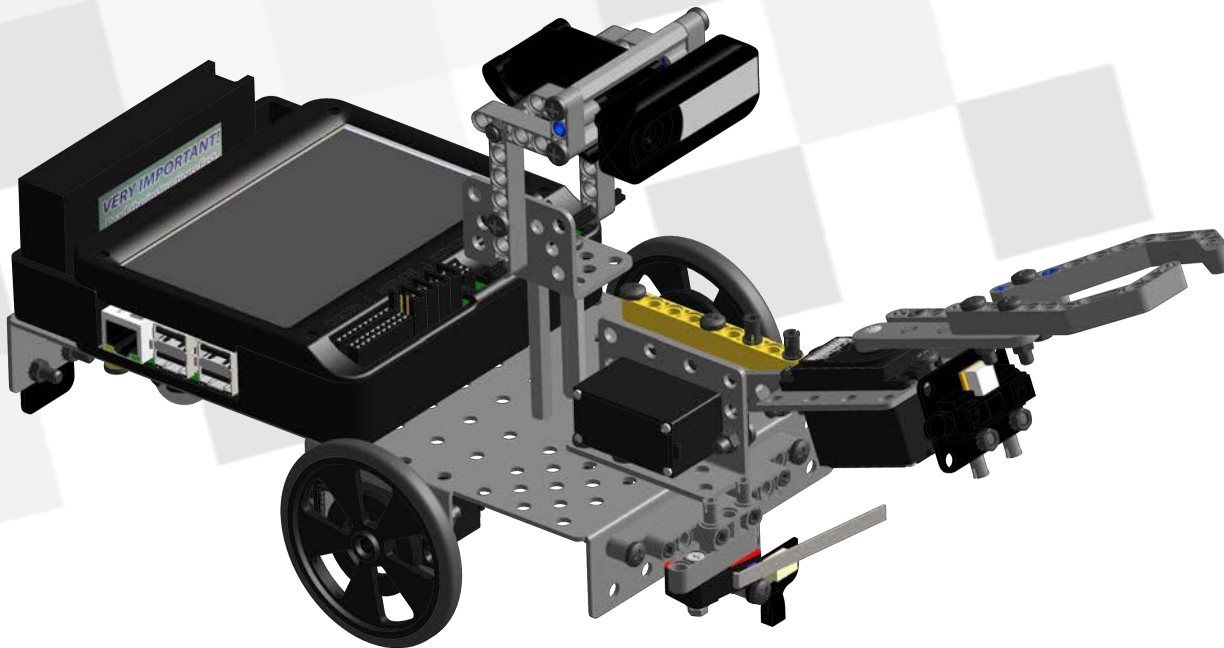
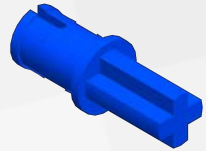


# KIPR Robot Wombat Controller Robot

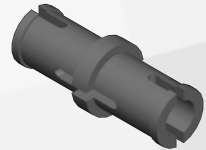
Please go ahead and follow the slides to complete the assembly of your robot



1. Before you start building, it's a good idea to find your battery and battery charger and plug it in to charge while you complete the rest of the build: [Video](#)



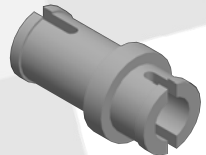
Axle Pin



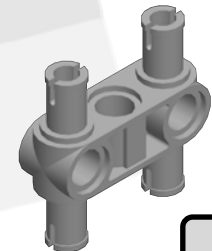
Pin



1.5 Pin



$\frac{3}{4}$  Pin



H Pin

[Parts Video](#)



0.5"  
Standoff



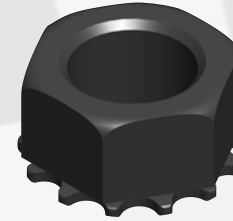
1"  
Standoff



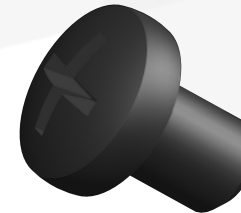
2"  
Standoff



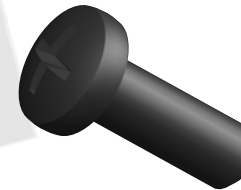
3"  
Standoff



Nut



0.25" Bolt  
(Short)

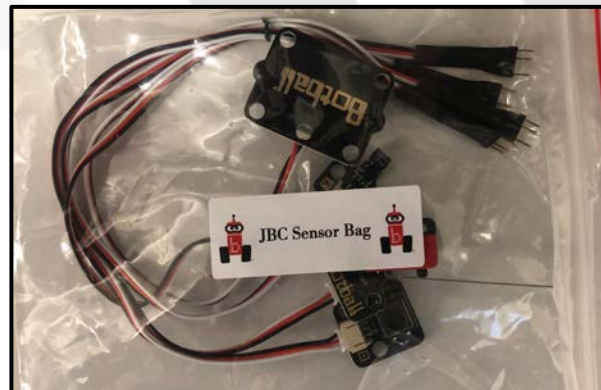


0.5" Bolt  
(Medium)

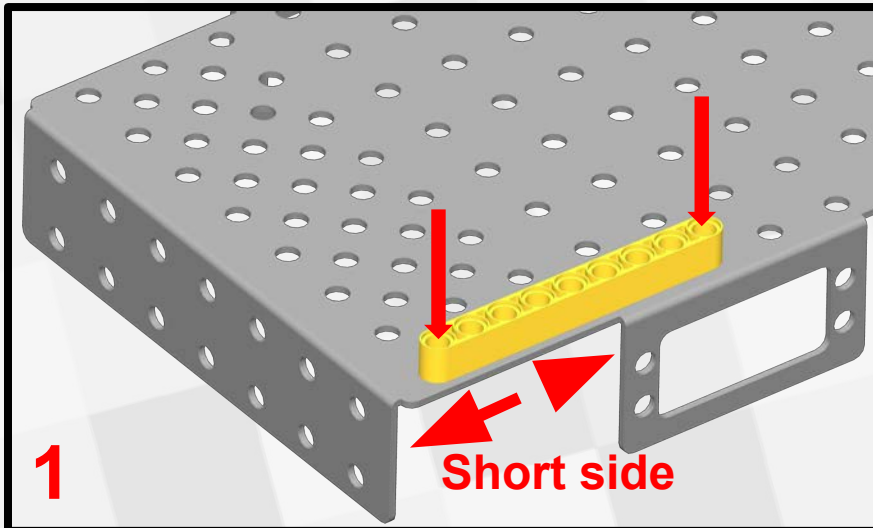


0.75" Bolt  
(Long)

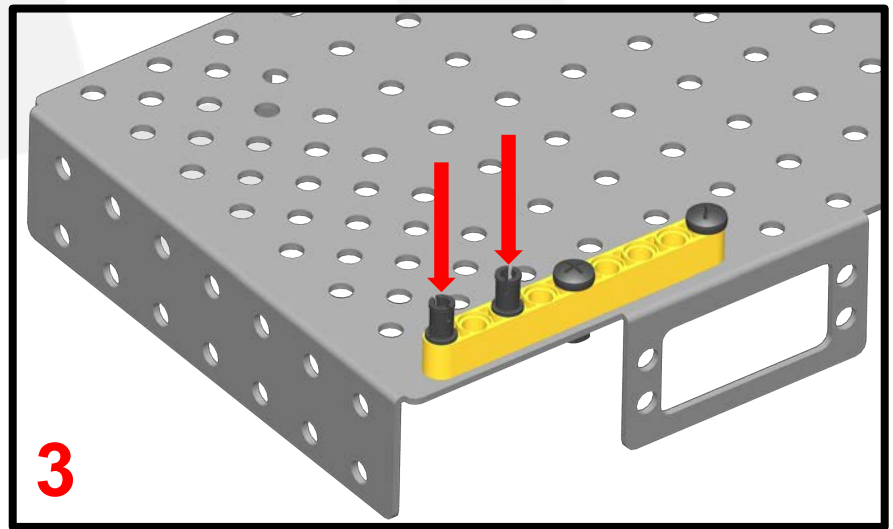
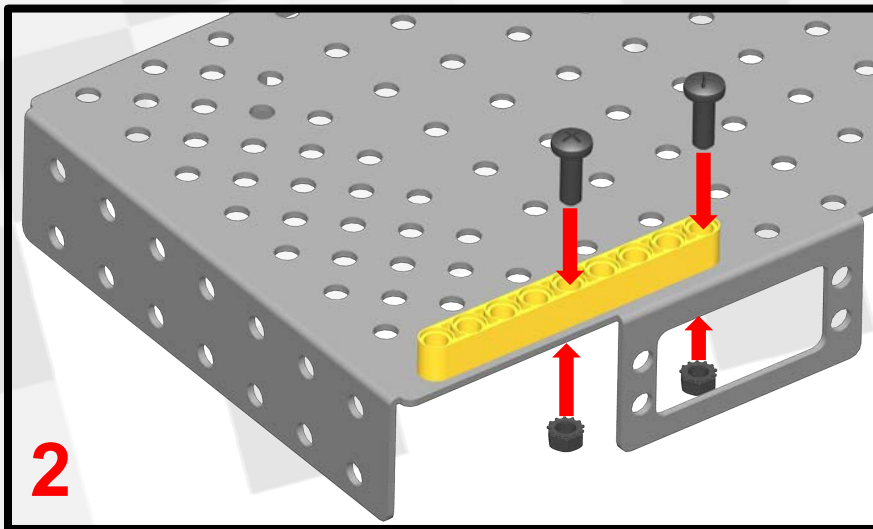
# Select kit parts are in labeled bags



## Video

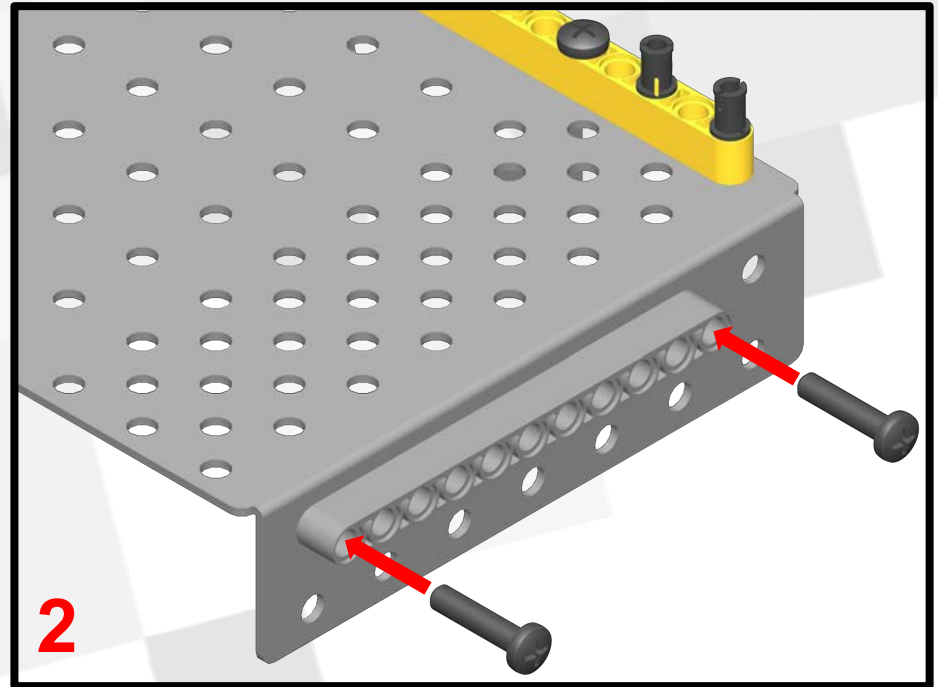
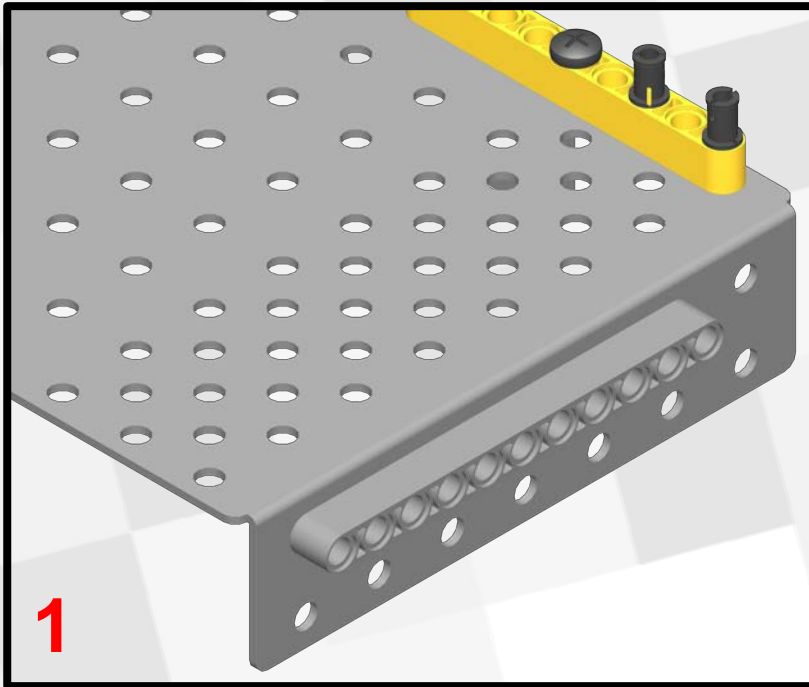


1. Line up a 1x9 Lego Liftarm (LEGO Bag) on the short end of the chassis as shown.
2. Attach the piece to the chassis with two medium bolts (Screw bag A) and two nuts (Screw Bag C). Add two black Lego pins (LEGO Bag) to the end of the 1x9 Liftarm as shown.



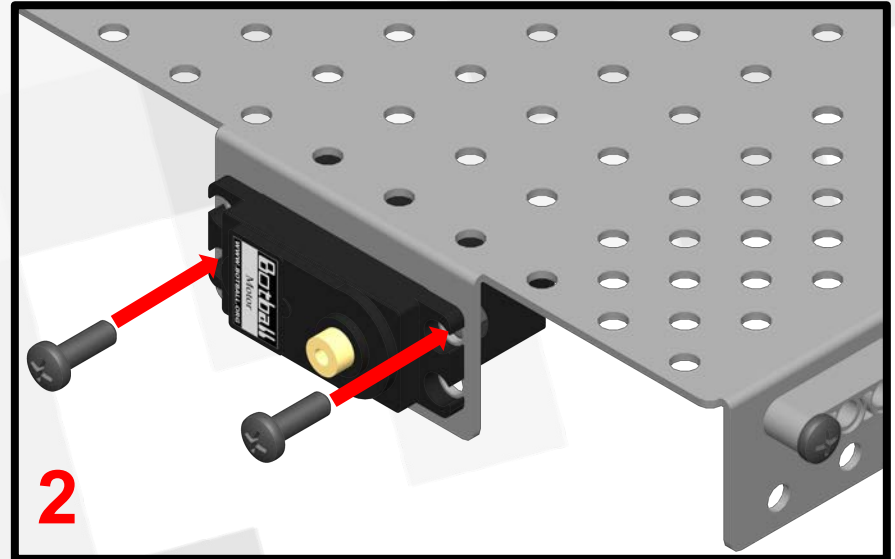
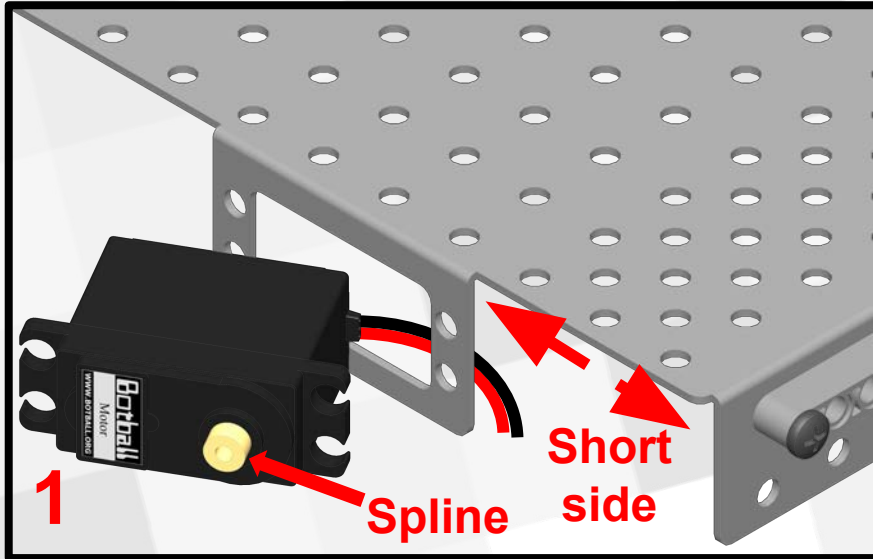
COLOR OF LEGO MAY VARY FROM PICTURES  
Chassis found in Botball Metal Pieces Box

## Video



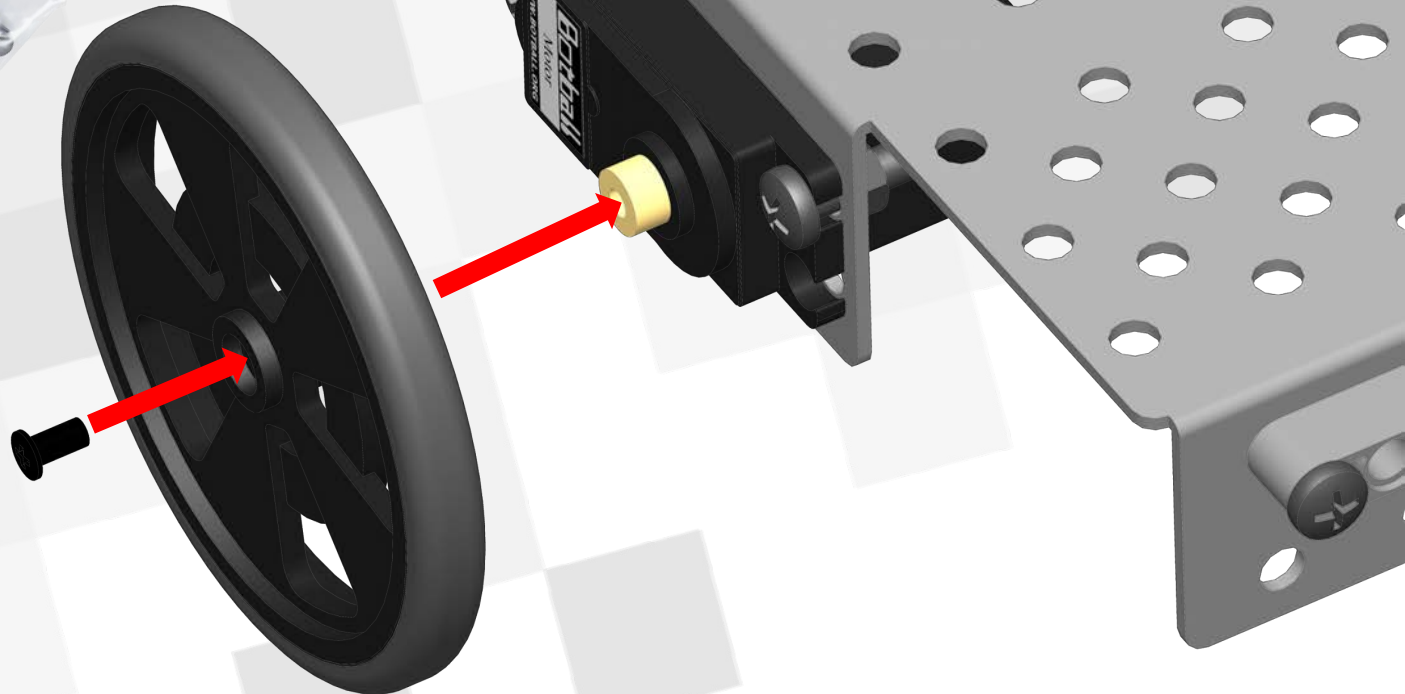
1. Line up a 1x11 Lego Liftarm (LEGO Bag) on the short end of the chassis as shown.
2. Attach the piece to the chassis with two long bolts (Screw Bag B) and two nuts (Screw Bag C).

## Video



1. Line up a motor (Motor Bag) with the wire end going in first and the spline of the motor on the same side as the short end of the chassis.
2. Attach the motor to the chassis with two medium bolts (Screw Bag A) and two nuts (Screw Bag C).

[Video](#)



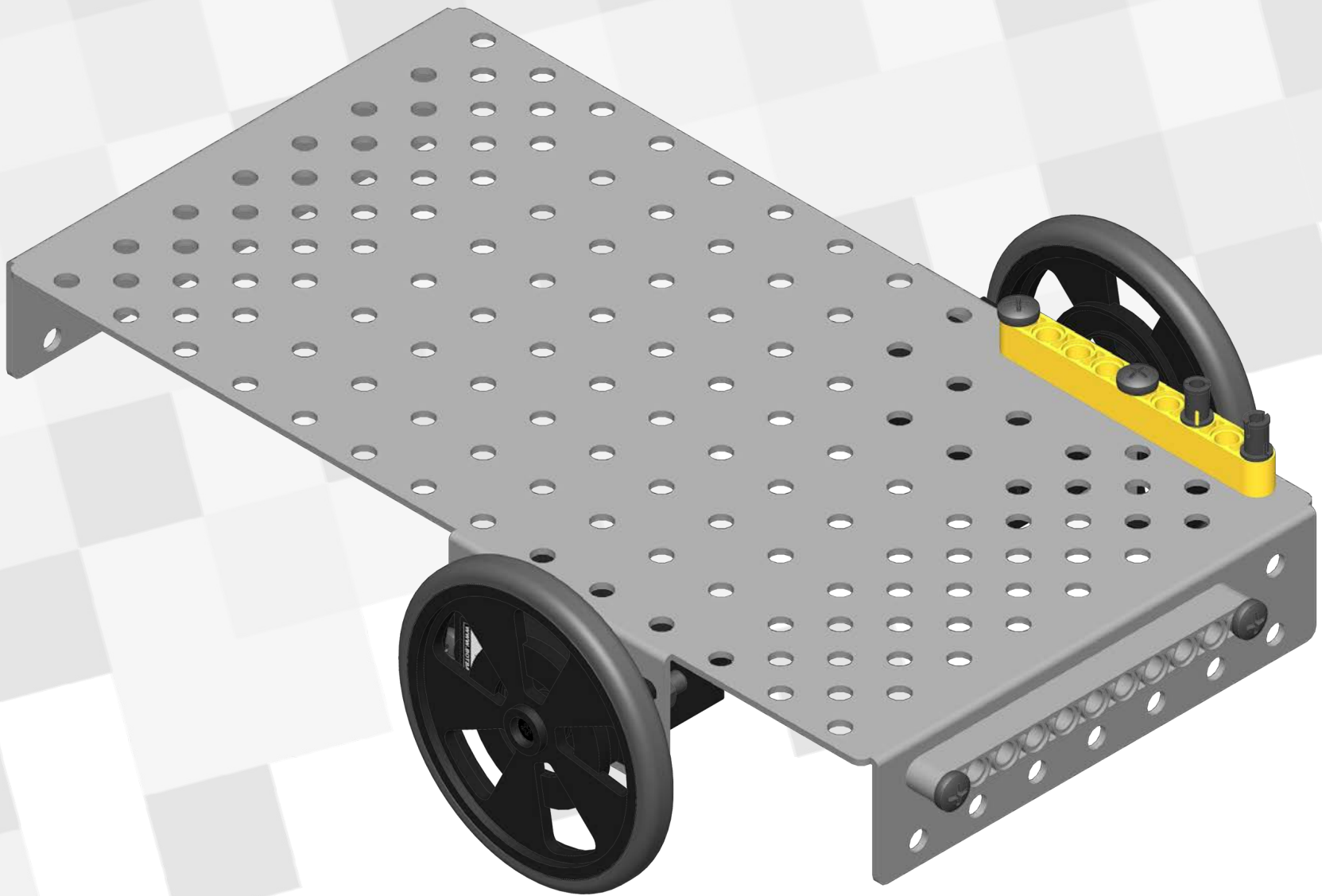
The small black bolt can be found in the small bags with black pieces that came with the motor. (Motor Bag)

1. With a screwdriver, slightly enlarge the hole in the wheel where the small black bolt will be inserted.
2. Attach the wheel to the spline of the motor with the small black bolt.
3. Repeat this and previous slide on other side of chassis.

Wheel found in Electronics Bag

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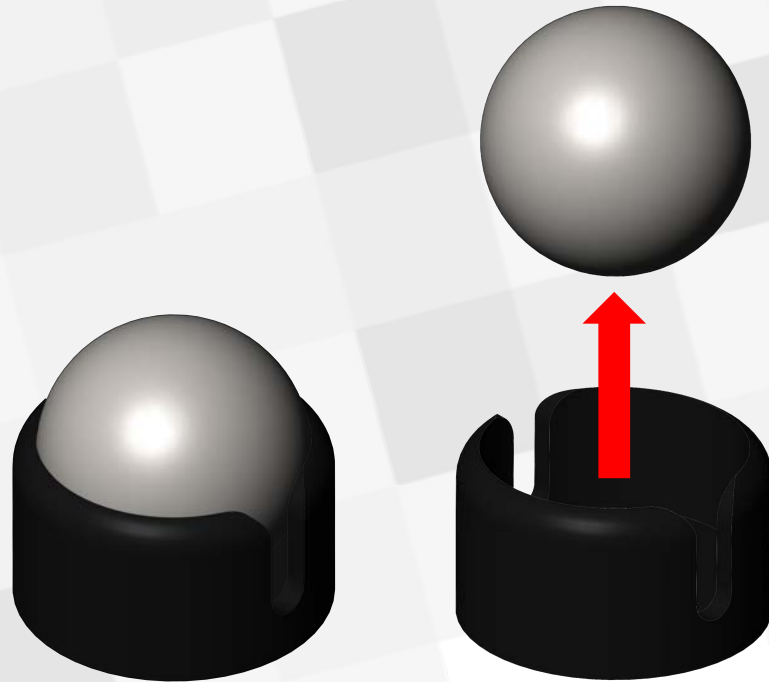


Your chassis should look like this now.

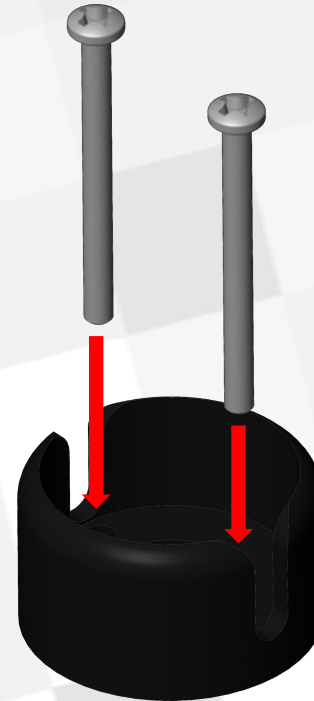


# Start

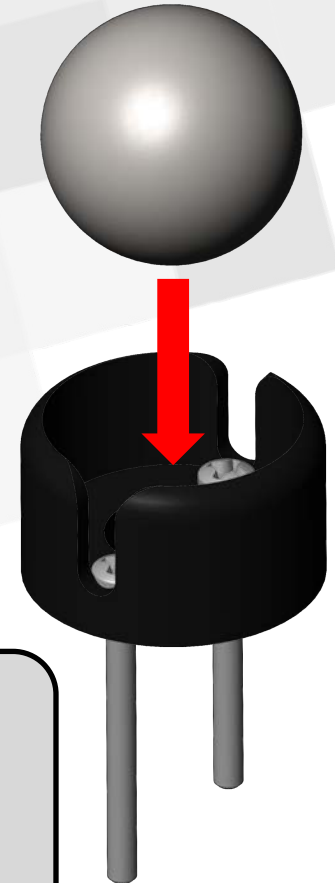
# 1



# 2



# 3

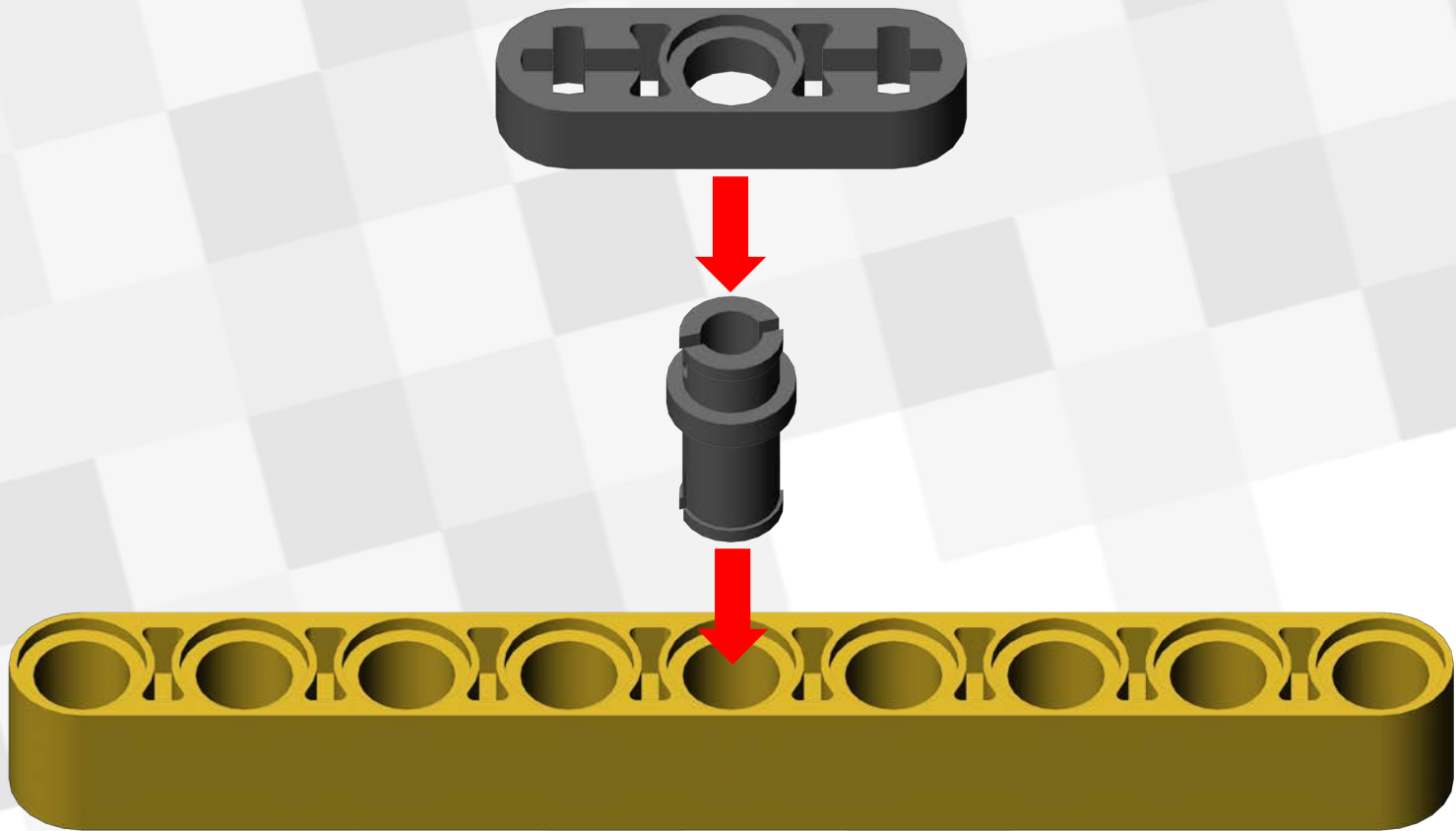


1. Remove the ball from the holder with a screwdriver.
2. Insert the two long bolts that came in the bag into the two small holes on the inside of the holder.
3. Replace the ball in the holder. This helps keep the bolts in while you are putting things together.

[Video](#)

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Caster found in Electronics Bag

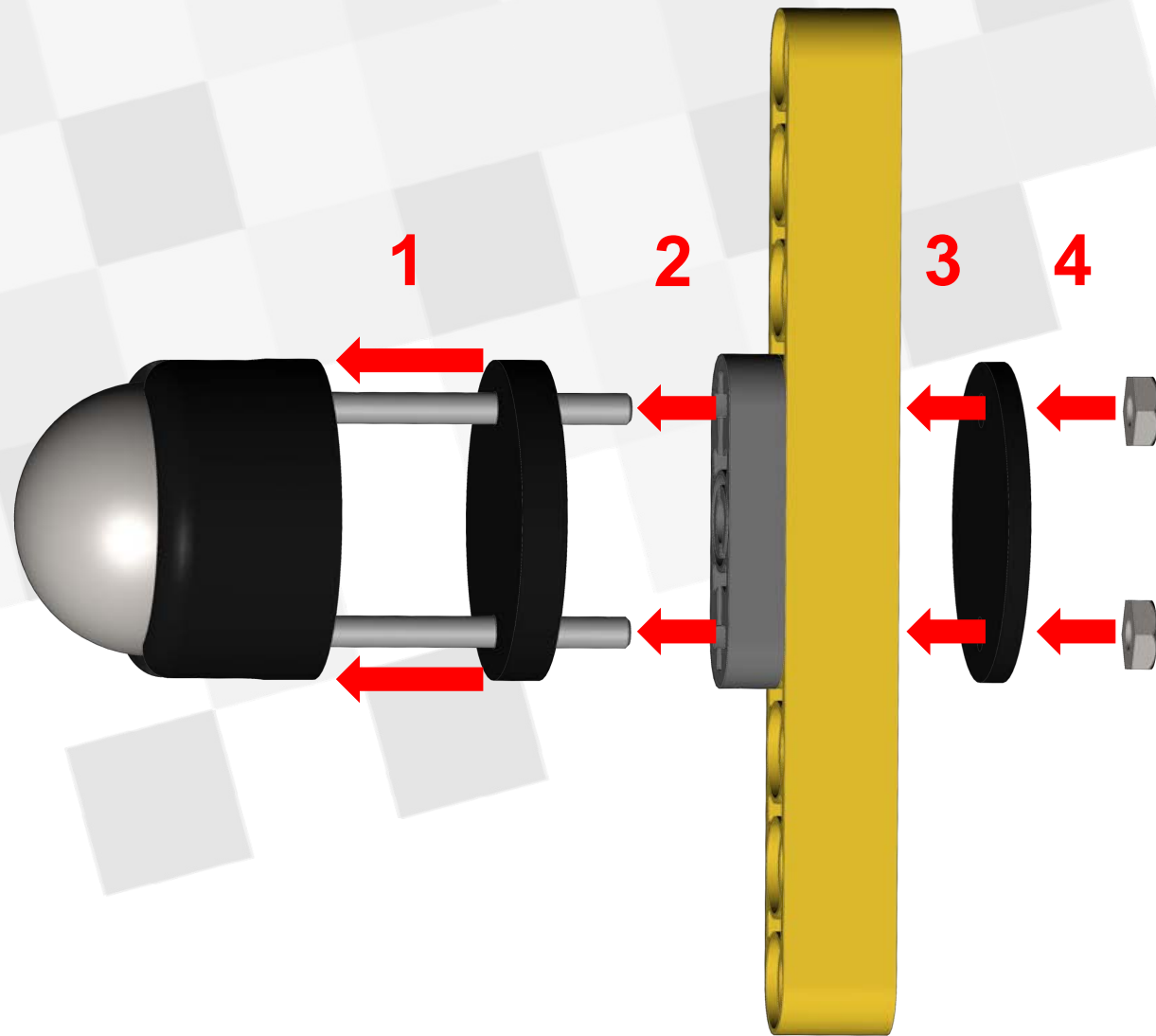


1. Take a 1x9 Liftarm, a  $\frac{3}{4}$  Pin and a Thin 1x3 Liftarm (LEGO Bag)
2. Attach the Thin 1x3 Liftarm to the 1x9 Liftarm using the  $\frac{3}{4}$  Pin as shown above.

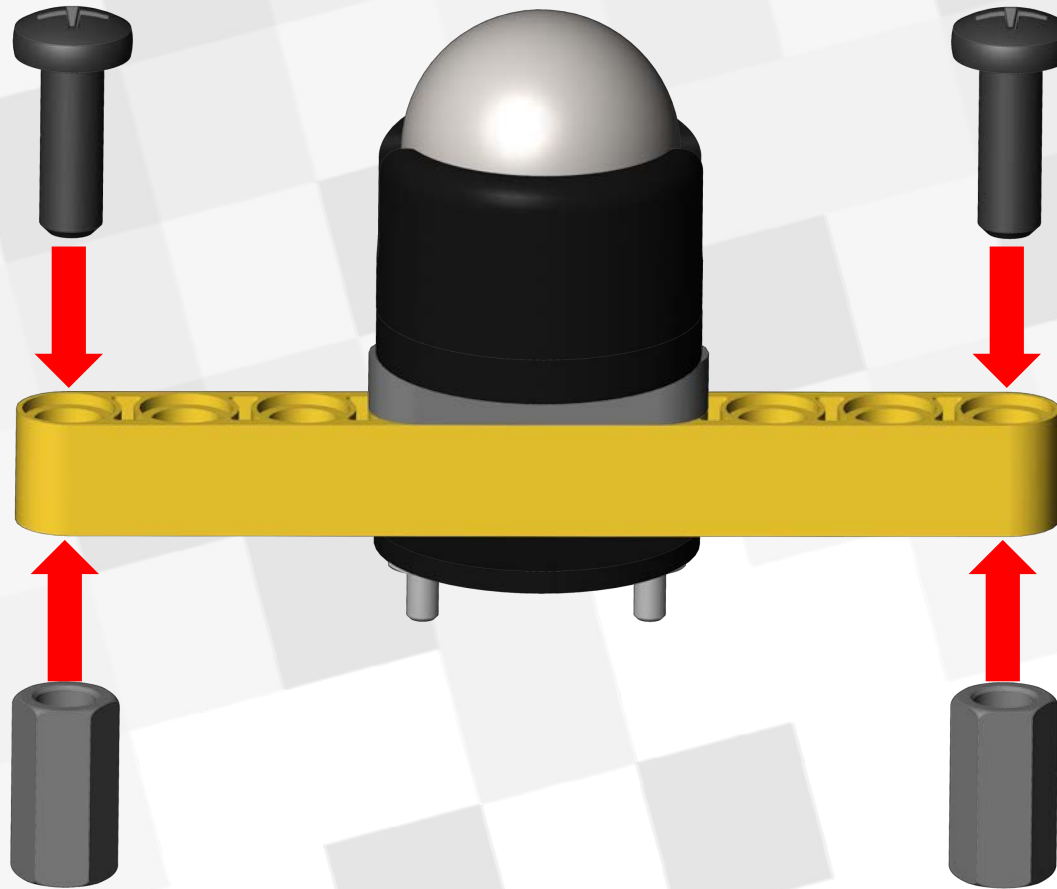
LEGO found in LEGO Bag

Get the small nuts and Thick and Thin Spacers out from the Caster bag.

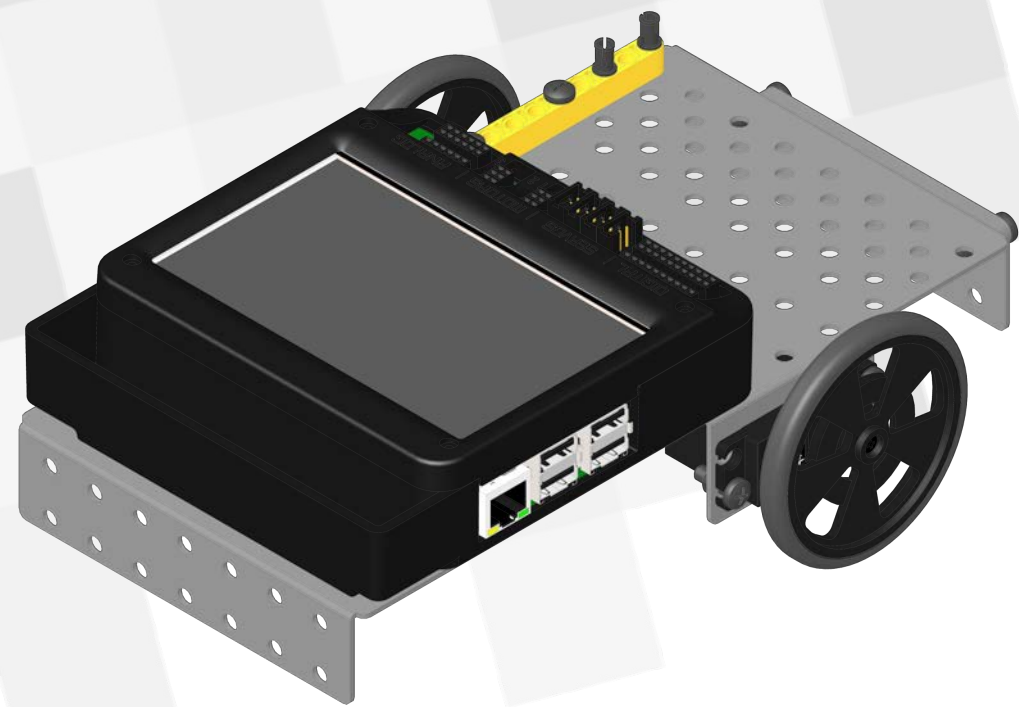
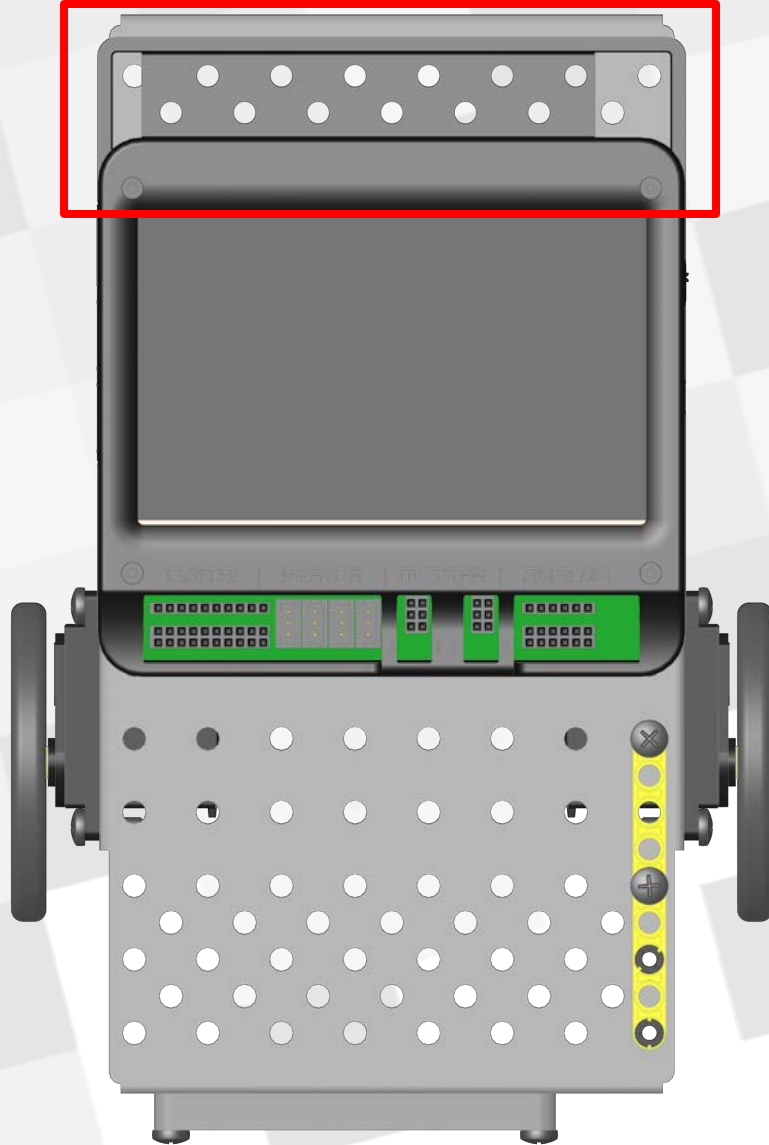
1. Slide the Thick Spacer onto the Caster Bolts.
2. Slide the screws through the holes in the Lego.
3. Slide the Thin Spacer onto the bolts.
4. Secure all these pieces with the two small nuts.



Spare screw and small nut found in (Screw Bag F)

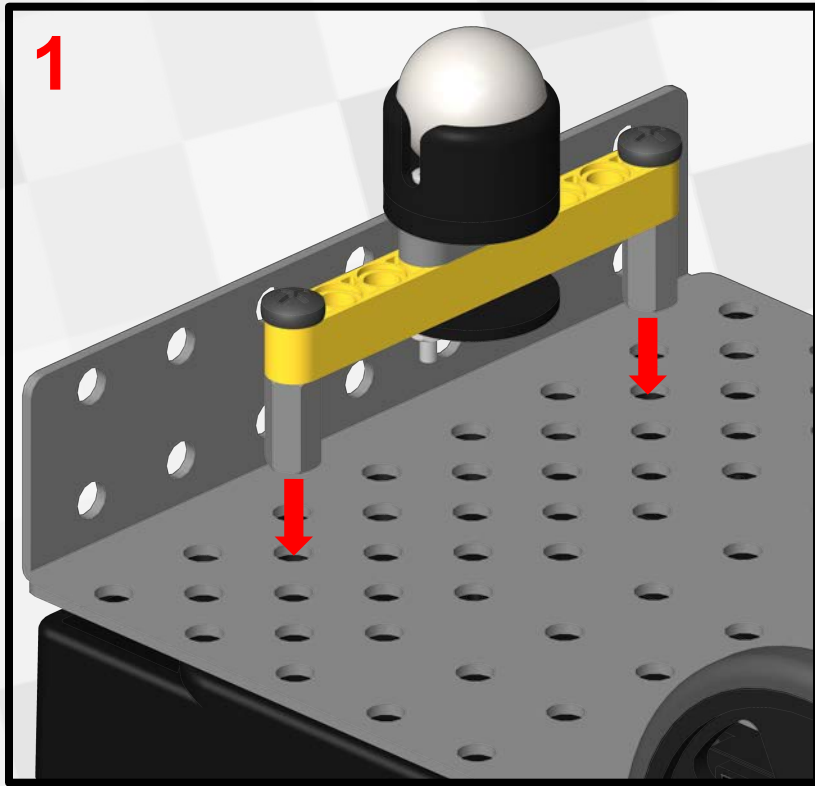


Attach two 1/2" Standoffs (Screw Bag D) to the ends of the Lego piece as shown and attach with two medium bolts (Screw Bag A).



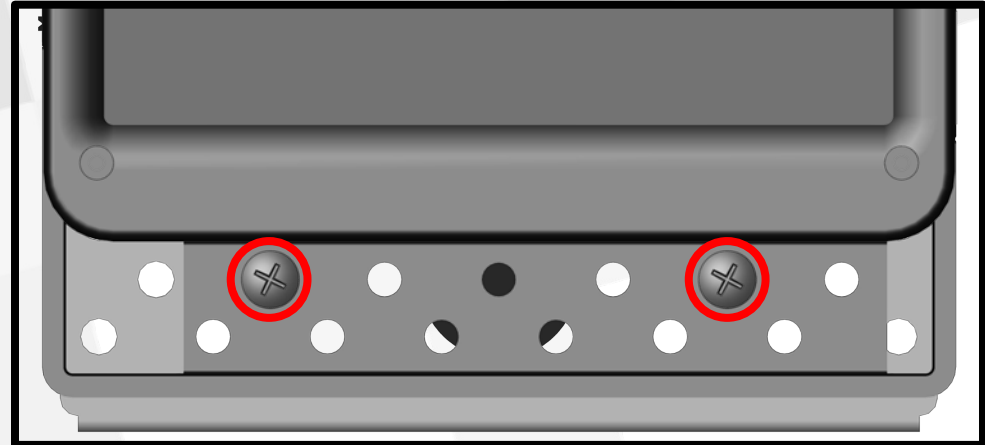
Line up the holes on the back of the Wombat with the holes on the back end of the chassis.

[Video](#)



2 - 3

[Video](#)



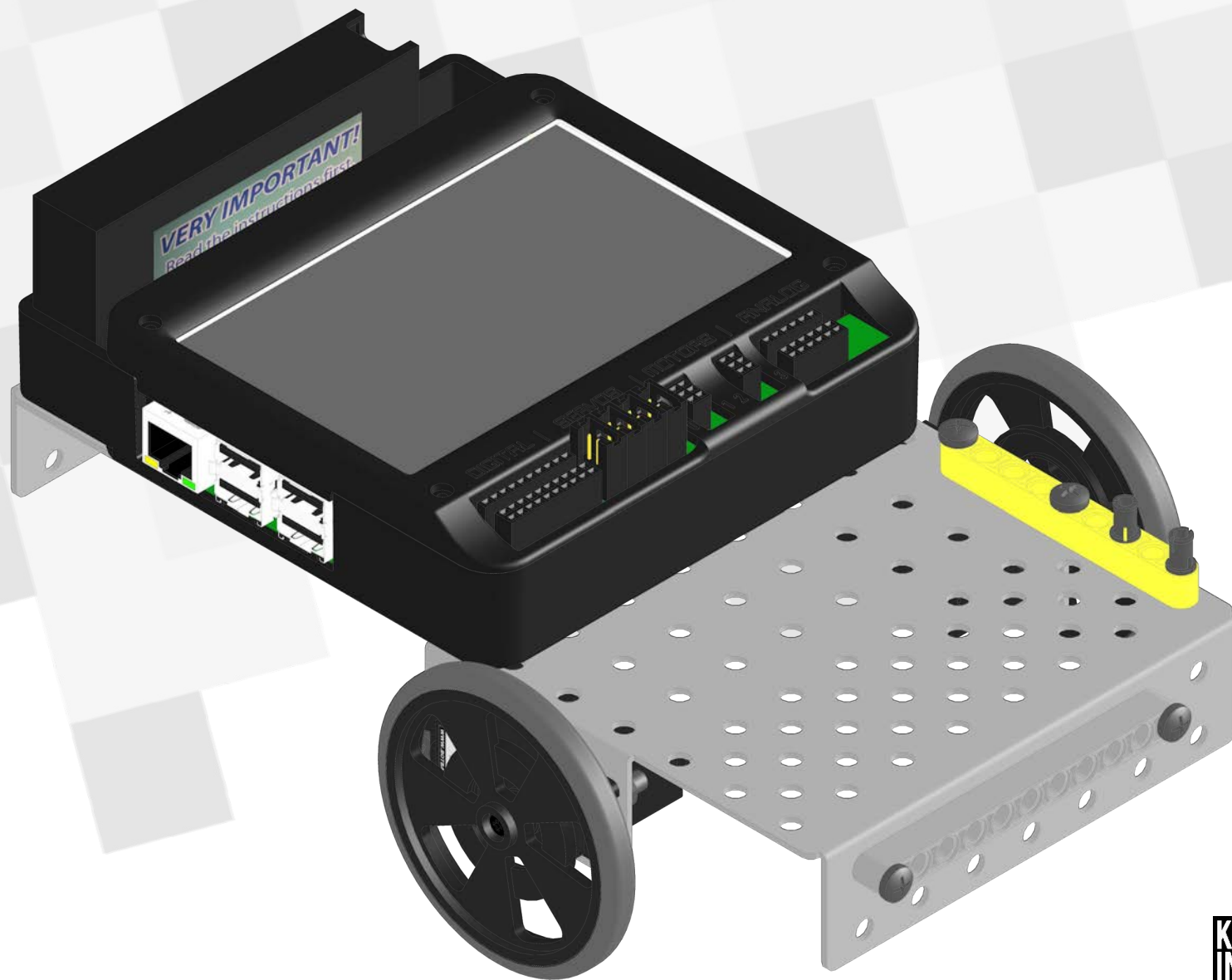
1. Line up the Caster Assembly with the holes on the back of the robot as shown.
2. Do this with the robot right side up, balanced on the Caster assembly.
3. Using two small bolts (Screw Bag D) attach this to the Chassis.

[Video](#)

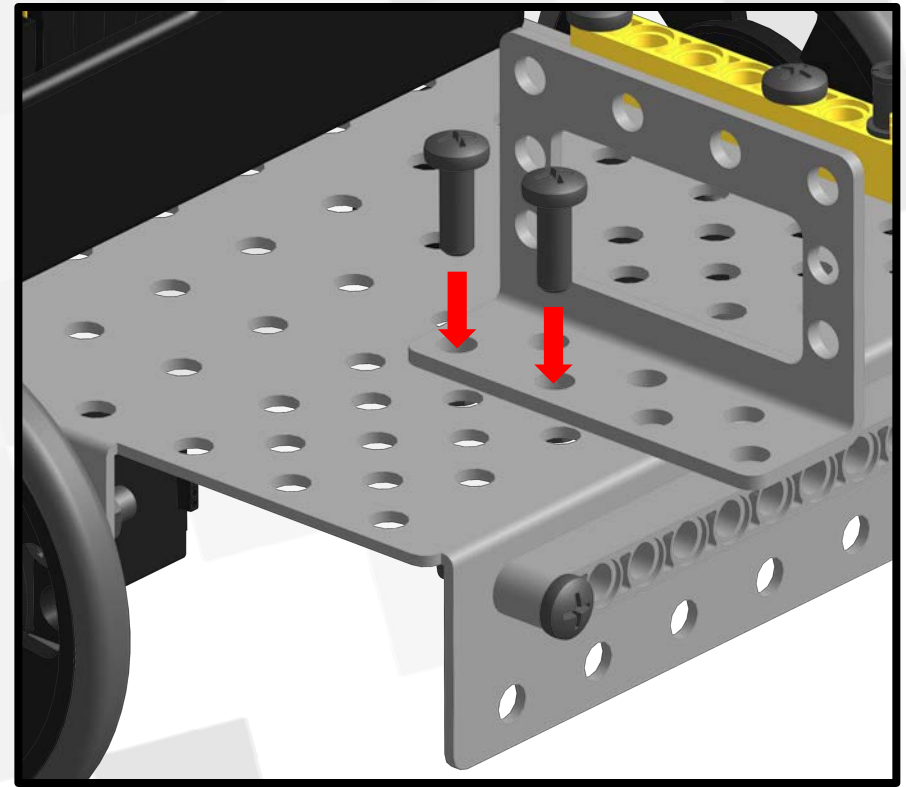
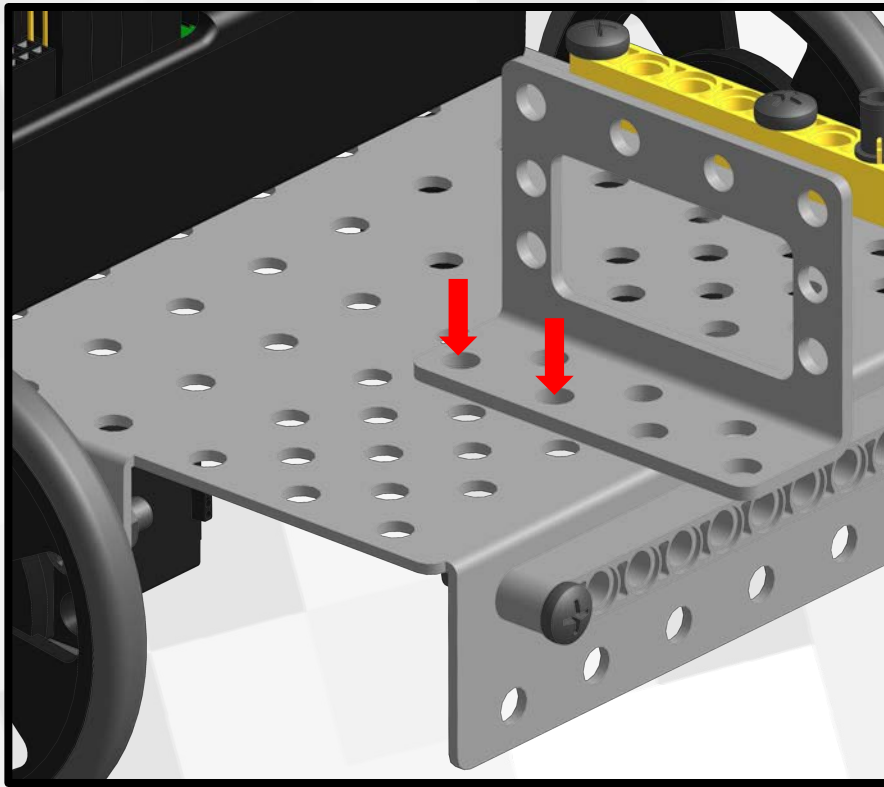


Slide the battery into the back slot of the Wombat case.

# Basic Demobot Finished!

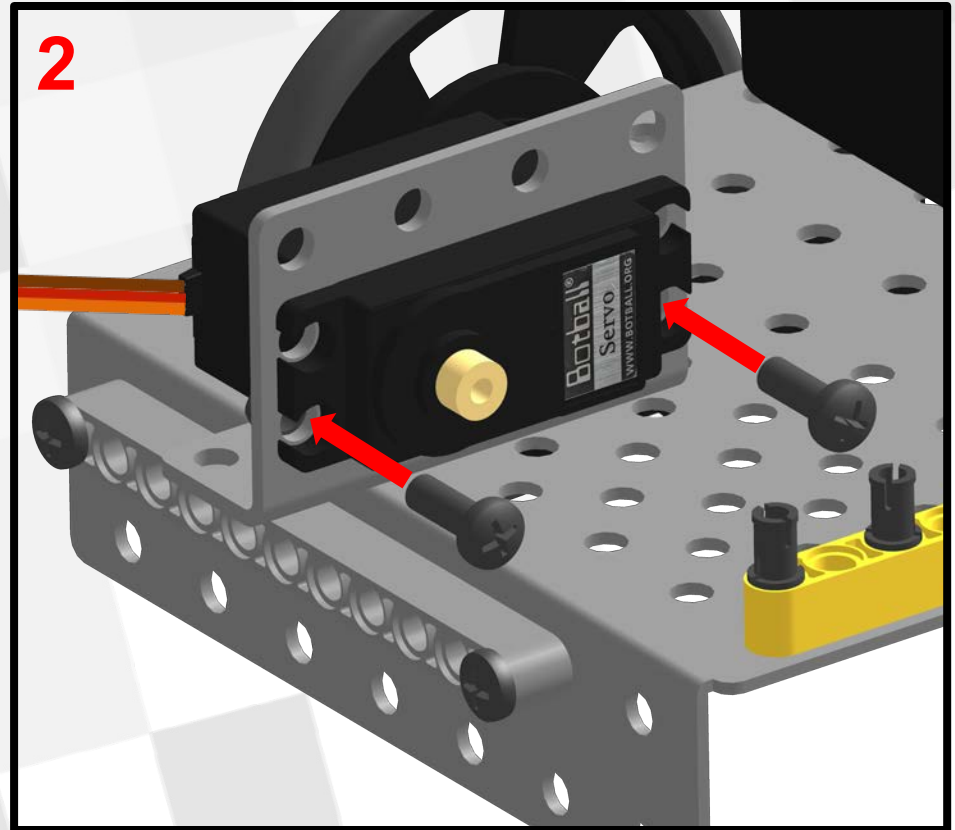
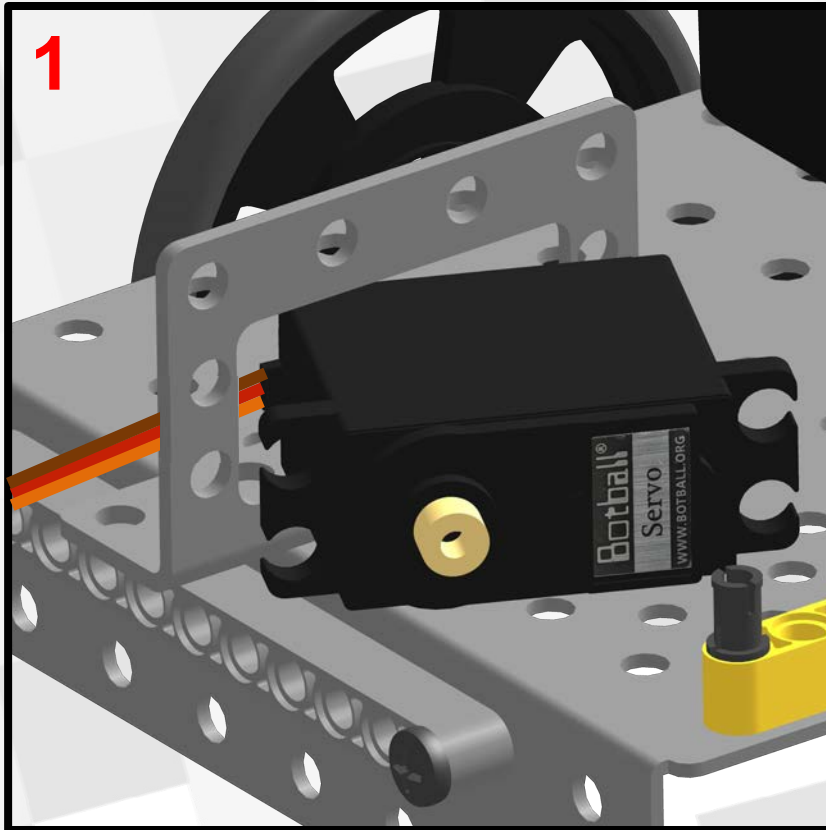




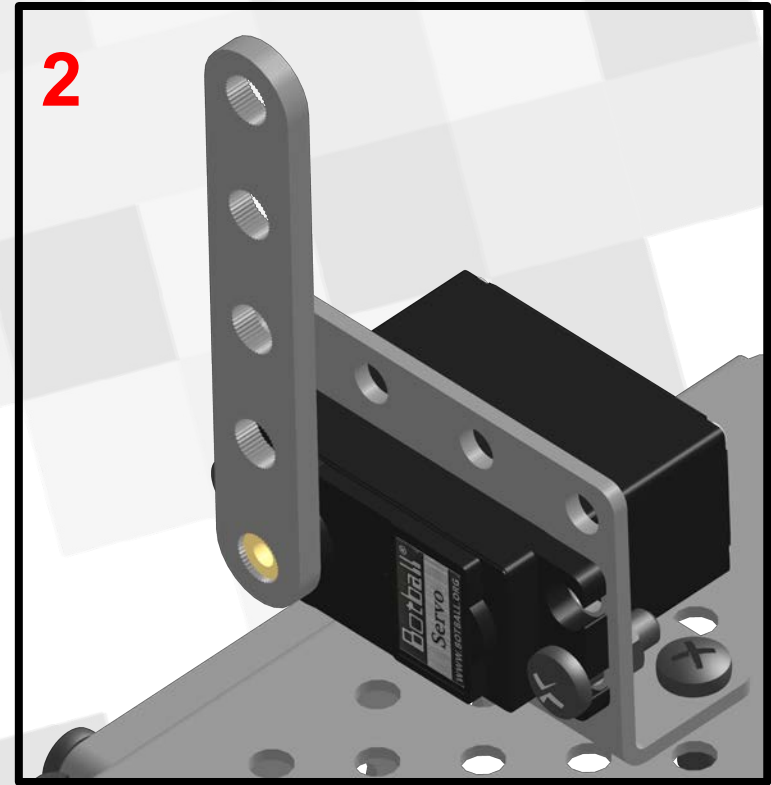
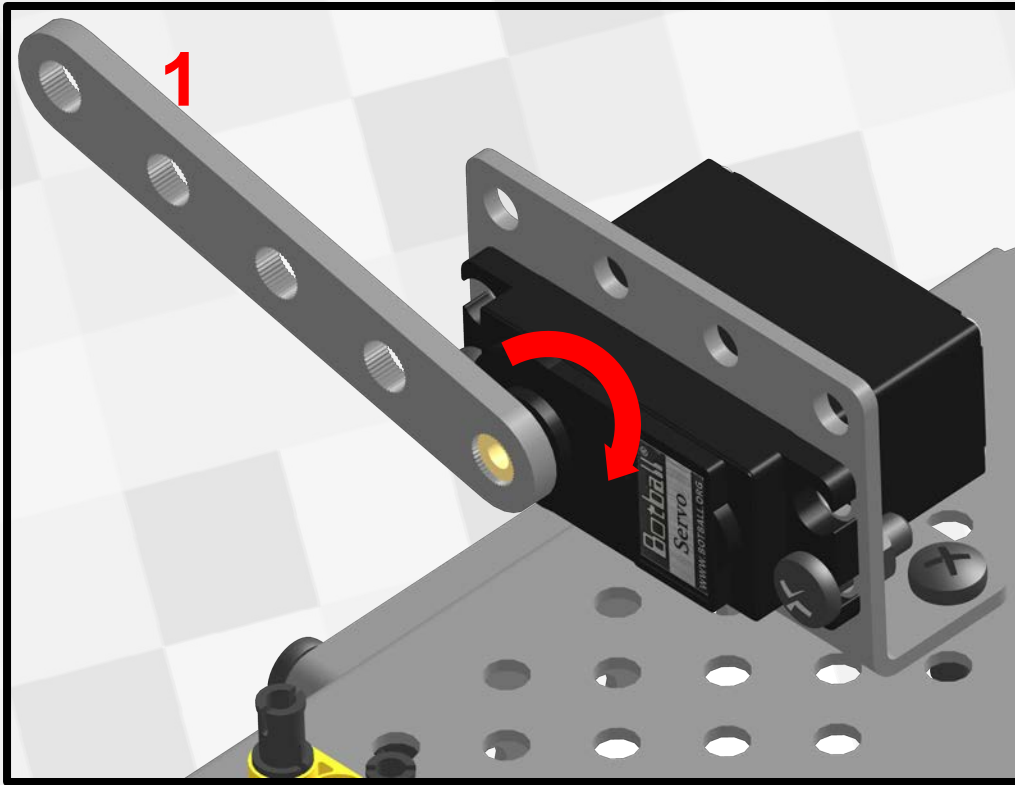


Line up a servo bracket as shown above then secure it to the Chassis with two medium bolts (Screw Bag A) and two nuts Screw Bag C).

[Video](#)



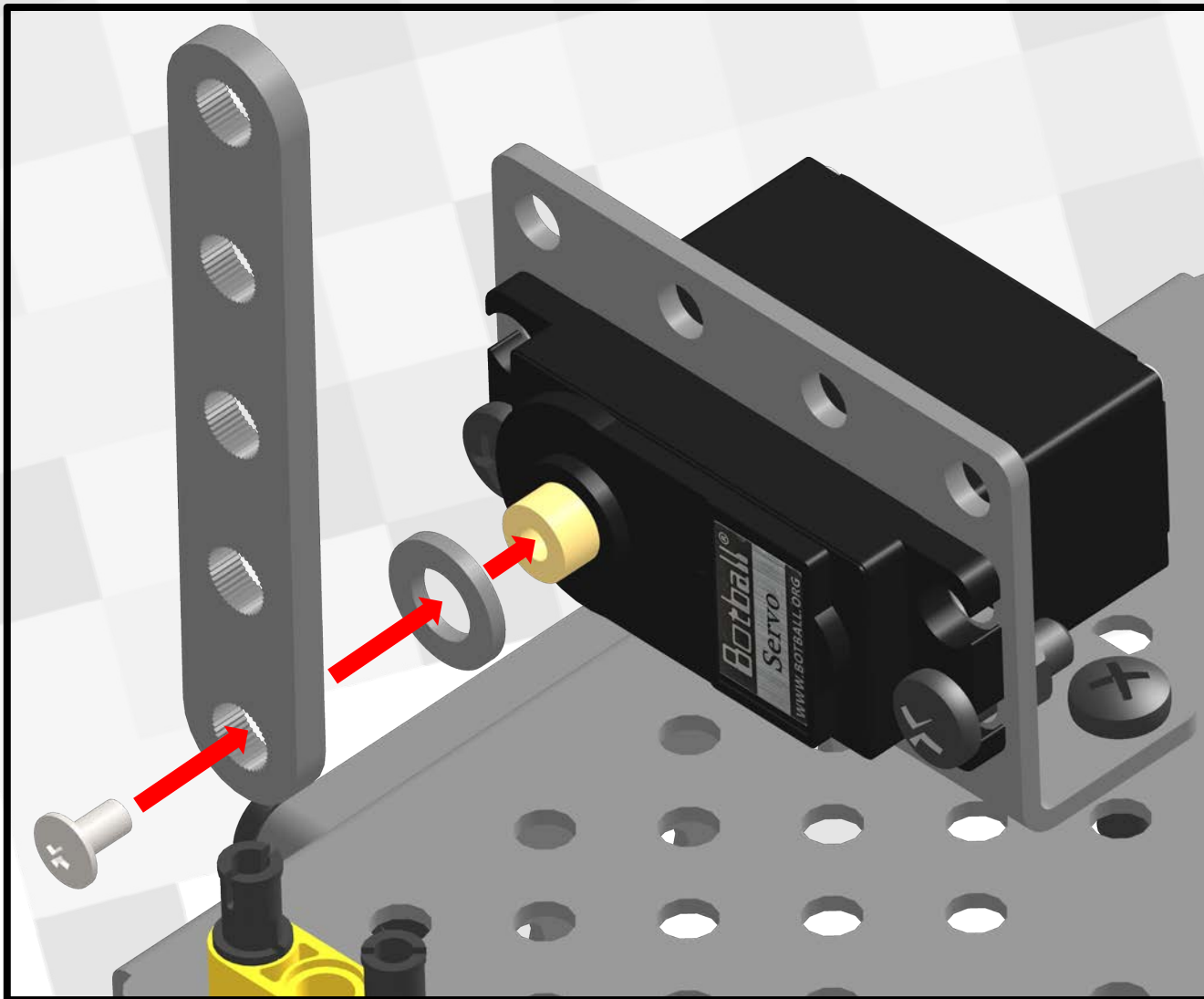
1. Slide a servo into the Servo Bracket, **wire end first**, with the spline towards the front of the robot.
2. Secure it to the Servo Bracket with two medium bolts (Screw Bag A) and two nuts (Screw Bag C).



1. Place the 1x5 Servo Horn (5-Hole Servo Horn Bag) on the robot as shown.
2. Rotate the servo head with the 1x5 Servo Horn all the way towards the robot.
3. Repeat these steps until the servo can no longer turn.

[Video](#)

[Video](#)



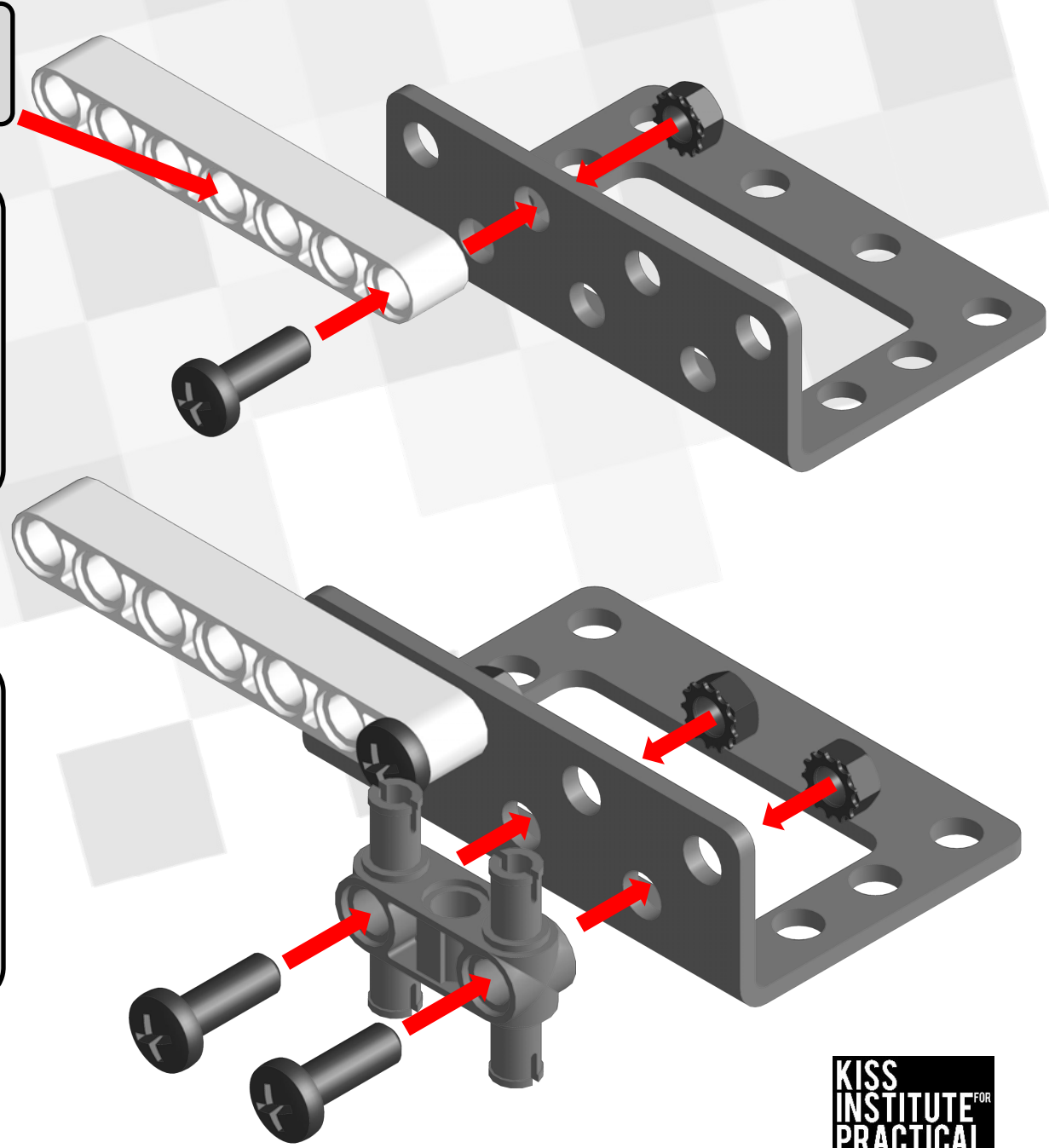
In the upright position Attach the 1x5 Servo Horn with a washer under it to the Servo with the small silver bolt that came in the bag with it (5-Hole Servo Horn Bag).

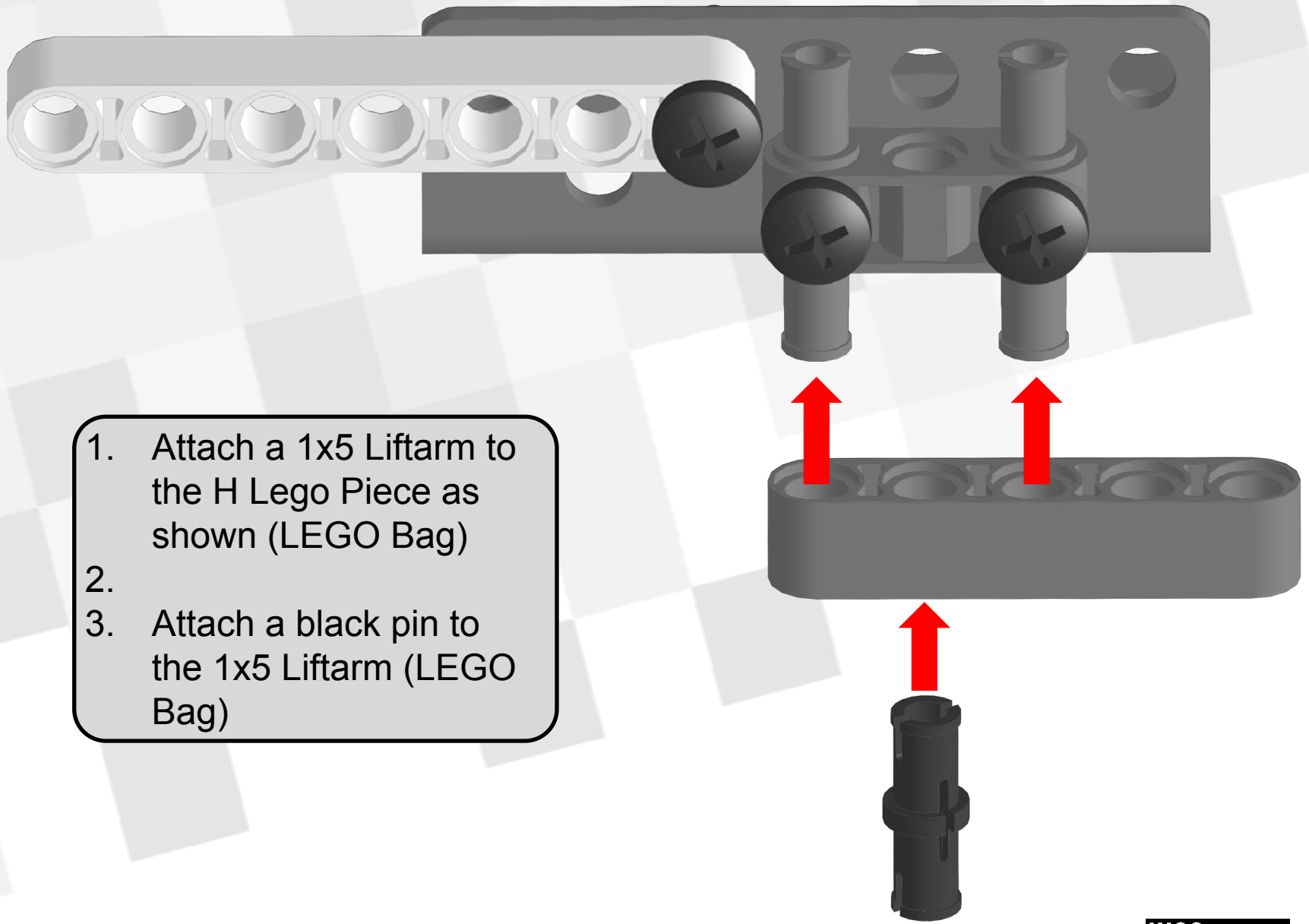
The other hole will be secured in a bit.

1. Attach the 1x7 Liftarm (LEGO Claw Bag) to a Servo Bracket as shown using a medium bolt (Screw Bag A) and a nut (Screw Bag C).

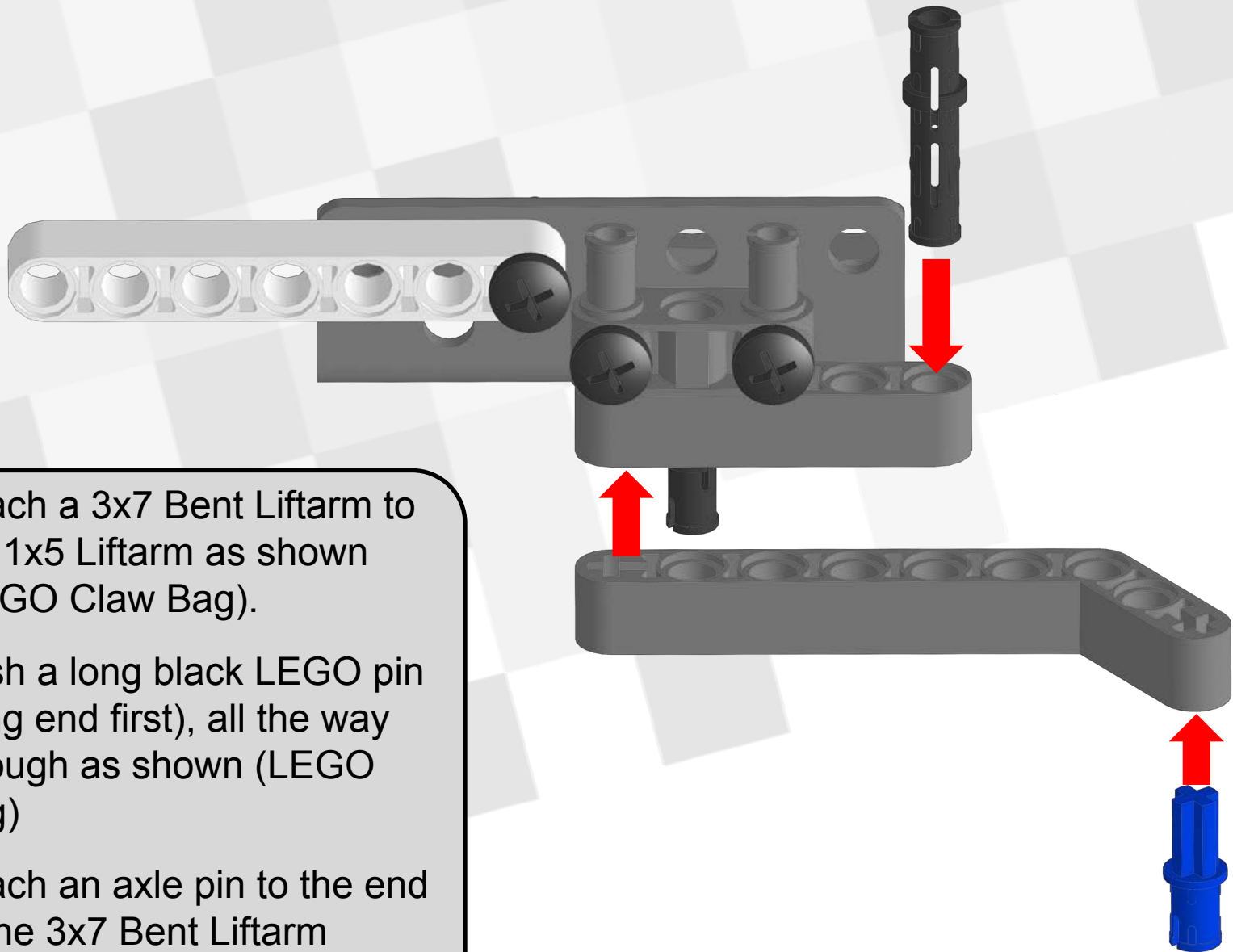
2. Attach an H Lego piece (LEGO Claw Bag) to the bracket as shown using two medium bolts (Screw Bag A) and two nuts (Screw Bag C).

[Video](#)

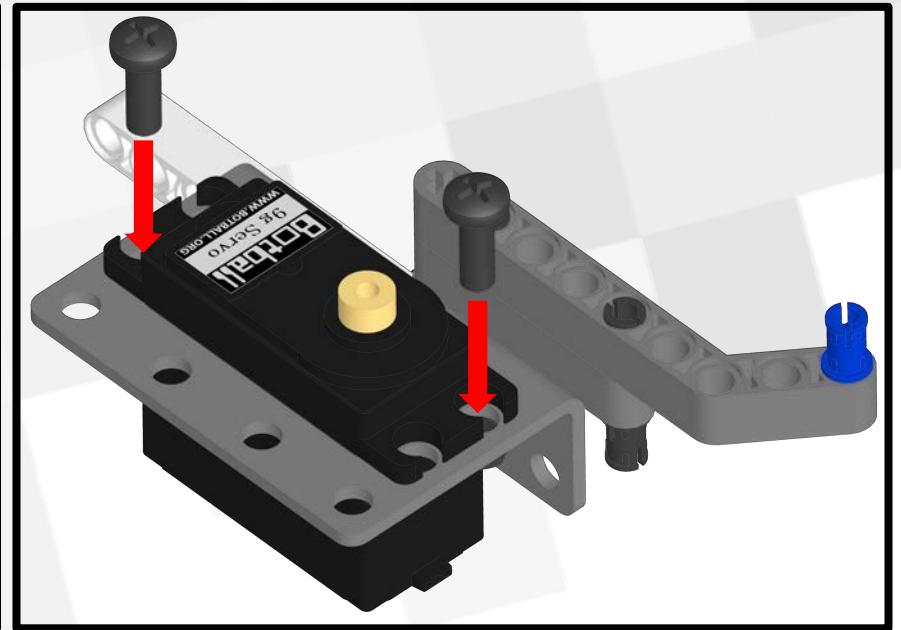
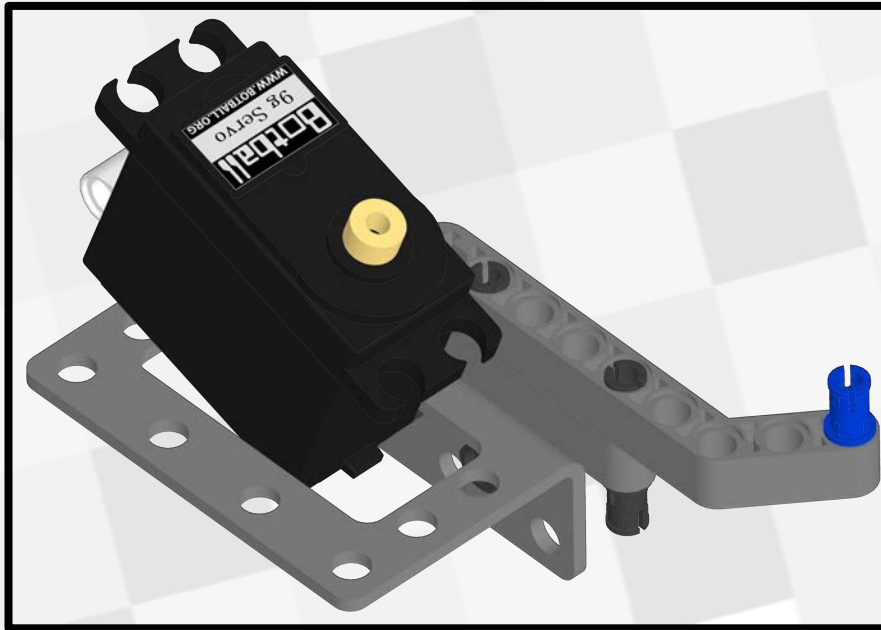




1. Attach a 1x5 Liftarm to the H Lego Piece as shown (LEGO Bag)
- 2.
3. Attach a black pin to the 1x5 Liftarm (LEGO Bag)



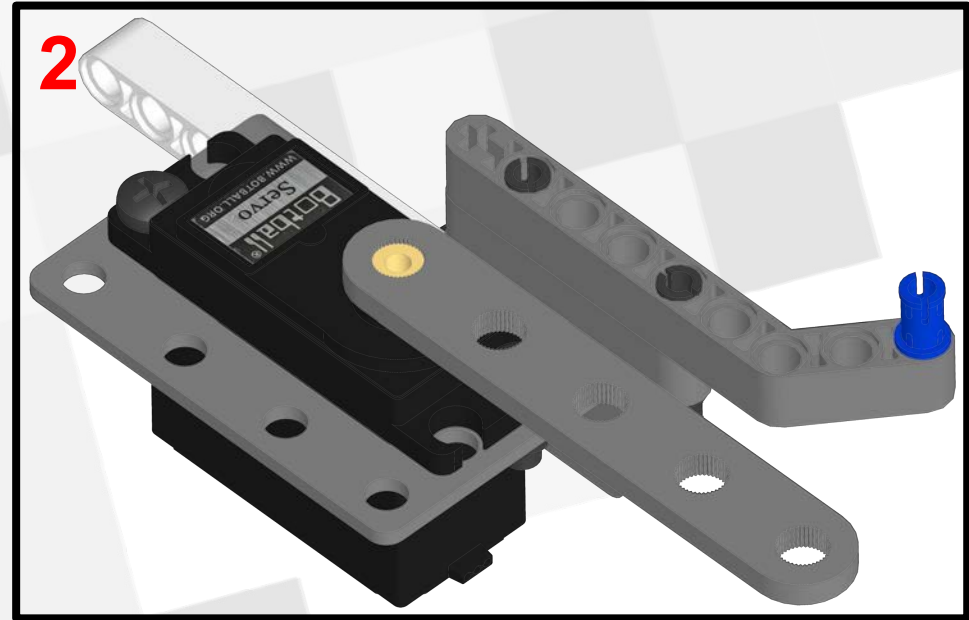
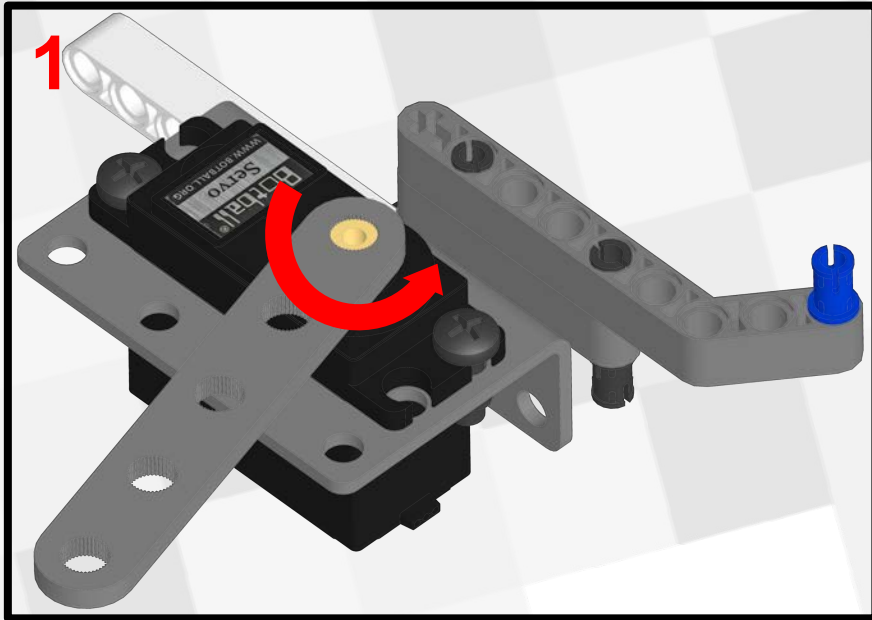
1. Attach a 3x7 Bent Liftarm to the 1x5 Liftarm as shown (LEGO Claw Bag).
2. Push a long black LEGO pin (long end first), all the way through as shown (LEGO Bag)
3. Attach an axle pin to the end of the 3x7 Bent Liftarm (LEGO Claw Bag)



1. Slide a servo into the Servo Bracket, **wire end first**, with the spline towards the bent end of the 3x7 Bent Liftarm.
2. Secure it to the Servo Bracket with two medium bolts (LEGO Bag A) and two nuts (LEGO Bag C).

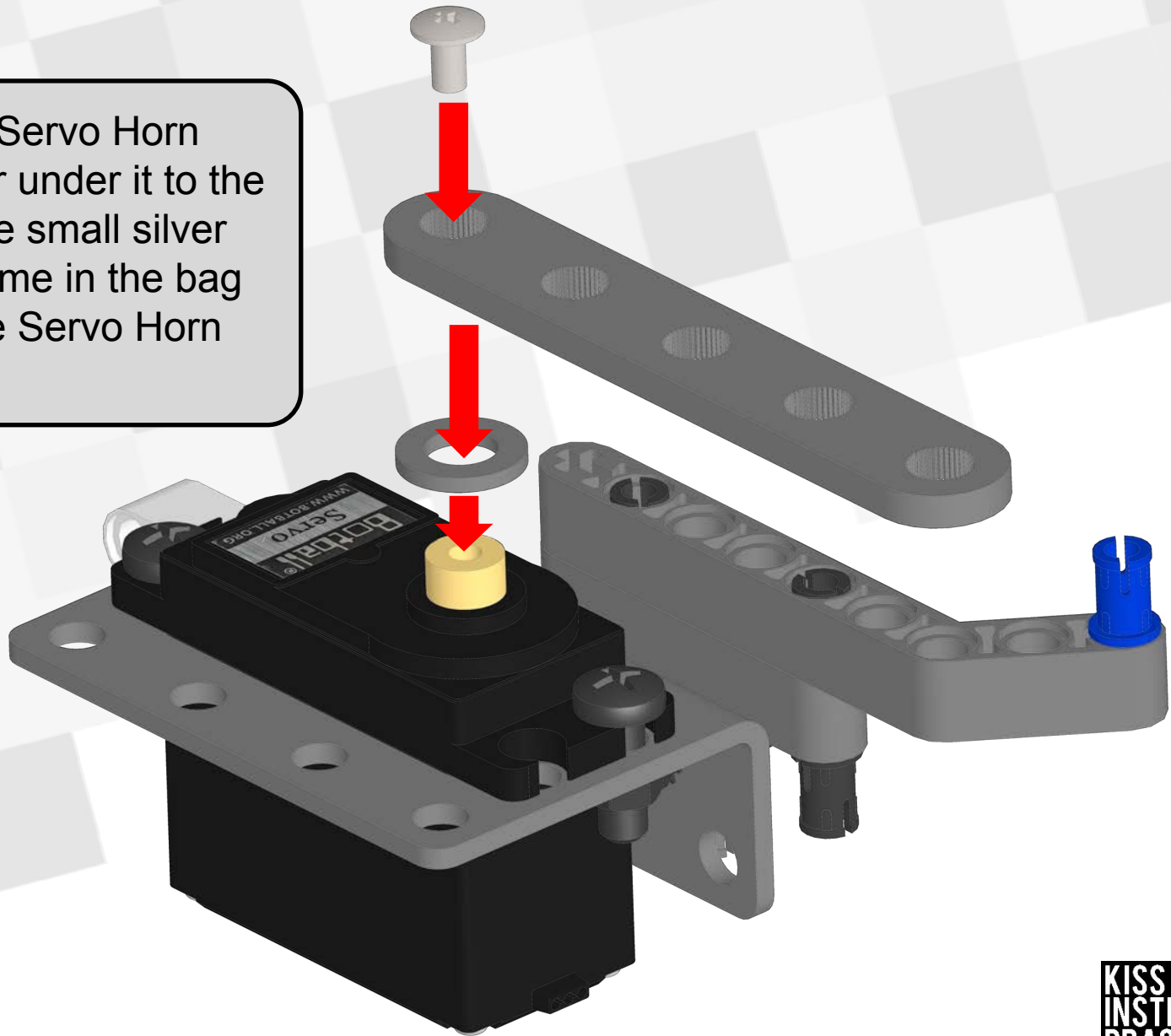
[Video](#)

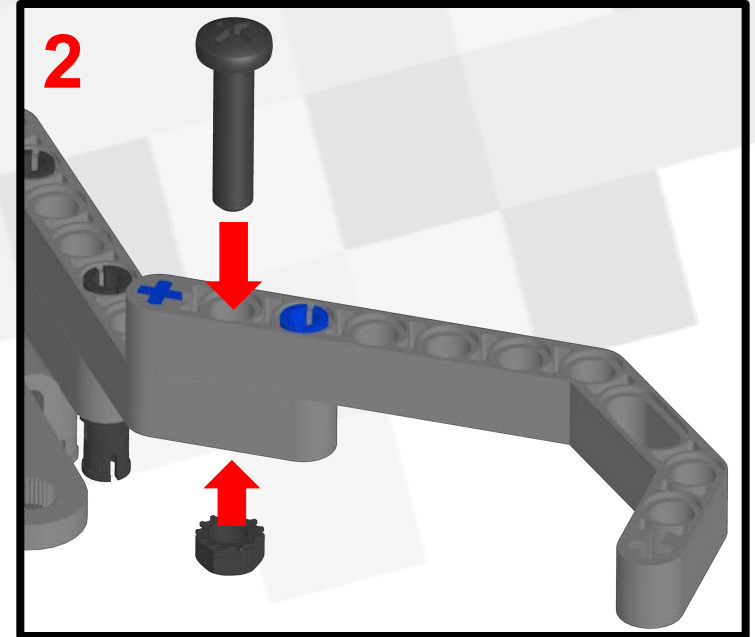
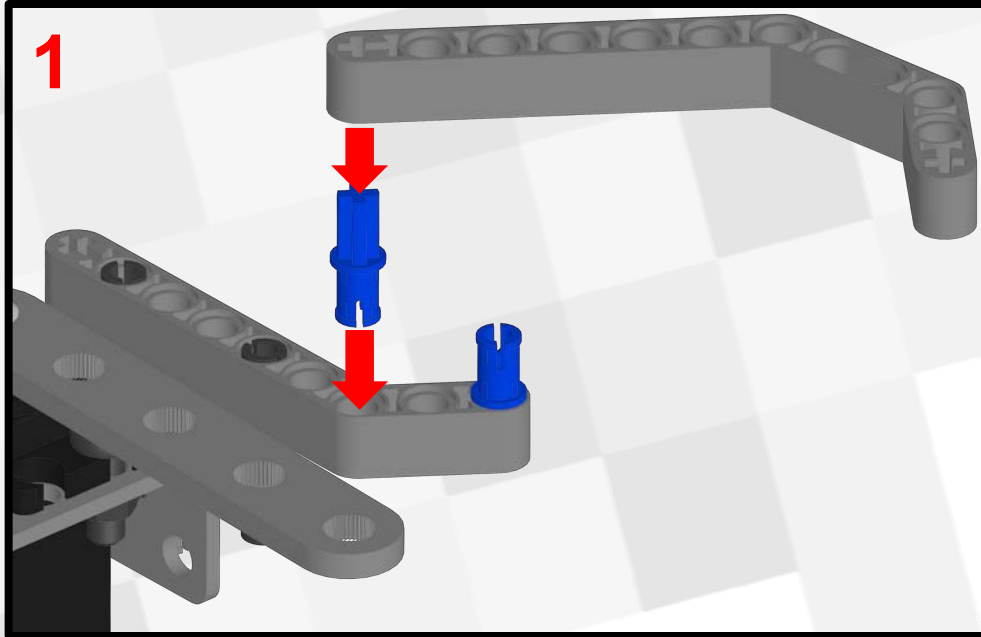




1. Place the 1x5 Servo Horn (5-Hole Servo Horn Bag) on the robot as shown.
2. Rotate the servo head with the 1x5 Servo Horn all the way towards the Lego piece.
3. Repeat these steps until the servo can no longer turn.

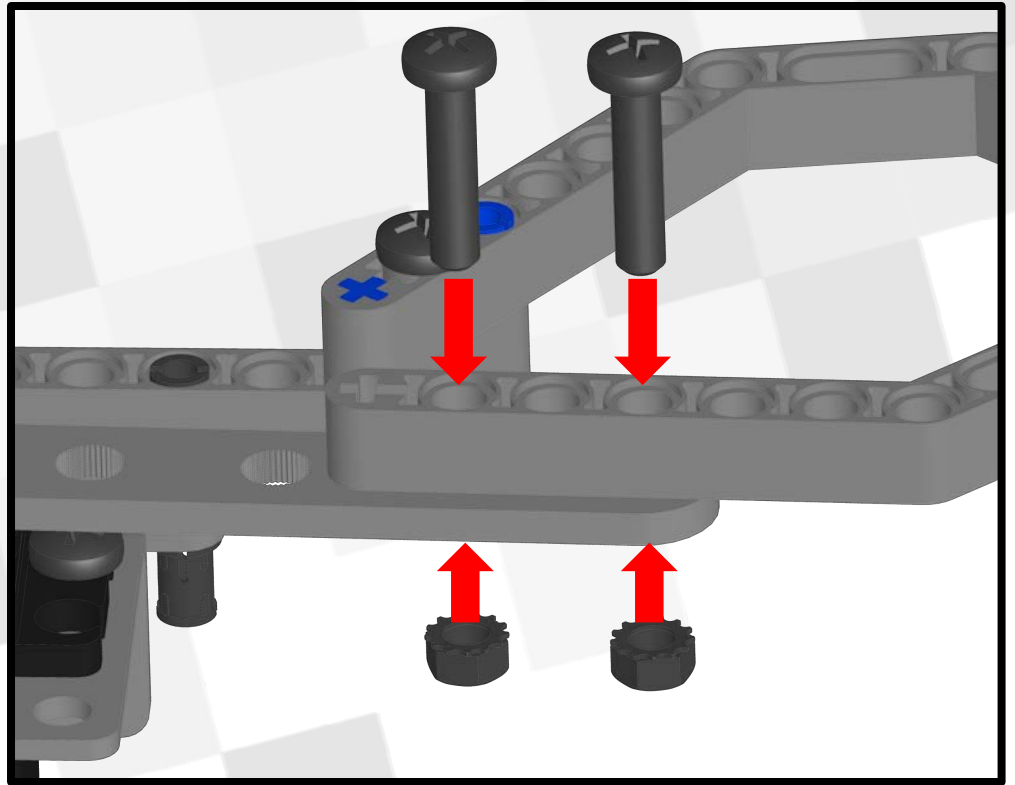
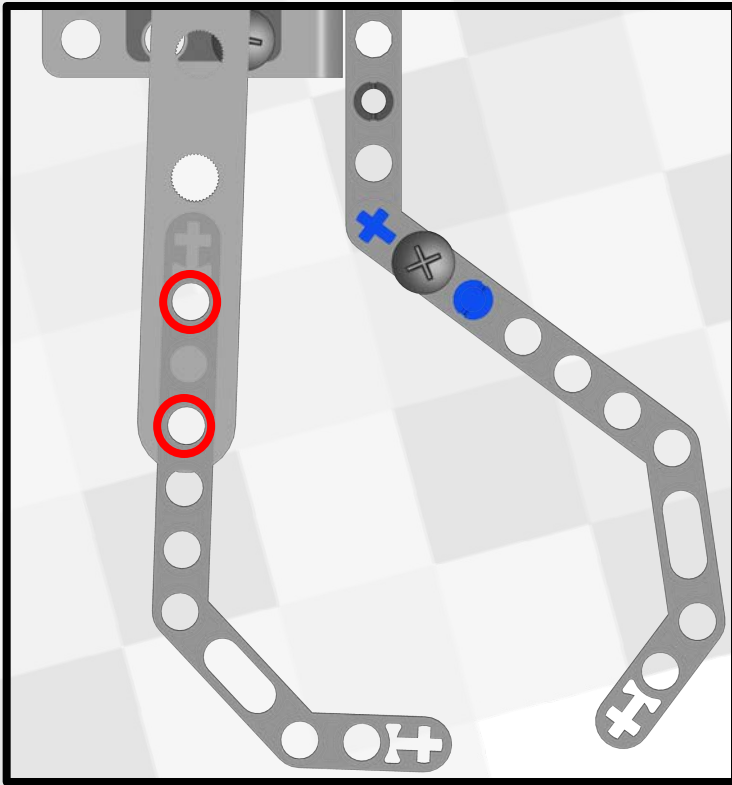
Attach a 1x5 Servo Horn with a washer under it to the Servo with the small silver screw that came in the bag with it (5-Hole Servo Horn Bag)



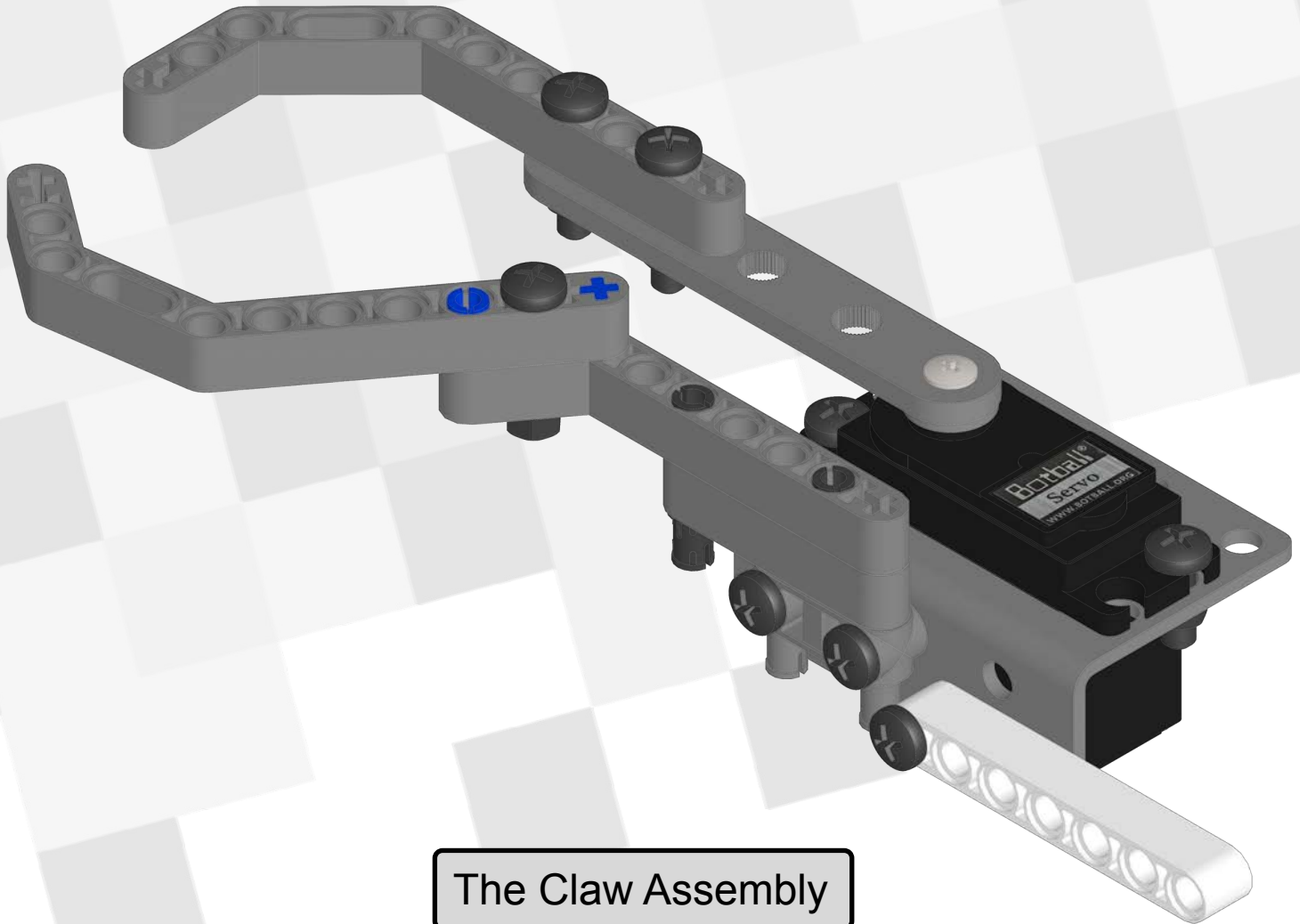


1. Attach a Claw Liftarm (LEGO Claw Bag) to the 3x7 Bent Liftarm (LEGO Claw Bag) using an axle pin (LEGO Claw Bag) as shown.
2. Secure the Lego pieces together using a long bolt (Screw Bag B) and nut (Screw Bag C)

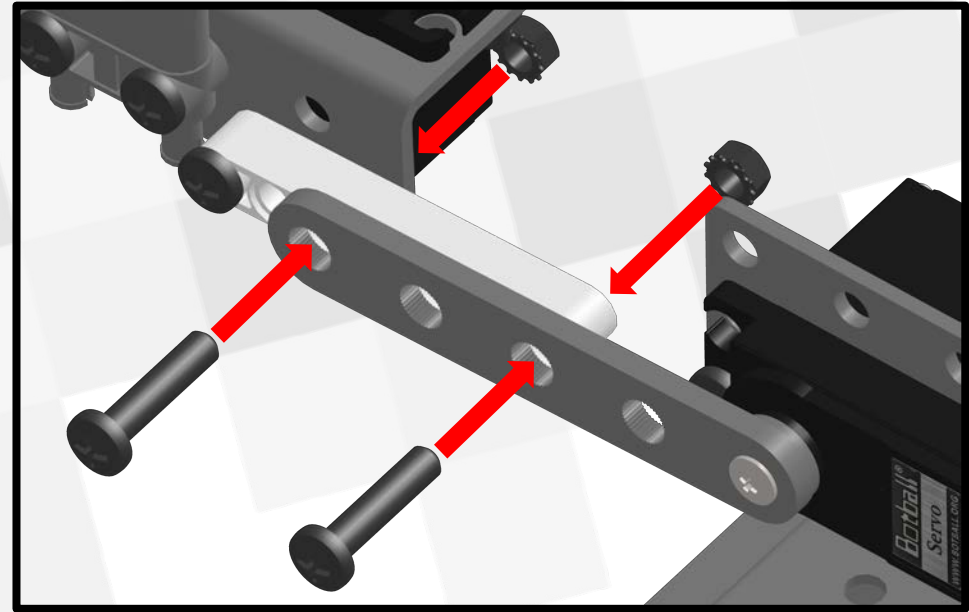
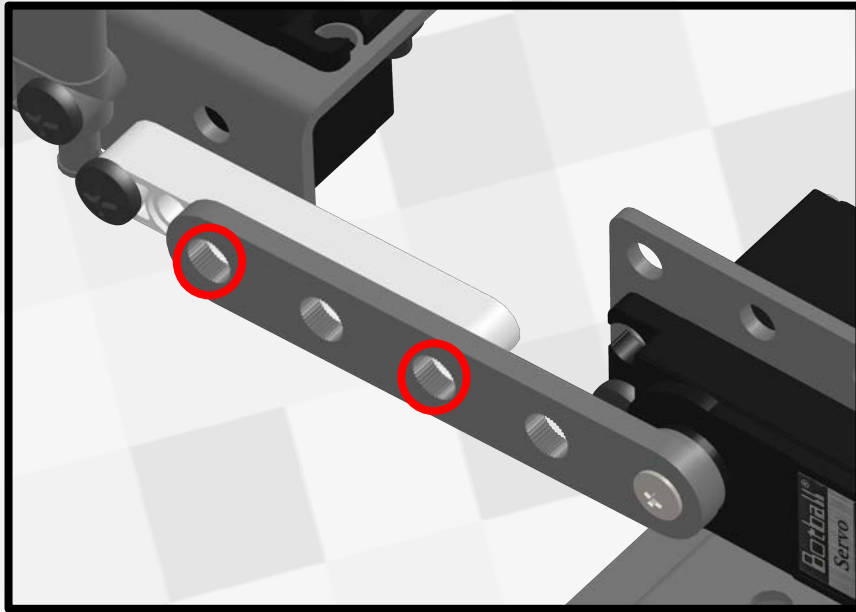
[Video](#)



1. Line up a Claw Liftarm (LEGO Claw Bag) on the 1x5 Servo Horn as shown.
2. Secure it using two long bolts( Screw Bag B) and nuts (Screw Bag C)



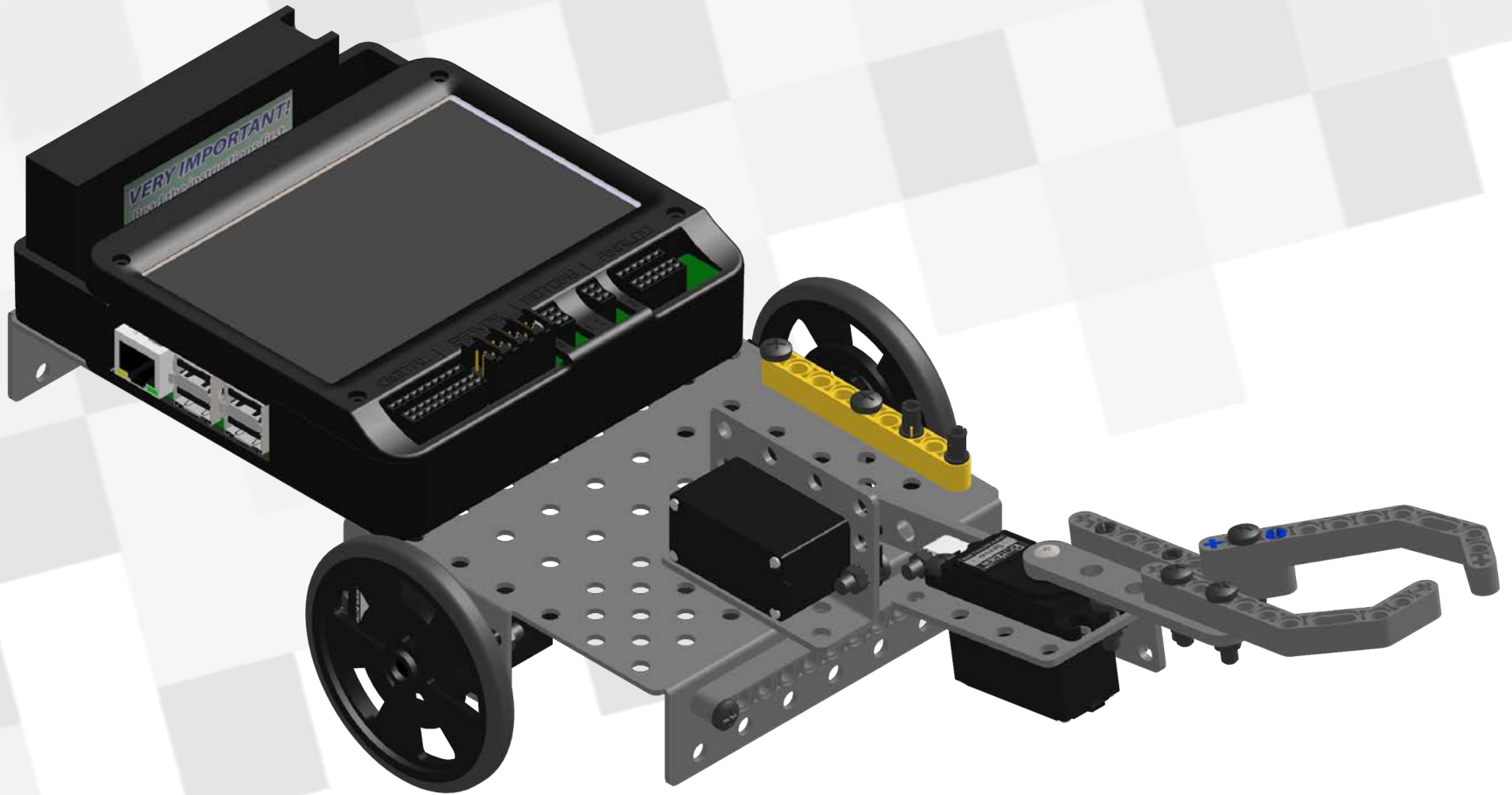
The Claw Assembly

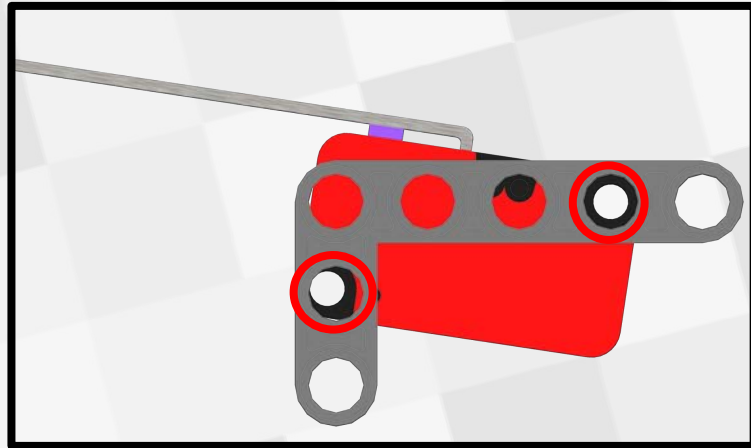


1. Line up 3 holes on the Arm 1x5 Servo Horn with the 1x7 Liftarm from the Claw Assembly.
2. Secure it using two long bolts (Screw Bag B) and nuts (Screw Bag C). Make sure that the left one goes through the Claw Servo Bracket as well.

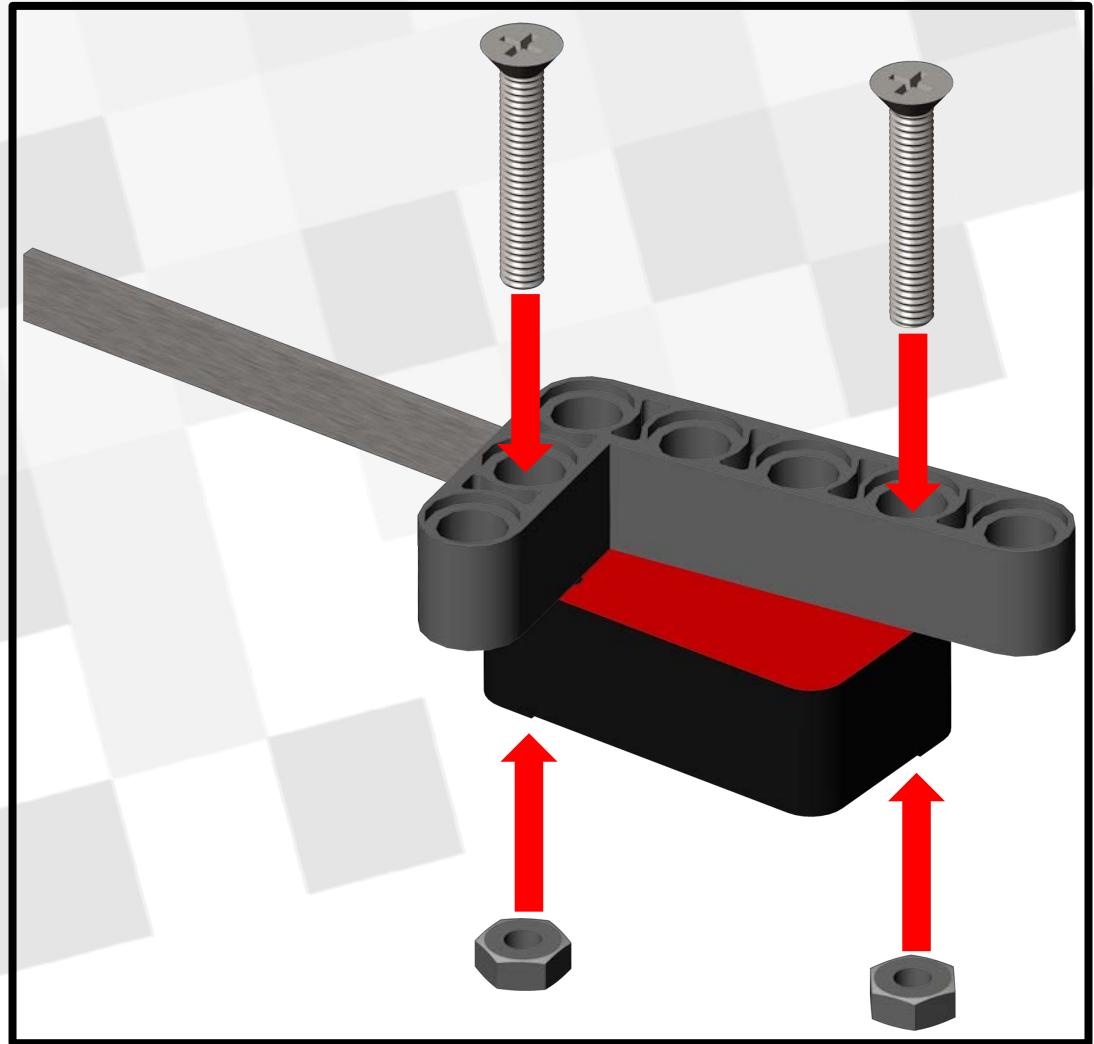
[Video](#)

# Servo Demobot Finished!



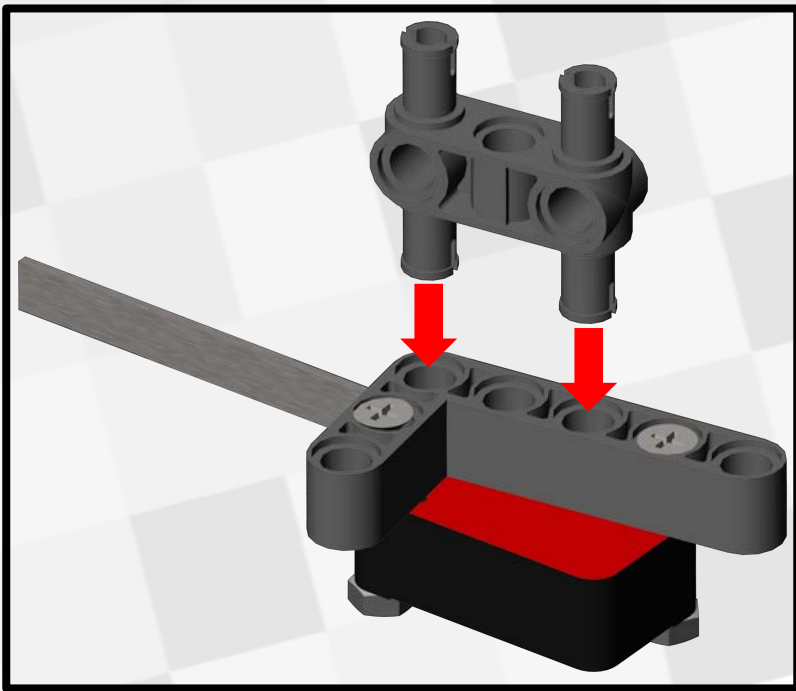


1. Line up the 3x5 Liftarm (LEGO Bag) with the Lever Sensor (Sensor Bag) as shown above.
2. Screw these two pieces together using the small long silver bolts and nuts (Screw Bag E).

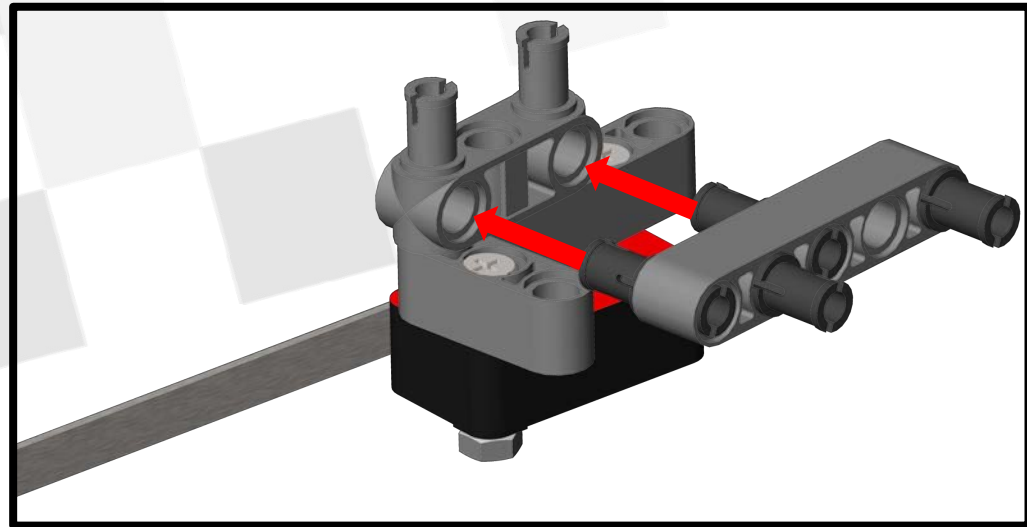
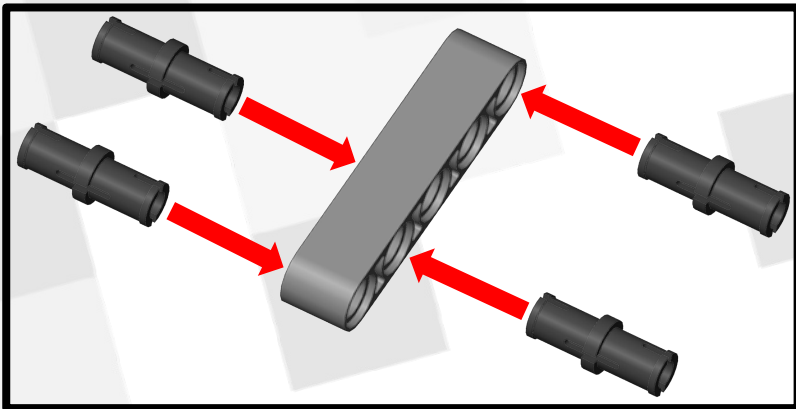


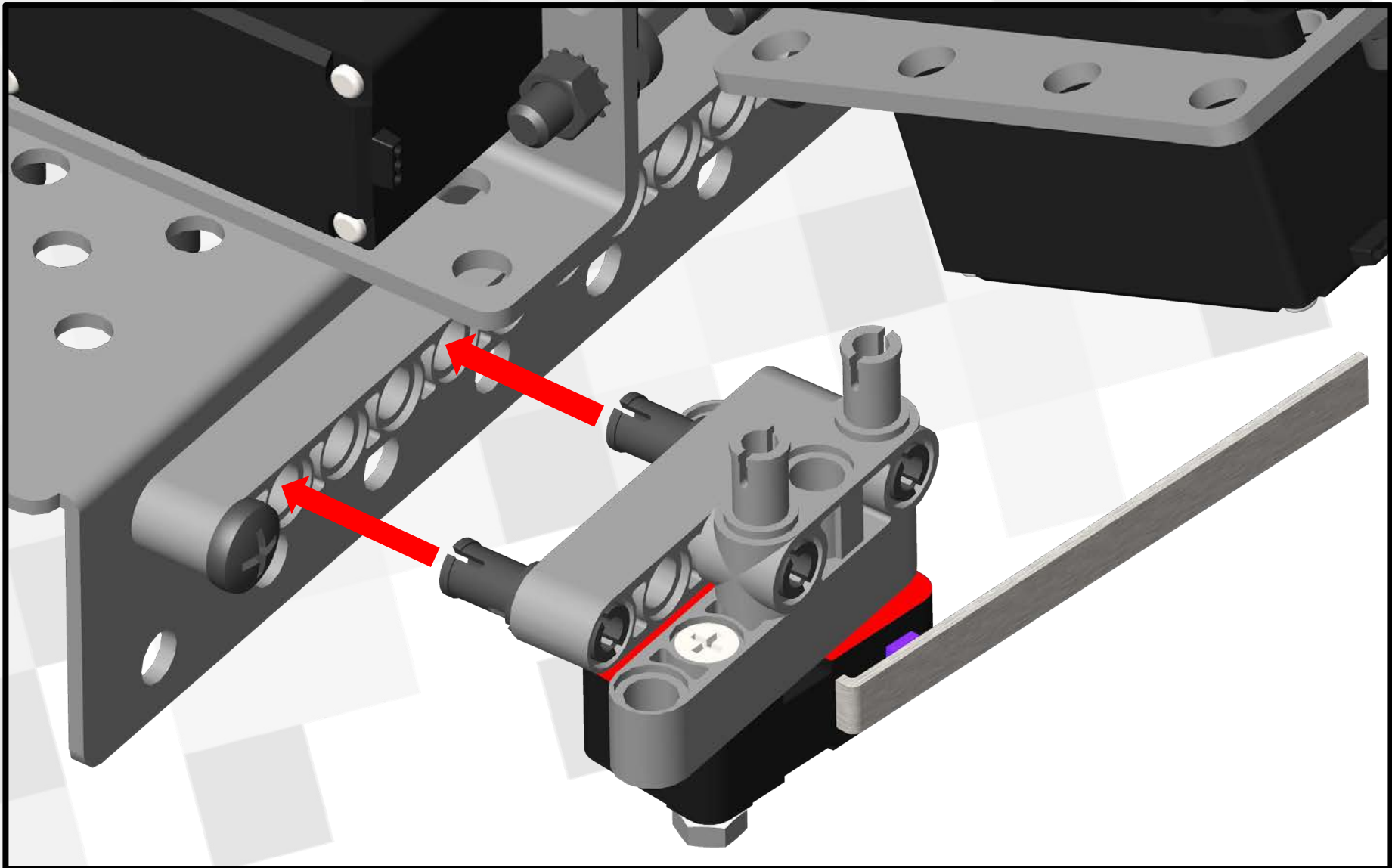
[Video](#)





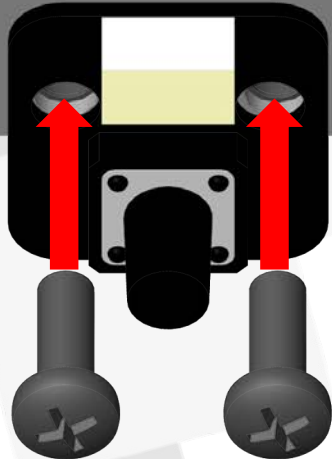
1. Attach the H Lego Piece (LEGO Bag) to the 3x5 Liftarm as shown.
2. Attach a 1x5 Liftarm to the H Piece with two pins (LEGO Bag) and then attach two pins to the 1x5 Liftarm as shown.





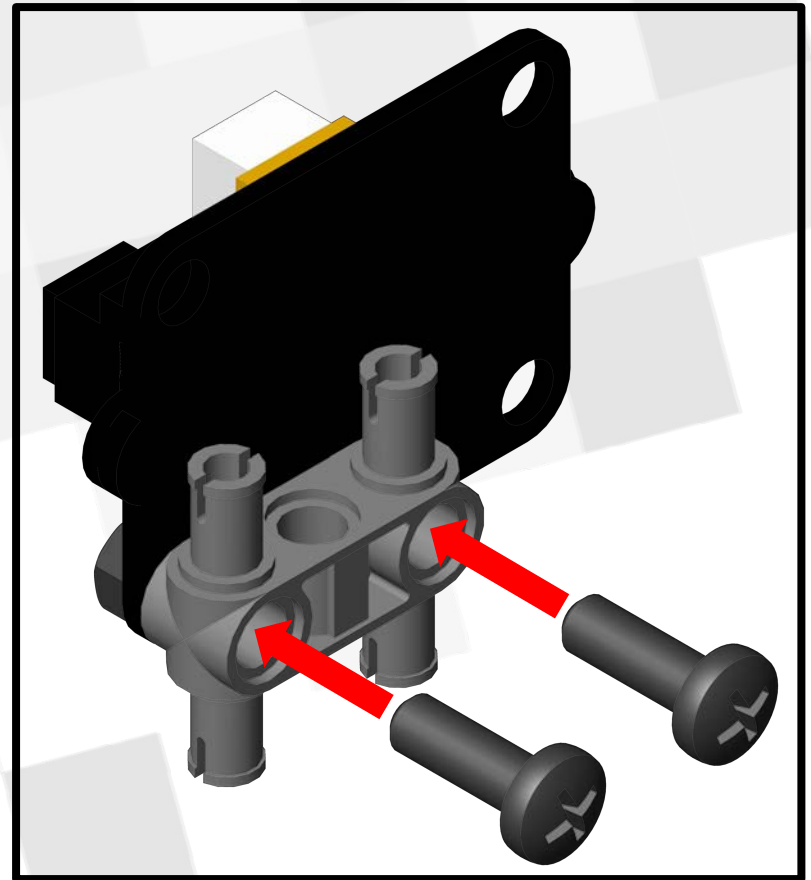
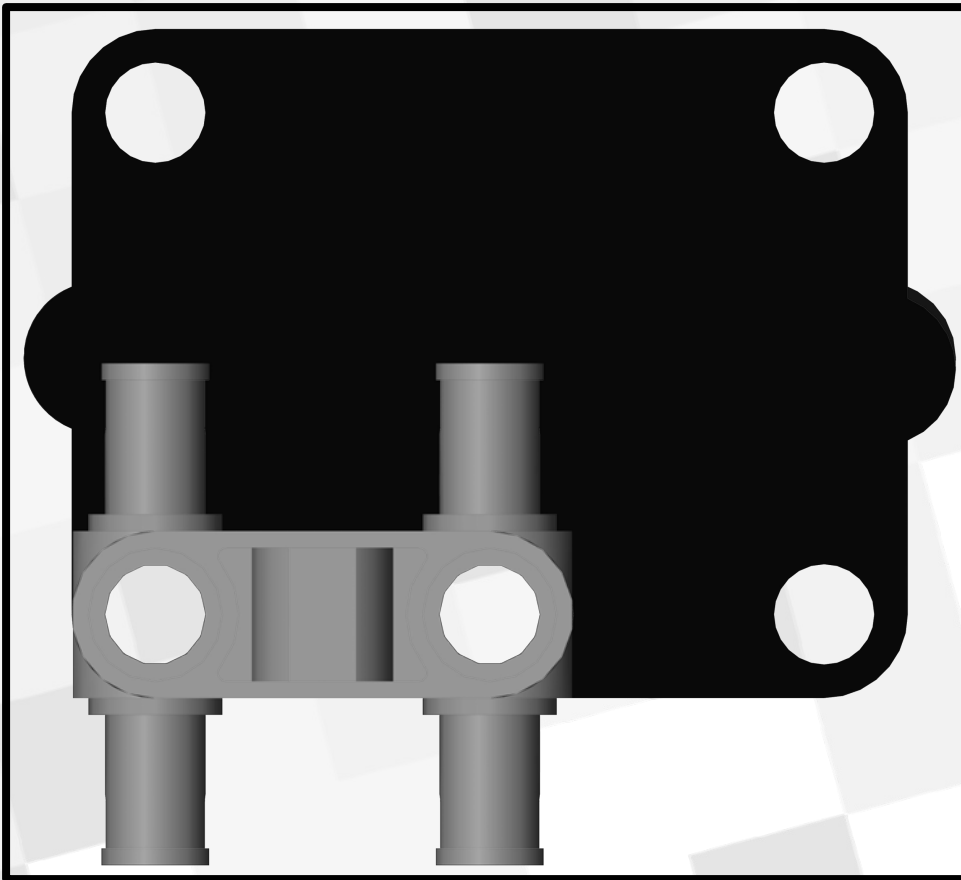
Attach the Lever Sensor Mount to the Chassis as shown.

6.6V 2000 mAh  
13.2Wh



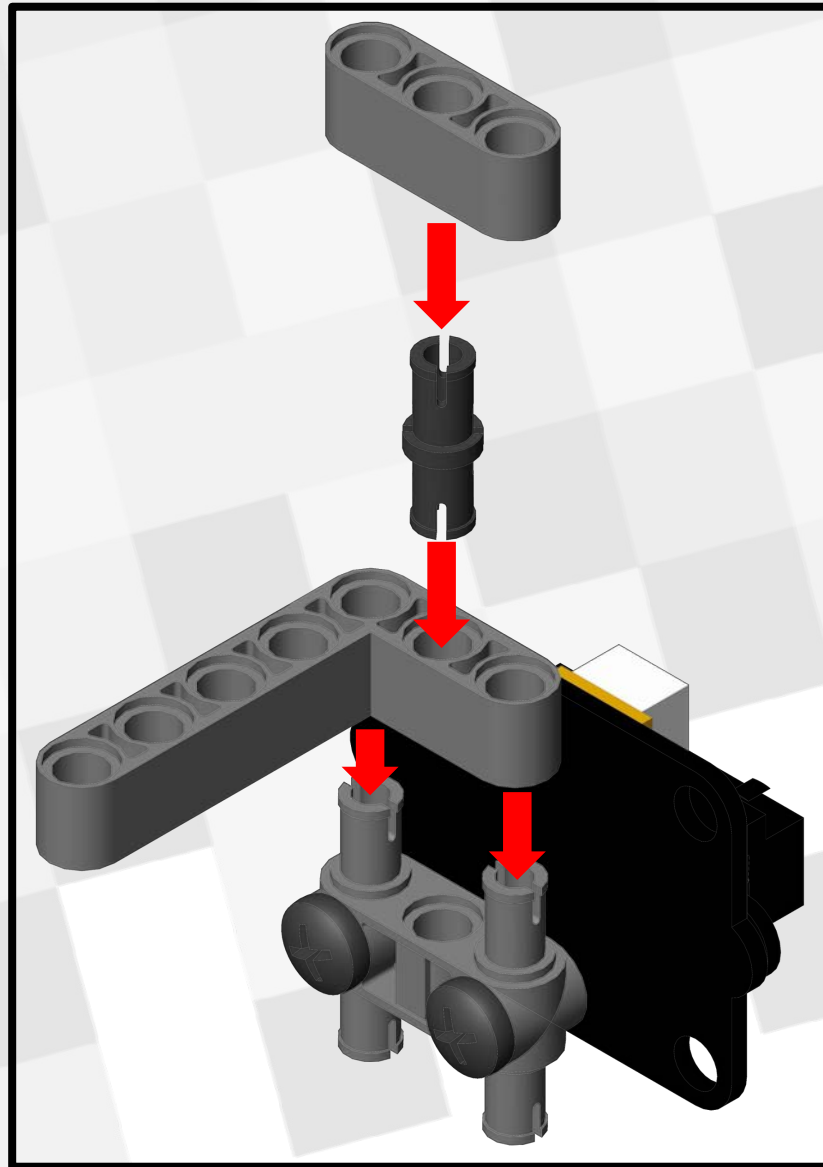
[Video](#)

Attach the Large Touch Sensor Mount to the back of the Chassis as shown using two medium bolts (Screw Bag A) and two nuts (Screw Bag C).



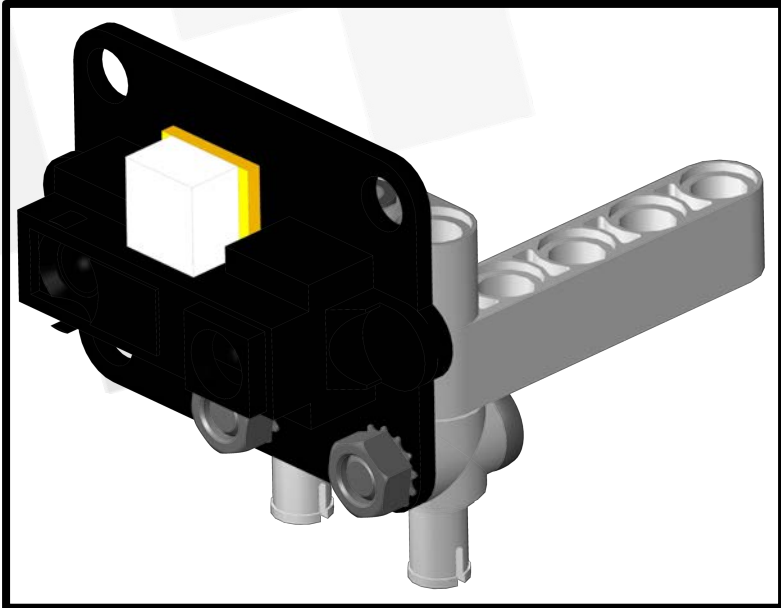
1. Line up a H Piece (LEGO Bag) with the back of the Rangefinder Sensor as shown.
2. Secure it using two medium bolts (Screw bag A) and nuts (Screw Bag C).

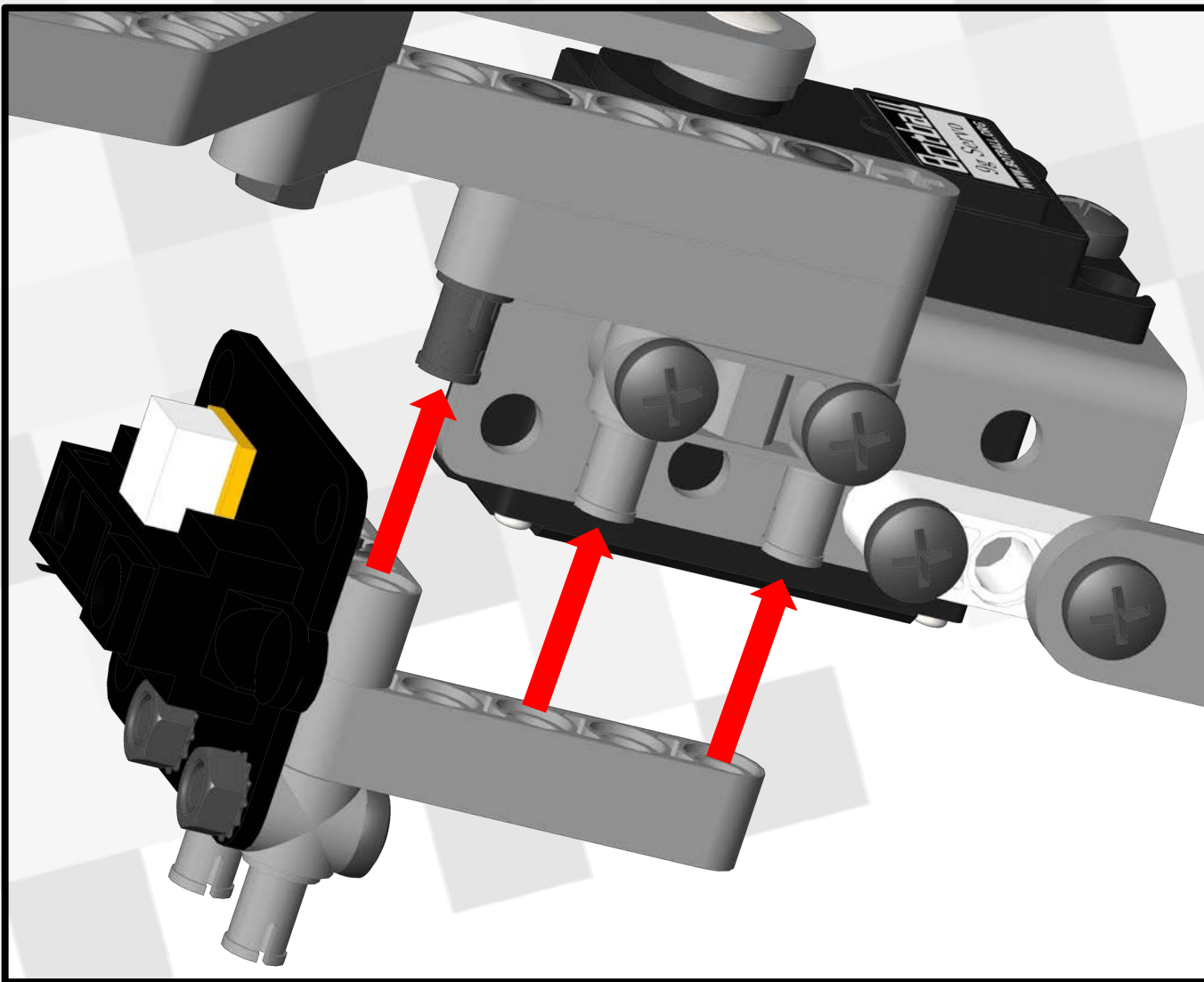
[Video](#)



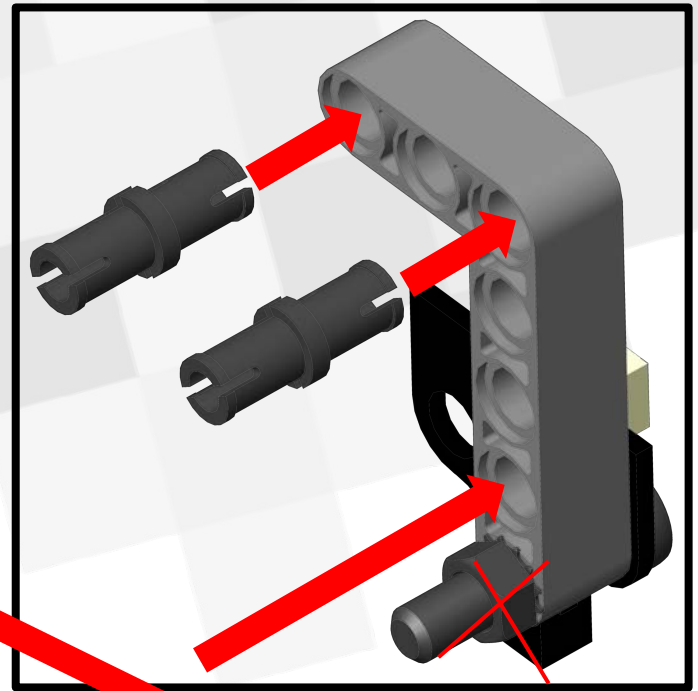
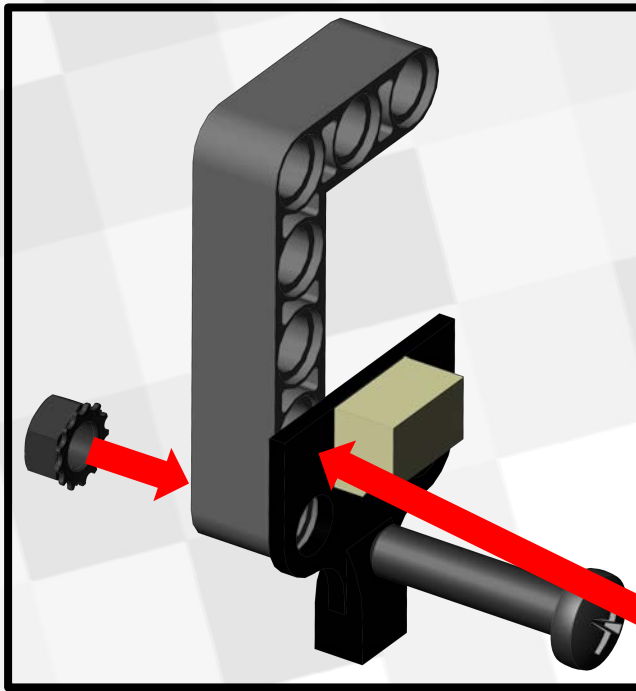
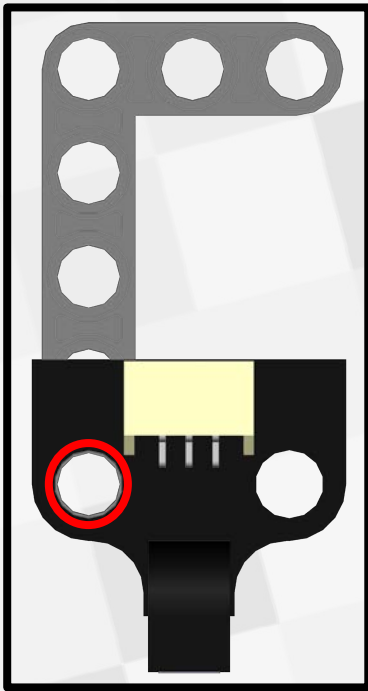
Attach a 3x5 Liftarm (LEGO Bag) to the H piece then attach a 1x3 Liftarm with a pin (LEGO Bag) to the 3x5 Liftarm as shown to the left.

The finished mount should look like the one below.





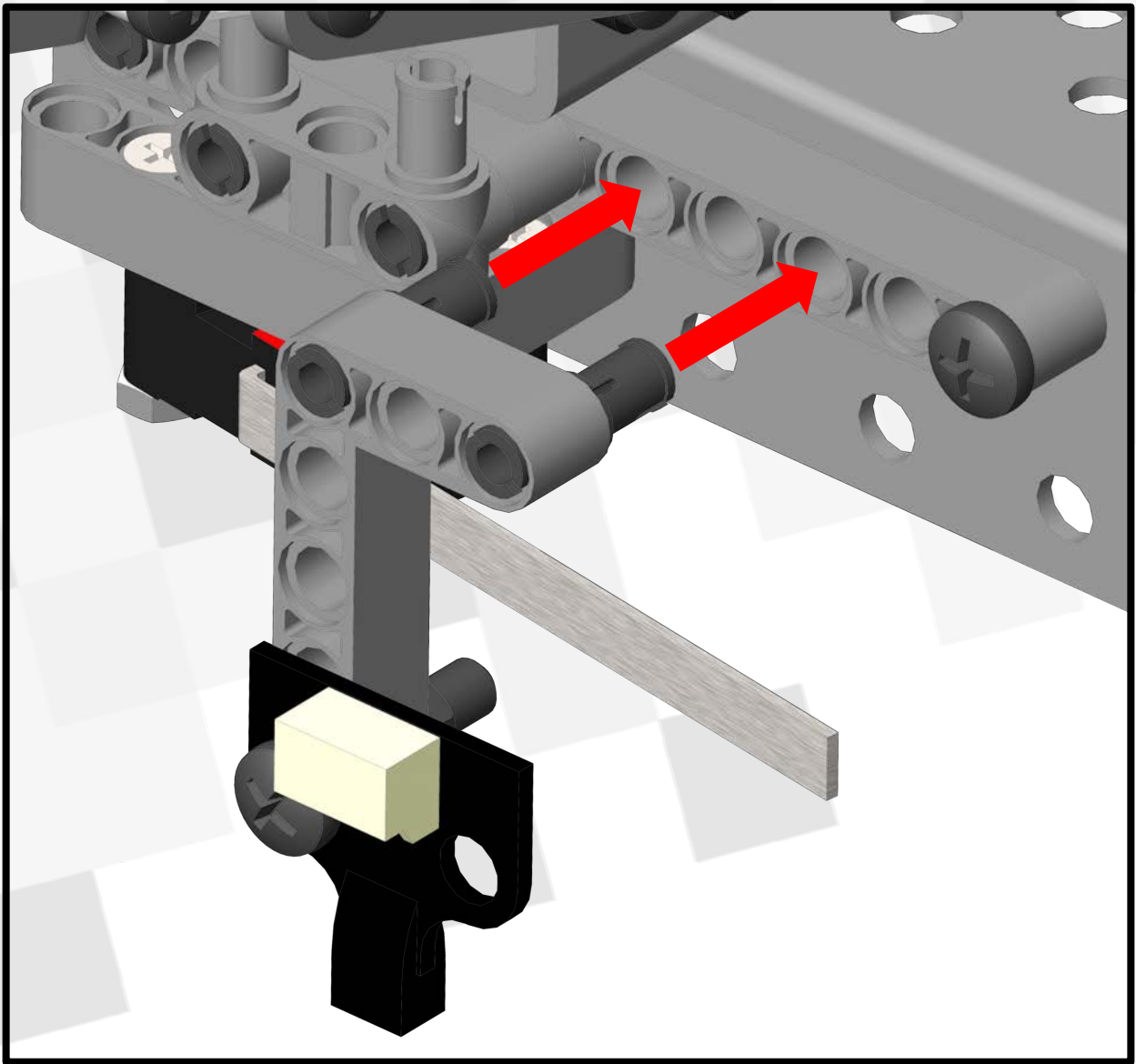
Attach the Rangefinder Sensor Mount to the Claw as shown above. You may need to slightly loosen bolts on Claw H Piece



1. Line up an IR Sensor with one hole up from the end of a 3x5 Liftarm (LEGO Bag) as shown.
2. Secure it using a long bolt (Screw Bag B) and nut (Screw Bag C).
3. Attach two pins (LEGO Bag) to the 3x5 Liftarm as shown.

**Picture is wrong  
SHOULD BE SECOND  
HOLE FROM END**

[Video](#)



Attach the IR Sensor Mount to the Chassis as shown above. You will have to slide this around the lever sensor.



# Sensor Demobot Finished!

