MICRO DROID MOTOR UPGRADE

ABSTRACT

Installation guide for installing the yellow gear motors to give your micro BBR2 a speed boost.

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INSTRUCTIONS FOR INSTALLING MOTORS INTO YOUR MICRO DROID

This modification is to replace the continuous rotation servos with the small yellow gear motors and a standard RC dual channel speed controller to improve the speed of your micro baby droid.

You will need to print new legs and wheels for this to work. Also, the legs are slightly wider than the original.

Print the legs with supports for the best finish of the large overhangs. They are small, so the amount of supports required is minimal.

MATERIALS NEEDED:

Part	Where used	Example Link
3D printed legs	3D printed legs for the droid	
Yellow Gear Motors	Main drive motors	https://www.amazon.ca/dp/B0BRKJ6GGW?ref=ppx_yo2ov_dt_b_fed_asin_title
Dual Channel Speed Controller	ESC to drive the motors	https://www.amazon.ca/dp/B0BN5RKKJR?ref=ppx_yo2ov_dt_b_fed_asin_title
2S LiPo battery with charger	Battery	https://www.amazon.ca/dp/B09K7V4N61?ref=ppx_yo2ov_dt_b_fed_asin_title
RC Remote of Choice	Remote	https://www.amazon.ca/dp/B09Y8XT53X?ref=ppx_yo2ov_dt_b_fed_asin_title
M3 x 25mm Flat head screw	For fastening the motors to the legs.	
M3x6mm Flat head screw	Leg motor cover screws	
M2x5 self-tapping screw	Wheel to motor	

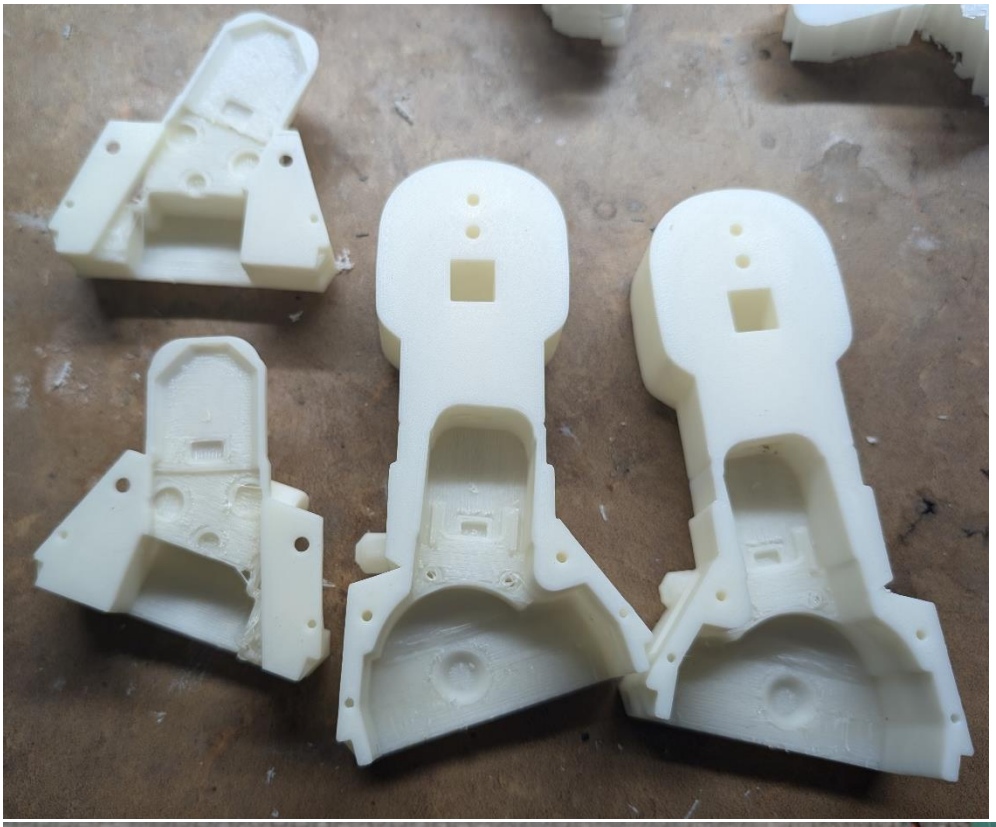
The rest of the parts are used for the standard droid including:

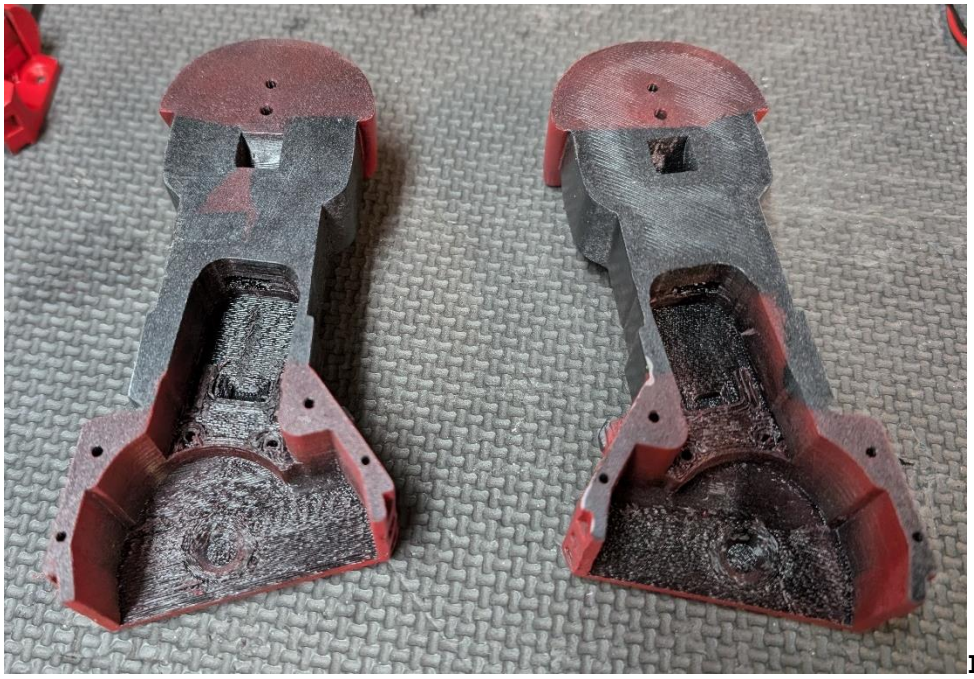
- Continuous rotation servo for dome rotation.
- Screws for the head.
- Bearings for center wheel and dome.
- Screws to fasten the legs to the body.

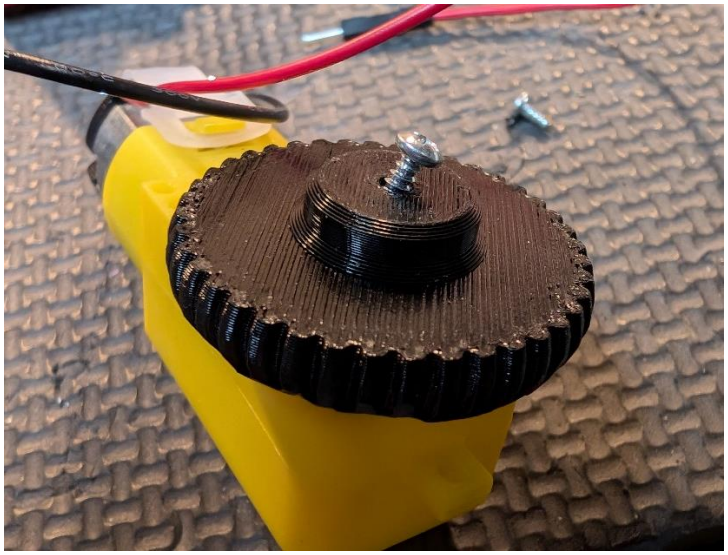
STEPS:

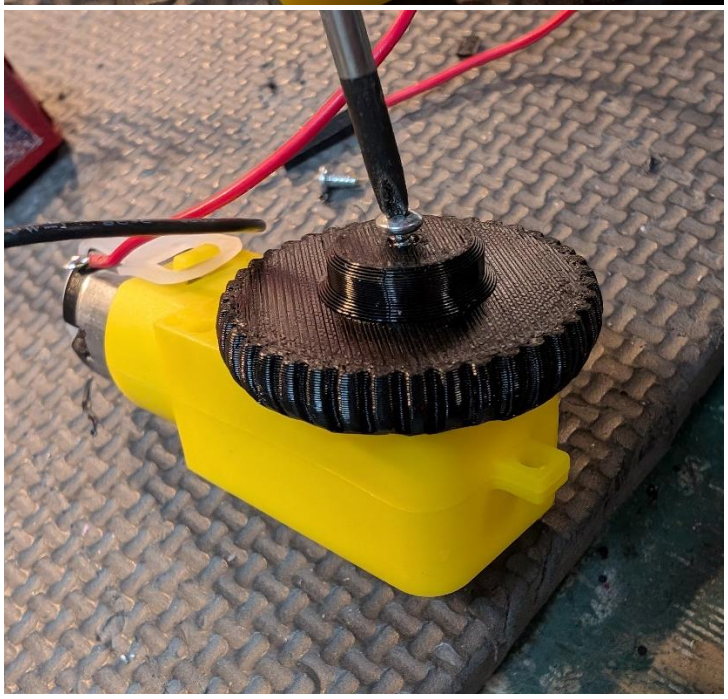
- **Prepare the 3D Printed Legs:**
  - Print the leg and wheel parts. Print with supports.

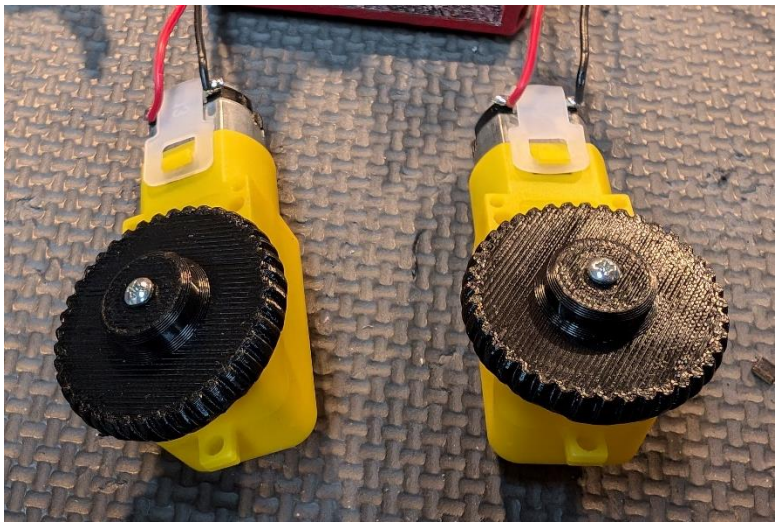
- Remove supports, sand and paint as desired.



-  **Install the motors.**
  Install the wheels to the motors using the small M2 tapping screws.
  Note: the motors need to be installed a certain way. There is a small dimple on the motors. This is to be the opposite of the wheels. The wheels should be installed on the same side as the wires.







- Place the motors inside the legs and fasten with M3x25mm screws.
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- It can be helpful to pre-tap the screws bosses with a M3 tap. But not absolutely required.

- Feed the wires for the motors through the legs and place the motor as shown.

Secure with the M3x25mm screws.

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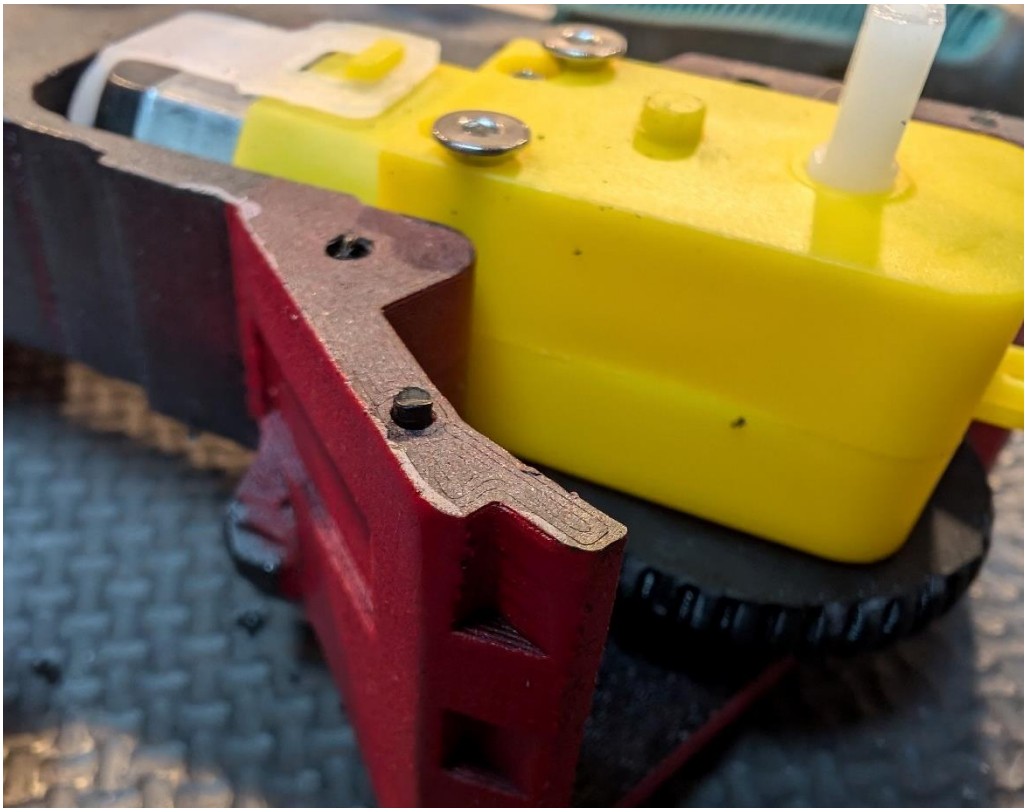
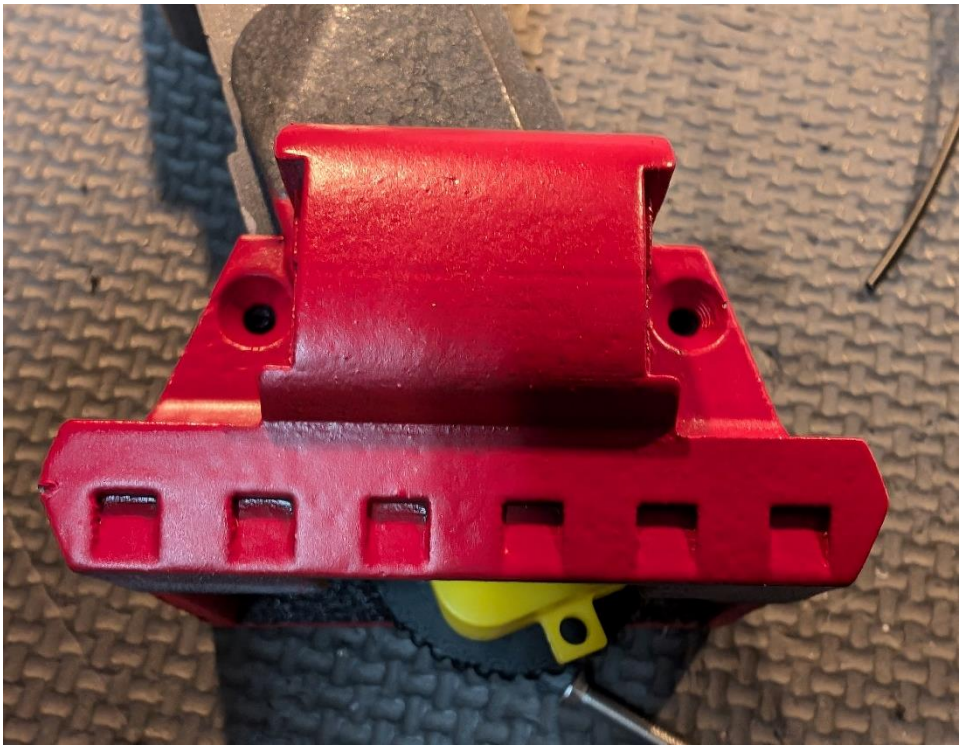
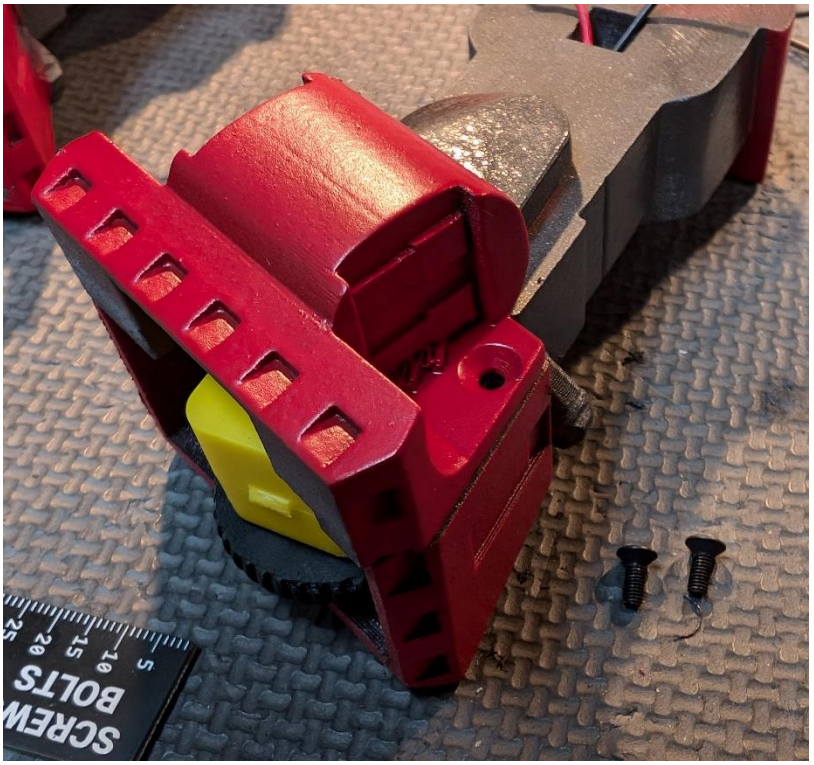
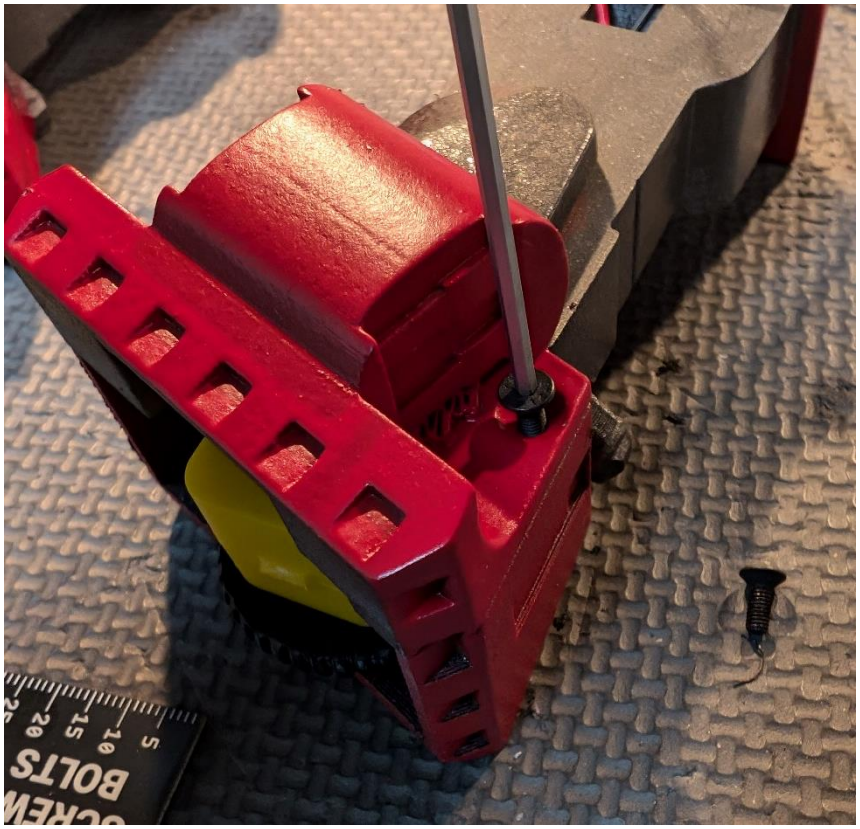
- Attach the motor cover plate with M3 flat head screws.
- Small filament pieces can be used to help align the motor cover plate.






SCREW
BOLTS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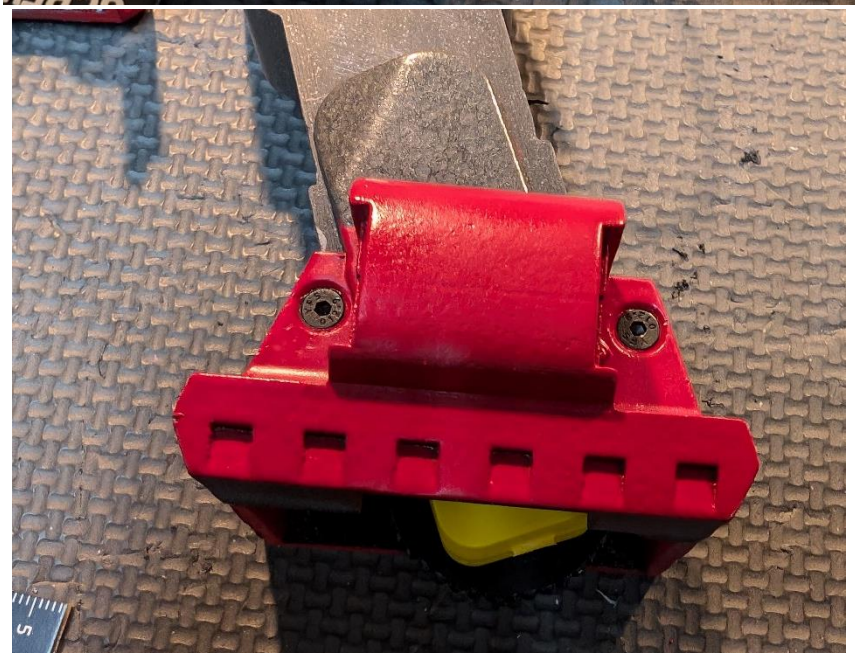
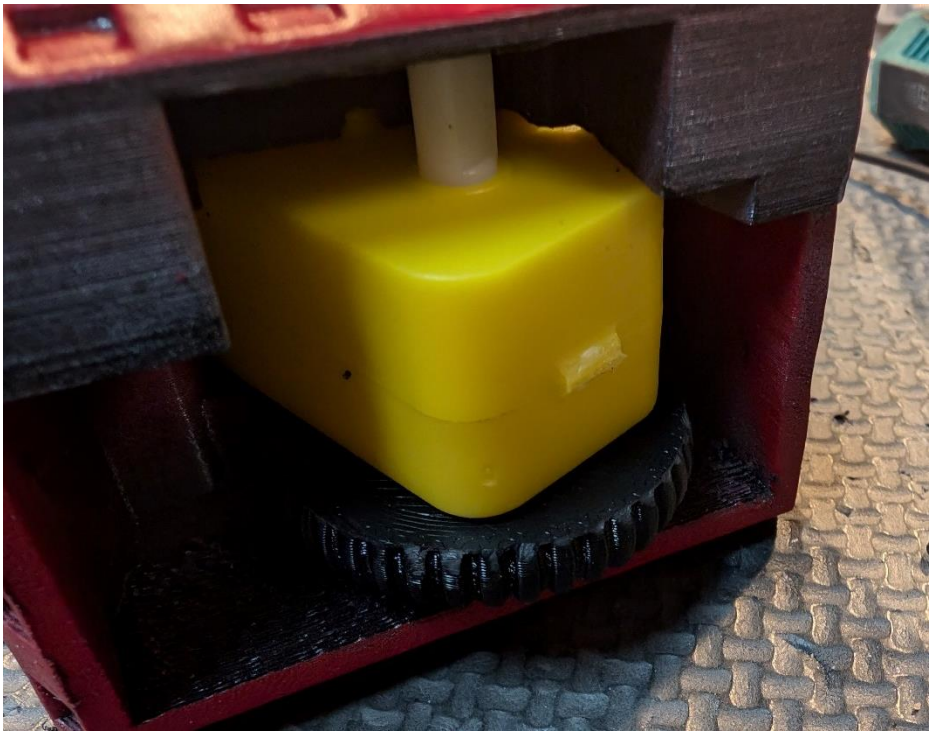
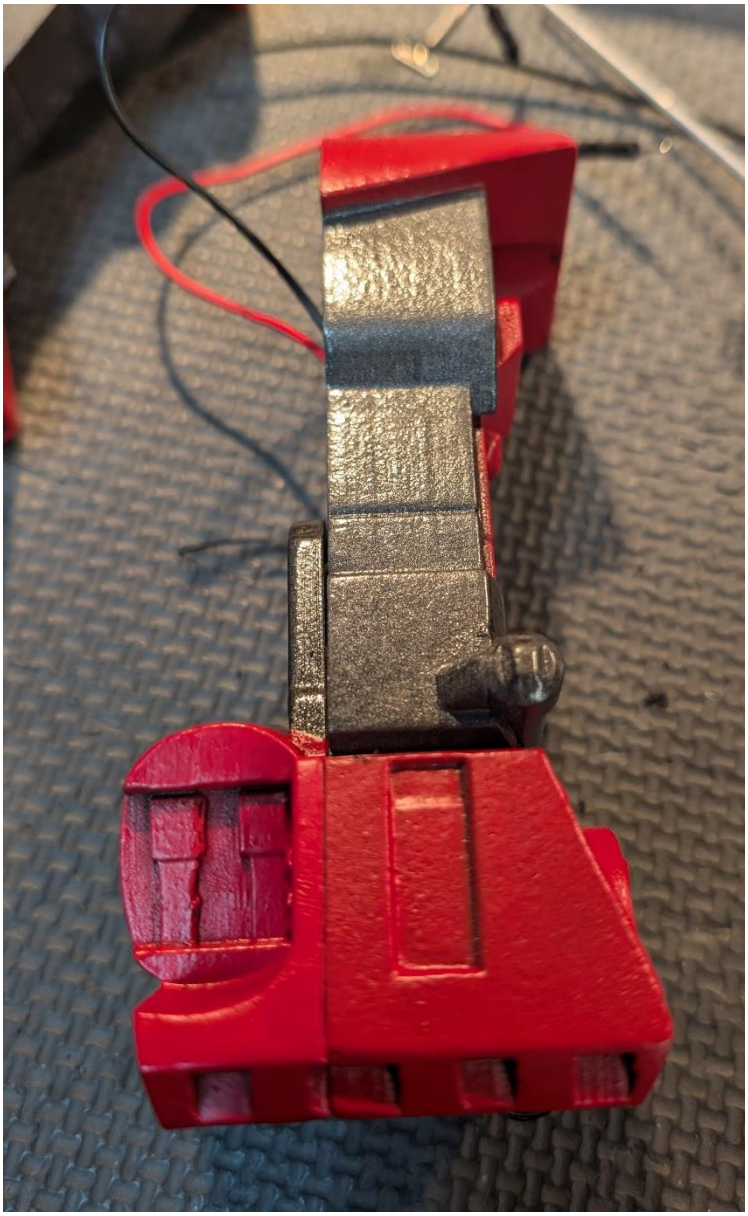


- Trim the tab off the bottom of the motor,



- Completed leg assembly



- **Final Assembly:**
    - The legs bolt to the body the same as the standard assembly.

- Electronics
    - To control the motors, we use the dual channel Electronic Speed Controller (ESC).
    - Follow the instructions from the ESC you bought.
    - When using the DS-600 RC remote, plug the motors control leads into the receiver using channels 1 and 2.
    - The motors leads on the ESC connect to the motor wires.
    - The continuous rotation servo for the dome plugs into channel 4.
    - You will need to enable tank mixing for both channels 1-2 as well as 3-4 to get it all to work as expected.
    - If the stick direction doesn't control the droid as you expect (for example, pushing up makes it turn left or backwards), you just need to either swap the channels 1-2 on the receiver, or swap the motor polarity on one of the motor drivers. For proper tank mixing and forward/backward control, you will end up with one motor connected positive to positive wires, and one motor connected in reverse,
    - The 7.2V battery plugs directly into the ESC. DO NOT connect the battery directly to the receiver. It will let the smoke out. You can connect a switch between the battery and ESC if you like.
    - Follow the instruction for charging your battery.

      Enjoy your new speedy micro droid.