

ORTOP Modular Robot v3.0

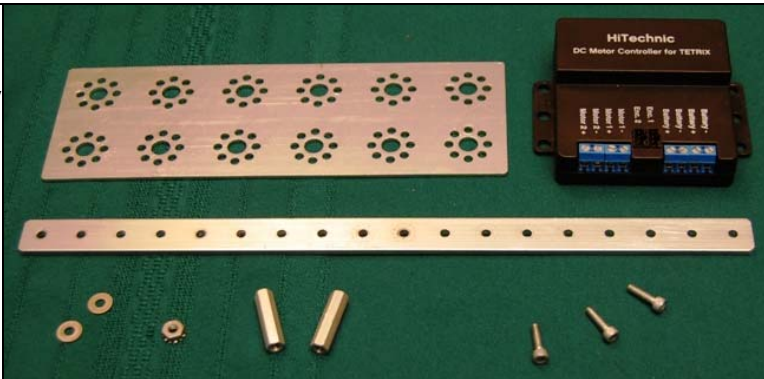
Control Module Assembly

Motor Controller Assembly

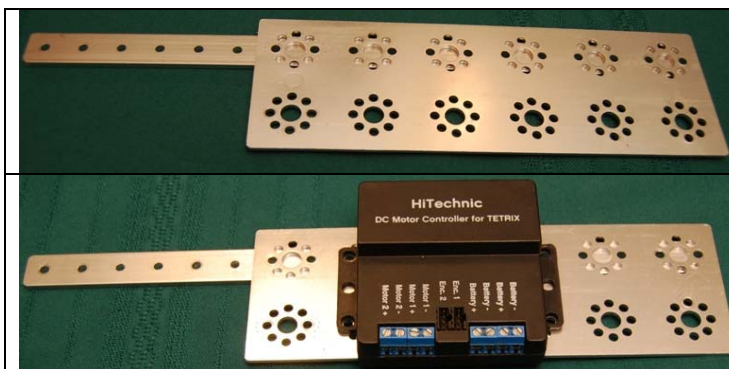
Parts Needed:

Control Module Assembly BAG 1

- 1 – Flat Building Plate
- 1 – DC Motor Controller
- 1 – 288mm Flat Bar
- 2 – 1" Stand-Off Posts
- 3 – Socket head cap screw,
1/2"
- 1 – 6-32 Nut
- 2 – 6-32 Washers



Assembly



1. Stack the plate on top of the flat bar so that the holes line up as shown.

2. Place the DC Motor Controller so that the rear mounting holes line up with the plate and bar as shown.



3. Push the screws up through the Controller from underneath. Make sure that the screws go through both the plate and the flat bar.

4. Place one washer on each screw as shown.



5. Attach the stand-offs as nuts and tighten the screws.

6. Attach the remaining cap screw and nut as shown by the red arrow.

Completed Motor Controller Assembly



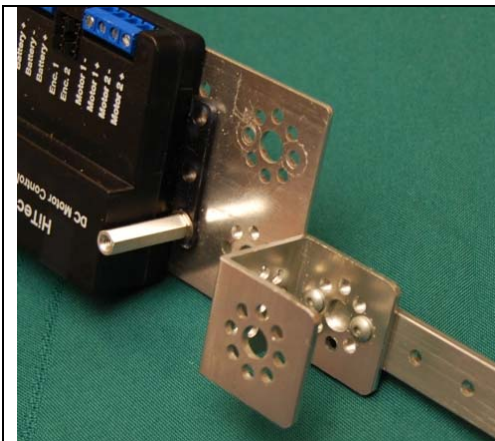
Switch Bracket Attachment

**Parts Needed:
Controller Module
Assembly BAG 2**

- 1 – Motor Controller Assembly
- 1 – 32mm Channel
- 2 – 3/8" Button Head Screws
- 2 – Nuts



Assembly

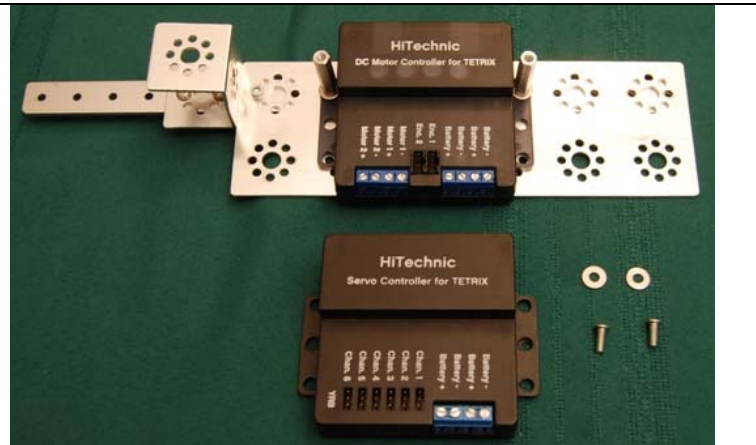


1. Attach the 32mm channel to the motor control assembly using the button head screws as shown.

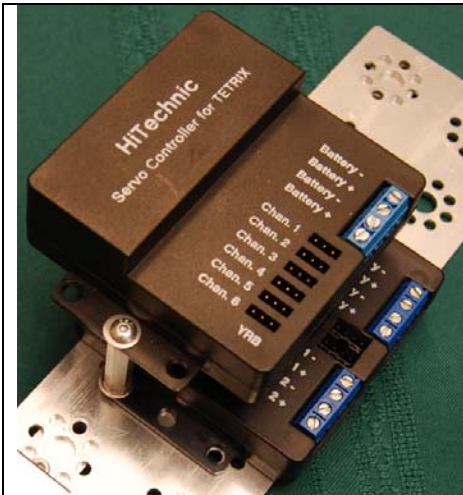
Controller Assembly

Parts Needed: Control Module Assembly BAG 3

- 1 – Motor Controller Assembly
- 1 – Servo Controller
- 2 – Button Head Screws
- 2 – 6 - 32 Washers

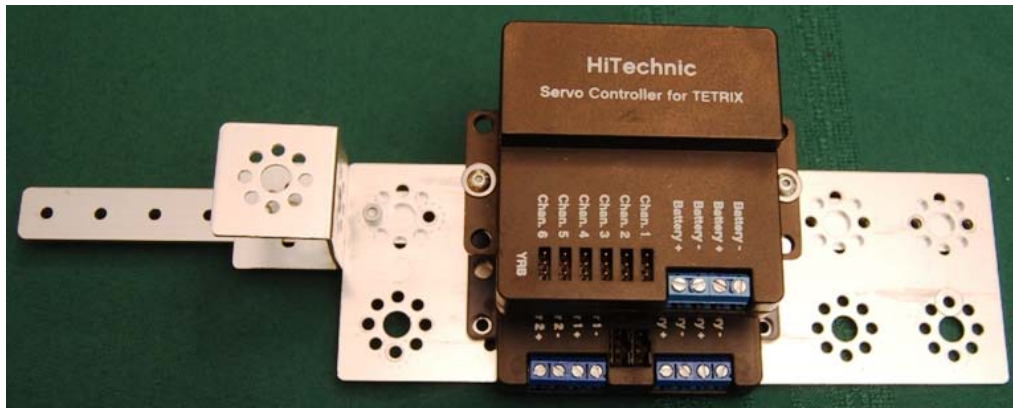


Assembly



2. Stack the servo controller on top of the motor controller so that the center holes line up on top of the hex standoffs as shown.
3. Attach the servo controller using the washers and button head screws.

Completed Controller Assembly



Wiring

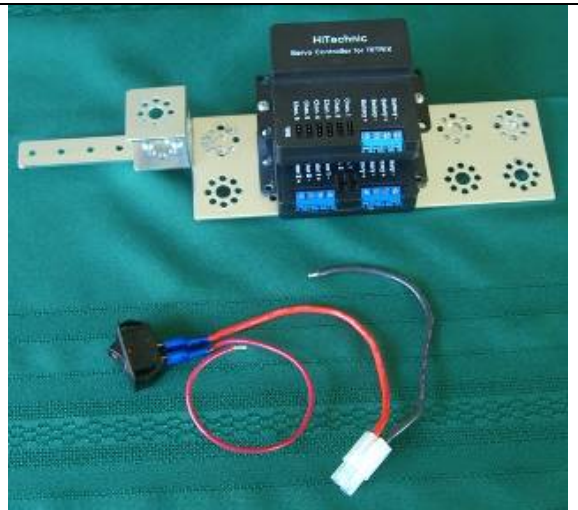
Parts Needed:

Control Module Assembly BAG 4

- 1 – Controller Assembly
- 1 – On/Off Switch
- 1 – Black power wire
- 1 – Red power wire
- 2 – Motor wire pairs
- 1 – 0.2 M NXT Connector Cable

On/Off Switch Attachment

Using parts from Bag 4



Assembly

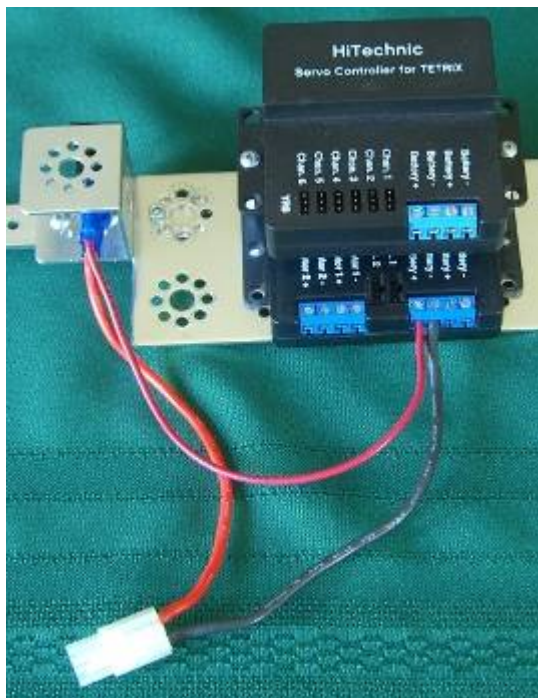


1. Slide the power switch into the 32mm channel as shown.



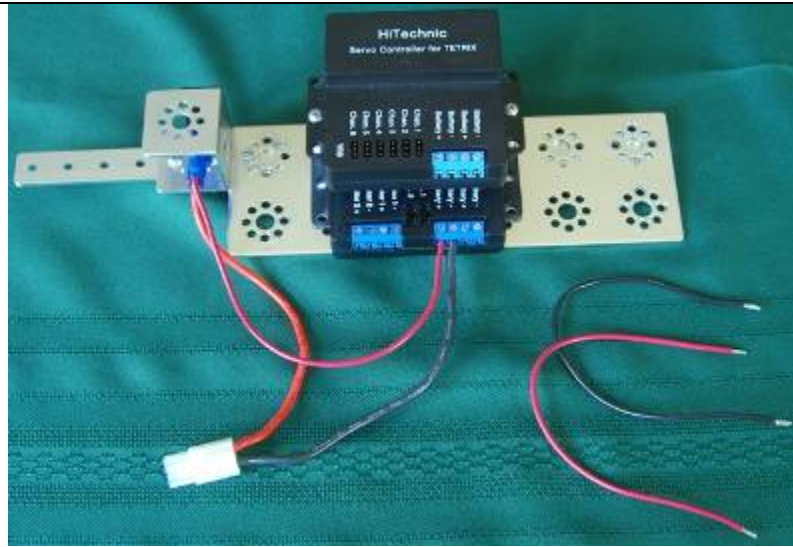
2. Connect the red wire to the positive + battery terminal of the motor controller (the controller on the bottom).
3. Connect the black wire to the negative battery terminal of the motor controller.
4. Tighten the set-screws with the small flat blade screwdriver. Make sure the wires are tightly connected.

Completed On/Off Switch Attachment

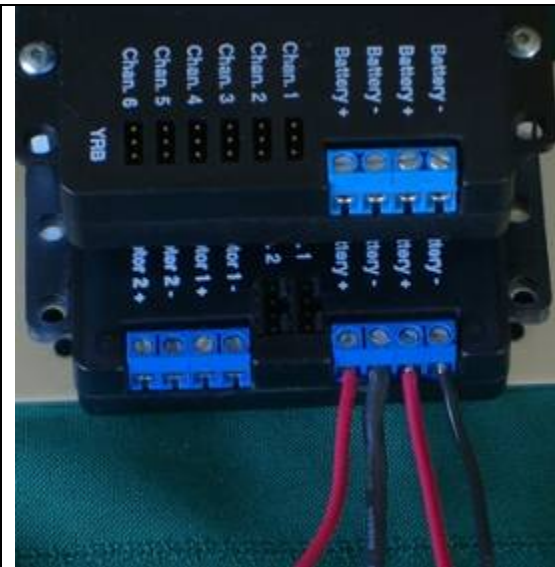


Power Wiring Attachment

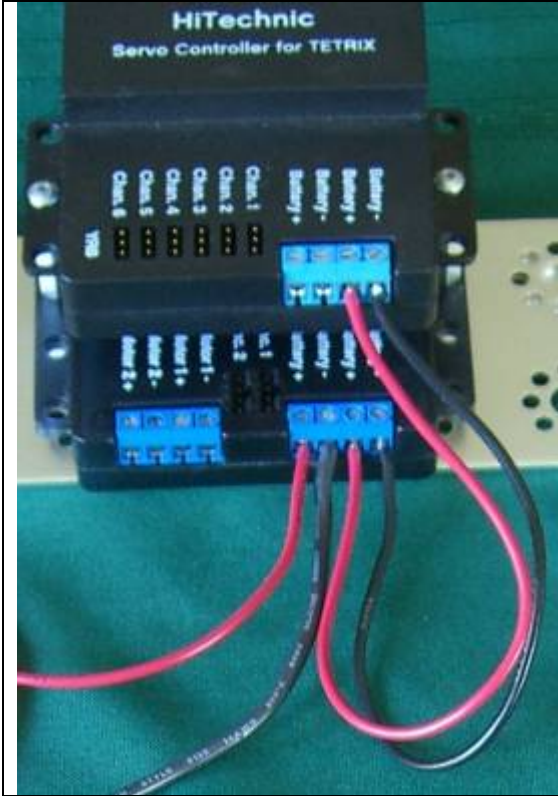
Using parts from Bag 4



Assembly



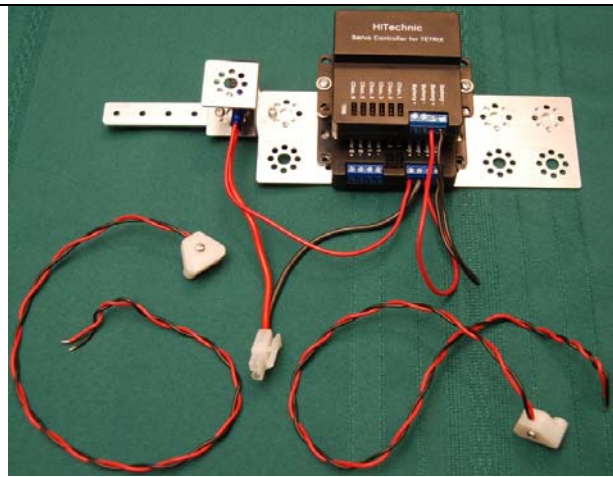
1. Attach one end of the red and black wires to the second set of battery terminals on the motor controller.
2. Make sure that the red wire is attached to the positive + terminal and the black wire is attached to the negative - terminal.
3. Tighten the set screws.



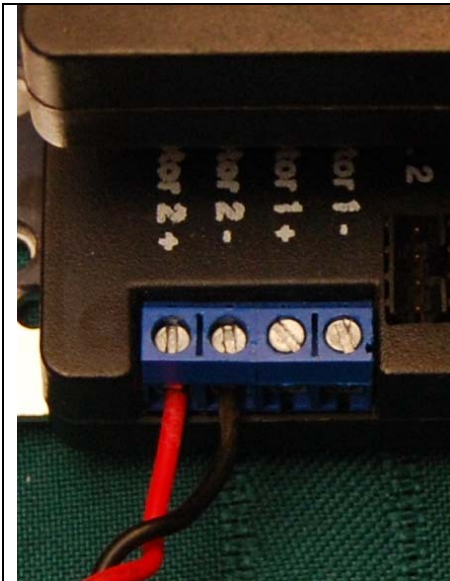
4. Attach the other end of each wire to the battery terminals of the servo controller as shown.
5. Ensure that the red wire is going to the positive + terminal and the black wire is going to the negative - terminal.
6. Tighten the set screws.

Motor Wire Attachment

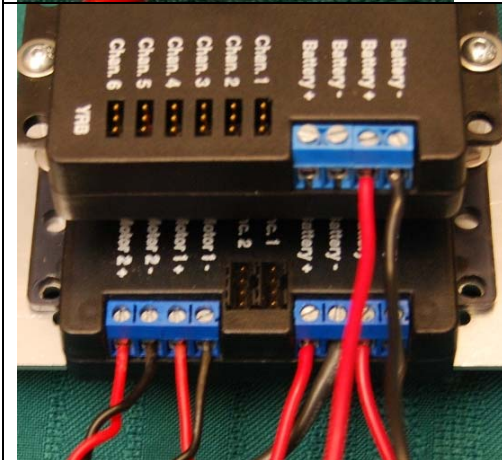
Using parts from Bag 4



Assembly



1. Attach the bare wire ends of one motor wire pair to the Motor 2 terminals of the motor controller.
2. Make sure that the red wire is attached to the positive + terminal and the black wire is attached to the negative - terminal.
3. Tighten the set screws.



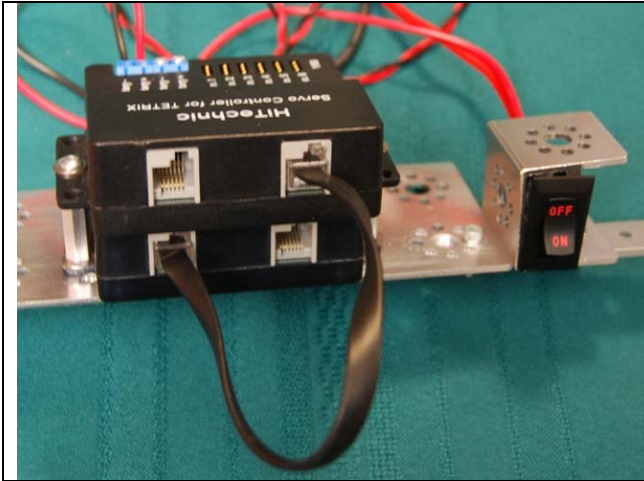
4. Attach the second motor wire pair to the Motor 1 terminals of the motor controller.
5. Tighten the set screws.

Controller Wiring Attachment

Using parts from Bag 4



Assembly



7. Connect the left hand jack of the motor controller to the right hand jack of the servo (upper) controller with the connector cable as shown.

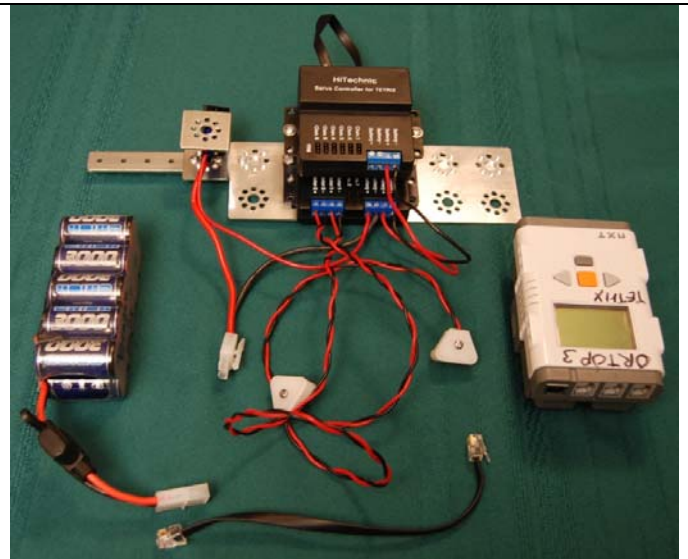
Final Assembly of Control Module

Parts Needed:

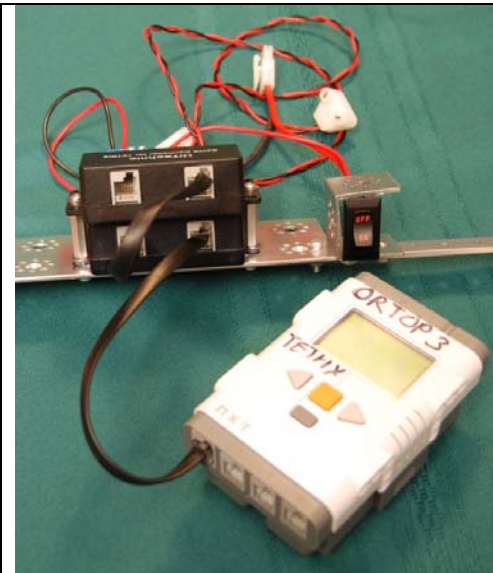
1 – Controller Assembly

Control Module Assembly BAG 5

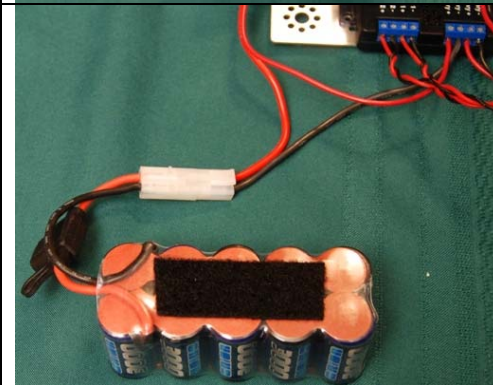
- 1 – NXT Intelligent Brick
- 1 – 0.2 M NXT Connector Cable
- 1 – 12 V Battery Pack



Assembly



1. Attach the NXT connector cable between port S1 on the NXT and the right hand jack of the motor controller as shown.



2. **Make sure the power switch is in the OFF position.**
3. Connect the battery to the jack on the On/Off switch.

Completed Control Module

