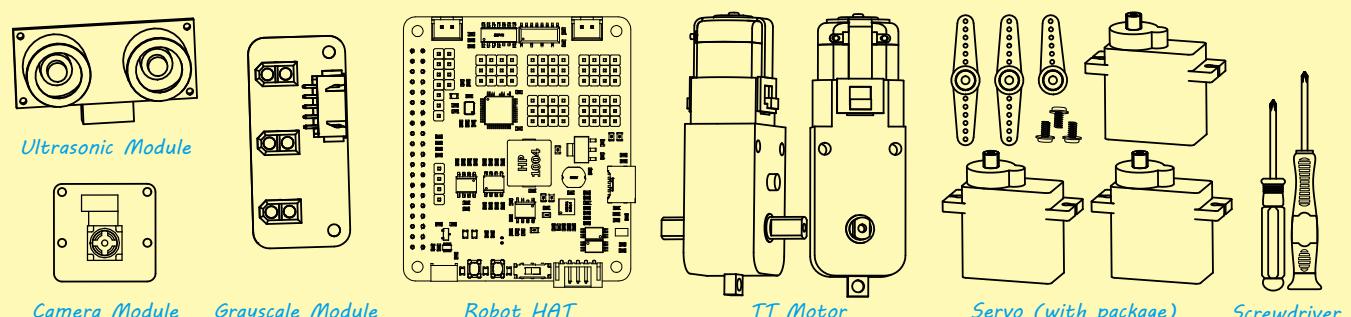
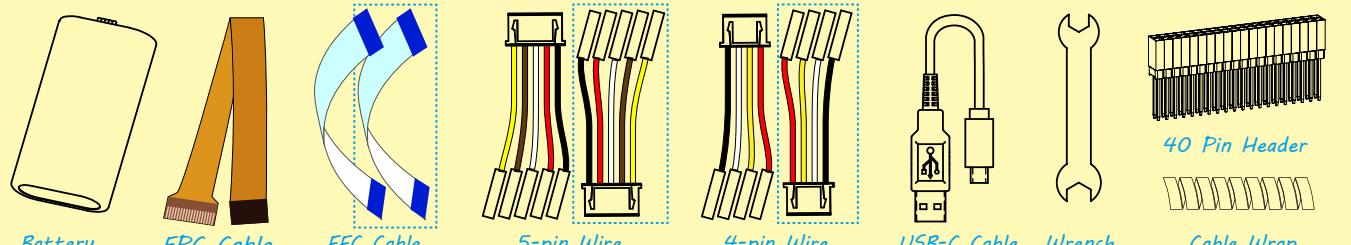
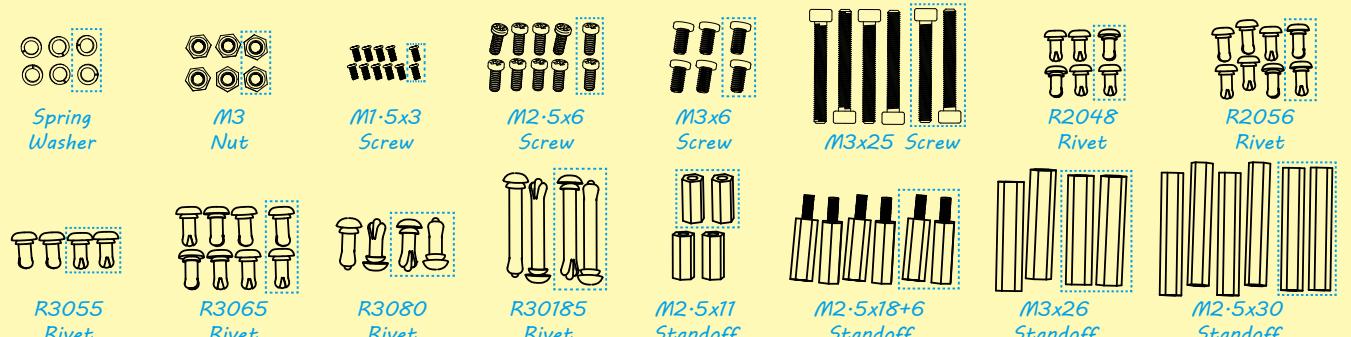
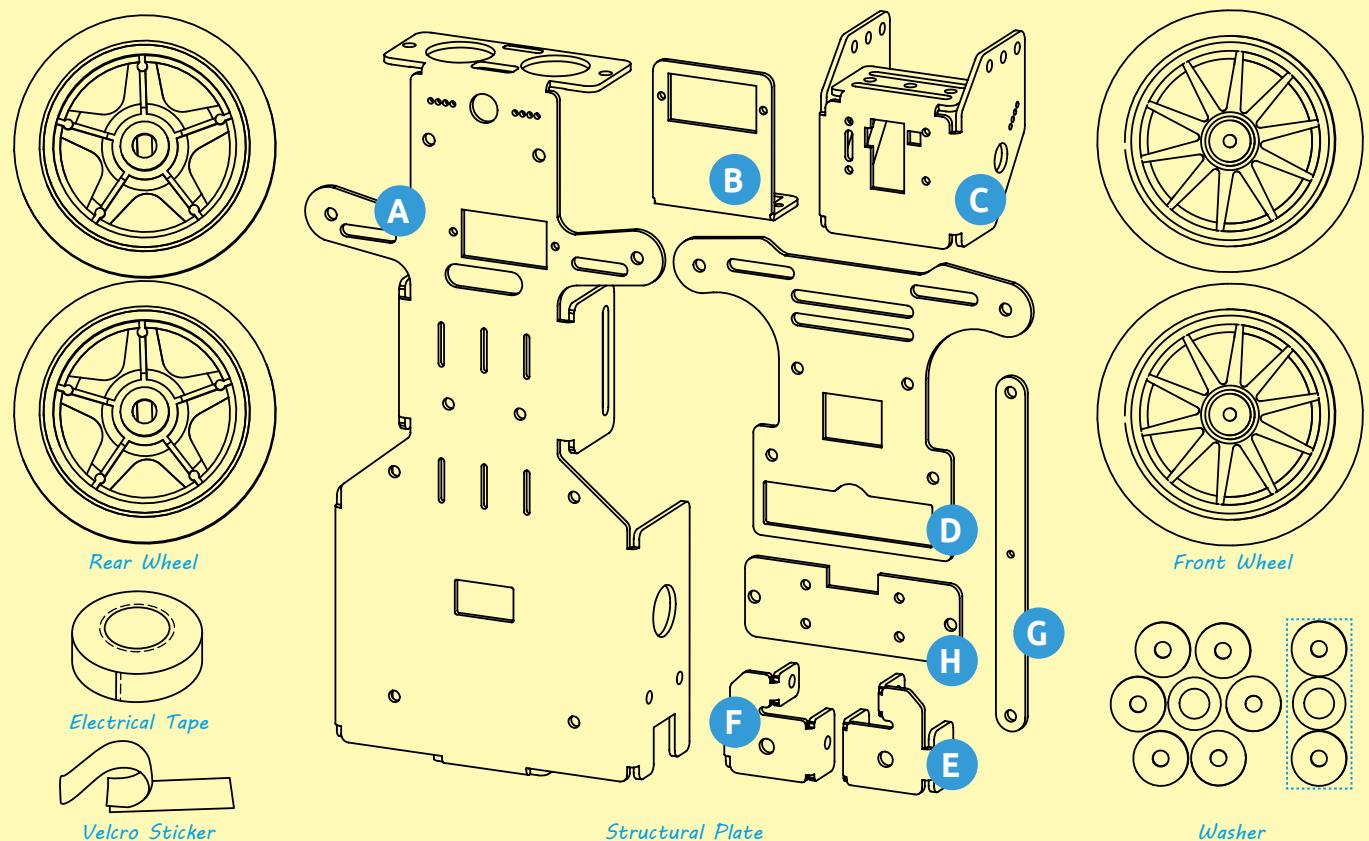


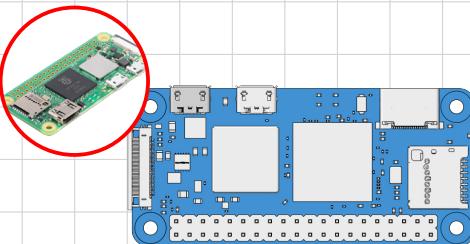
# SUNFOUNDER PICAR-X KIT

Get tutorial at: <https://picar-x-v20.rtfd.io>



Note: The items framed are for backup.

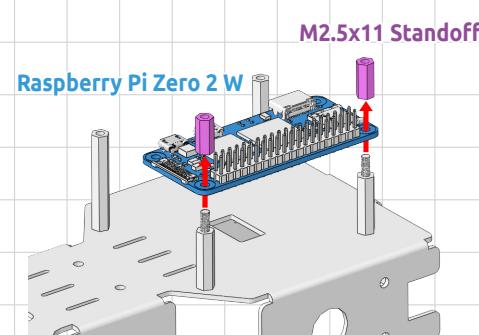
## ASSEMBLE



Raspberry Pi Zero 2 W

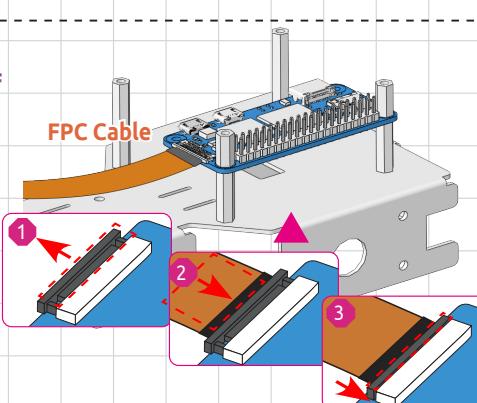
Step 1

Start here if you are using a Raspberry Pi Zero 2 W.



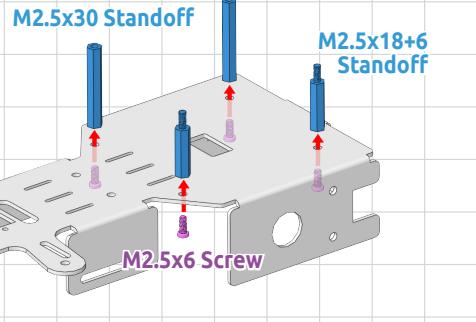
Step 3

Place the Raspberry Pi Zero 2 W onto the standoffs, and secure it with additional nylon standoffs.



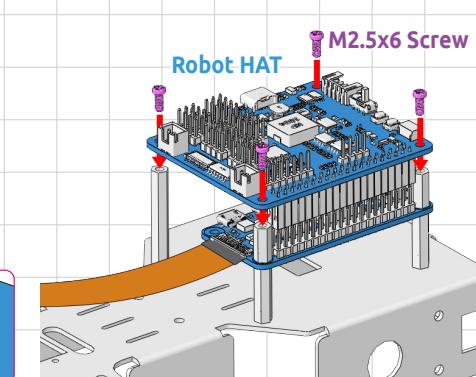
Step 4

Pull out the black tab on the camera connector, insert the FPC cable, and then press it back in to secure.



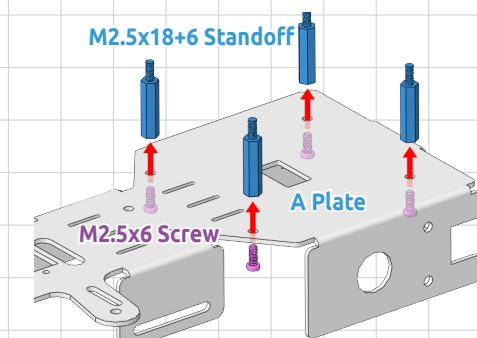
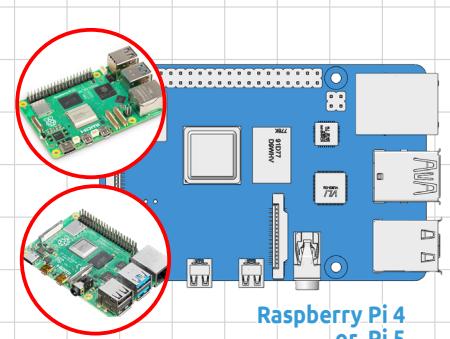
Step 2

Install two sets of different sized nylon standoffs onto the car body, one set will be used to secure the Raspberry Pi Zero 2 W.



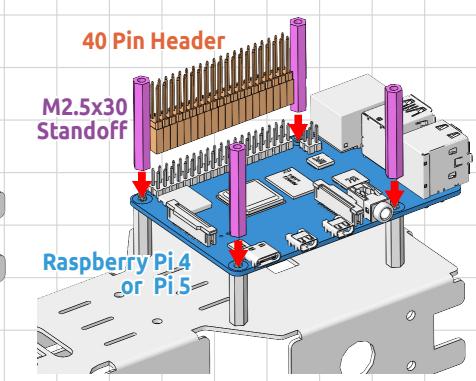
Step 5

Insert the Robot HAT into the Raspberry Pi Zero and secure it with screws.



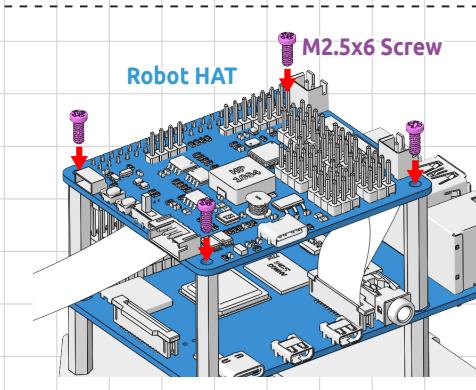
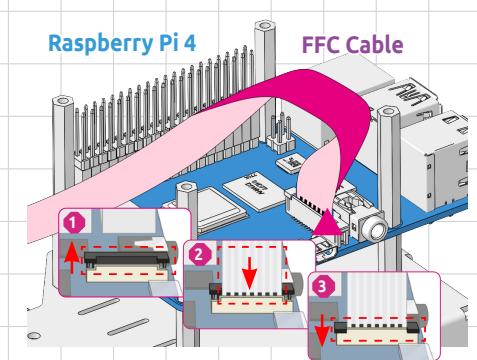
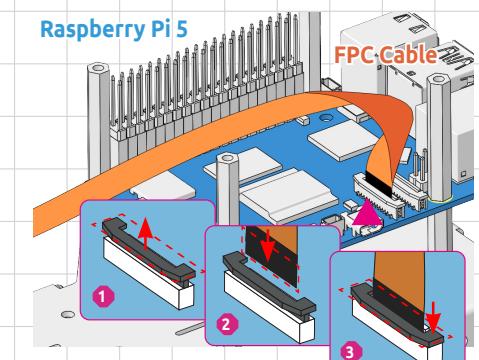
Step 1

Start here if you are using a Raspberry Pi 4 or Pi 5.



Step 2

First, screw 4 nylon standoffs into the car body.



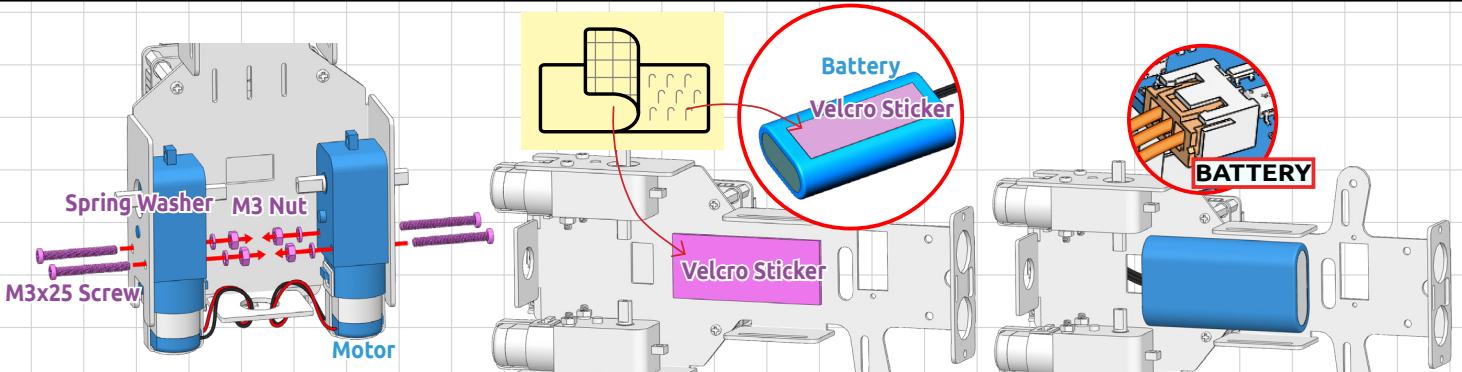
Step 3

Place the Raspberry Pi onto the standoffs, and secure it with additional nylon standoffs.

Step 4

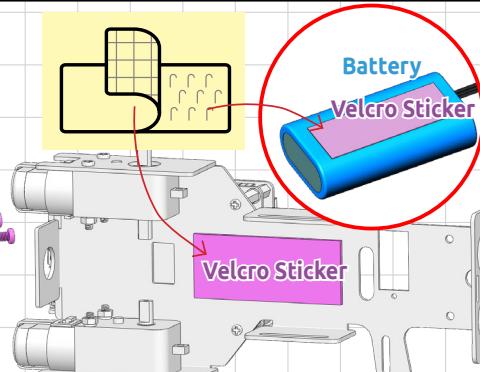
Lift the black tab on the Raspberry Pi's camera connector, insert the FFC/FPC cable and press down to fasten it.

Step 5  
Insert the Robot HAT into the Raspberry Pi and secure it with screws.



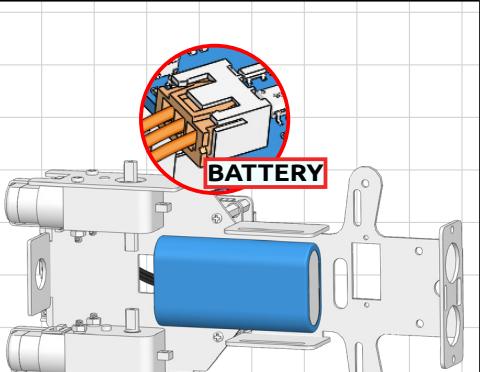
Step 6

Install two motors at the rear of the car and ensure the motor wires face inward.



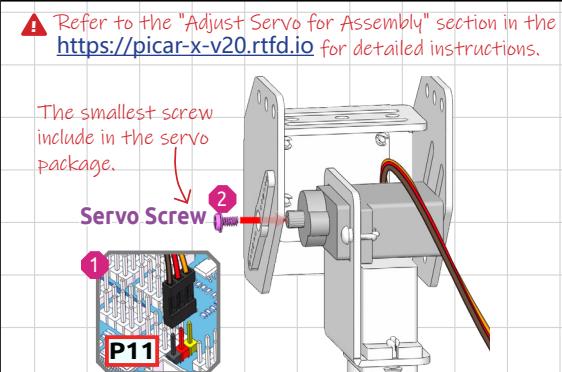
Step 7

Attach one piece of the Velcro to the battery and the other piece to the underside of the car.



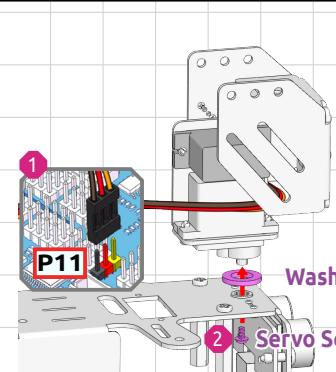
Step 8

You can now secure the battery in place. Don't forget to connect the battery wire!



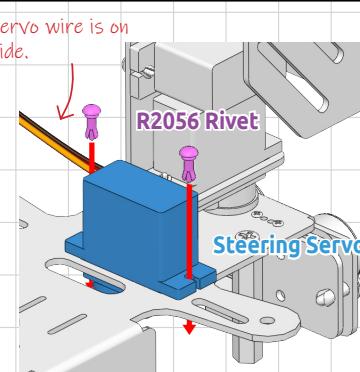
Step 18

Adjust servo angle to the middle position before securing the servo and servo arm.



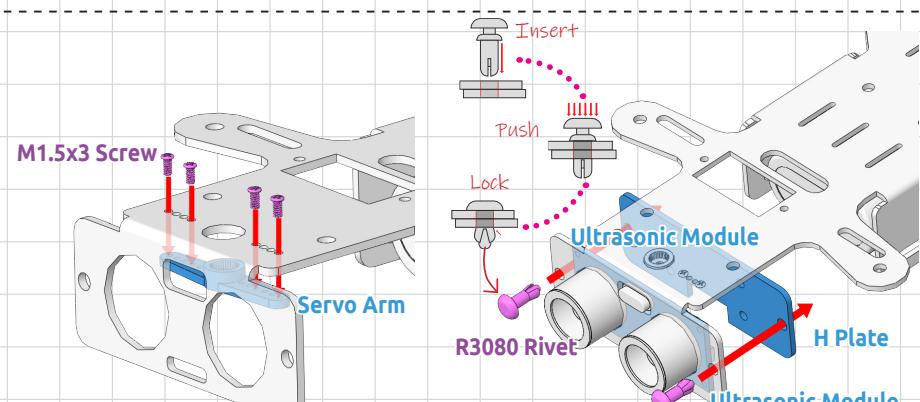
Step 19

Similarly, adjust the servo angle prior to securing the servo and servo arm.



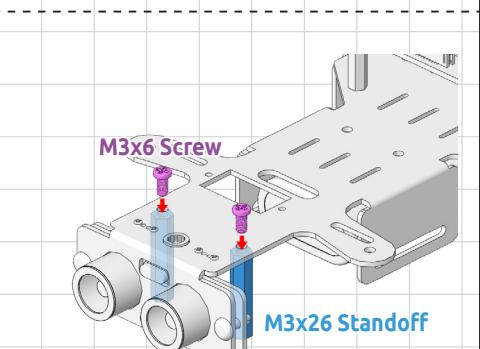
Step 20

Secure the remaining servo and label it as "Steering". Pay attention to the direction of the servo wire.



Step 9

Secure a servo arm at the front of the car to hold the pan-tilt.

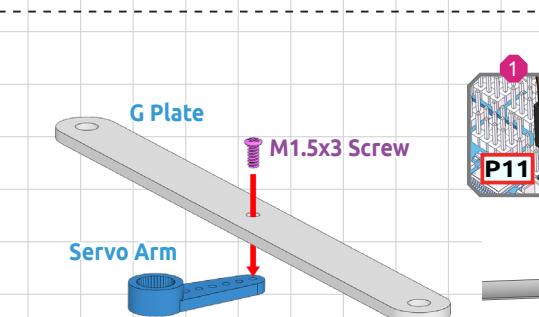


Step 10

Using rivets and a plate, secure the ultrasonic module to the front of the car.

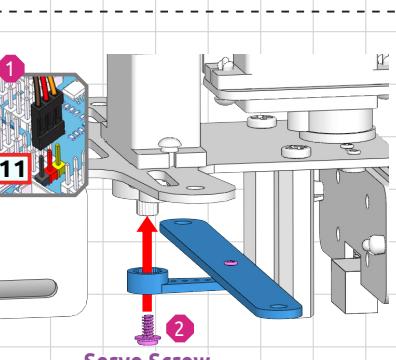
Step 11

Fasten 2 standoffs to the bottom of the car with screws.



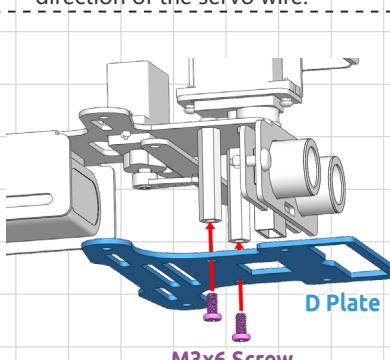
Step 21

Secure a servo arm onto the G plate using a screw, ensuring not to overtighten it, allowing for **free rotation** between them.



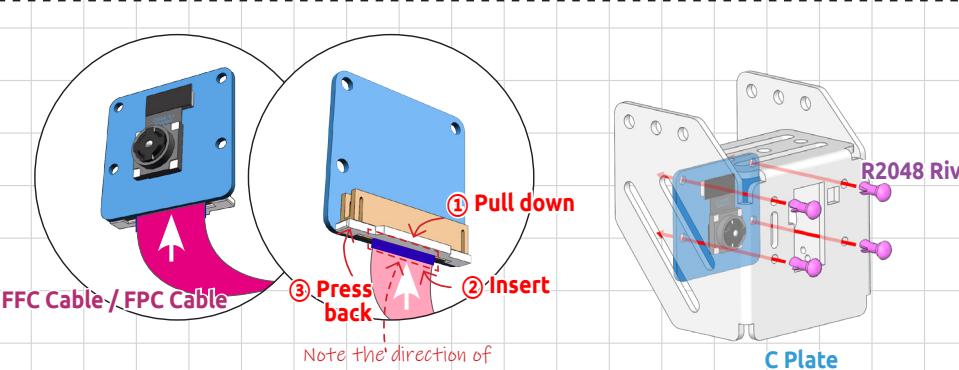
Step 22

Adjust the angle of the "Steering" servo, insert the previously mentioned servo arm, and secure them using a servo screw.



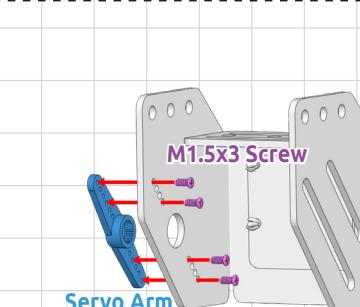
Step 23

Secure the D plate in place using screws.



Step 12

Secure the other end of the FFC or FPC cable to the camera module.

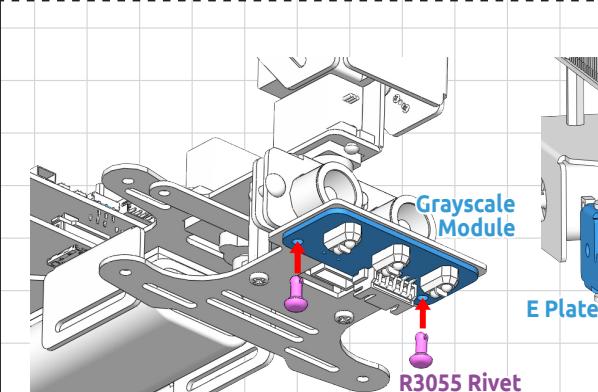


Step 13

Then, mount the camera module onto the C plate.

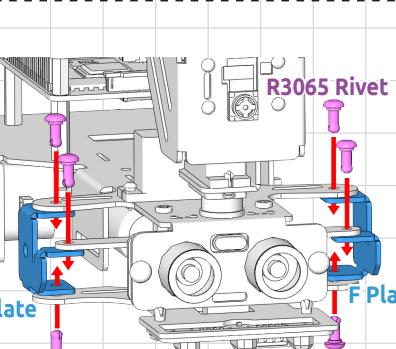
Step 14

Additionally, mount a servo arm on the C plate.



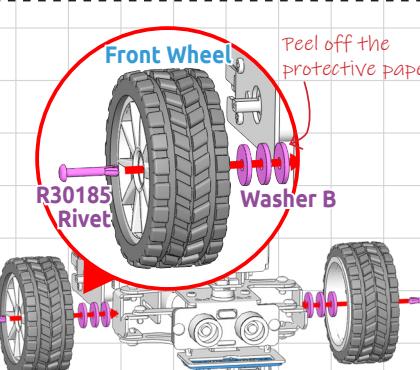
Step 24

Next, use rivets to secure the grayscale module onto the D plate.



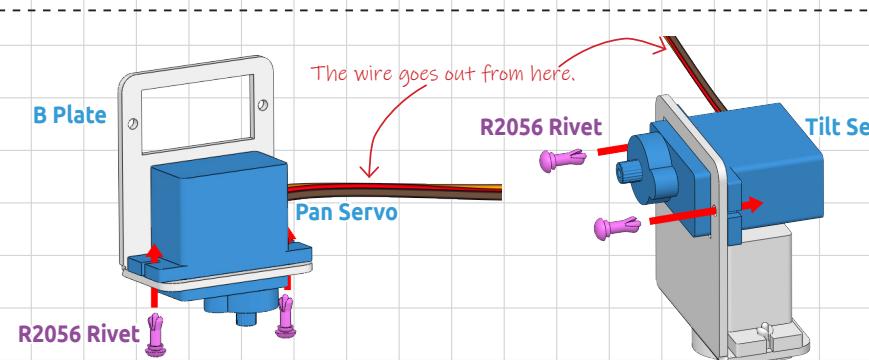
Step 25

Attach the E plate on the right side and the F plate on the left side for the front wheels.



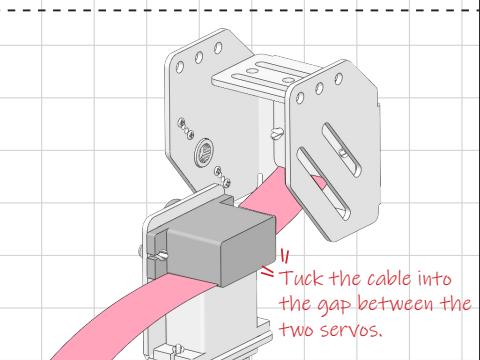
Step 26

You can now install the front wheels.



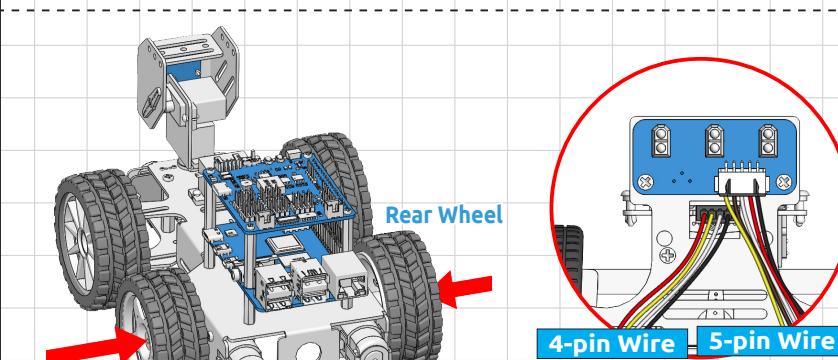
Step 15

Install a servo on the B plate, marking it as "Pan". Pay attention to the direction of the servo wire.



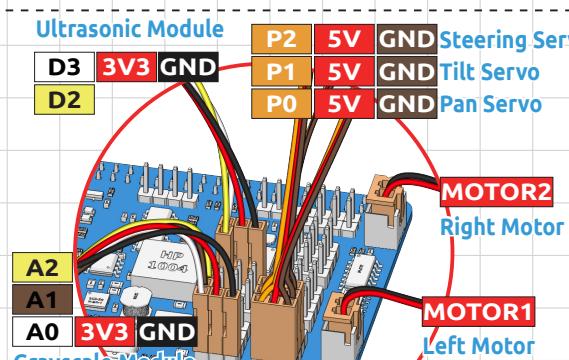
Step 16

Attach another servo on the B plate, marked as "Tilt". Note the direction of the wire as well.



Step 27

Insert the rear wheels onto the motor shafts.



Step 28

Plug in the 4-pin wire into the ultrasonic module first, and then insert the 5-pin wire for the grayscale module.

Step 29

As per the diagram, insert all the wires into their designated ports on the Robot HAT to complete the assembly.