



University of British Columbia
Electrical and Computer Engineering
ELEC 291/292

Robot Body Assembly

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This document shows how to assemble the robot for project 2. The materials listed below are required. A picture of the materials follows the list.

Description	Quantity
Ball caster kit	1
Geared motor	2
Servo wheels	2
Robot chassis	1
4-40 screw/nut kit	1
4 x AA battery holder	1
9V battery clip	1
DPDT Switch	1



Steps

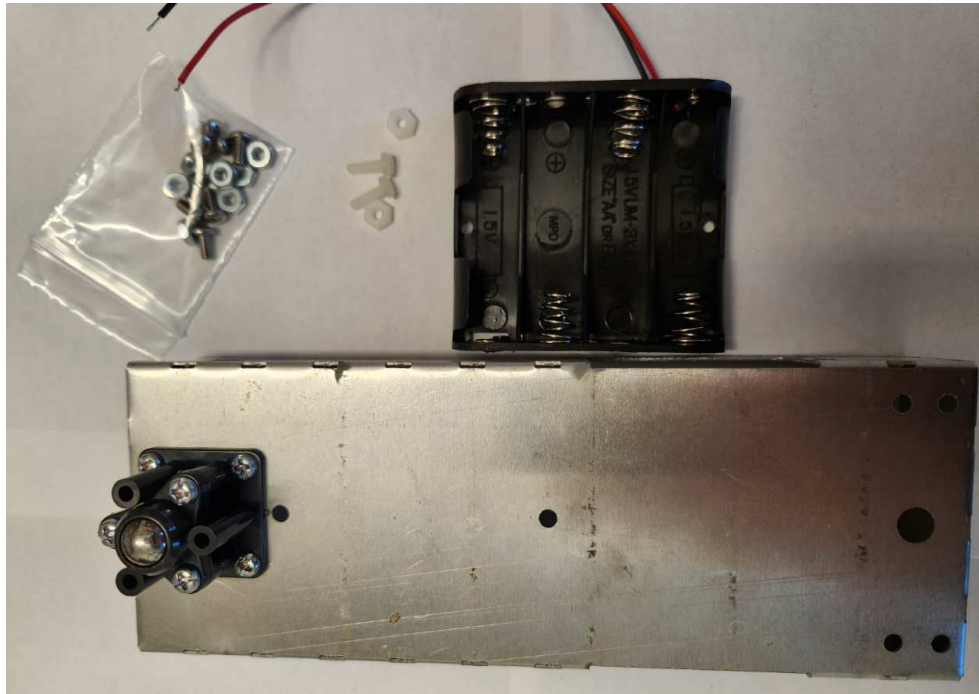
1) Follow the directions included with the caster wheel in order to assemble it. There are materials to assemble two caster wheels. We just need one. The caster wheel comes with machine screws to secure it to the robot chassis.



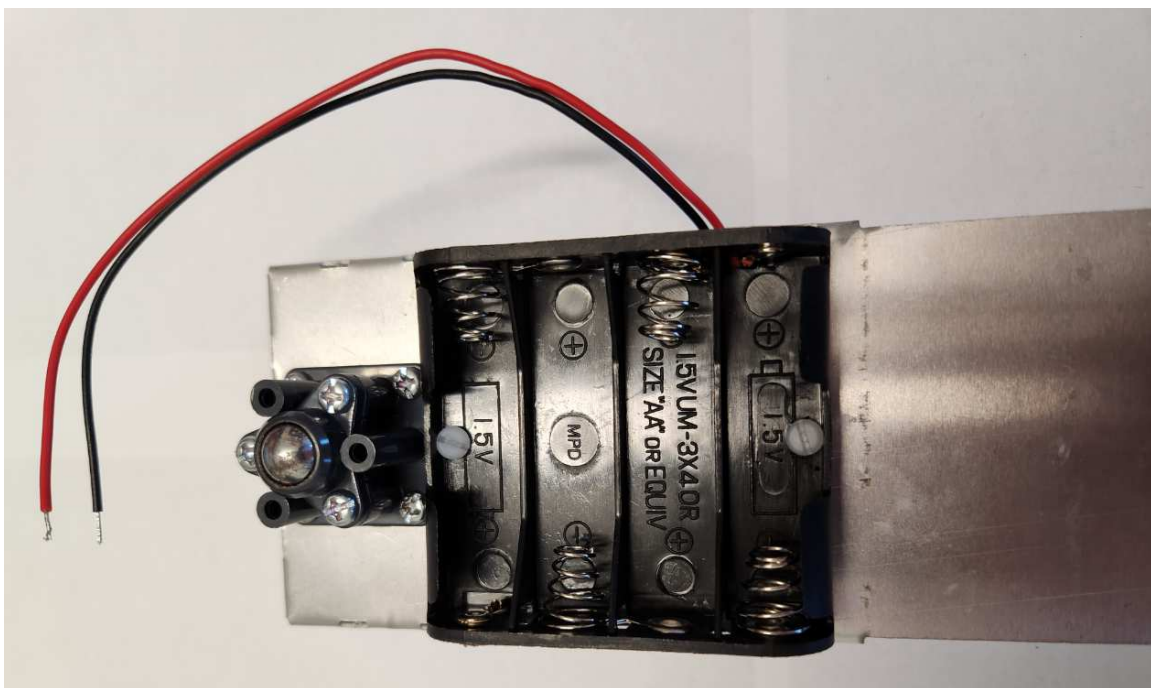
2) Attach the caster wheel to the robot chassis as shown in the picture bellow.



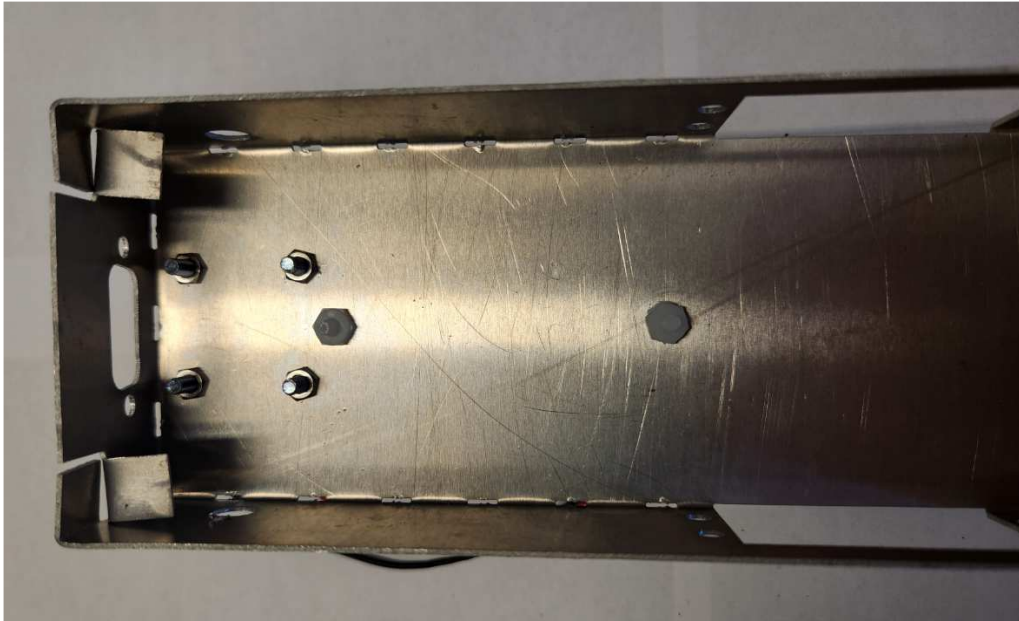
3) The next step is to attach the 4 x AA battery holder to the bottom of the robot. We will be using two 4-40 PLASTIC screws and nuts. Metal screws WILL SHORT CIRCUIT THE BATTERIES.



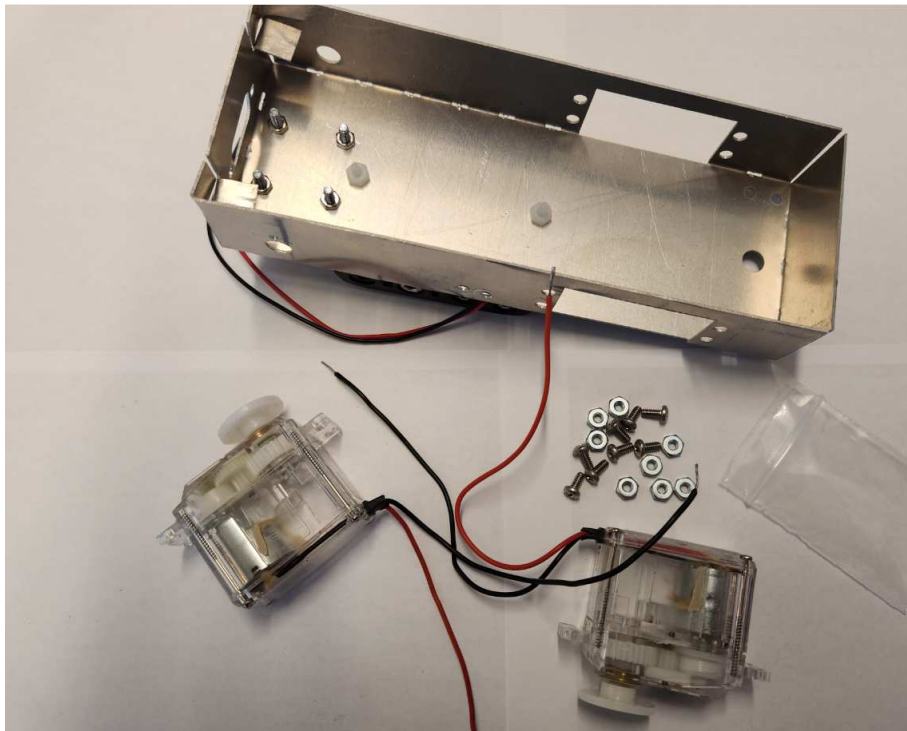
4) Attach the battery holder to the chassis using PLASTIC screws. The screws don't fit perfectly, so, some 'brute force' may be required.



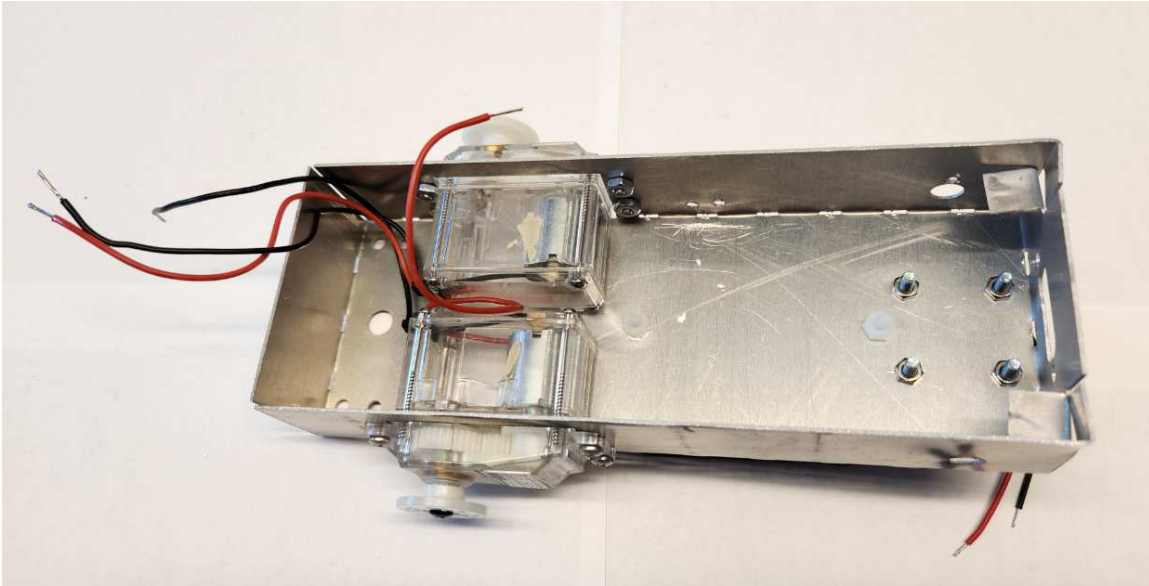
5) The picture bellow show the inside of the chassis when both the caster wheel and battery holder are installed. Did you use plastic screws and nuts to attach the battery holder?



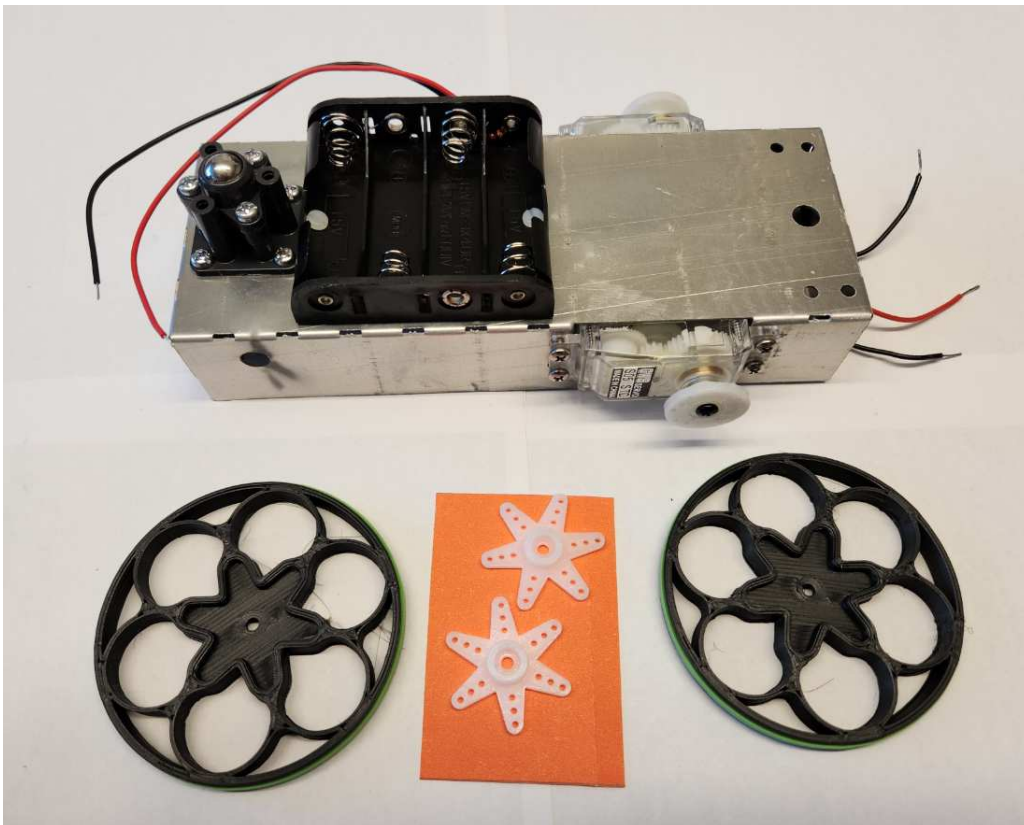
6) The next step is to attach the geared motors to the chassis. We need four 4-40 screws and nuts per motor.



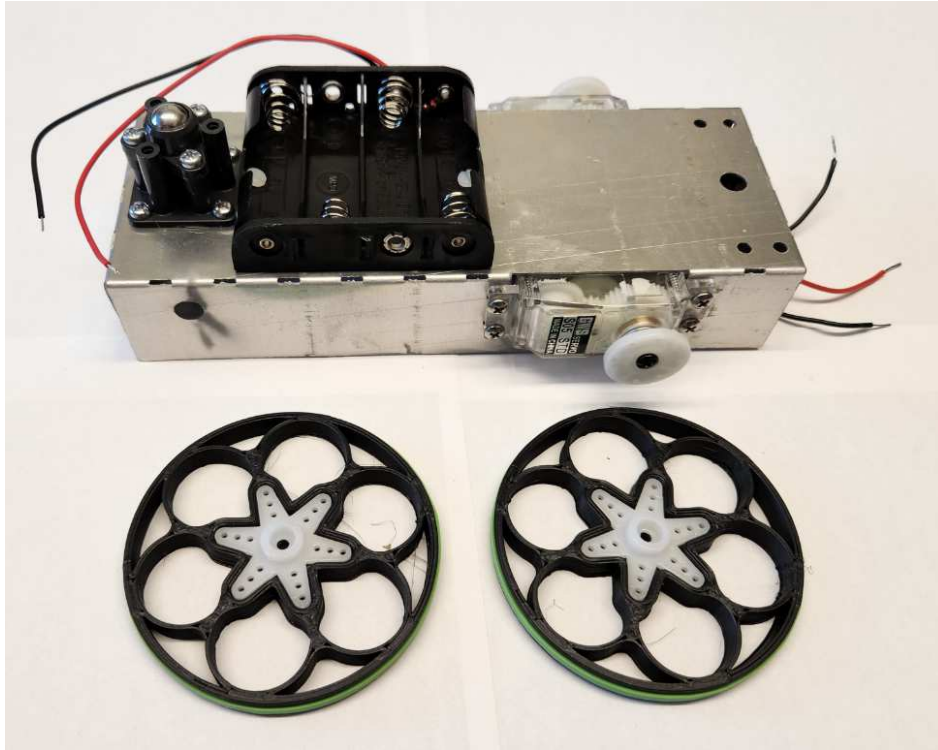
7) Install the geared motors as shown in the picture bellow.



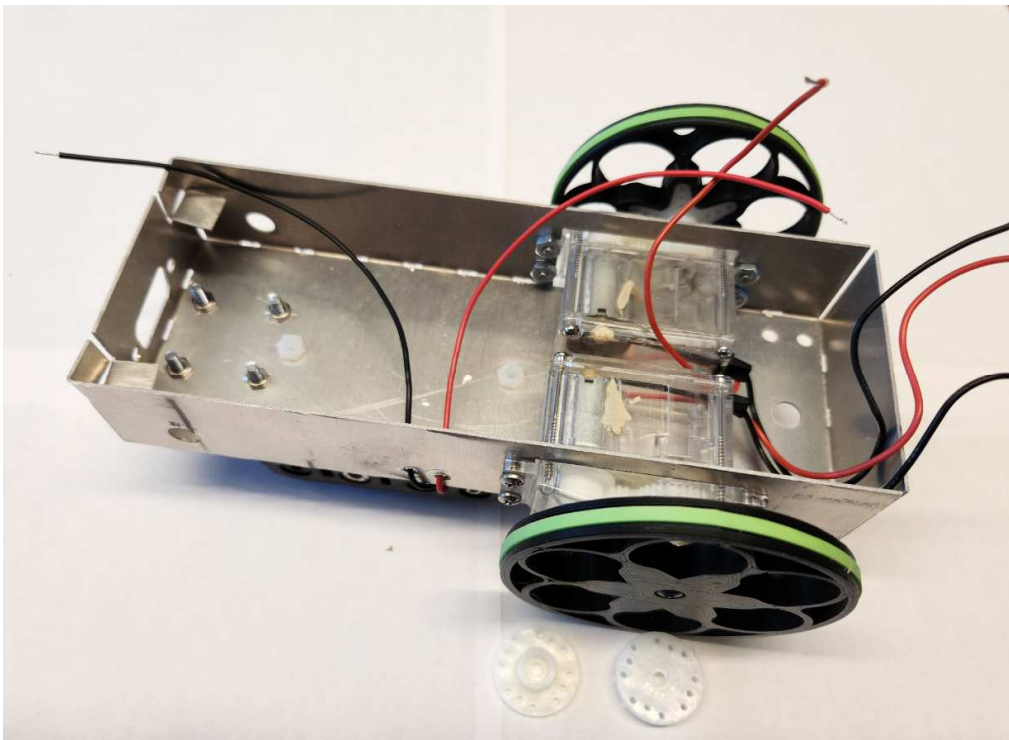
8) Now we can install the wheels. We need to remove the plastic horns first.



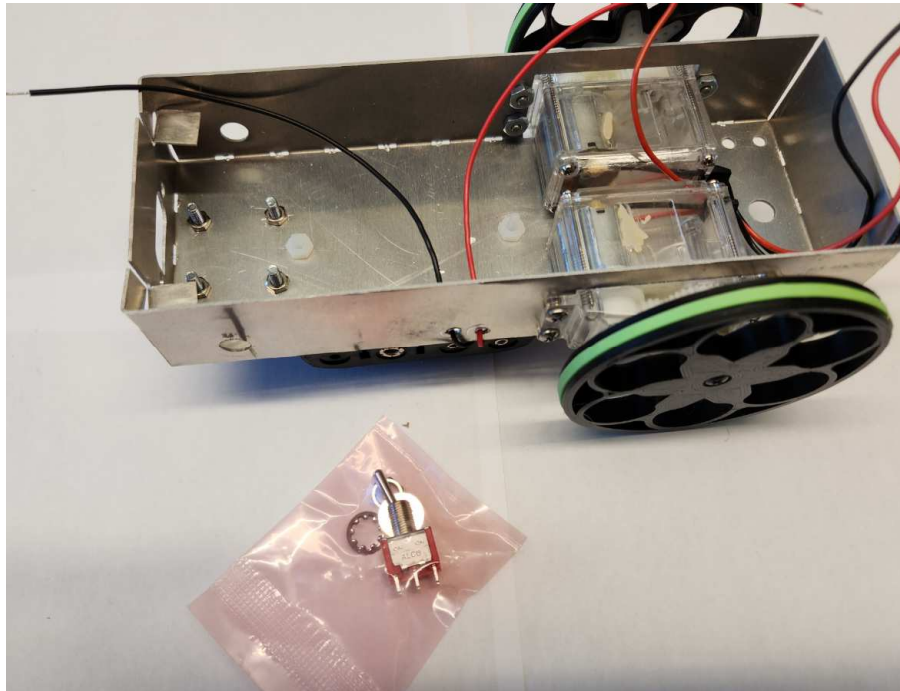
9a) The hexagonal servo horns fit inside the wheels:



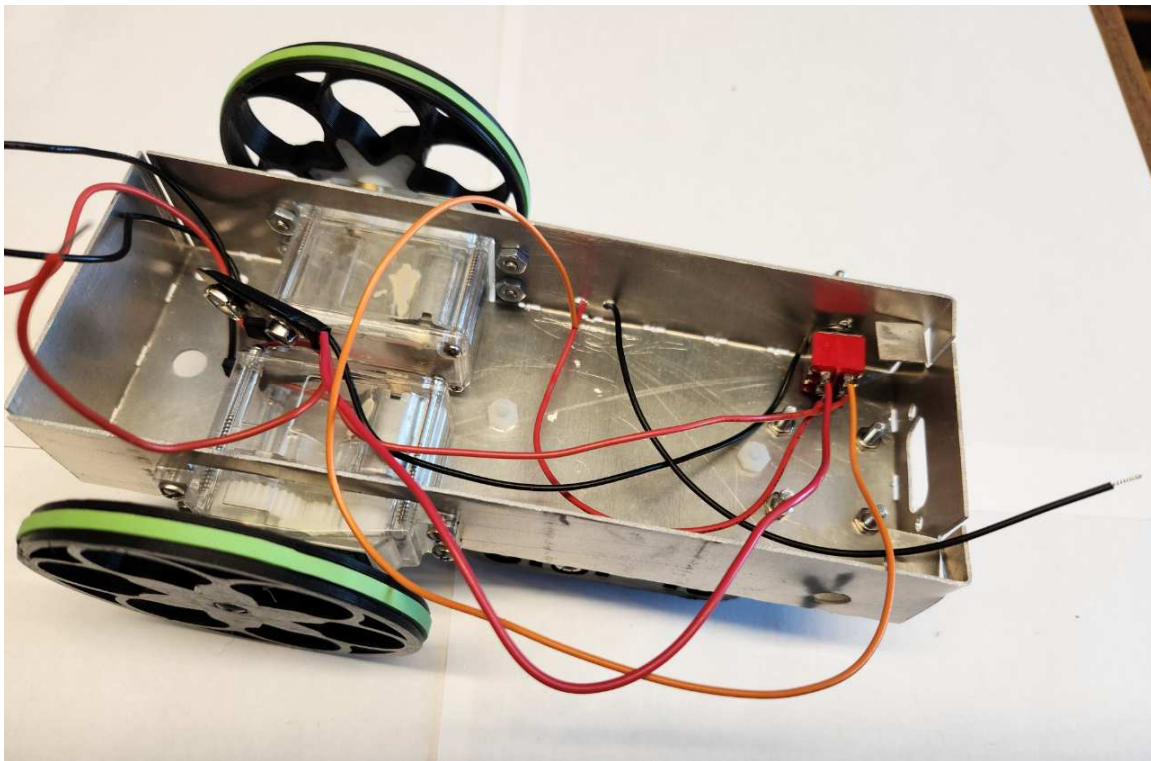
9b) Remove the round servo horns and install the wheels. Use the same black screws:



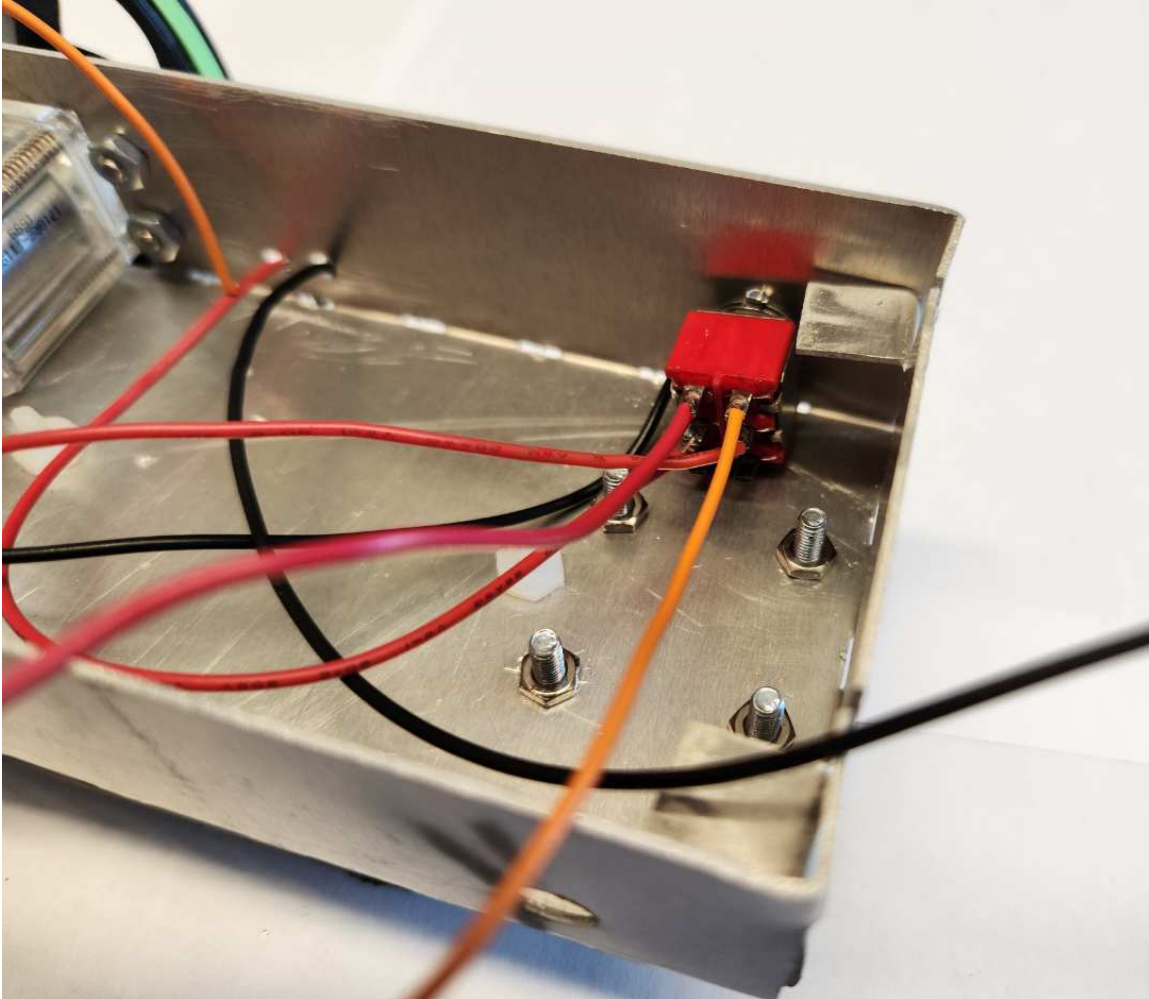
10) The double-pole/double-toggle DPDT switch allows us to turn the robot on/off.



11) Install the DPDT switch as shown in the picture bellow. There is a notch in the switch that matches a small hole in the chassis.



12) Solder the red wire of the 4xAA battery holder to one of the middle poles of the switch. Solder the red wire of the 9V battery clip to the other middle pole of the switch. Solder two wires to the two top poles of the switch. In the picture below the red wire is the 6V for the motors, and the 9V is the voltage that goes to a voltage regulator to power the microcontroller.



The body of the robot is ready to receive the breadboard with the rest of the electronics!