

Simple NXT Robot



by Tom Bickford
Maine Robotics
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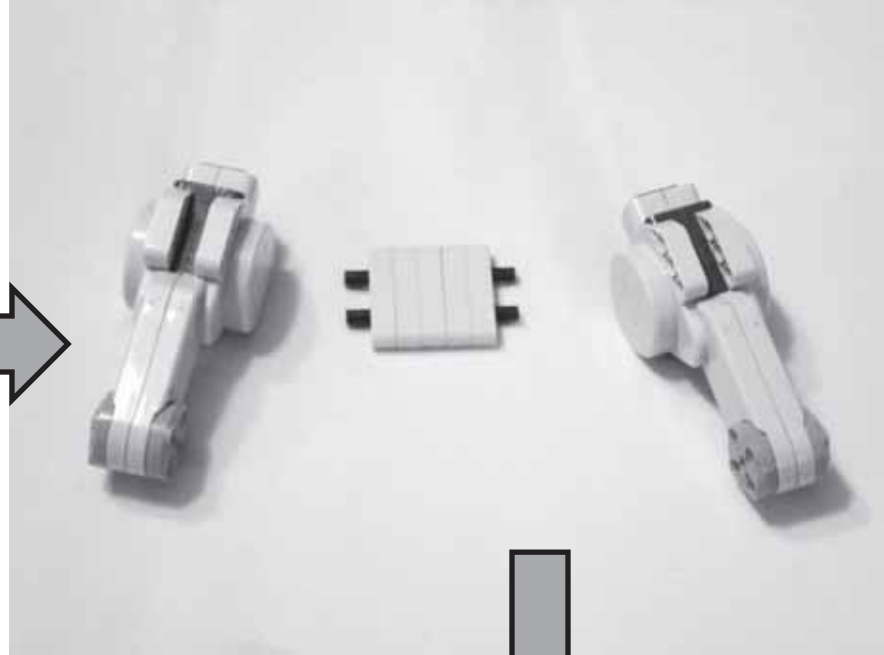
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Parts List

- NXT
- (2) Motors
- (2) Wires
- (2) NXT Drive Wheels
- (2) small pulley wheels
- Axles:
 - (3) #7 axles
 - (1) #3 axle
- Technic Lift Arms (also called Studless beams)
 - (5) five hole
 - (1) eleven hole
 - (2) seven hole
 - (2) three hole
 - (2) 11.5 double bent
- NOTE: No particular parts colors are required. All pins are of the friction type (black, tight fitting).

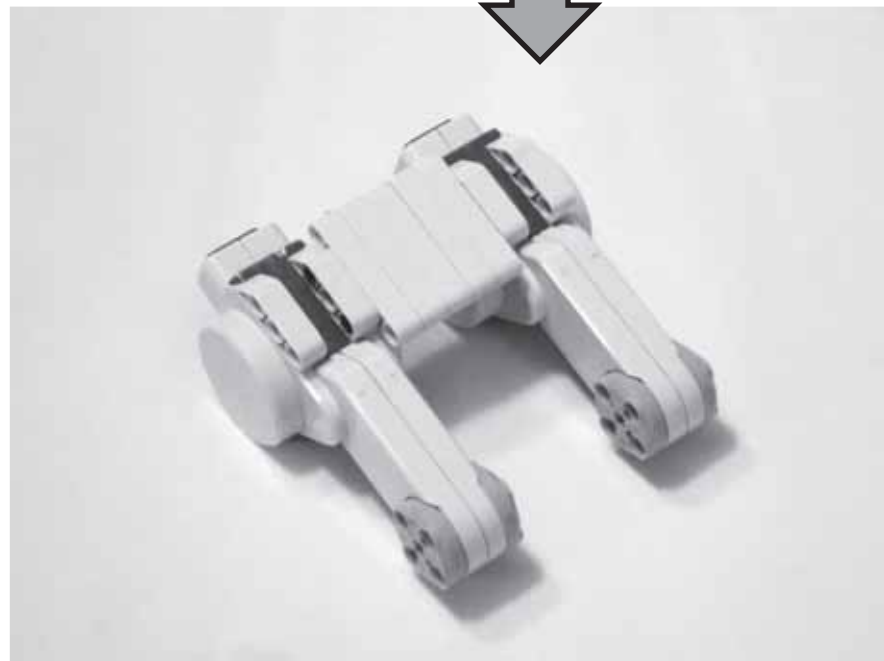
- Connectors
 - (6) full bushings
 - (2) long pins with stop bushings
 - (16) friction pins (black)
 - (7) long friction pins (black)
 - (4) axle pins
 - (1) axle/hole/axle perpendicular cross block
 - (1) hole/hole/axle perpendicular cross block





Build the Base:

1. Connect five 5 hole technic lift arms as shown
2. Use this to connect the two motors together





Build the Base:

1. Connect one 11 hole technic lift arm as shown



Attach the NXT:

1. Using an 7 hole, a 3 hole, and an 11.5 double bent Technic lift arms assemble the Base-to-NXT arms

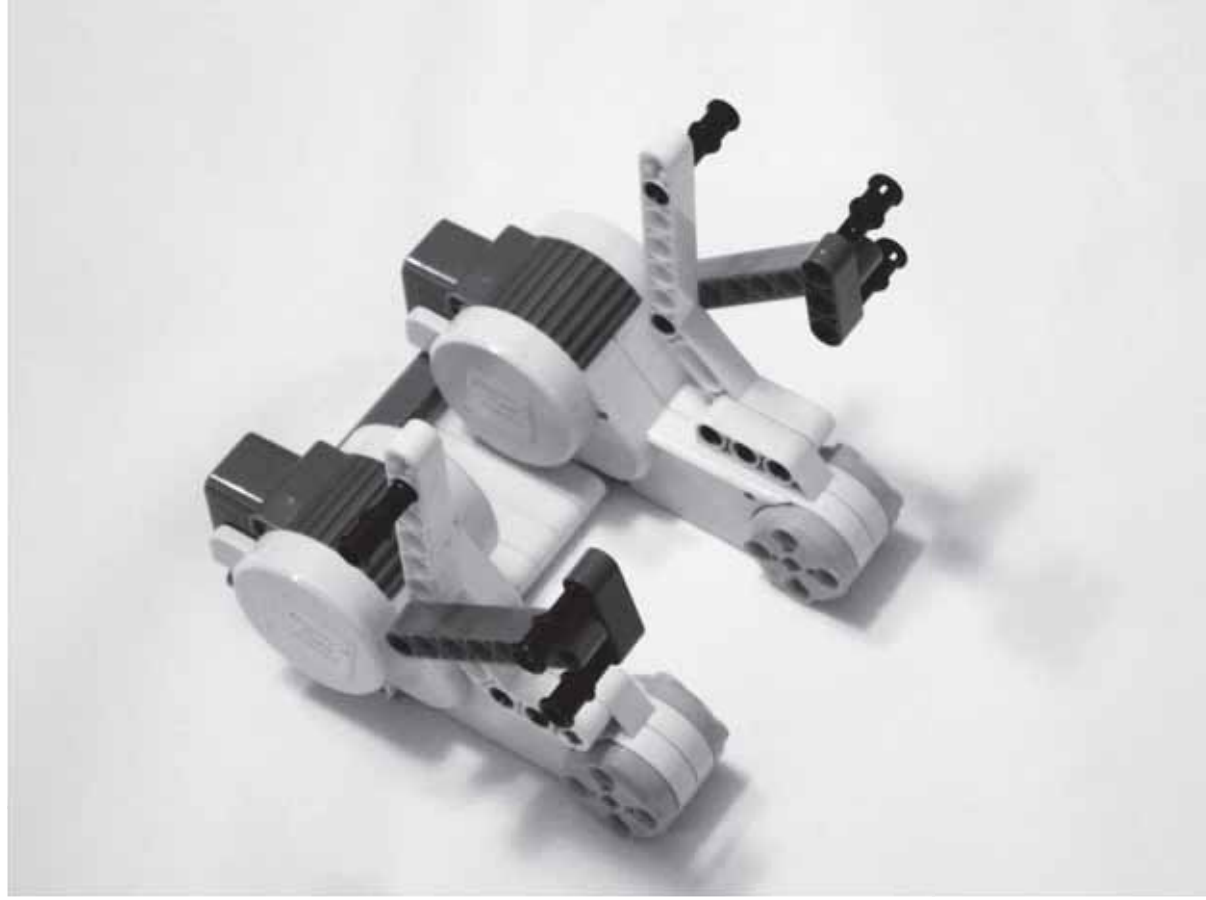




Attach the NXT:

1. Use long pins with Stop Bushing ends in the three holes shown. These pins are easy to pull out for quick removal of the NXT for battery changes, etc.
2. Make a mirror assembly for the other side





Attach the NXT:

1. Attach each side assembly to the base assembly, close to the rotating end of the motors. Note that the 7 hole Technic lift arms are on the outside of the assembly



Build the Pivot Wheel Assembly:

1. Assemble a #7 axle with the two special connectors, two axle pins, and 4 full bushings.
2. You can use smaller wheels if you have them; you may have to adjust the height by changing the number of bushing spacers

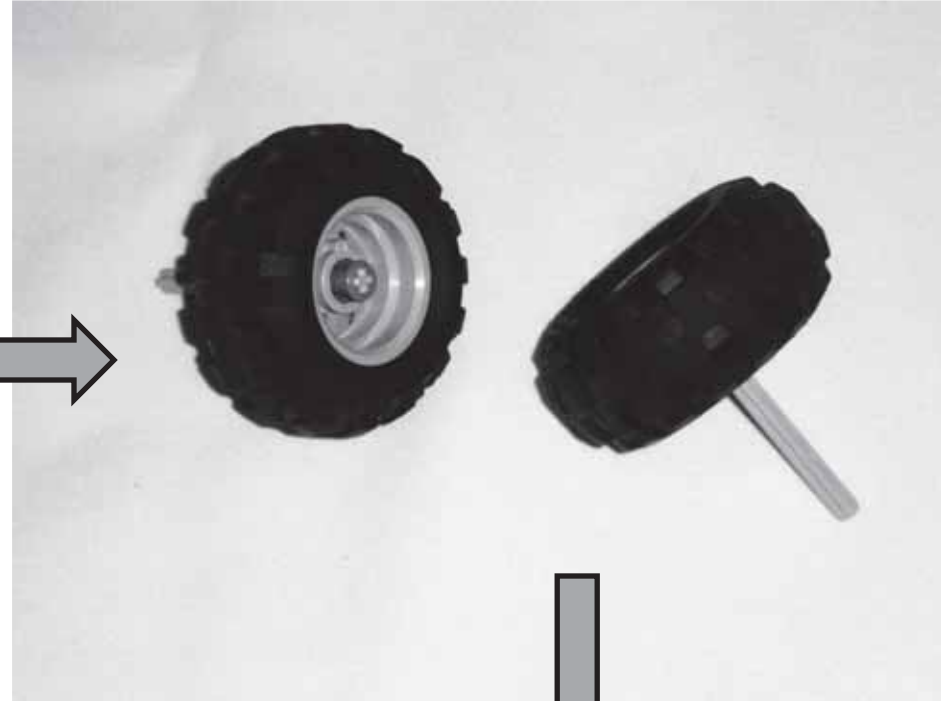
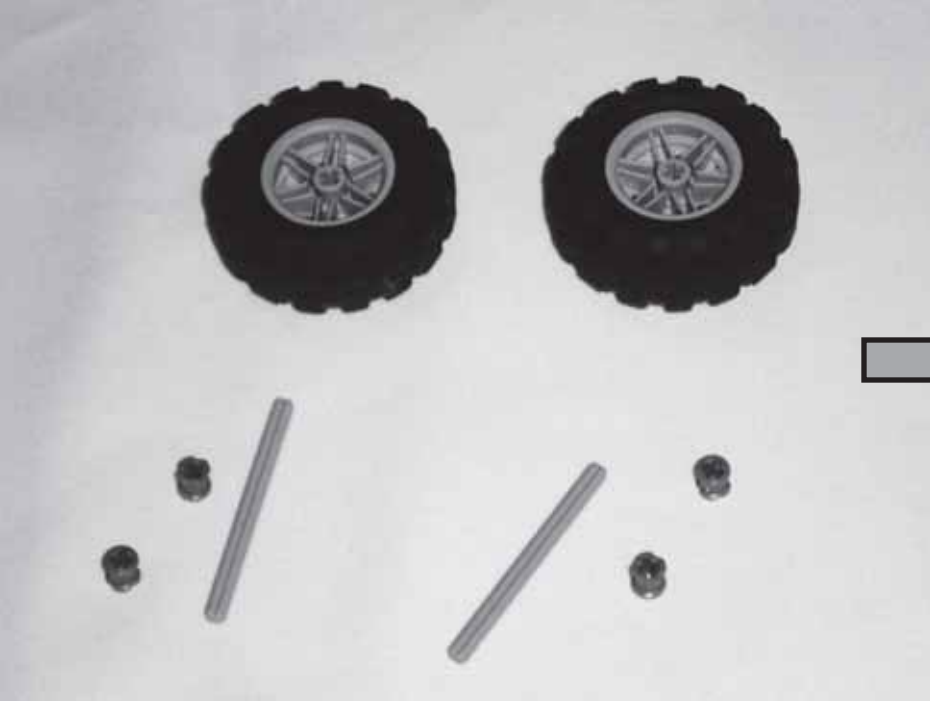




Build the Pivot Wheel Assembly:

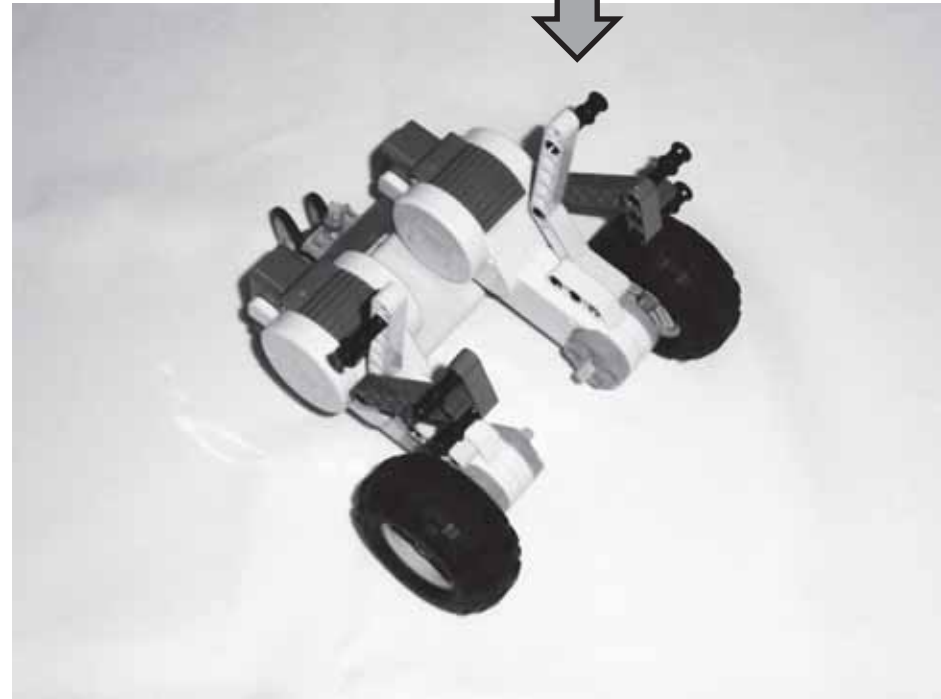
1. Use the #3 axle to attach the two small pulley wheels to the assembly (use the end hole on the connector)
2. Attach the finished assembly to the back of the robot base, connecting to the eleven hole Technic lift arm using the two axle pins already inserted in the assembly





Add the Drive Wheels:

1. Insert a #7 axle through each of the drive wheels and secure with a full bushing on each side.
2. Note: The axle sticks out on the flush side of the wheels (looks like spokes)
3. Insert the wheels into the motors on the base

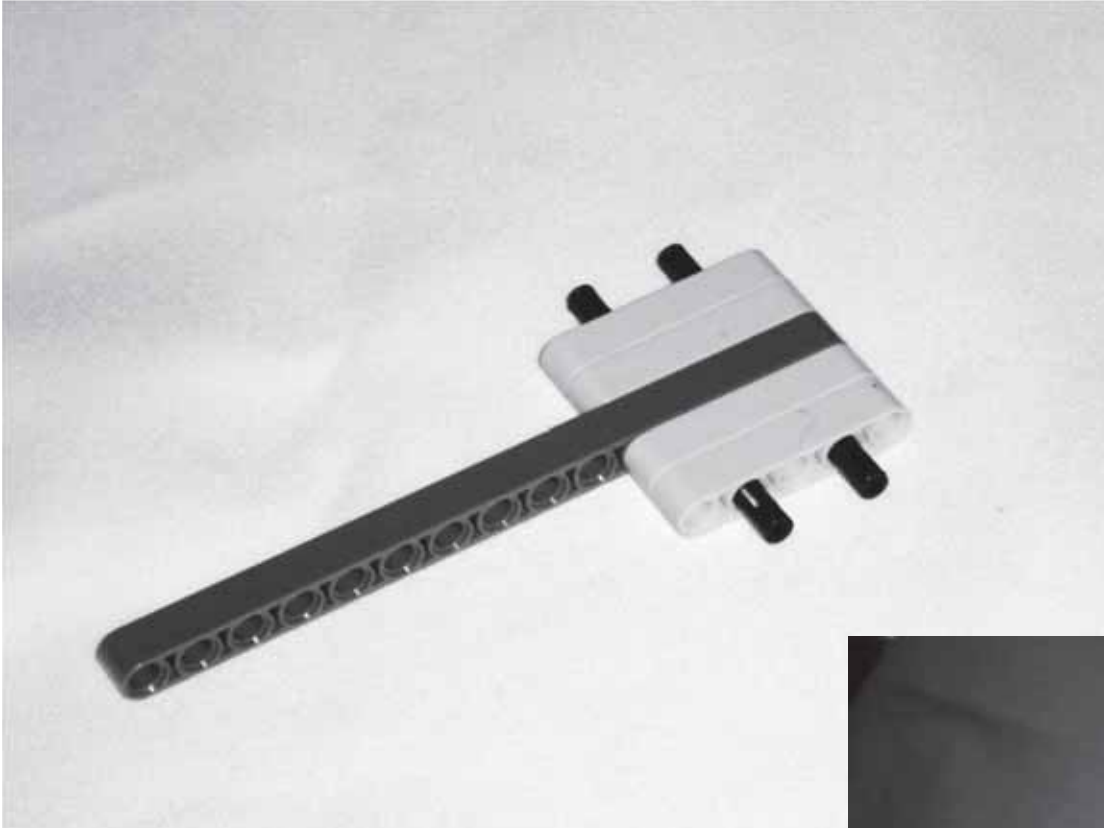




Finish the Robot:

1. Attach the NXT to the robot base
2. The long pin on the top of the double bent lift arm goes into the second hole down on the side of the NXT
3. Attach wires from the motors to the NXT.





Alternative Base Assembly:

1. By using a 15 hole straight Technic lift arm at step one, you will have a lift arm that extends out the front of the robot, making for a good place to attach a sensor.
2. Works with touch, light, color, or ultrasonic sensors
3. To aim a sensor down, use a 3x5 "L" Technic lift arm attached to the end

