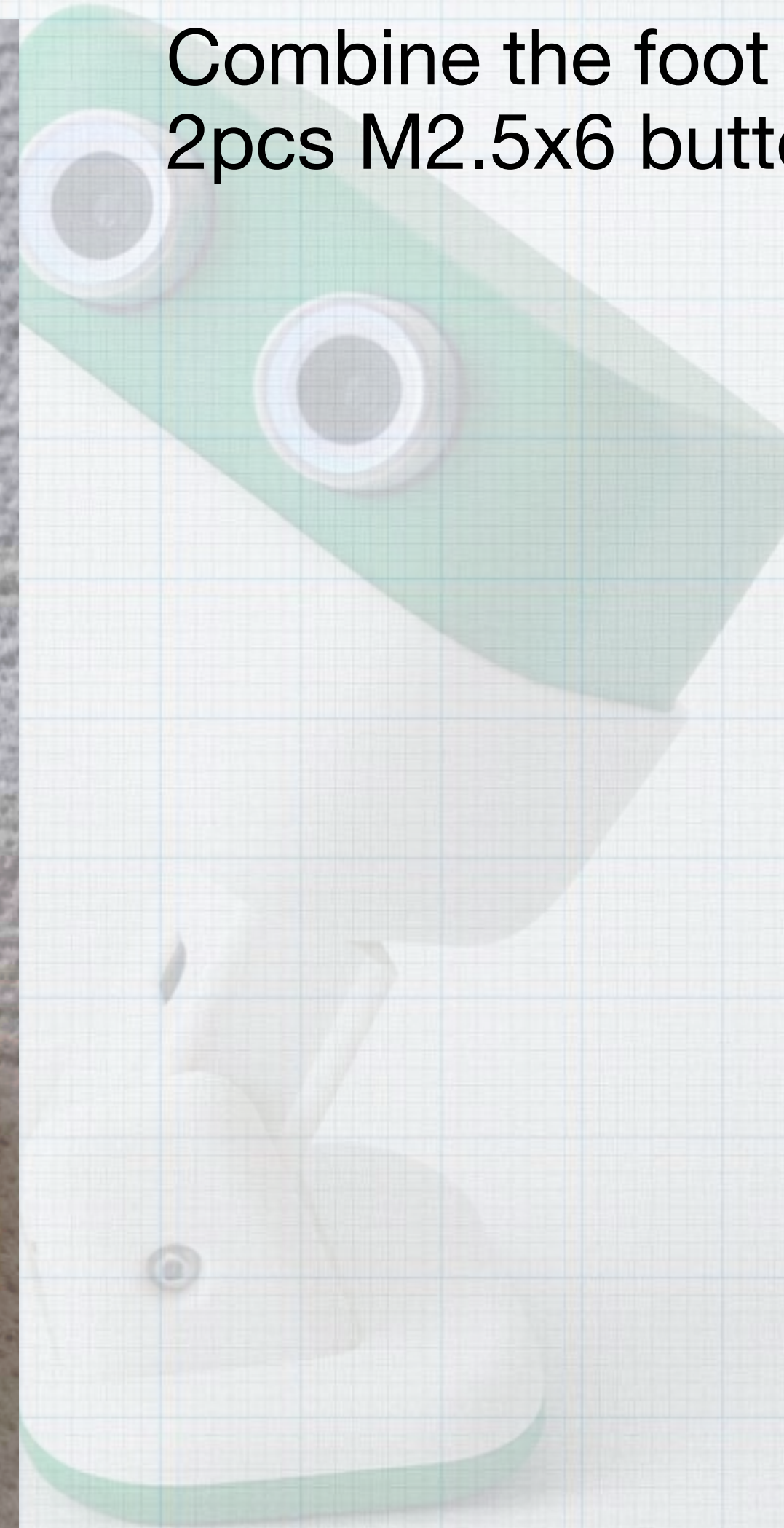


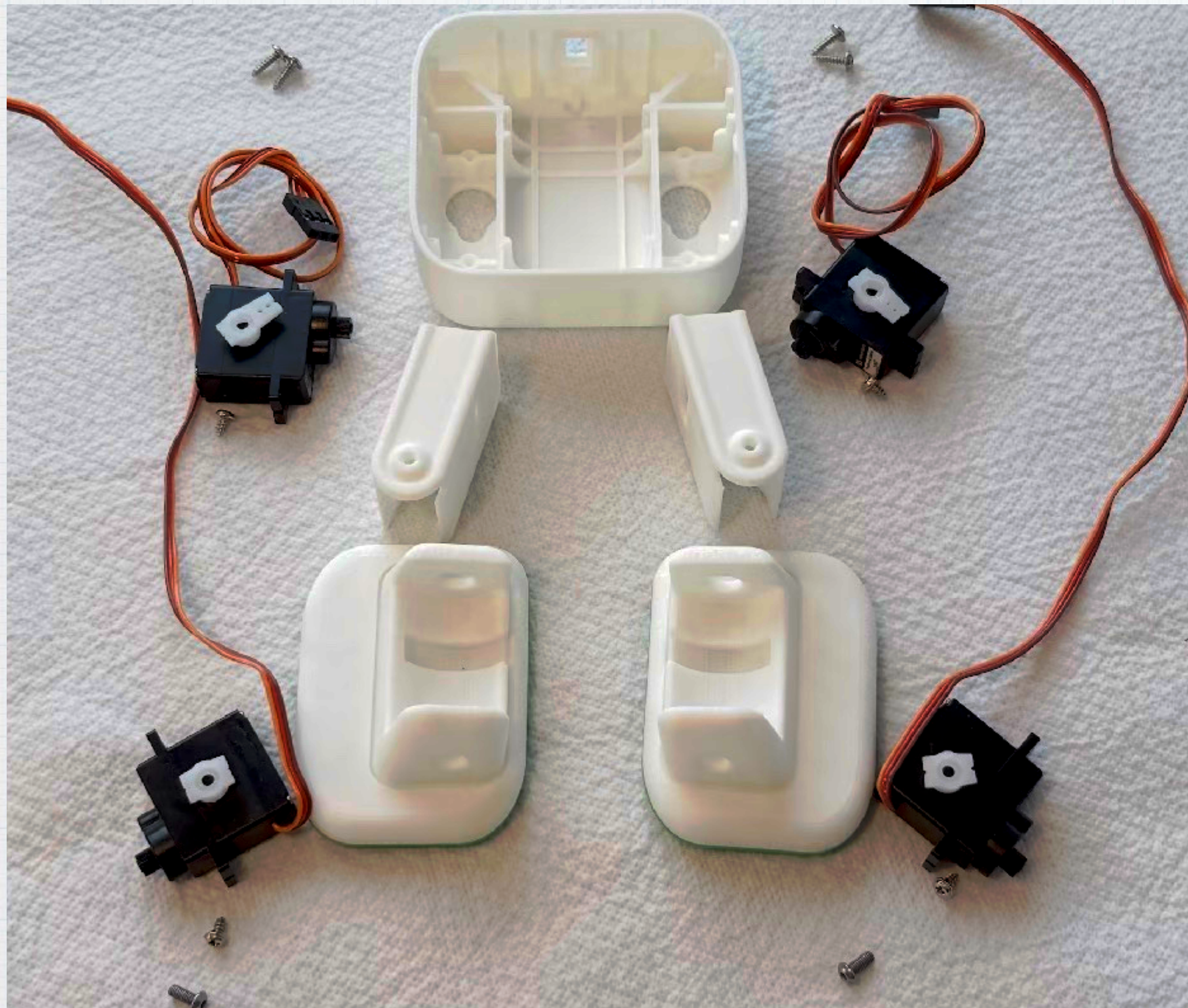
Secure the eye bracket and LED hub with 3pcs M2.5x6 button head screws.





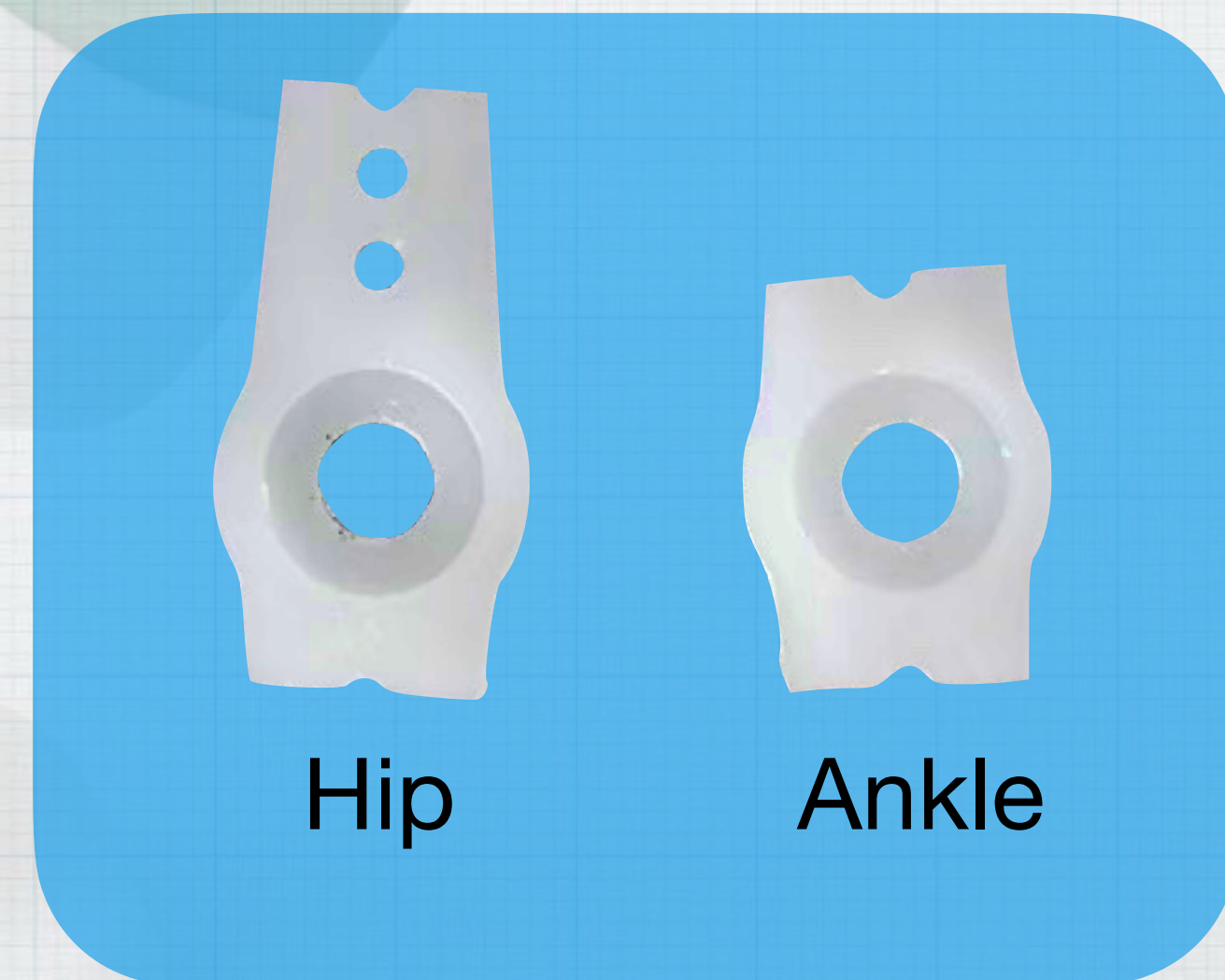
Combine the foot parts and secure with 2pcs M2.5x6 button head screws.

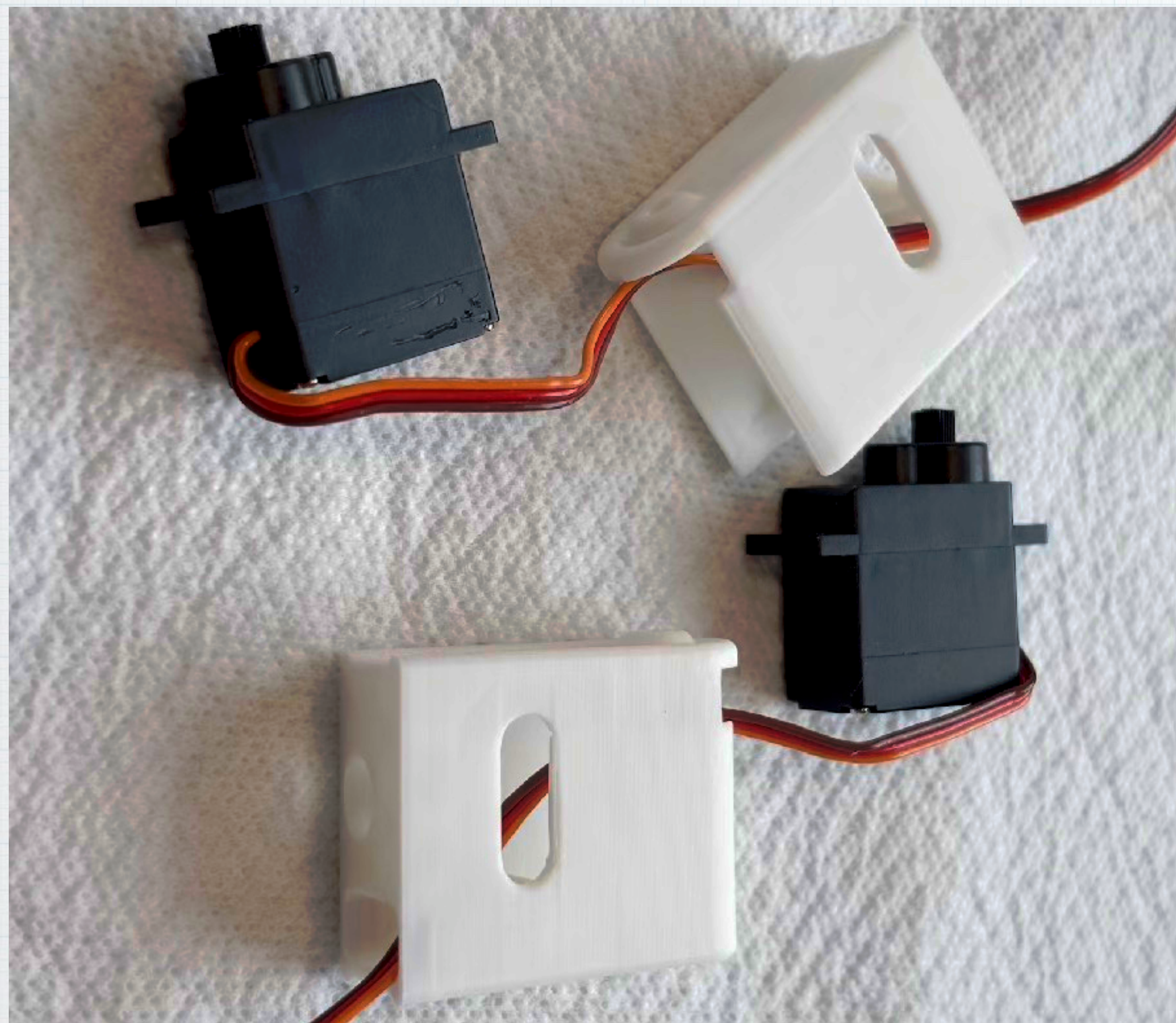




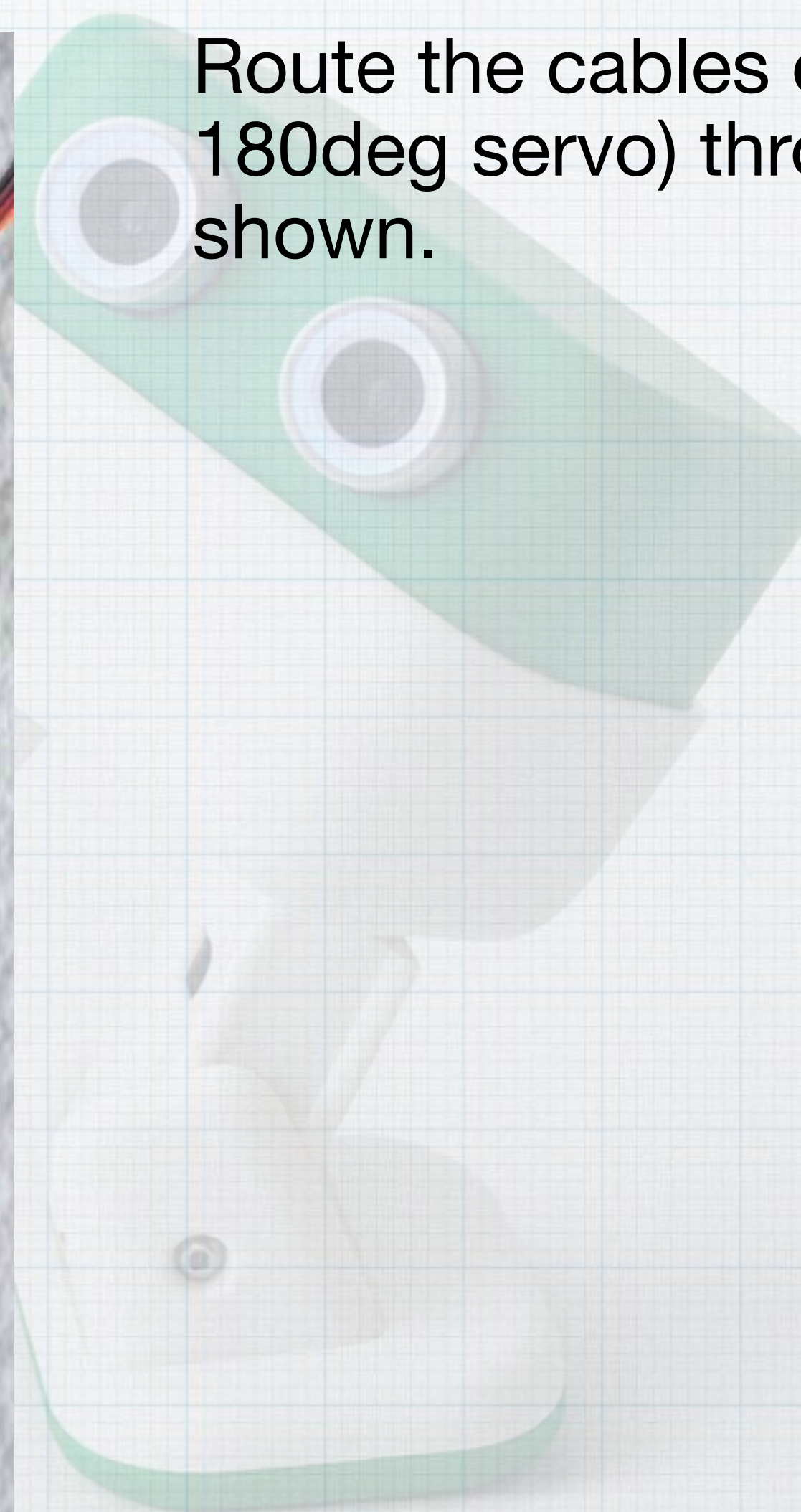
Prepare the 2pcs hip servo horns and 2pcs ankle servo horns.

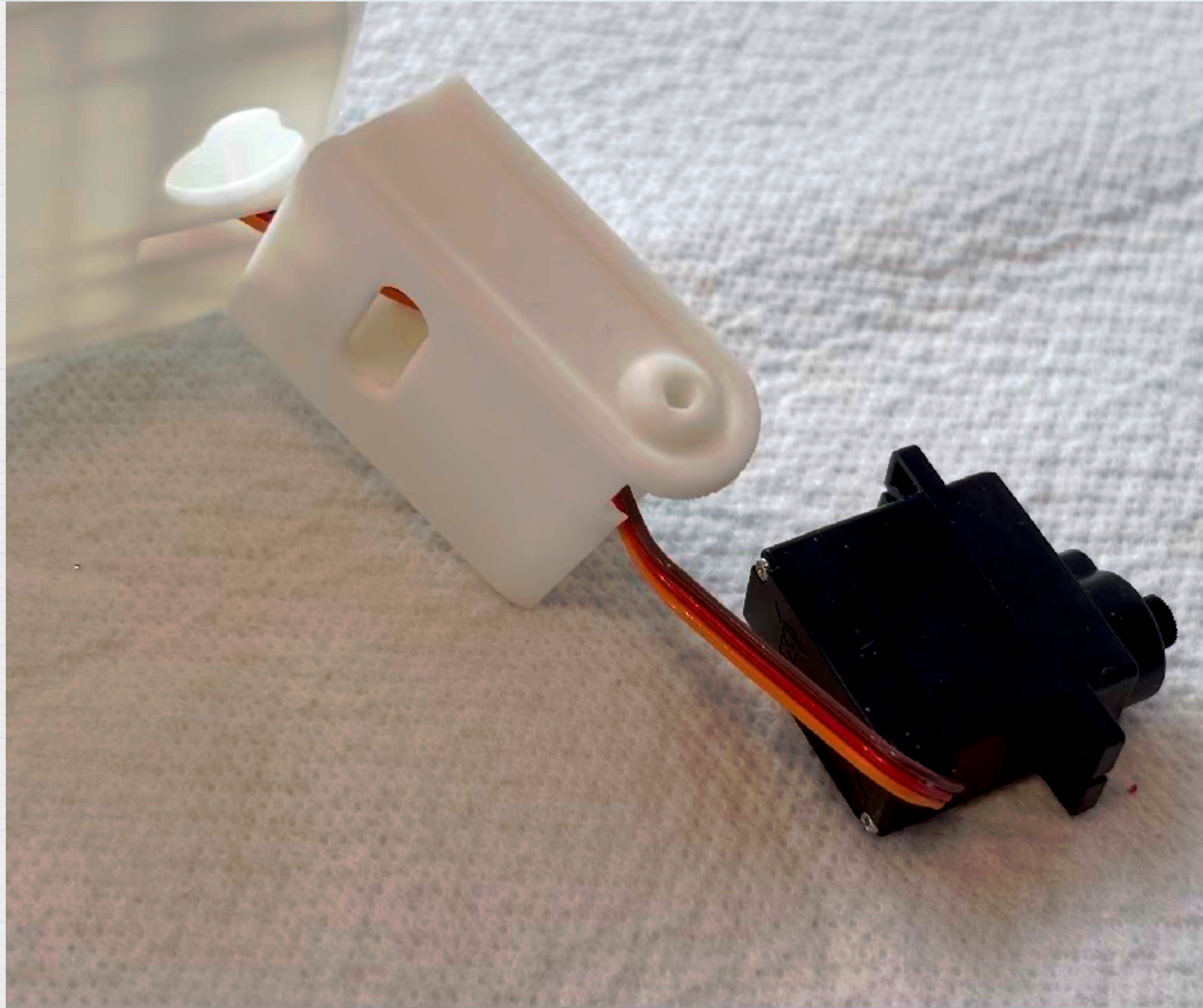
Arrange printed parts as shown to keep track of each leg part.



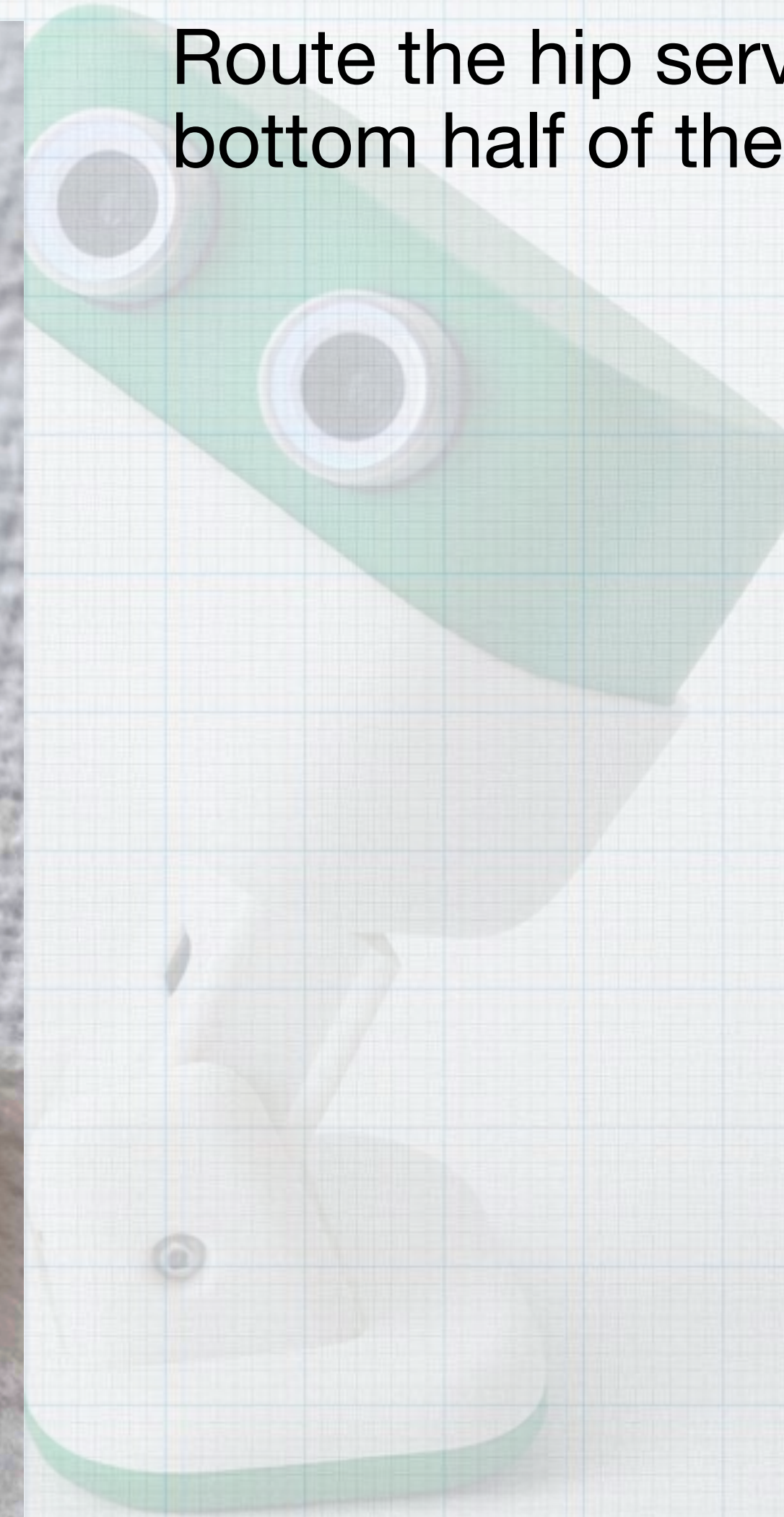


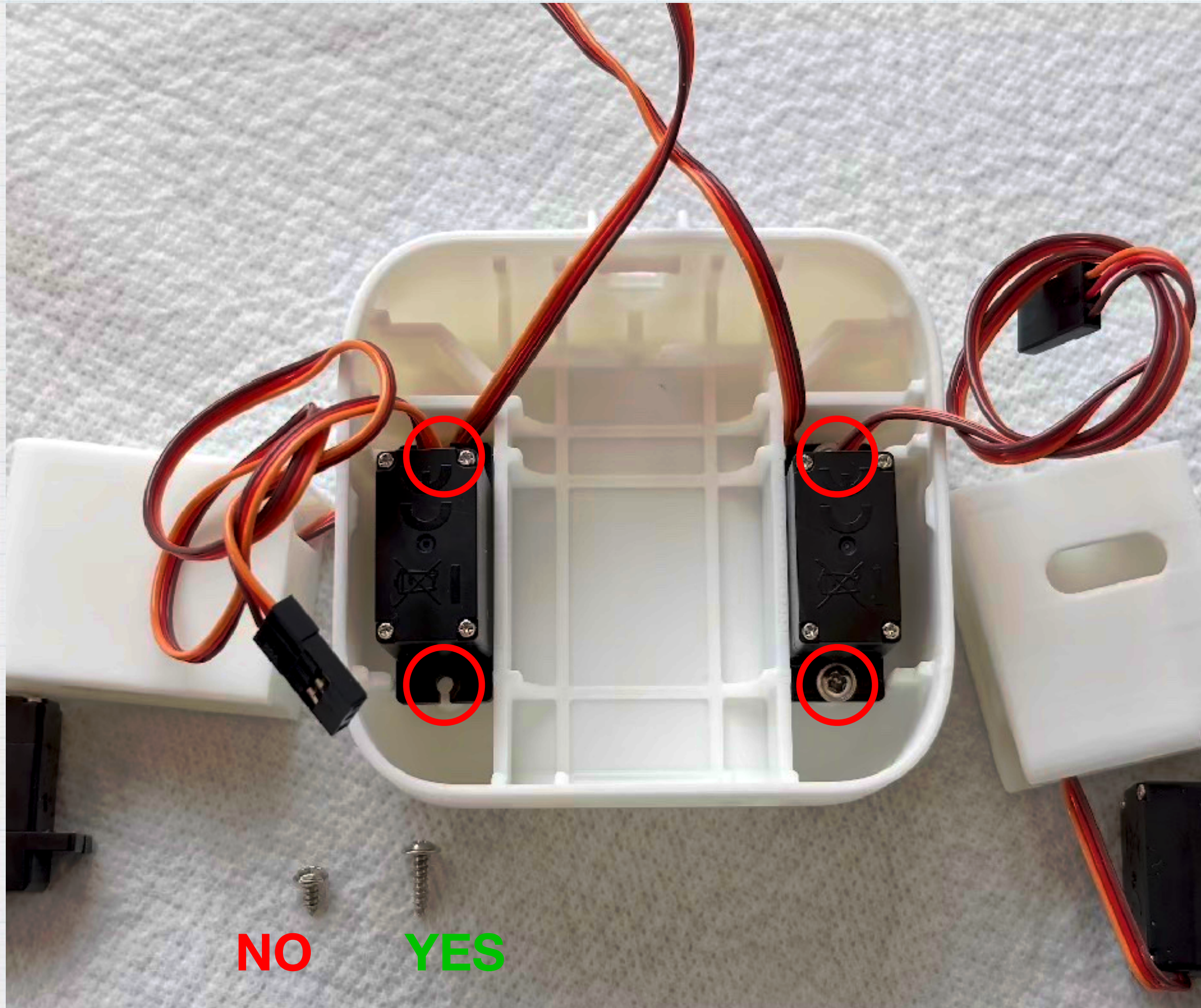
Route the cables of hip servos (2pcs 180deg servo) through the leg pieces as shown.



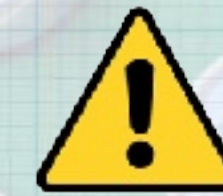


Route the hip servo wires through the bottom half of the body.





With the cables in place, install the hip servos.



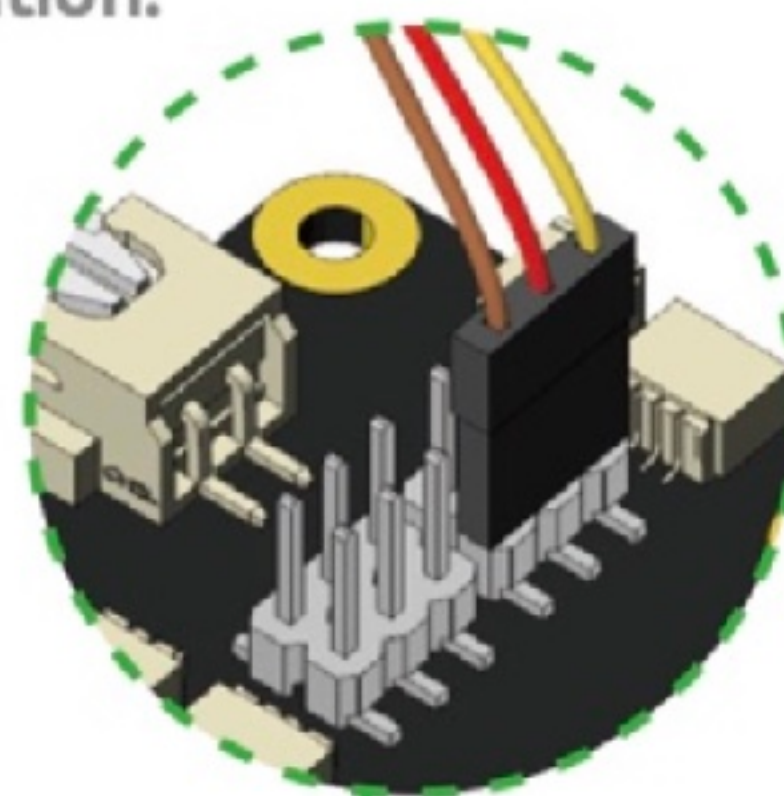
Attach using the longer screws that came with the servos.



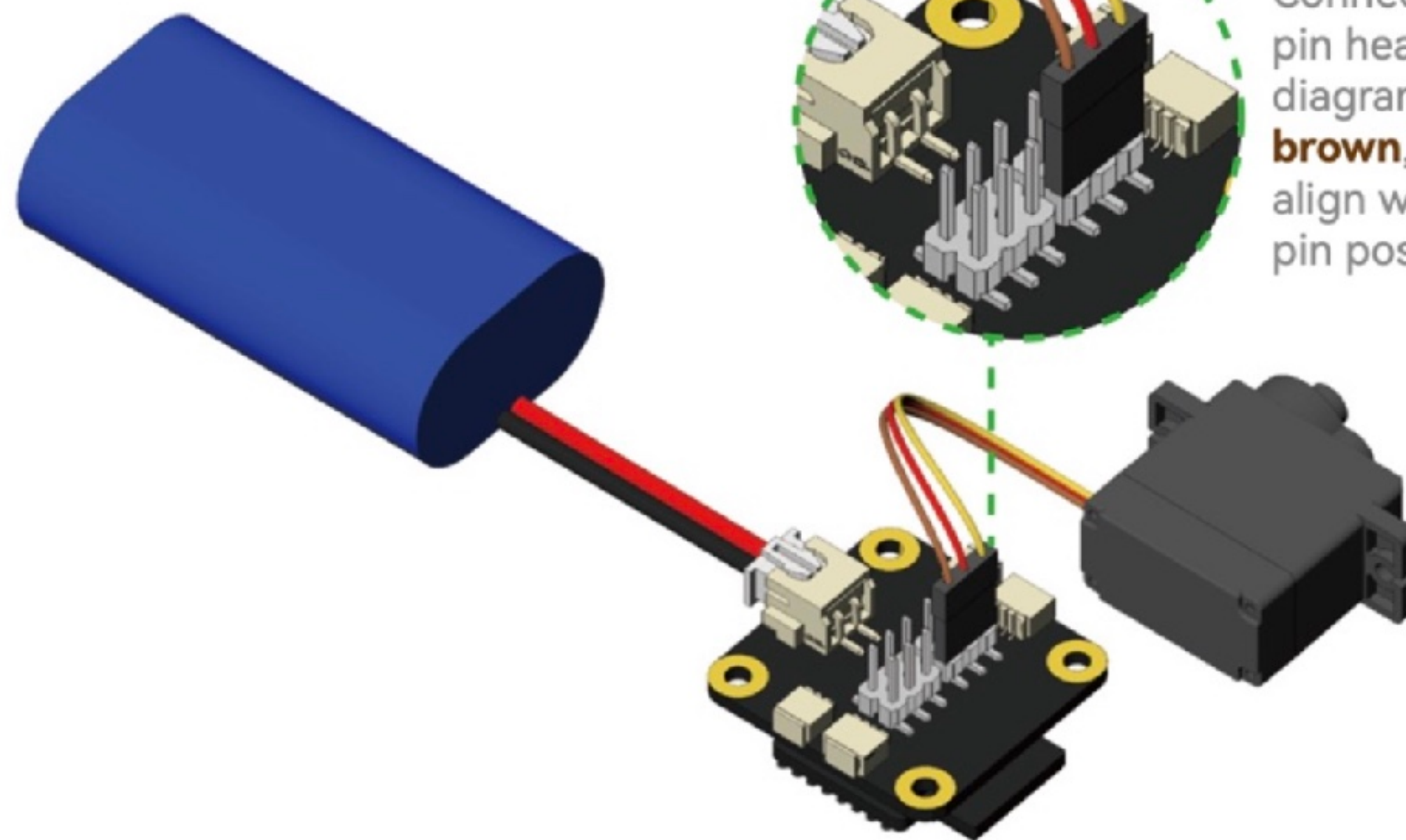
Center all four servos with the method shown below



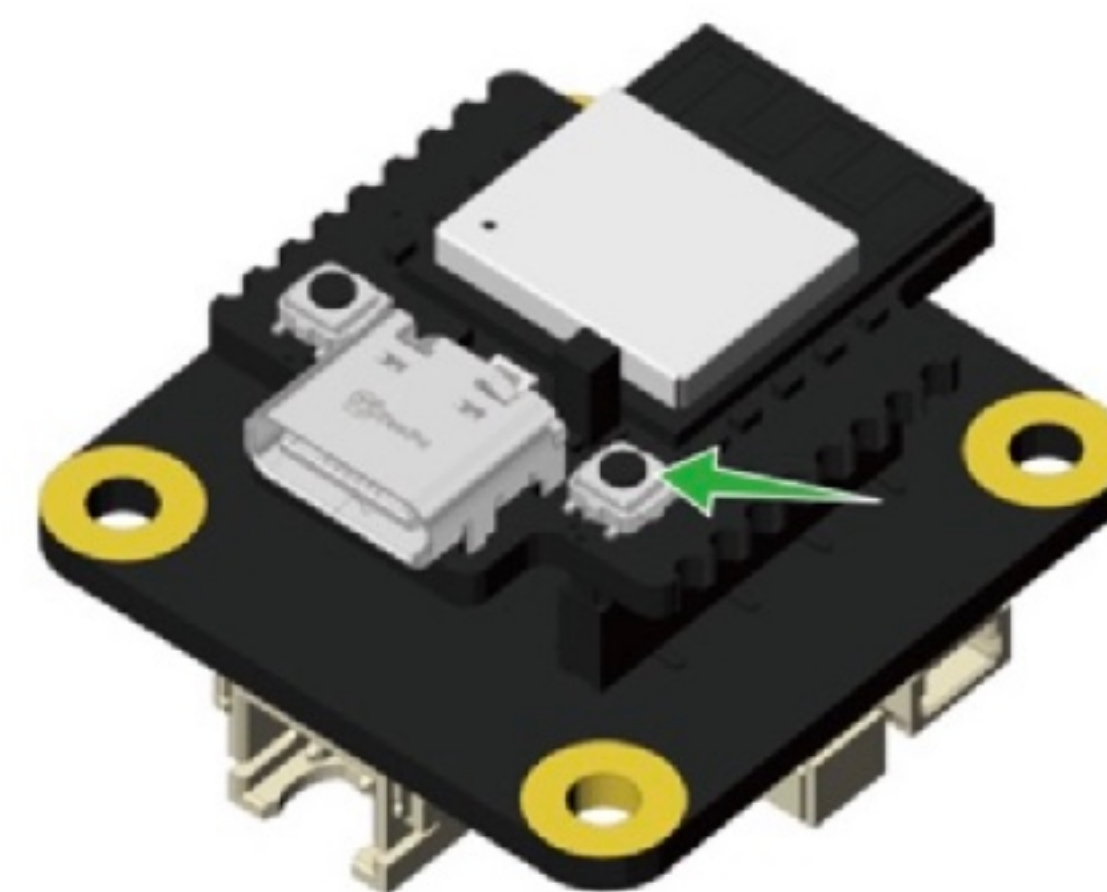
Trim the servo before installation.



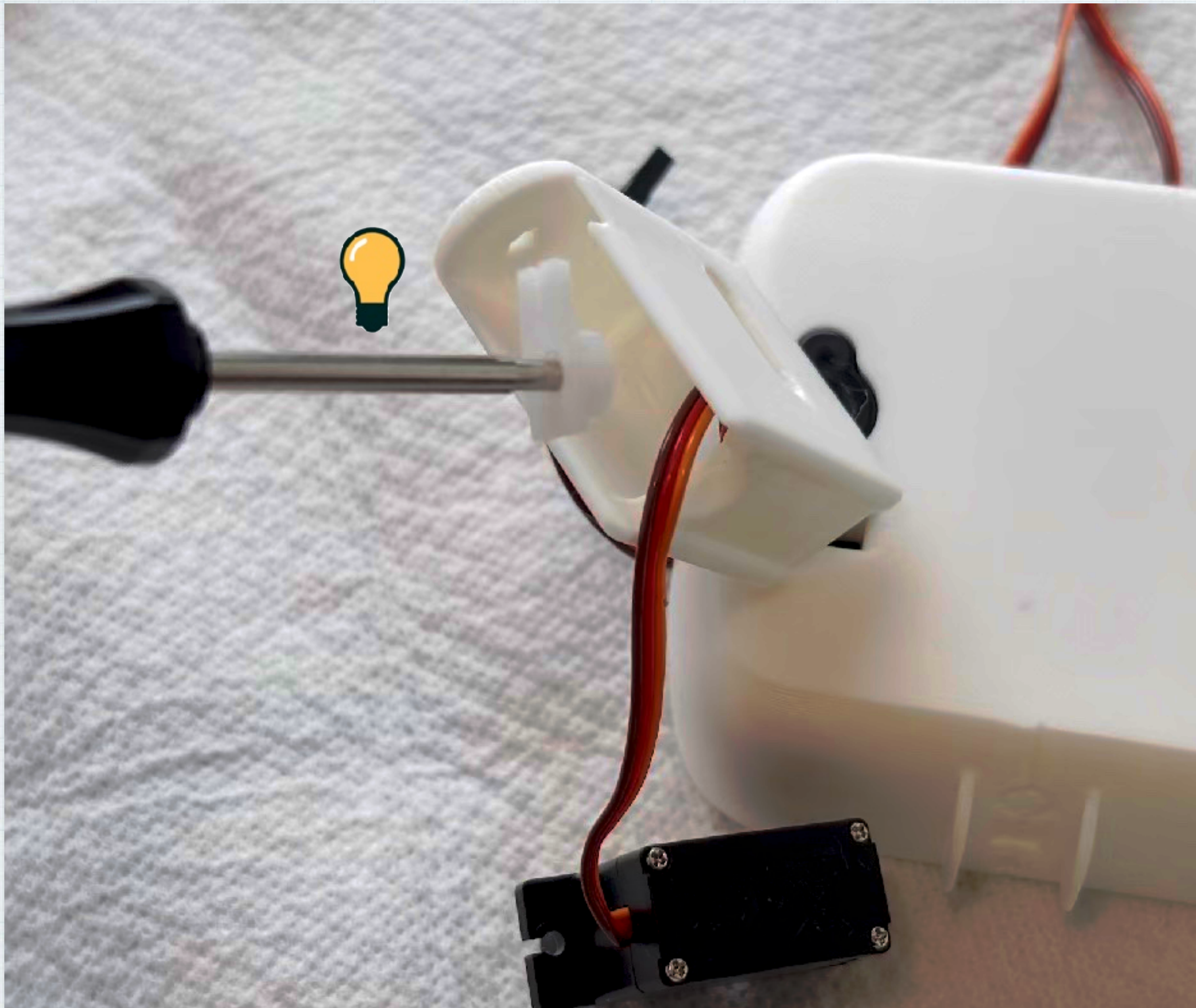
Connect the servo wire to the pin header S1 as shown in the diagram, ensuring that the **brown**, **red**, and **yellow** wires align with their corresponding pin positions.



1 Plug in the Remote Control Receiver Assembly and the Battery



2 Press the black button



Install the hip servo horns with the horn pointing straight ahead.



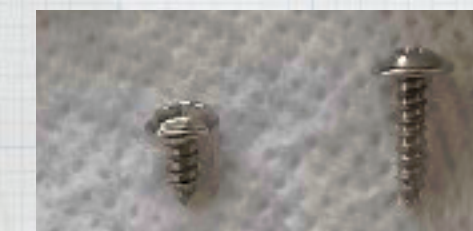
Properly sized tool helps, such as the Phillips driver sold at Maker's Supply



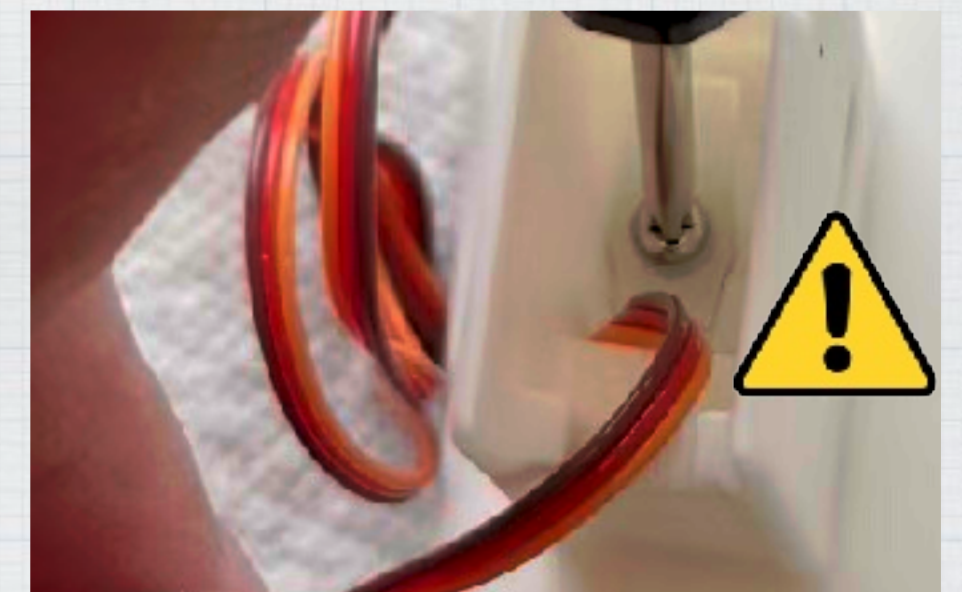
**DO NOT** tighten the screw until you have pushed the servo horn properly on the hip servo! Risk of stripping the plastic!

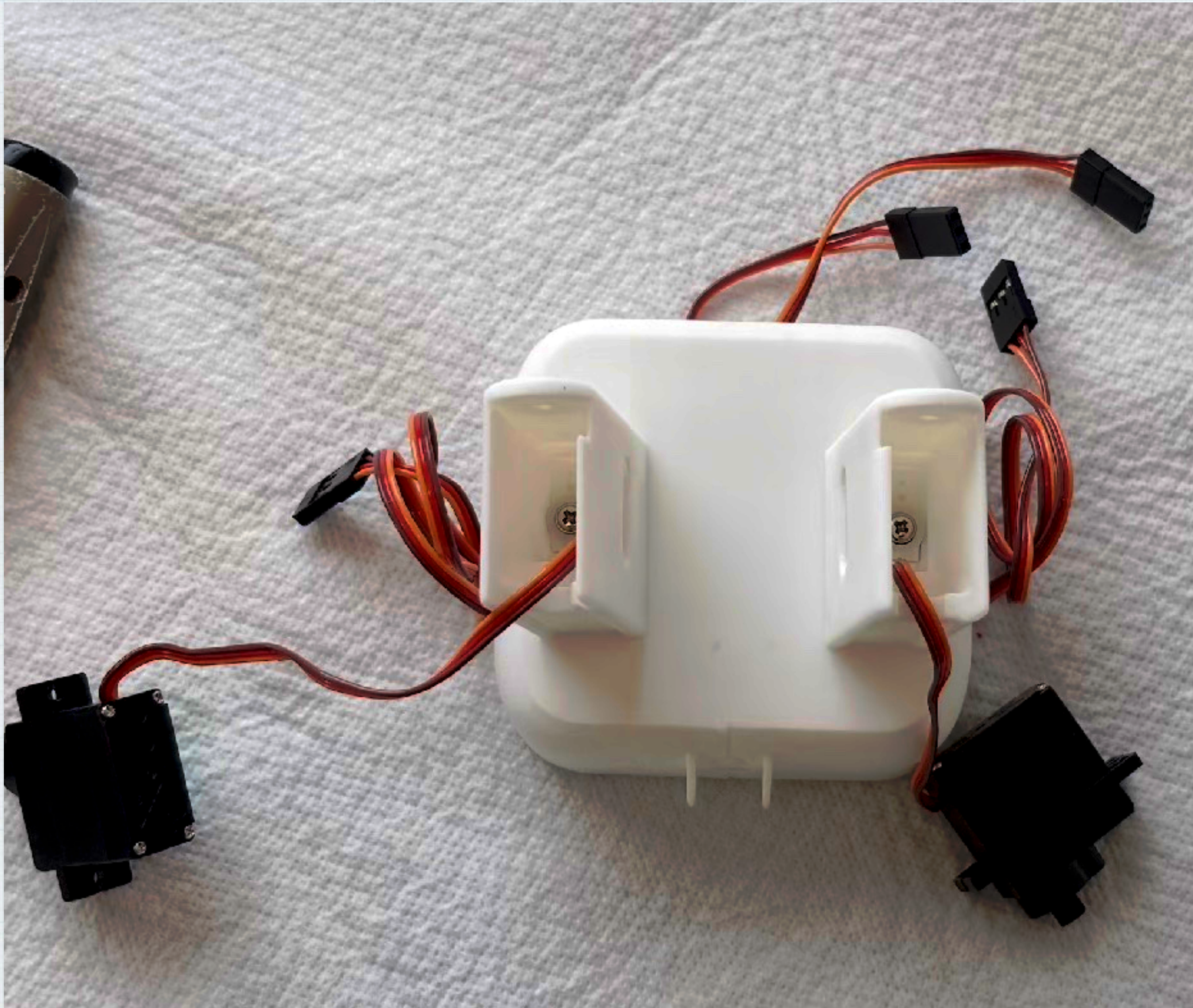


It's okay if the legs aren't perfectly straight after horns are installed. The position is calibrated later.

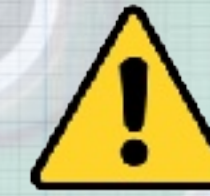


**YES NO**

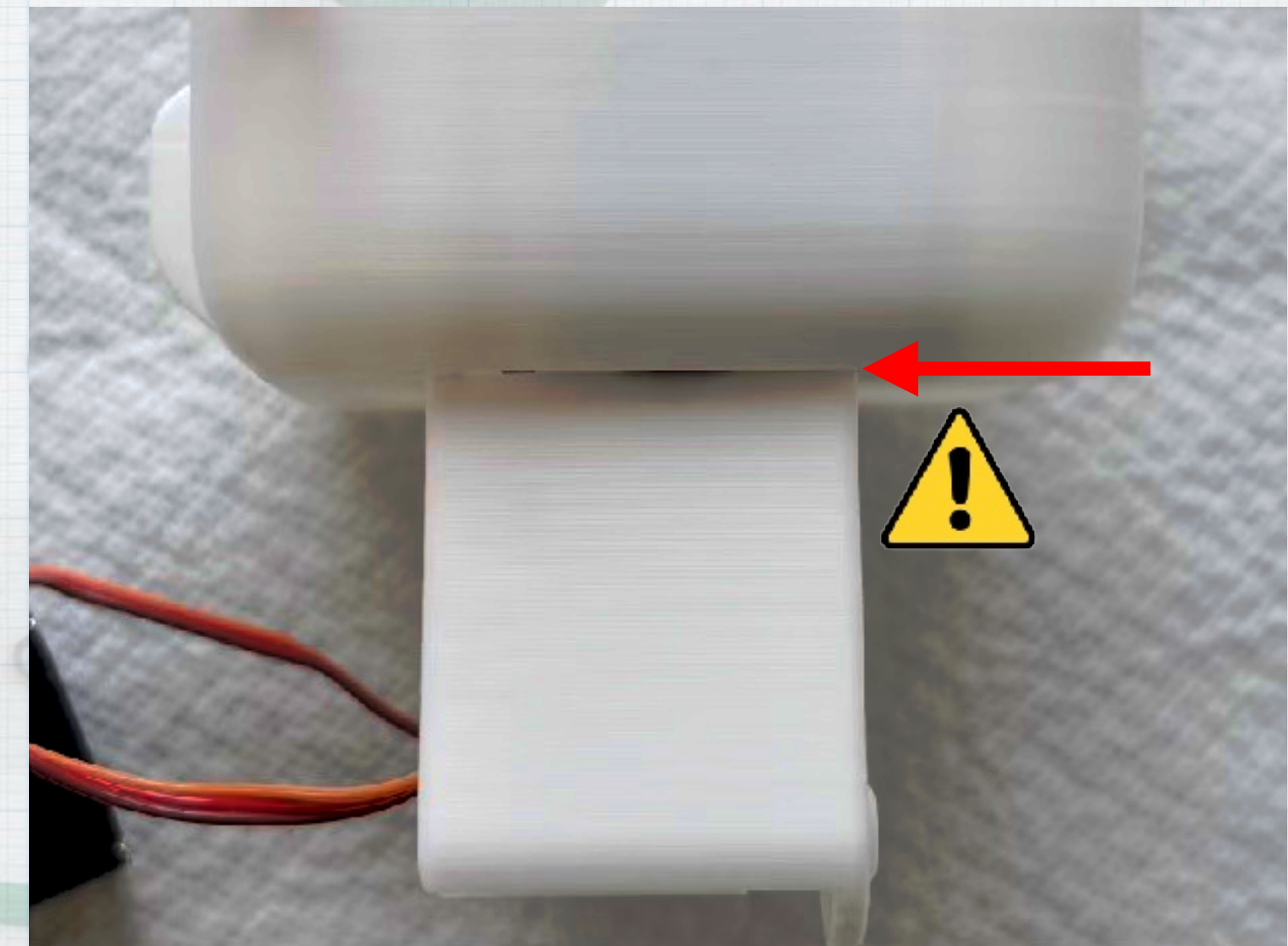




Repeat for other leg.



Gently pull down on the legs and make sure it can move freely. Loosen screw slightly until there is a tiny gap.

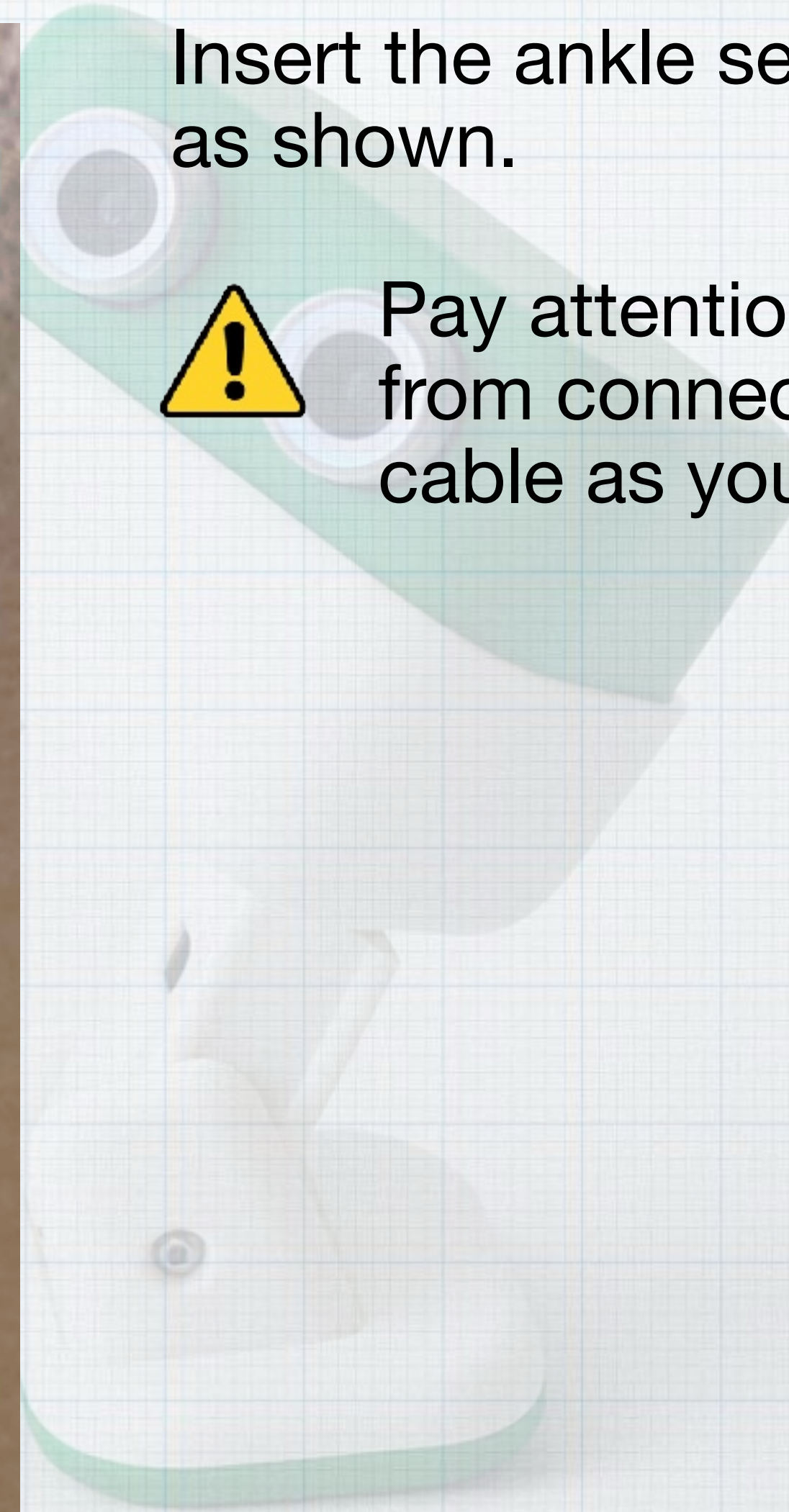




Insert the ankle servos half-way to the legs as shown.



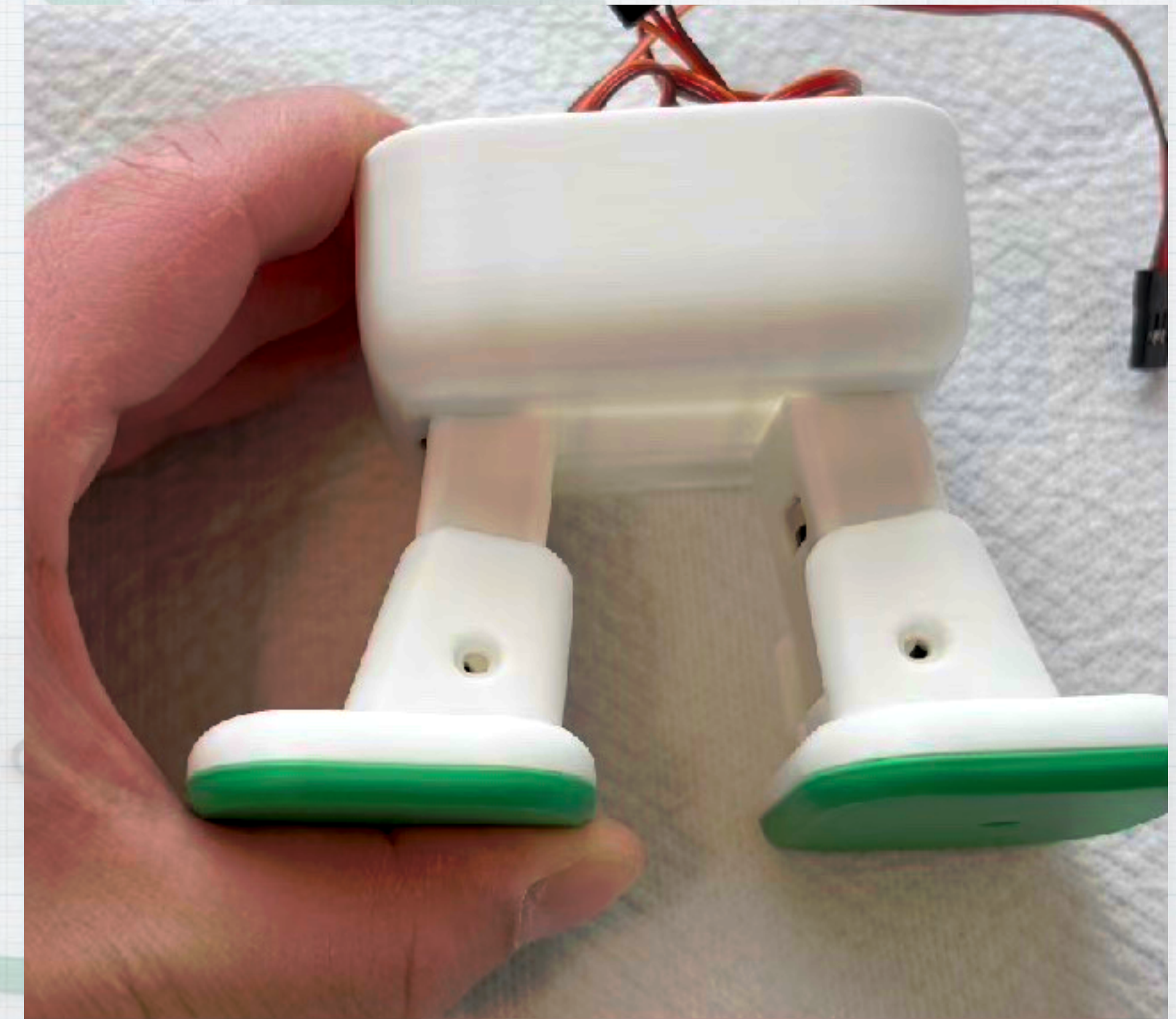
Pay attention to cable routing. Pull from connector end to help guide the cable as you insert the servos.





Insert the servos to the feet.

Push the feet up to get the ankle servos in place.





YES NO

Keep the feet as flat as you can.

Install the servo horns securely on the servos and secure with the short screws that came with the servos.

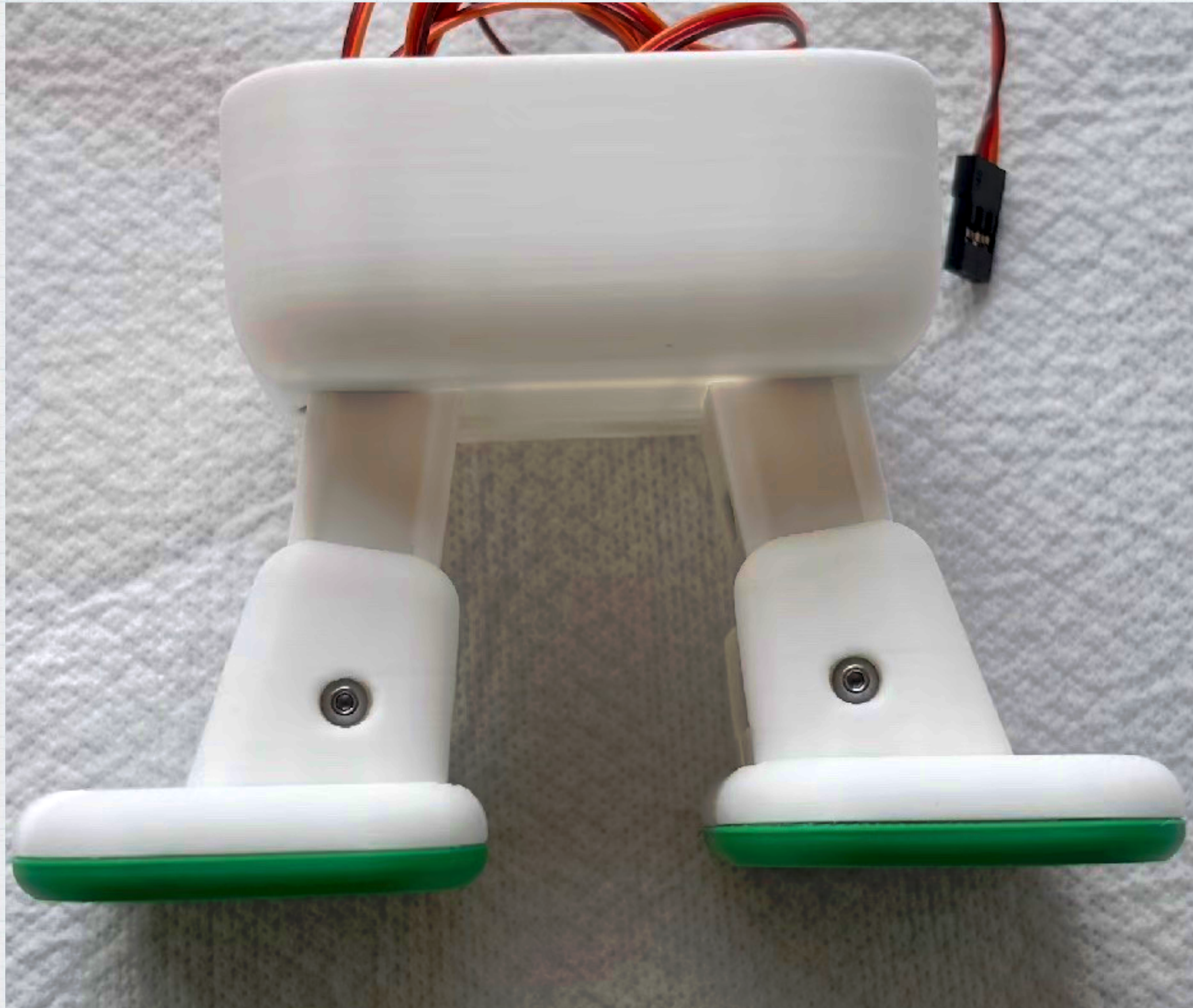


Don't over-tighten!

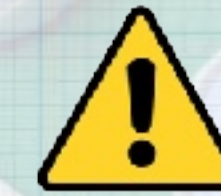


It's okay if the feet are slightly uneven after horns are installed. The position is calibrated later.



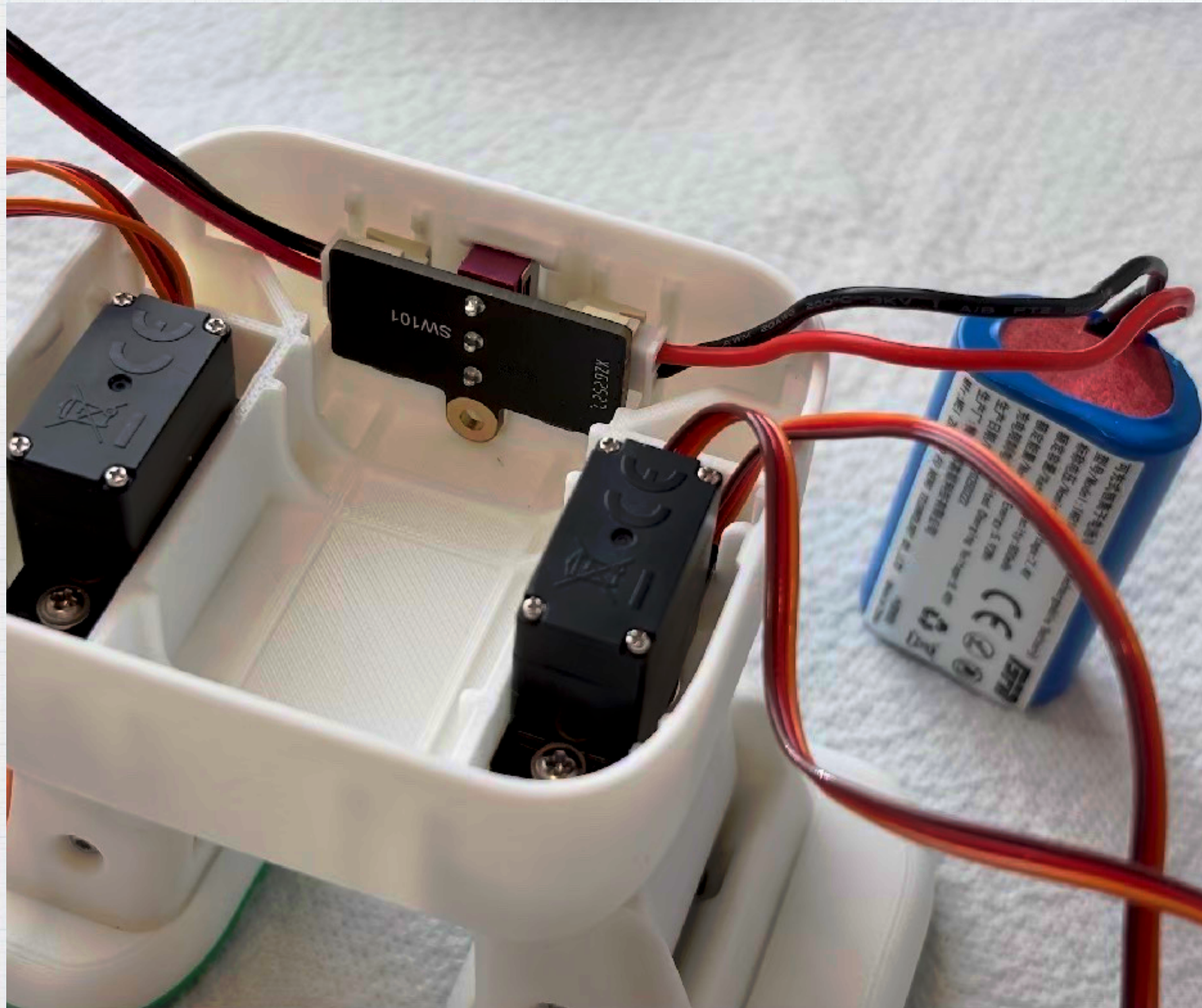


Complete feet installation with 2pcs  
M2.5x6 button head screws.



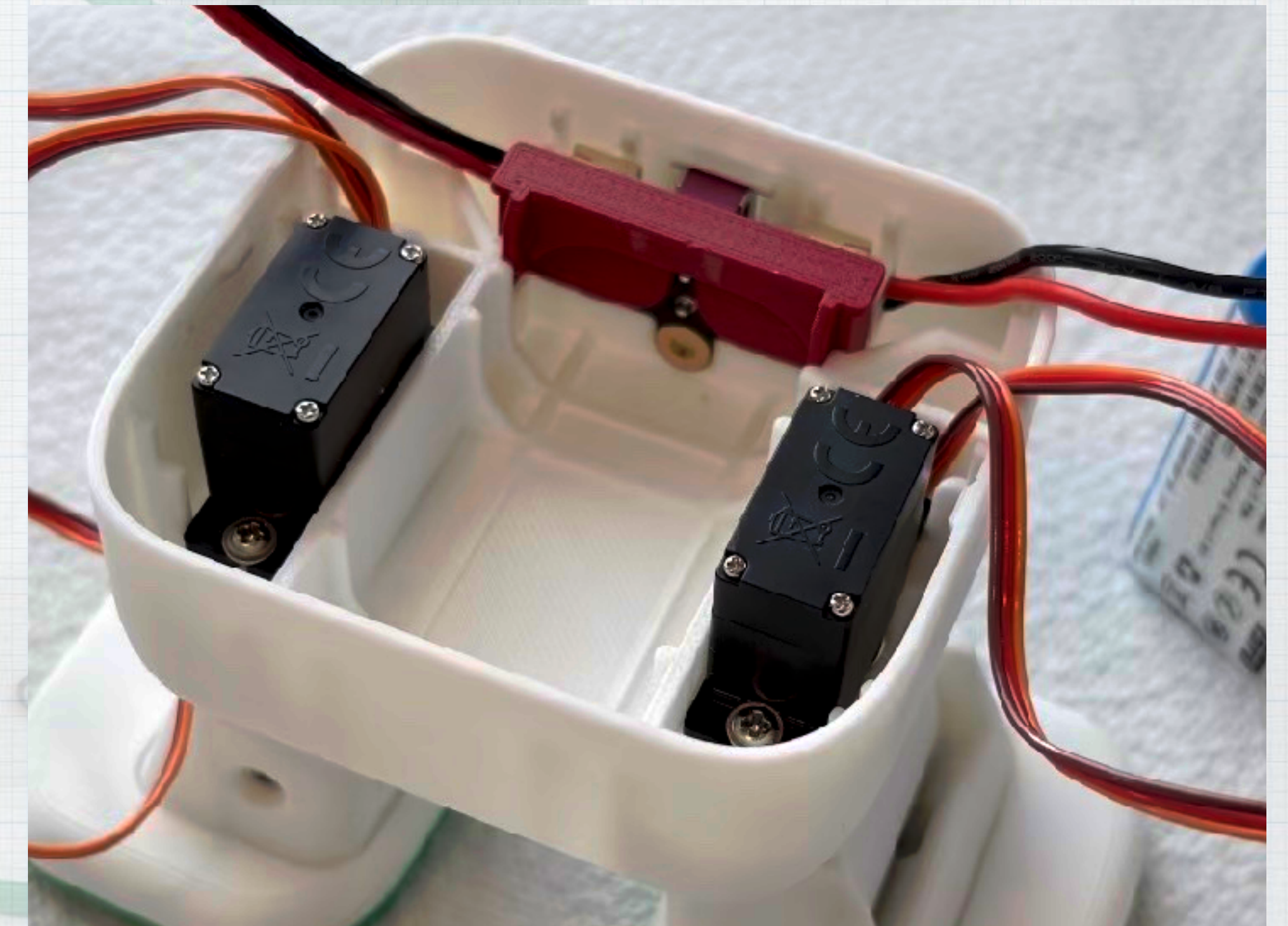
Don't over-tighten! This joint should  
move freely.

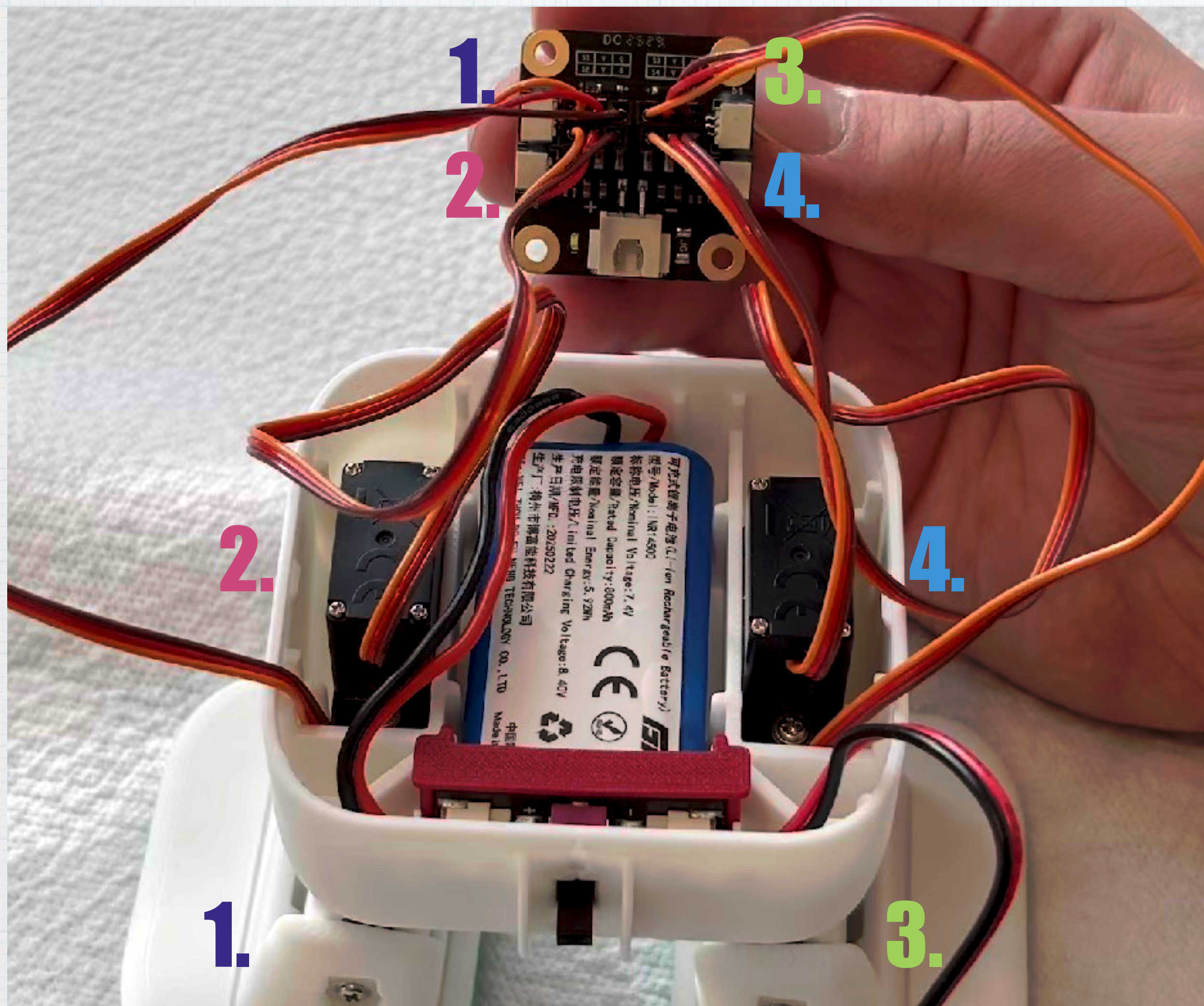




Connect power switch with power cable and battery. Insert as shown.

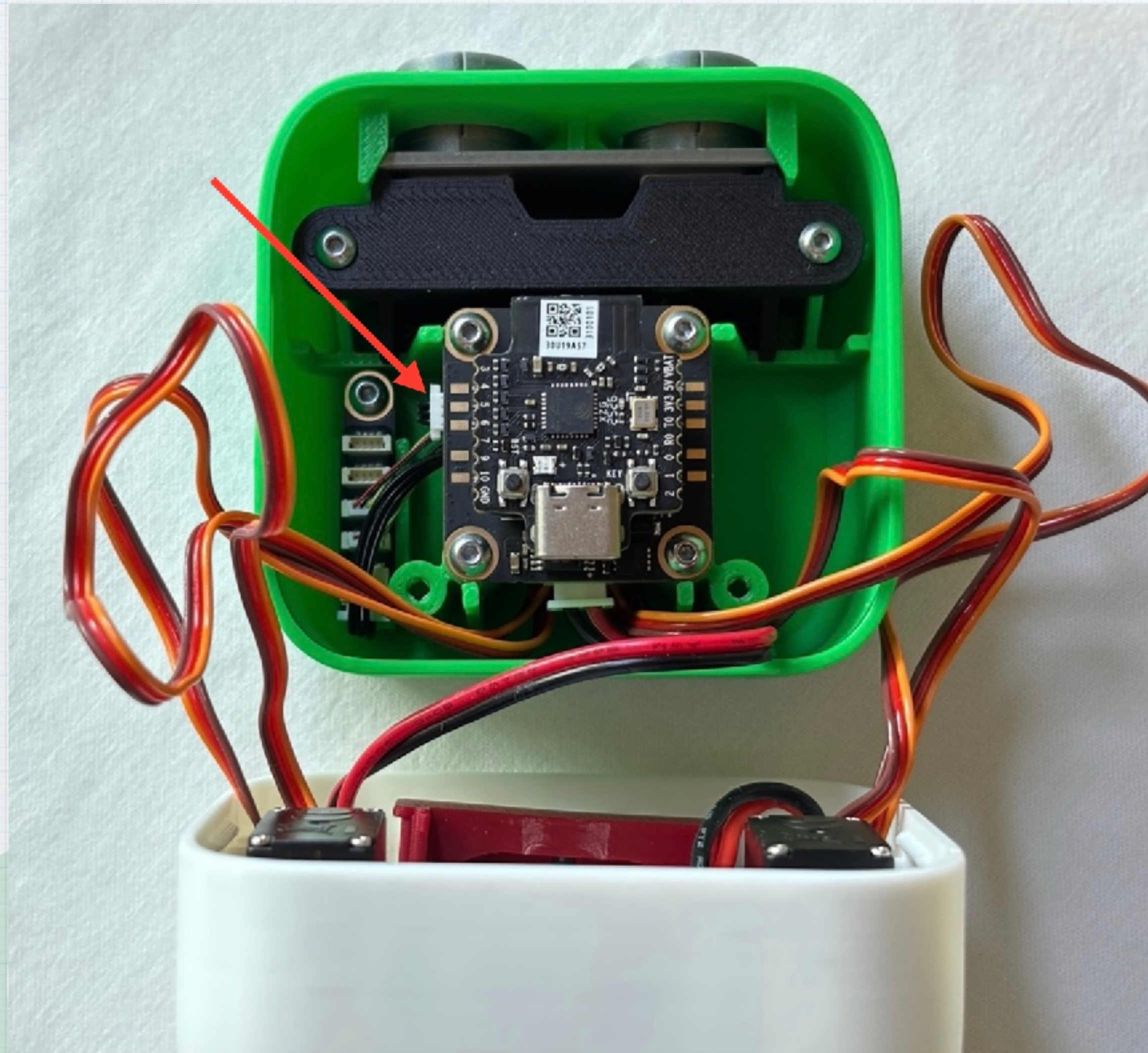
Secure with printed switch support.





Install the battery.

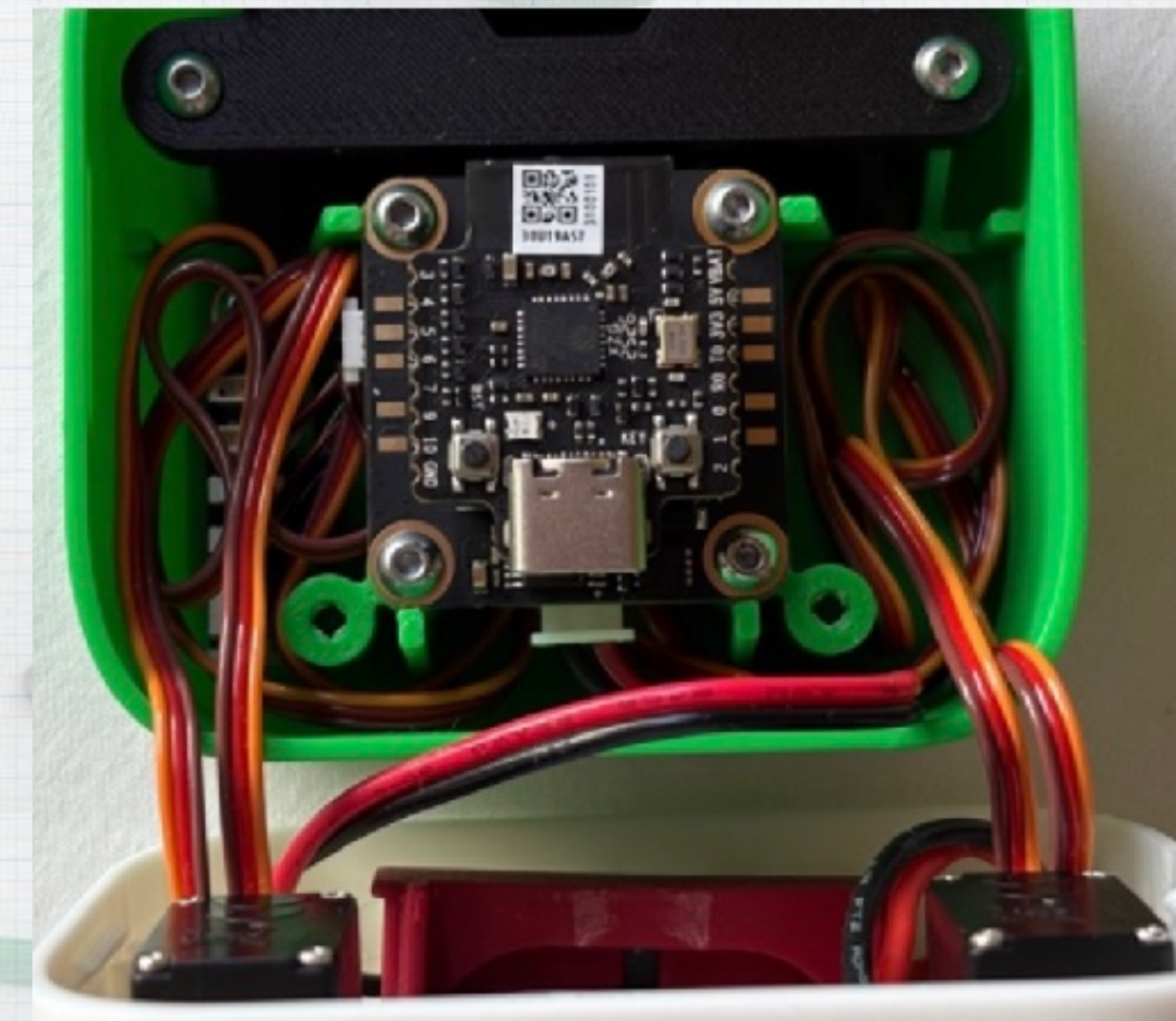
Connect all servo connectors to the receiver core as shown.

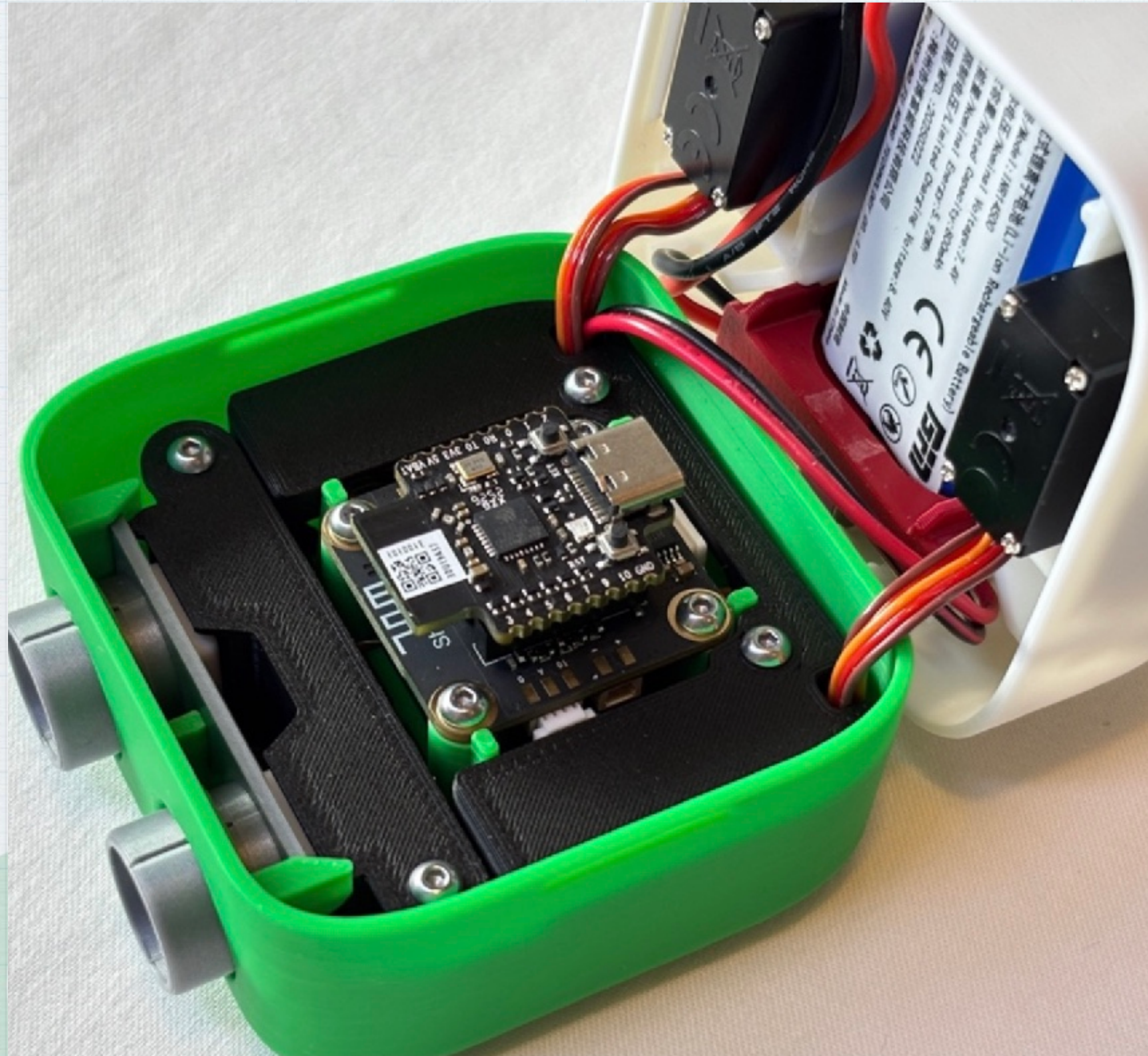


Connect the LED cable to the receiver core.

Secure the core with 4pcs M2.5x6 button head screws.

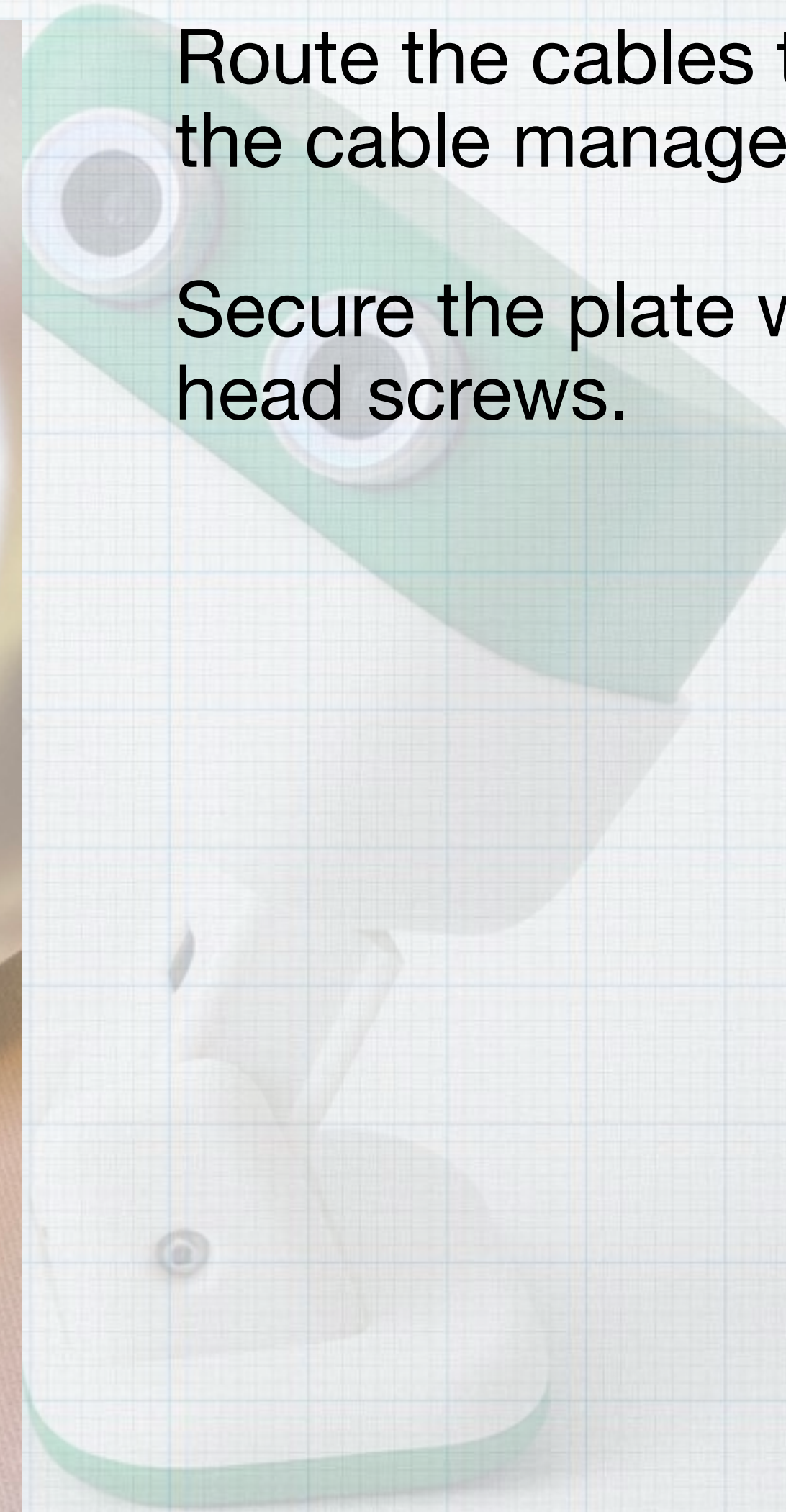
Tuck the servo cables next to the core.

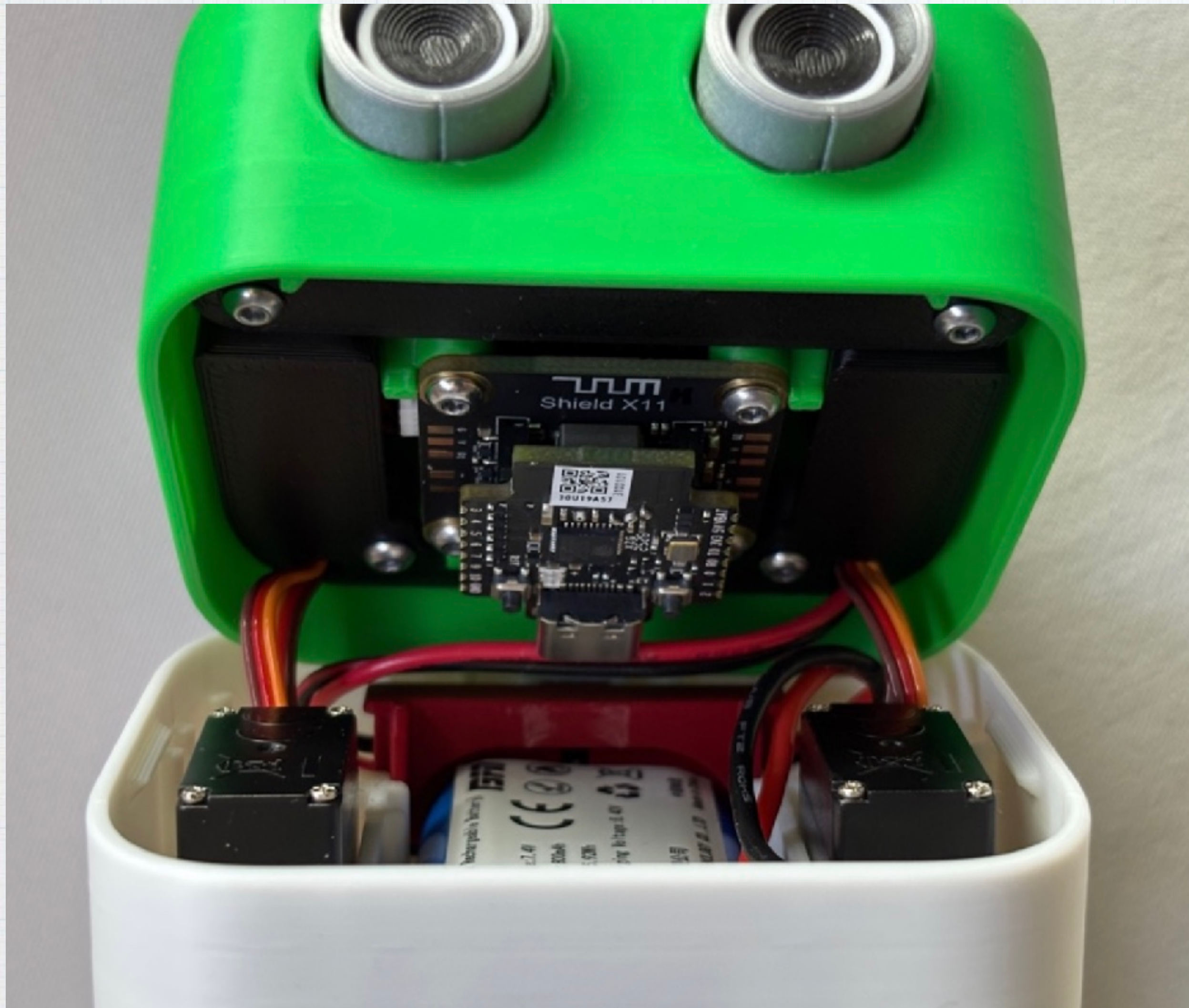




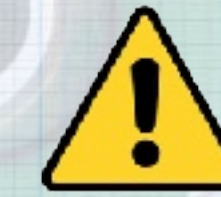
Route the cables through the openings in the cable management plate.

Secure the plate with 2pcs M2.5x6 button head screws.





Close the head.



Avoid getting cables between the battery and the receiver core.

Build complete!

Now install the CUBY .json program to your CUBY with the CyberBrick application and proceed to calibration.





# CALIBRATION

CUBY

Send Config

Save Config



[View more on MakerWorld](#)

Channel Config

Controller  
Connection

> Remote



✓ CUBY



LED

Continuous Servo

Angular Servo

Module

Speed(0%~100%)

Min. Angle(0.0°~180.0°)

Max. Angle(0.0°~180.0°)

Midpoint Offset(-10.0°~10.0°)

1. PWM1

100,0

%

45,0

°

120,0

°

9,0

°

2. PWM2

50,0

%

45,0

°

135,0

°

0,0

°

3. PWM3

100,0

%

60,0

°

135,0

°

-6,0

°

4. PWM4

50,0

%

45,0

°

135,0

°

-6,0

°



Set CUBY on flat surface and adjust "Midpoint Offset" to straighten the hip and ankle joints. Press "Send Config" to apply the changes and verify the new position until ready.



Adjust Min. and Max. Angles of ankles to increase CUBY's mobility. Start with small changes and be careful not to go beyond physical limits of the joints.



Speed of hip joints is limited to 50% to protect the servos from over-stress. Increase at your own risk or update to metal gear servos.

Have fun with your CUBY and good luck on mastering its fun and finicky controls!

CUBY V1.1 is released with "direct control" without scripted or coded movements. You are free to experiment and share your developments with the code of CUBY. - Much more functionality to come when full MPY project support is added to CyberBrick.

CUBY is a remixable project - Download STEP files from MakerWorld and share your contributions there!

<https://makerworld.com/en/@Viltzu/>

# CUBY



## CUBY V1.1.json

Change Lights



Left Leg



Right Leg

