

Stationary



ASSEMBLY GUIDE



THANK YOU

For purchasing the Trossen Robotics Stationary AI Machine Learning Kit.

We highly recommend that you also watch the video version of the assembly guide by going to
<https://youtu.be/TDYpRS654gk?si=c1fQILo4Kv2WbgMe>

This guide references the Leader Model Assembly and Follower Model Assembly videos here:
Leader Arm Assembly Video: <https://www.youtube.com/watch?v=00TyWB8g6gA>
Follower Arm Assembly Video: https://www.youtube.com/watch?v=VjNTw_bbo4q

If you require additional support, please submit a support ticket at trossenrobotics.com/support

Additional Resources:

Trossen Robotics GitHub: github.com/interbotix
Product Documentation: docs.trossenrobotics.com

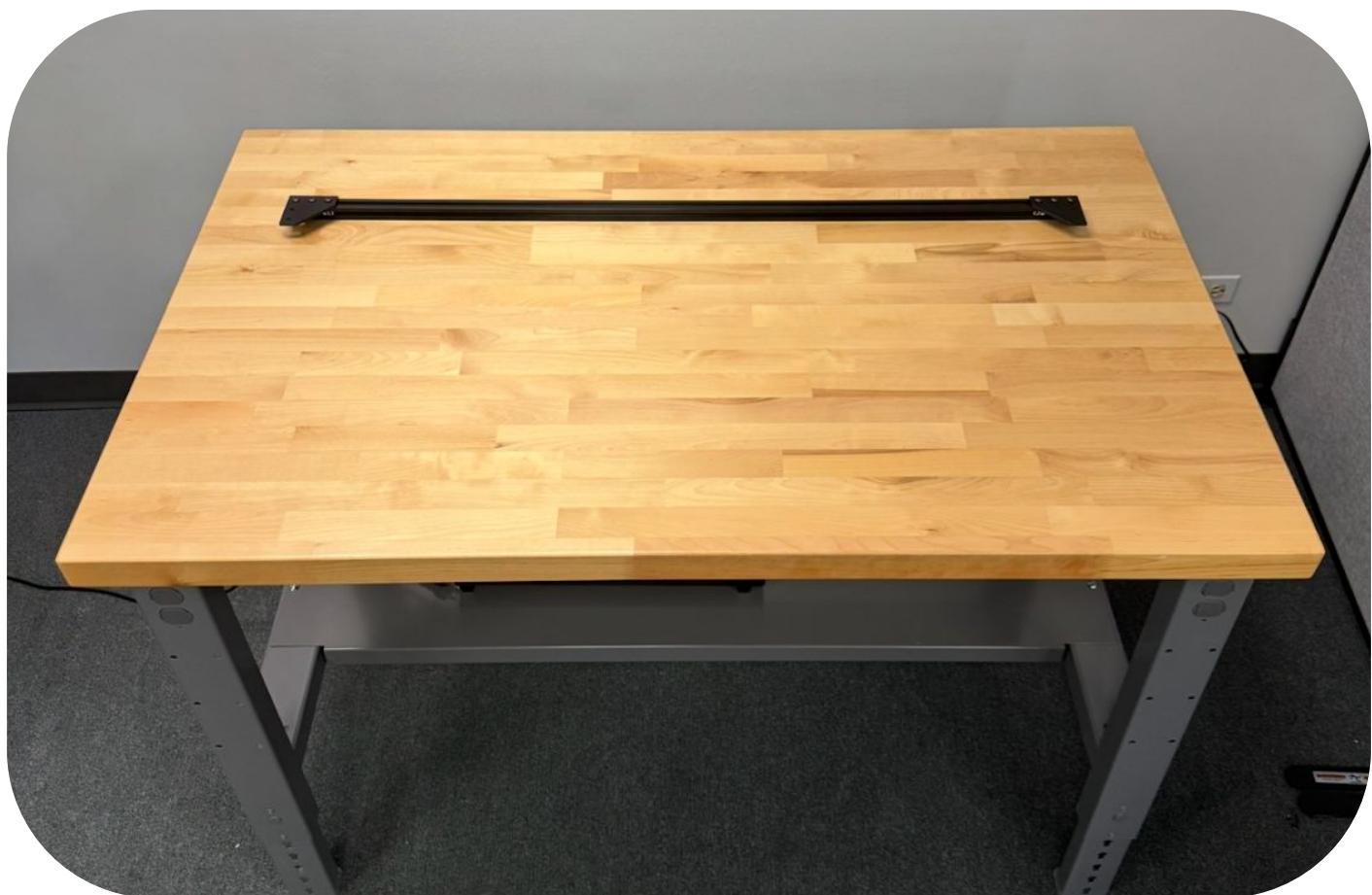
PARTS LIST

Frame	QTY
2020-990mm Bar Front	1
2020-990mm Bar Rear	1
2020-1000mm L1	1
2020-1000mm L2	1
2020-1000mm R1	1
2020-1000mm R2	1
2040-890mm Bar with Sticker Plate	1
2040-1000mm Upright Bar	2
2020-305 Angled Support Bar	2
2020-50mm Stabilizer Bar	2
Hardware	
Stabilizer Plate	2
Sticker Plate Front with Sticker	1
Touchscreen Mount	1
Under Desk Cable Basket	1
C-Clamps	6
M3x6mm Socket Head Bolts	5
M3x8mm Socket Head Bolts	3
M3x12mm Socket Head Bolts	3
M4x6mm Button Head Bolts	5
M5x8mm Button Head Bolts	20
M5x10mm Button Head Bolts	55
M5x12mm Button Head Bolts	10
M2.5 T-Driver	1
M3 T-Driver	1
M3 Ball-End Driver	1
Loctite	3
Zip Ties - 6 in	10
Zip Ties - 10 in	10
3D Printed Parts	
2020 USB Cable Clip	10
2040 USB Cable Clip	10
Birds-Eye Camera Mount	1
Worms-Eye Camera Mount	1

Electronics + Cables	QTY
Controller Tower with Stationary Lid	1
5-Port Ethernet Switch	1
4-Port USB Hub	1
Power Strip - 10 AC Outlets	1
GX16 4-Pin to XT30(2+2) Cable 1700mm (Follower Left)	1
GX16 4-Pin to XT30(2+2) Cable 1500mm (Leader Left)	1
GX16 4-Pin to XT30(2+2) Cable 650mm (Follower Right)	1
GX16 4-Pin to XT30(2+2) Cable 300mm (Leader Right)	1
USB 3.0 to Micro B Cable 3m Locking Up Angled	2
RJ45 Male to Male Cable - 3m	1
Touchscreen	1
Cameras	
Intel RealSense D405 Camera (HIGH CAM) (LOWER CAM)	2
Computer (If purchased with Stationary AI)	
TOTL Workstation	1
Robot Arms	
WidowX AI Leader	2
WidowX AI Follower	2
WidowX AI Leader Bag	2
WidowX AI Follower Bag	2
Accessories (Packaged with Robot Arms)	
24V 15A Power Supply	4
Intel RealSense D405 Camera (LEFT WRIST) (RIGHT WRIST)	2
M12 X-Code 8-Pin Male to RJ45 Male Cable	4
USB 3.0 to Micro B Cable 3m Locking Up Angled	2

STEP 1

Lay out the 2020-990mm Bar Rear.

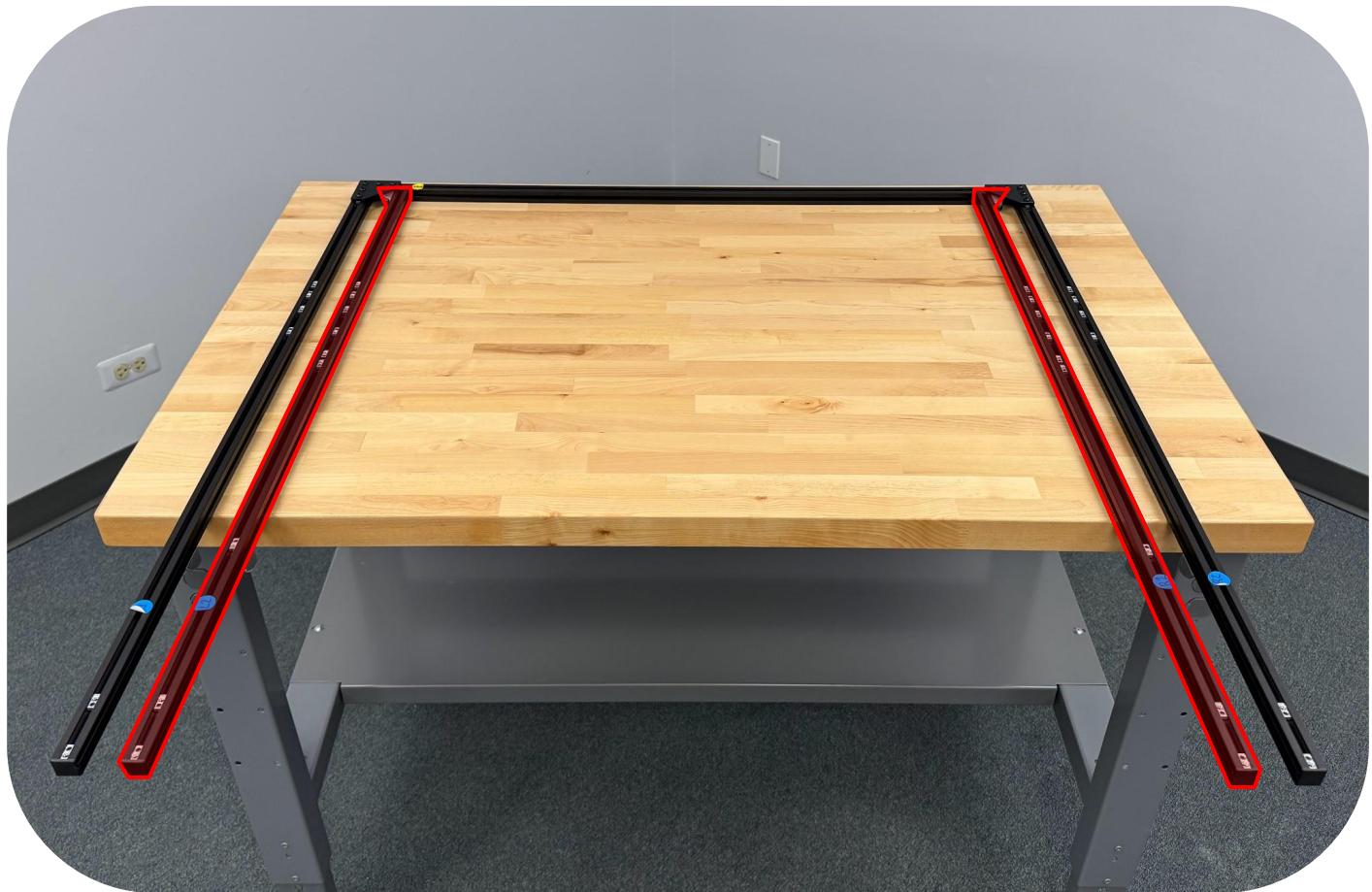


STEP 2

Lay out the 2020-1000mm Inner Bars, L2 and R2.

Bolt the 2020-1000mm Inner Bars to the 2020-990mm Bar Rear using (2x) M5x10mm Button Head Bolts.

Mind orientation and number of T-Nuts facing upwards.



STEP 3

Lay out the 2020-1000mm Outer Bars, L1 and R1.

Bolt the 2020-1000mm Outer Bars to the 2020-990mm Bar Rear using (4x) M5x10mm Button Head Bolts.

Mind orientation and number of T-Nuts facing upwards.



STEP 4

Lay out the 2020-990mm Bar Front.

Bolt the 2020-900mm Bar Front to the underside of the 2020-1000mm Bars using (4x) M5x10mm Button Head Bolts.

Mind orientation and ensure that the centered T-Nuts on the 2020-900mm Bar Front are visible (see Bottom Left).



STEP 5

Install the Stabilizer Plates on the Base Frame using (2x) 2020-50mm Stabilizer Bars and (12x) M5x10mm Button Head Bolts.

Mind orientation and ensure that the Stabilizer Plates do not overhang the Inner Bars of the Base Frame (see Bottom Left).



STEP 6

Secure the Base Frame to the table using (6x) C-Clamps.

Mind orientation and location of C-Clamps, centering the C-Clamps on the Stabilizer Plates as best as possible.



STEP 7

Bolt the Worms-Eye Camera Mount to the 2020-990mm Bar Front using (4x) M5x8mm Button Head Bolts.

Install the Lower Camera in the mount using (2x) M3x8mm Socket Head Bolts.

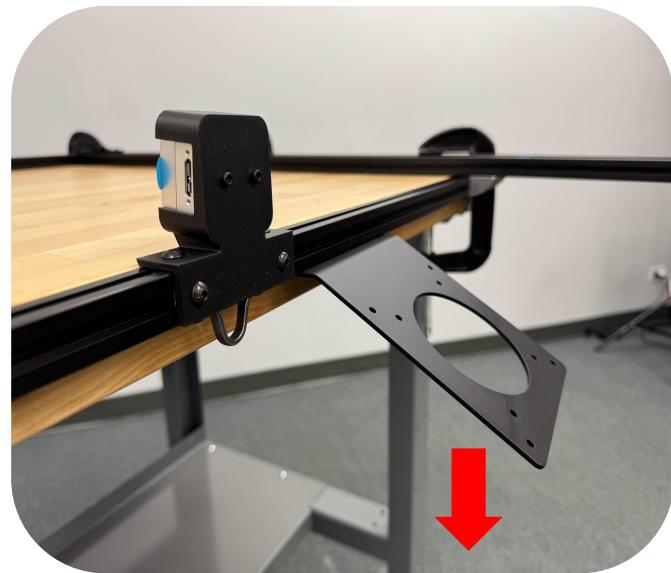
Ensure that the camera cable port is accessible when mounting the camera (see Bottom Right).



STEP 8

Bolt the Touchscreen Mount to the underside of the 2020-990mm Bar Front using (3x) M5x8mm Button Head Bolts.

Ensure that the Touchscreen Mount is angled towards the floor (see Bottom Right).



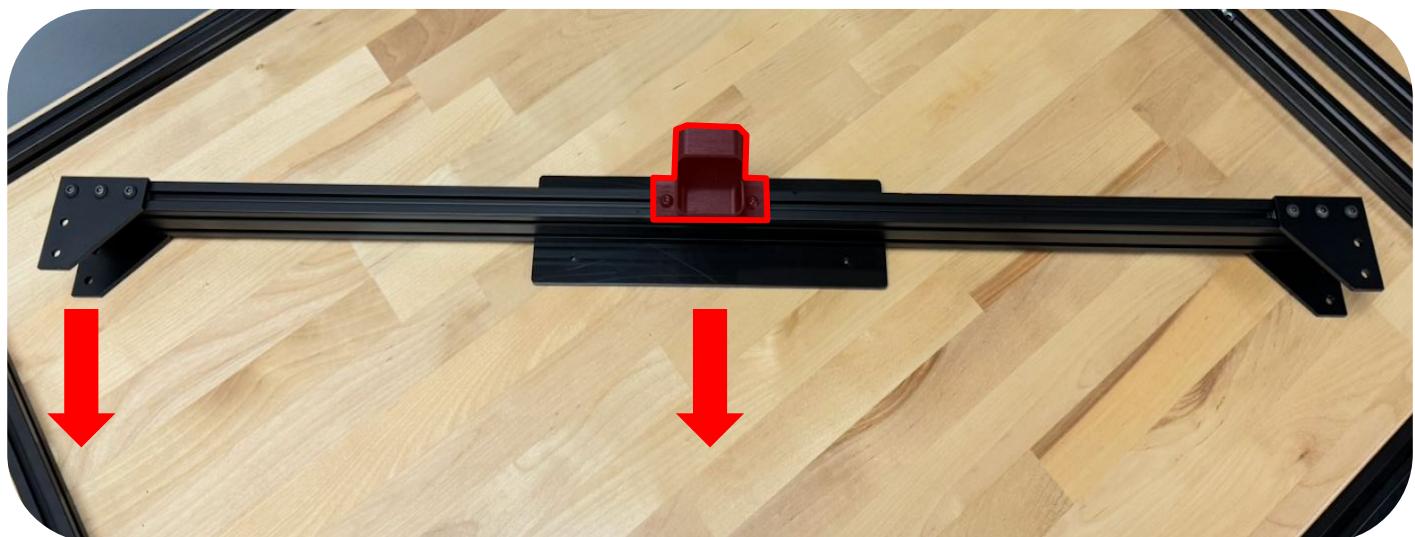
STEP 9

Lay out the 2040-890mm Bar with Sticker Plate.

Bolt the Birds-Eye Camera Mount to the 2040-890mm Bar using (4x) M5x8mm Button Head Bolts.

Install the Upper Camera into the mount using (2x) M3x12mm Socket Head Bolts.

Mind orientation of camera mount (see Top), and ensure the side port is accessible when mounting the camera.



STEP 10

Attach the Sticker Plate Front to 2040-890mm Bar using (4x) M3x6mm Socket Head Bolts.

Ensure that the Sticker Plate Front is mounted right-side-up (see Bottom).

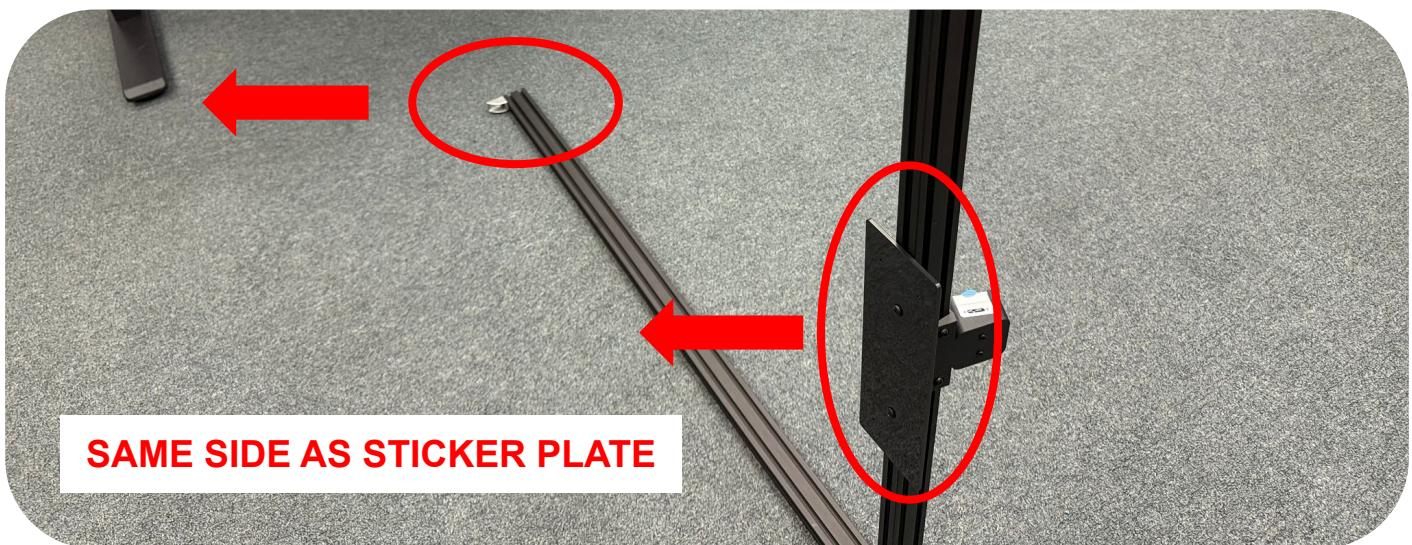


STEP 11

Layout 2040-890mm Bar with Sticker Plate and the 2040-1000mm Upright Bars.

Bolt the 2040-1000mm Upright Bars to the 2040-890mm Bar with Sticker Plate using (8x) M5x10mm Button Head Bolts.

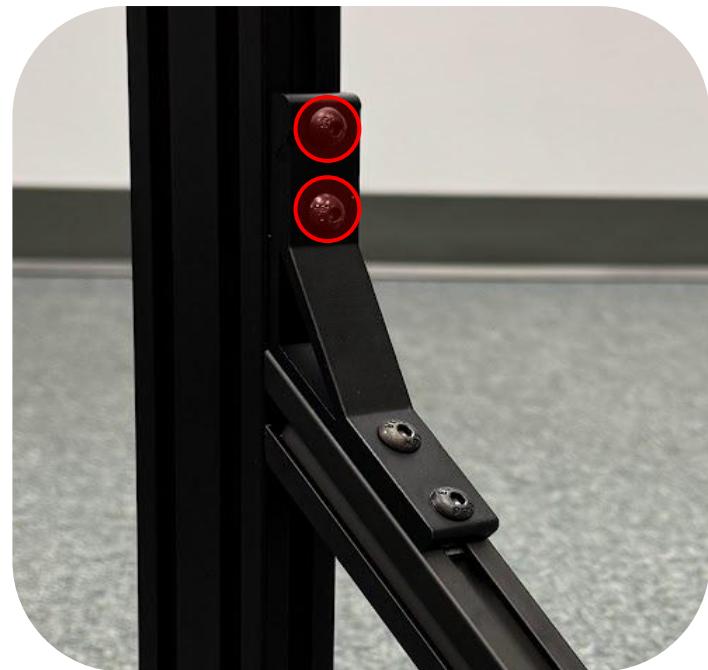
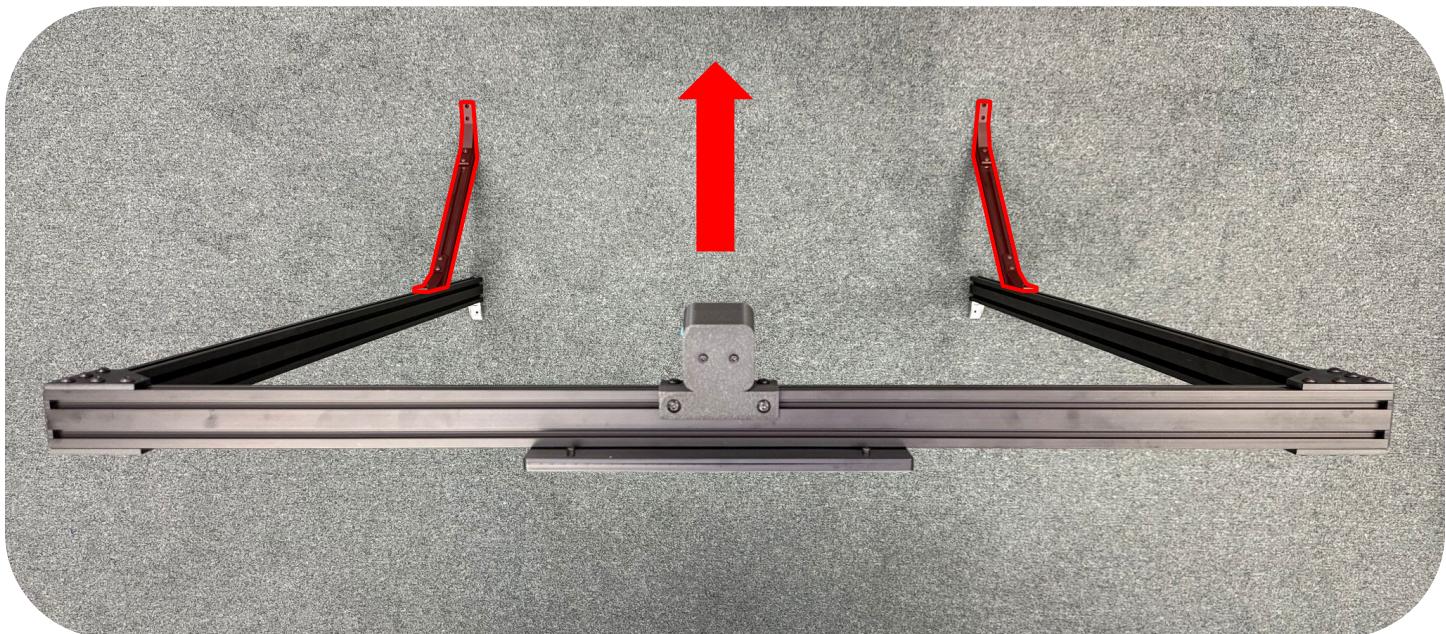
Mind orientation of silver brackets and sticker plate (see Red Arrows below).



STEP 12

Bolt the 2020-305mm Angled Support Bars to the 2040-1000mm Upright Bars using (4x) M5x12mm Button Head Bolts.

Ensure that the Birds-Eye Camera Mount overhangs on the same side as the 2020-305mm Angled Support Bars (see Red Arrow below).



STEP 13

Position the Upright Frame on top of the 2020-1000mm Inner Bars of the Base Frame.

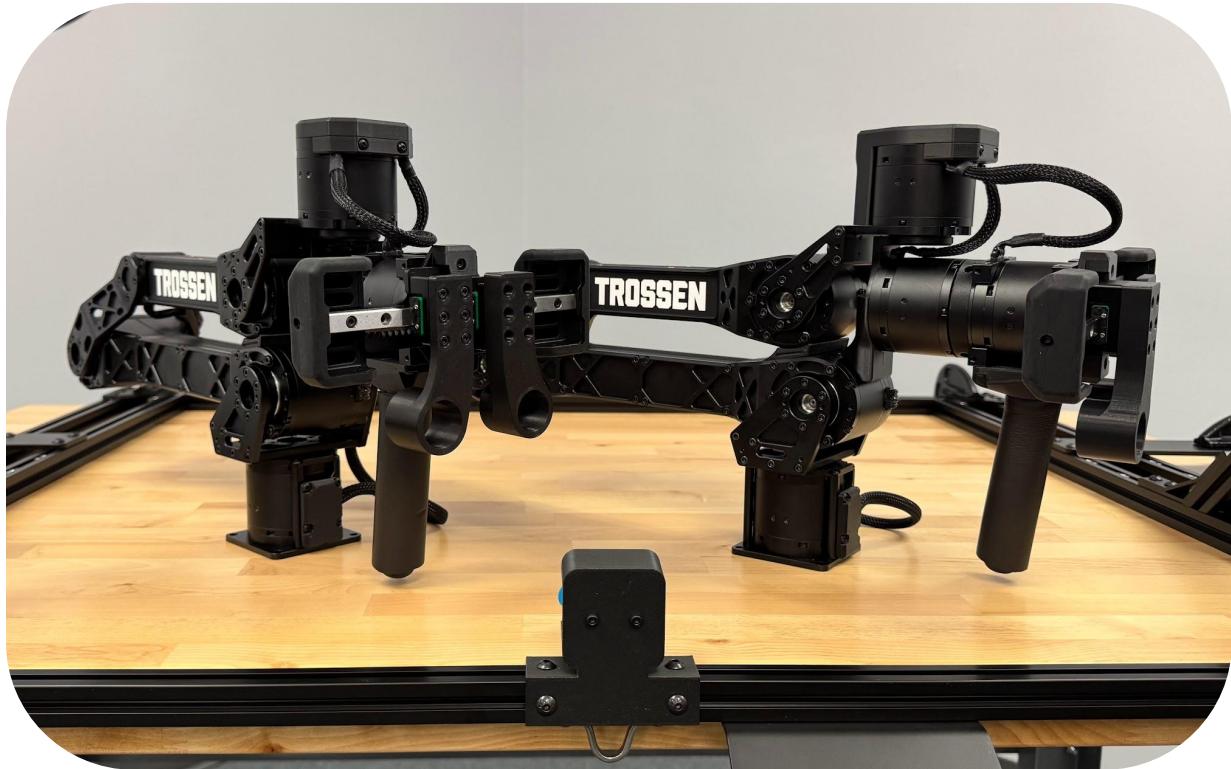
Bolt the 2020-305mm Angled Support Bars to the 2020-1000mm Inner Bars using (4x) M5x12mm Button Head Bolts (**see Bottom Left**).

Bolt the 2040-1000mm Upright Bars to the 2020-1000mm Inner Bars using (2x) M5x10mm Button Head Bolts (**see Bottom Right**).



STEP 14

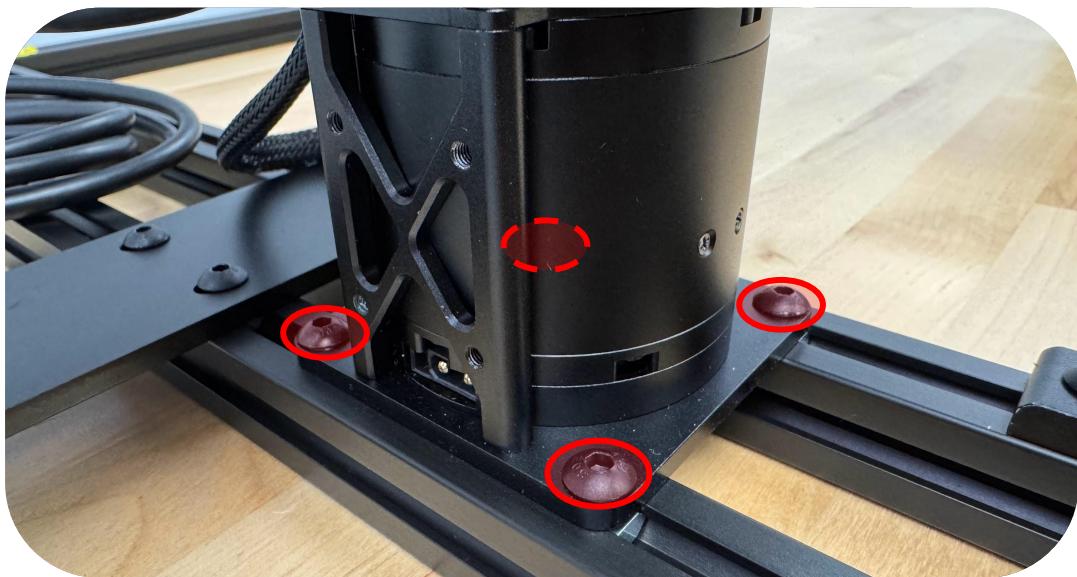
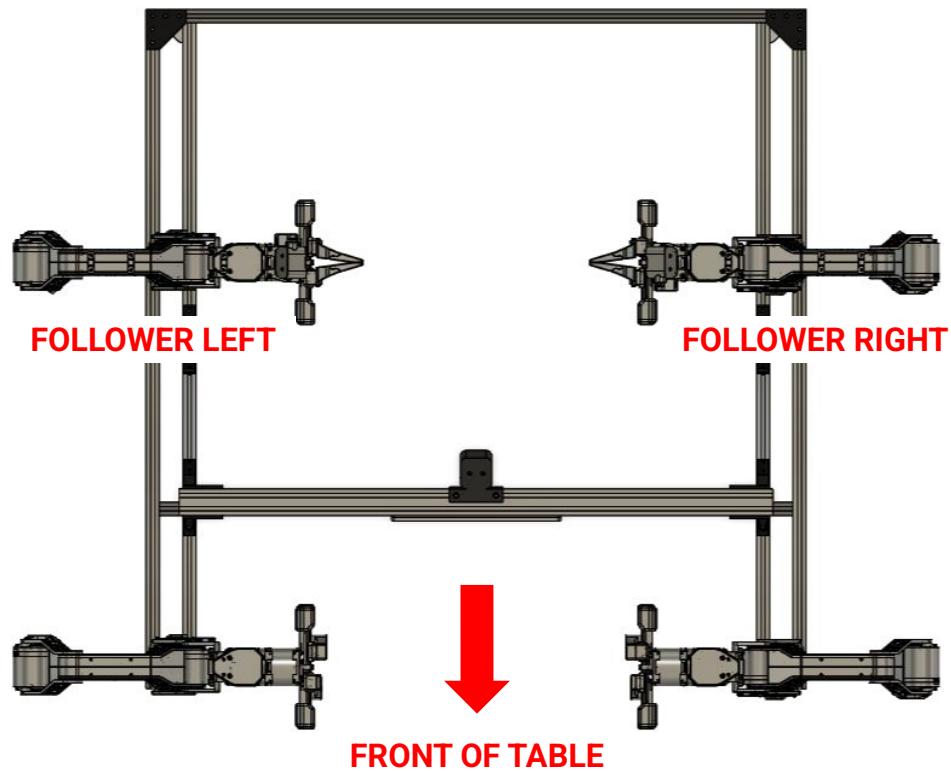
Assemble the (2x) WidowX AI Leader Arms and the (2x) WidowX AI Follower Arms
[\(See Arm Assembly Guides\)](#).



STEP 15

Bolt the WidowX AI Follower Arms to the Base Frame using (8x) M5x10mm Button Head Bolts.

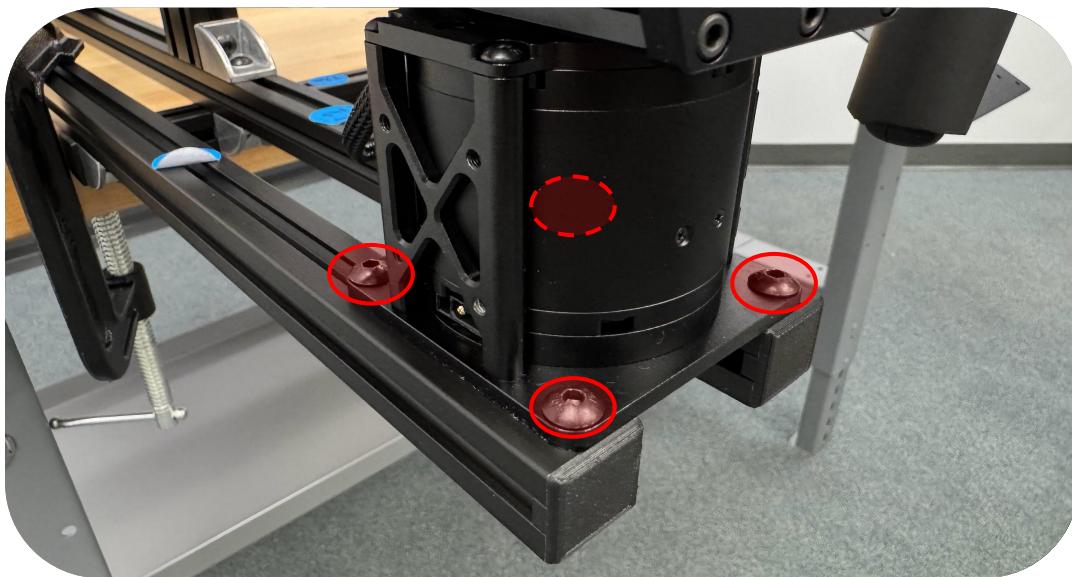
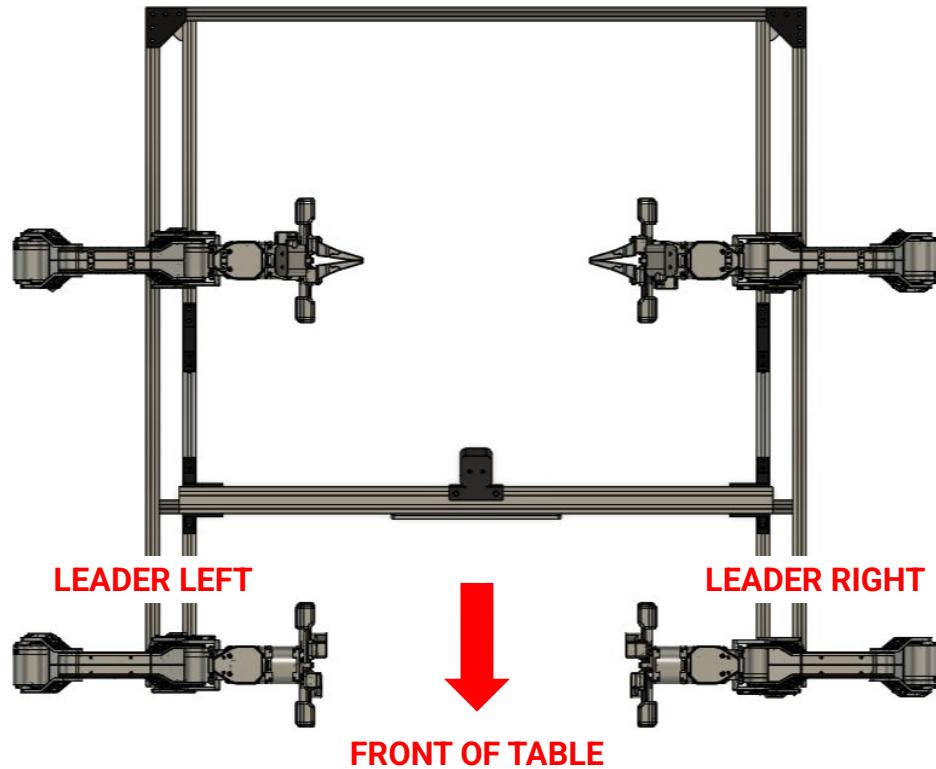
Mind orientation and labeling of arms (see layout below).



STEP 16

Bolt the WidowX AI Leader Arms to the Base Frame using (8x) M5x10mm Button Head Bolts.

Mind orientation and labeling of arms (see layout below).



STEP 17

Remove the Stationary Lid from the Controller Tower by removing the (4x) M3x6mm Socket Head Bolts.

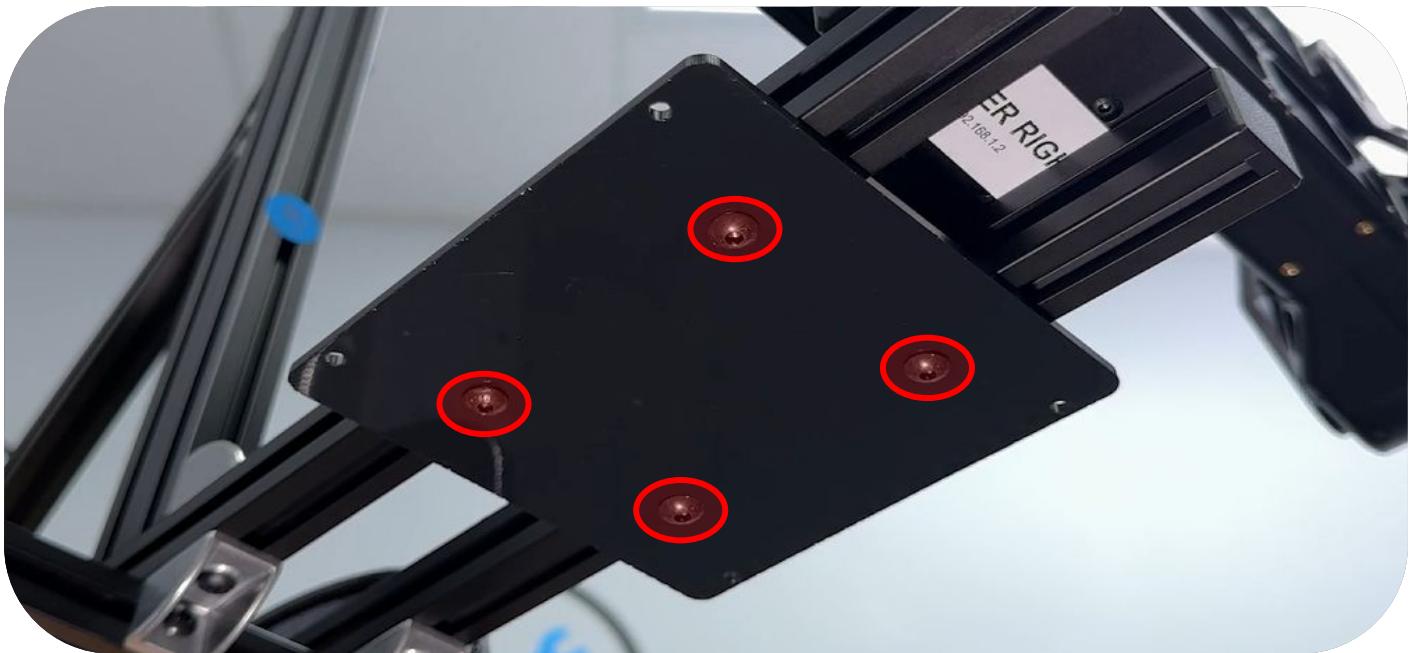
Set bolts aside to use later.



STEP 18

Bolt the Stationary Lid under the Right WidowX AI Leader Arm using (4x) M5x8mm Button Head Bolts.

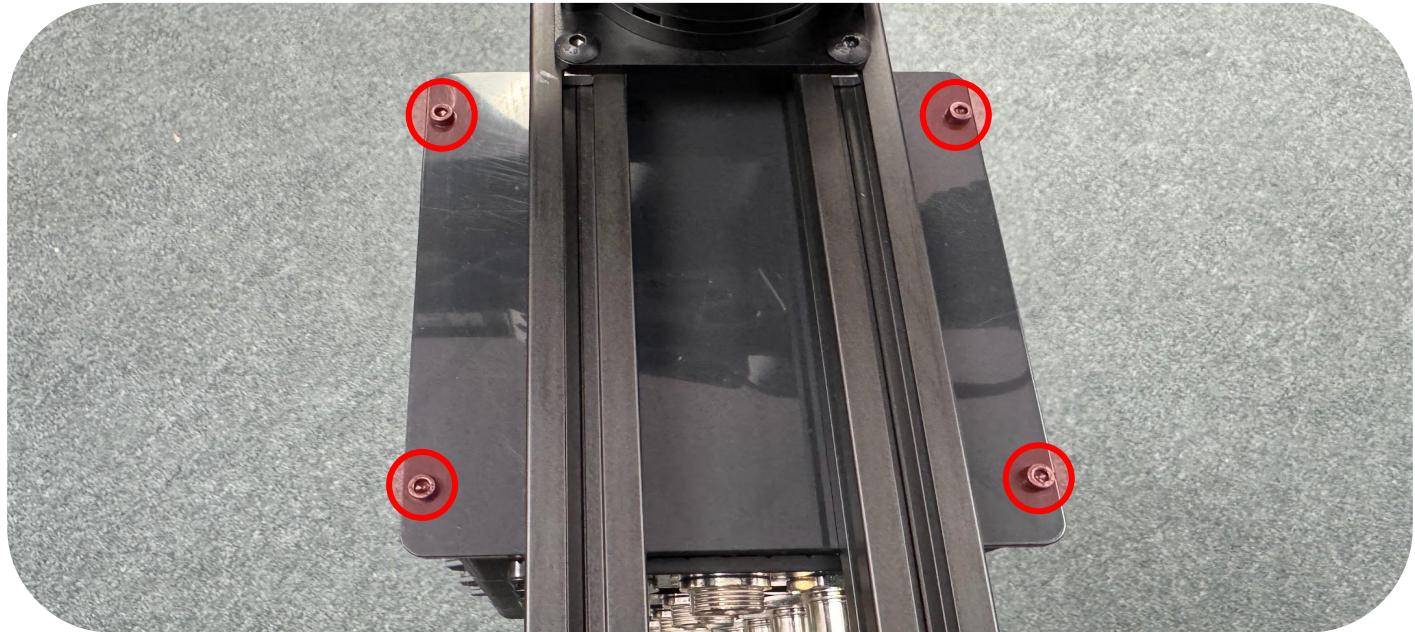
Mind the orientation of the lid when bolting it to the frame, ensuring outer holes are to the left and right of the 2020 bars (see Bottom).



STEP 19

Bolt the Controller Tower to the Stationary Lid using the (4x) M3x6mm Socket Head Bolts from Step 17.

Mind orientation of Controller Tower, ensuring that the Micro USB Port faces Left.



STEP 20

Assemble the cable management basket.

Mount the cable management basket on the right side or underside of the table.

Angle the clamps to fit over the lip on the underside of the table (see Bottom).



STEP 21

Prepare the 5-Port Ethernet Switch, the 4-Port USB Hub, and the 10-Outlet Power Strip.

Place the 5-Port Ethernet Switch and 4-Port USB Hub in the Cable Management Basket and plug them into the 10-Outlet Power Strip.

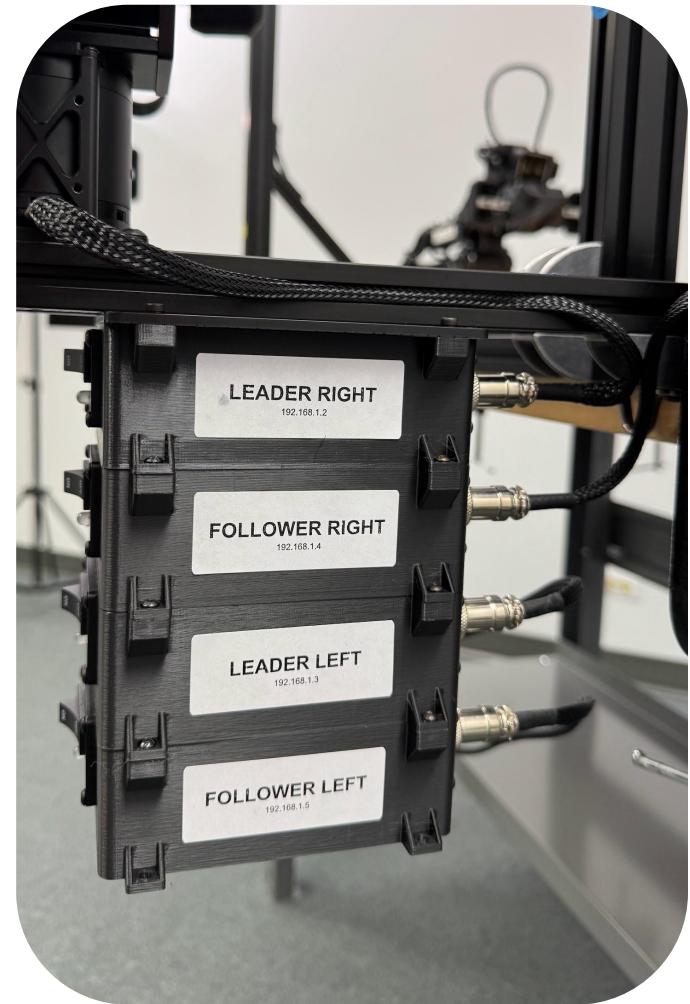
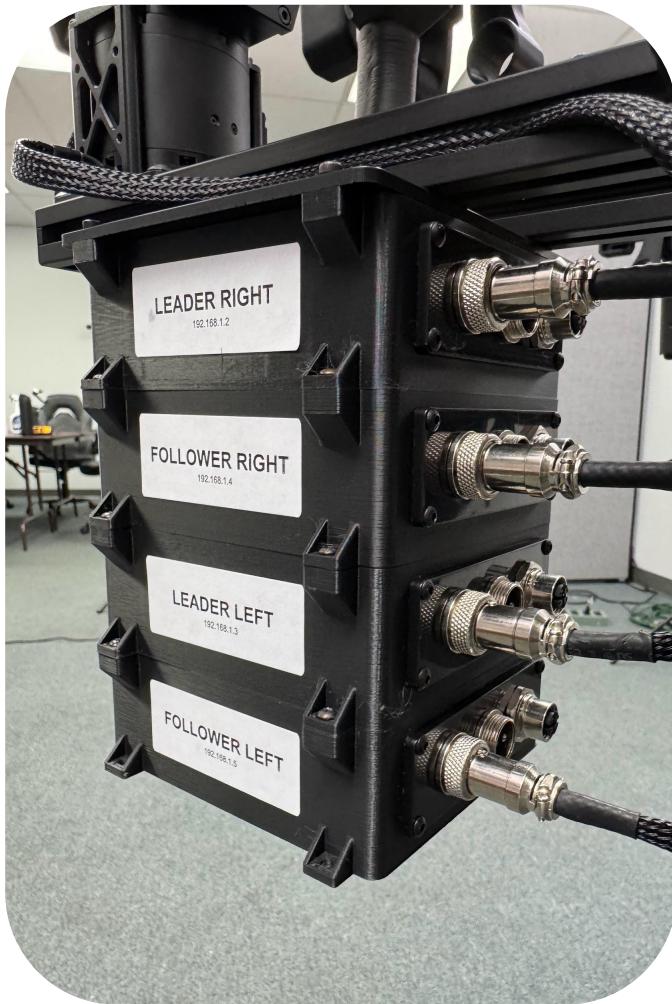


STEP 22

Connect the Aviator 4-Pin Male XT30(2+2) Male Cables to WidowX AI Leader and Follower Arms as designated:

1. 1700mm to Follower Left
2. 1500mm to Leader Left
3. 650mm to Follower Right
4. 300mm to Leader Right

Connect the Aviator 4-Pin Male XT30(2+2) Male Cables to the Left Ports of the Controller Tower (**see below**).



STEP 23

Connect the Worms-Eye, Birds-Eye, and WidowX AI Follower Arm Camera Cables to the 4-Port USB Hub.

Organize all cables.



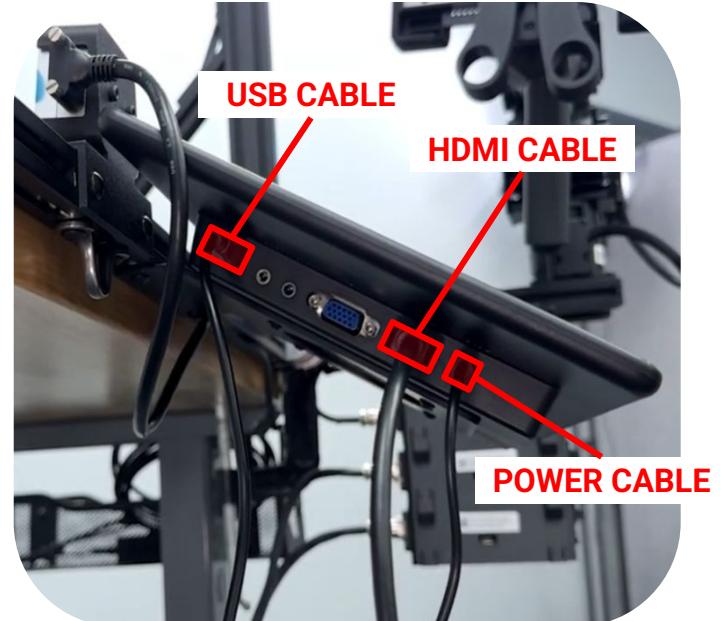
STEP 24

Bolt the Touchscreen to the Touchscreen Mount using (4x) M4x6mm Button Head Bolts.

Plug the Touchscreen Power Cable, HDMI Cable, and USB-B to USB-A Cable into the Touchscreen.

Plug the Touchscreen Power Cable into the 10-Outlet Power Strip.

Mind orientation of the Touchscreen hole mounting pattern, ensuring that the ports face left (see Bottom Left).



STEP 25

Connect the 24V 15A Power Supply output cables to the Middle Ports of the Controller Tower.

Connect the 24V 15A Power Supplies to the 10-Outlet Power Strip.



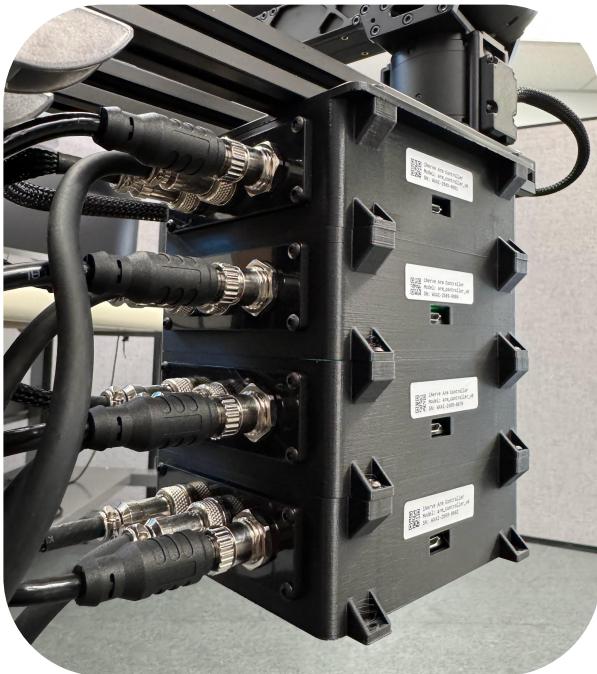
STEP 26

Connect the M12-RJ45 Ethernet Cables to the Right Ports of the Controller Tower.

Connect the M12-RJ45 Ethernet Cables to the 5-Port Ethernet Switch.

Connect the 3m RJ45 Male to Male Cable to the 5-Port Ethernet Switch.

Mind placement of 4-Port USB Hub and 5-Port Ethernet Switch (see Bottom).



STEP 27

This step is **ONLY** necessary **IF** you ordered your Stationary AI Kit with the TOTL Workstation included.

Position the TOTL Workstation to the right of the Stationary AI Kit if possible.

Connect the TOTL Workstation Power Cable into the TOTL Workstation and the 10-Outlet Power Strip.



STEP 28

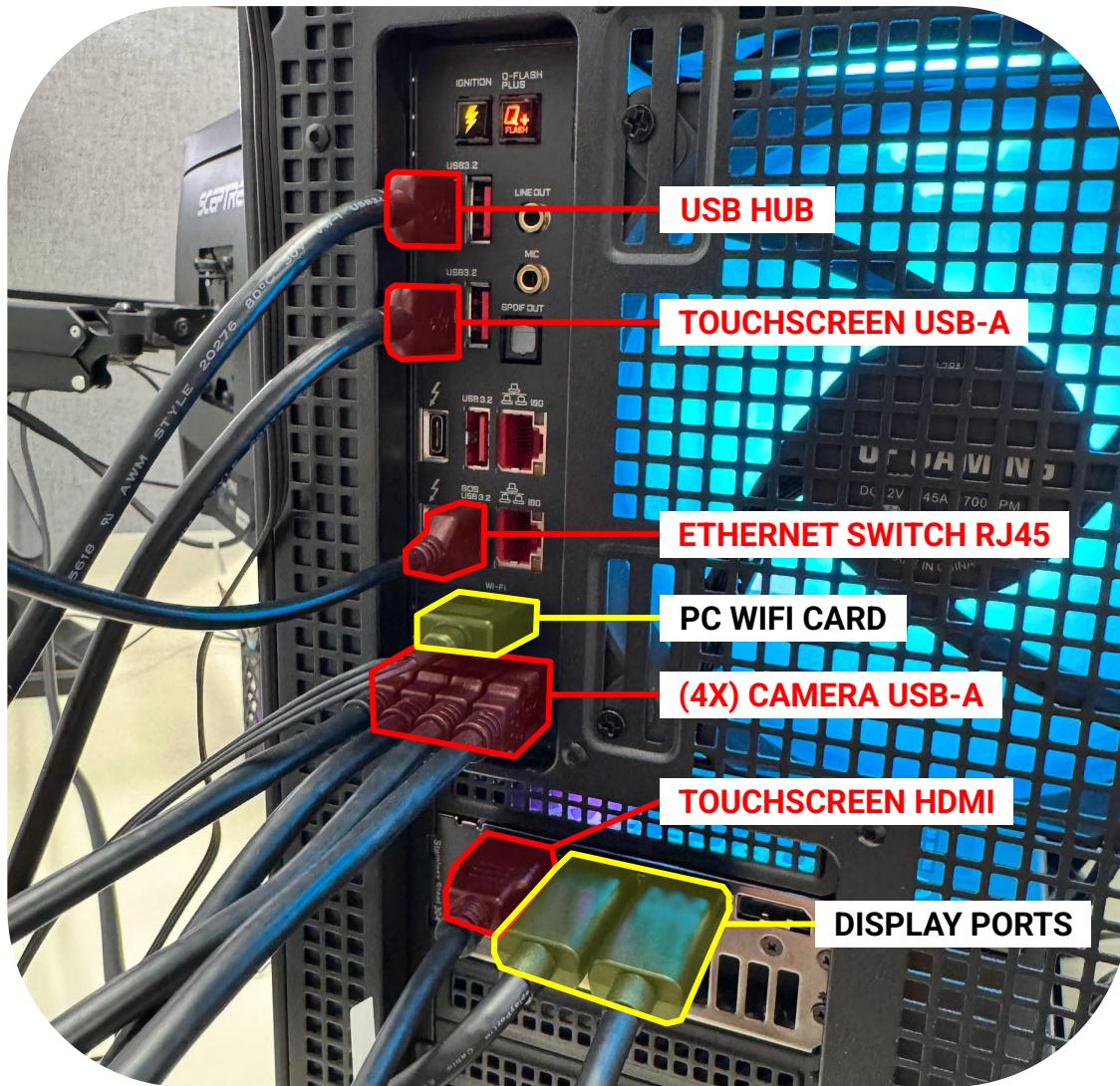
This step is **ONLY** necessary **IF** you ordered your Stationary AI Kit with the TOTL Workstation included.

Plug in the USB-B to USB-A and HDMI Cables from the Touchscreen to the TOTL Workstation.

Plug the USB-B 3.0 to USB-A Cable from the USB Hub into the TOTL Workstation.

Plug the 3m RJ45 Male to Male Cable from the Ethernet Switch into the TOTL Workstation.

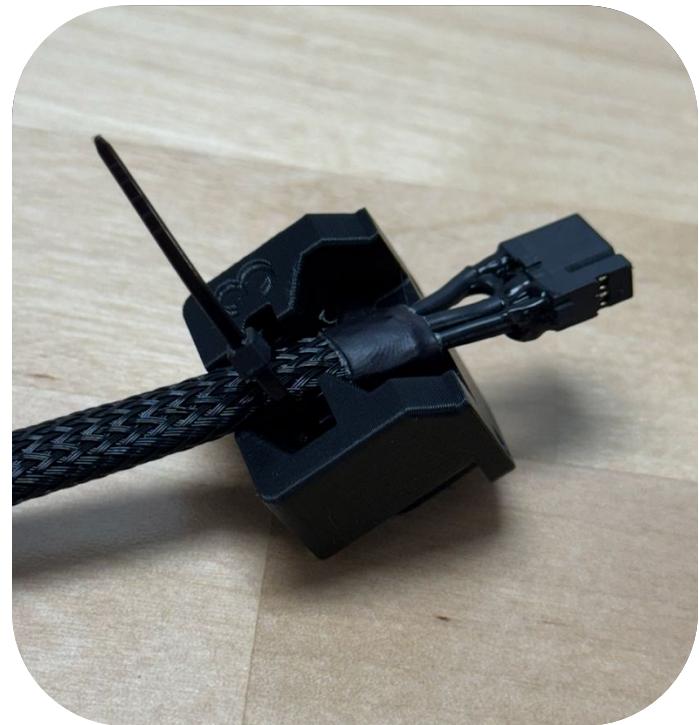
It is highly recommended to connect the Worms-Eye, Birds-Eye, and WidowX AI Follower Arm Cameras directly into the TOTL Workstation.



STEP 29

Secure the (4x) Base Cable Locks onto the Aviator 4-Pin Male XT30(2+2) Male Cables using (4x) Zip Ties.

Mount the (4x) Base Cable Locks onto the WidowX AI Leader and Follower Arms using (8x) M3x6mm Button Head Bolts.



STEP 30

Turn on the Controller Tower Boxes and test the electronics.

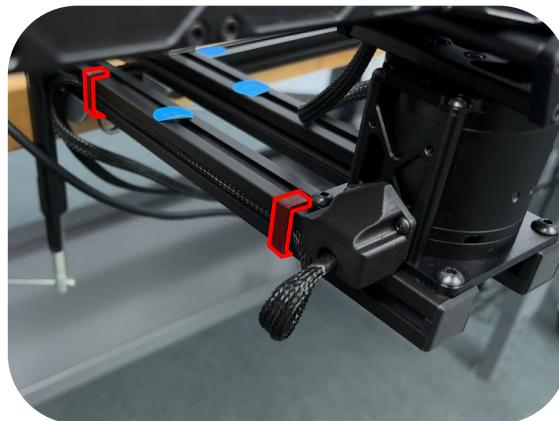
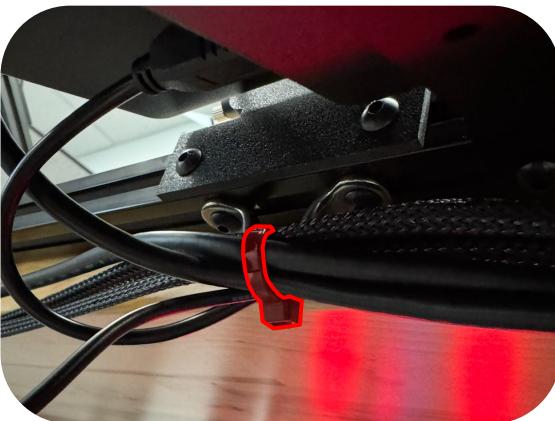
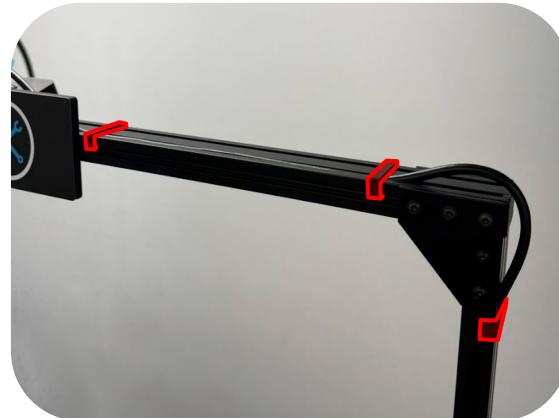
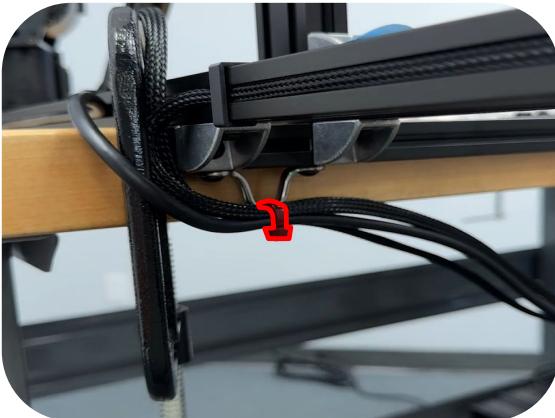
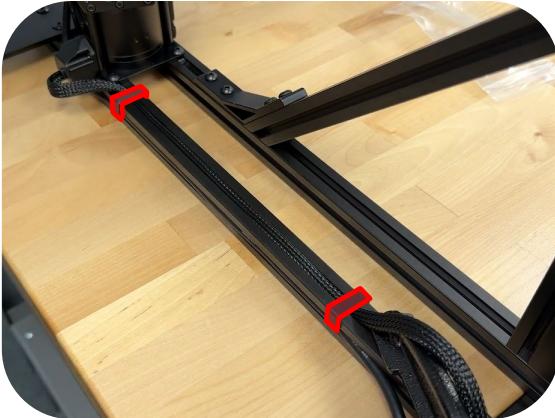
Green Lights on the Controller Tower and WidowX AI Arms signify proper boot up.



STEP 31

Tie up and manage any loose cables using the zip ties, 2020 cable clips, and 2040 cable clips.

Ensure the arm camera cables have enough slack for full range of motion before securing the zip ties.





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