



Quad-Wheel Omni-Directional Vectoring Robot Kit

Assembly and Operation

This is a robot that uses 4 omni omni-wheels to vector it in any direction. By changing the speeds and directions of the motors the robot can drive in any direction without needing to turn.

Images shown may not be an exact representation of the robot's features listed in this document

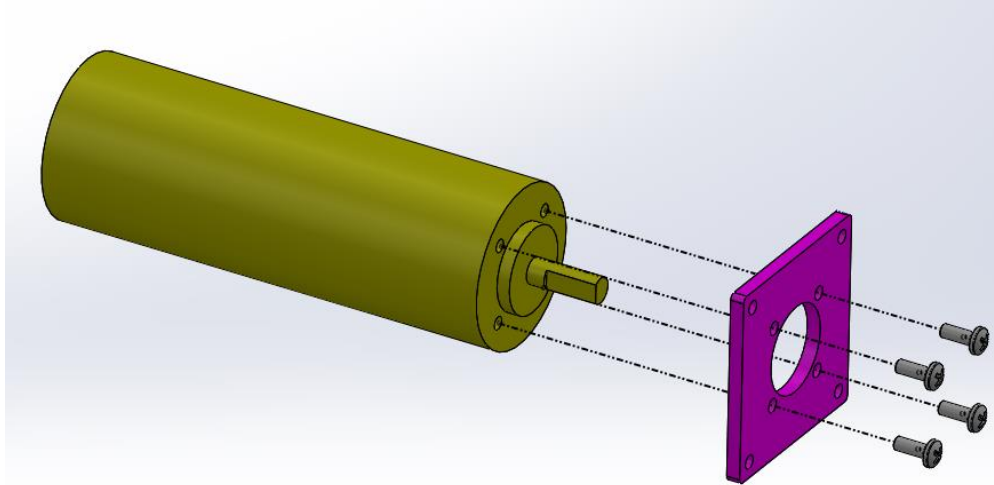


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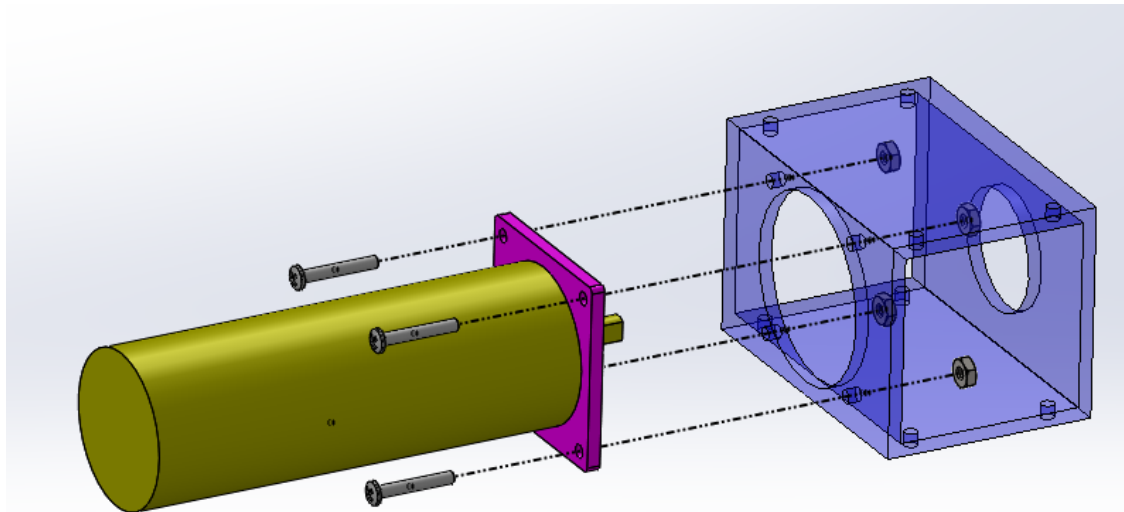
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Mechanical Assembly

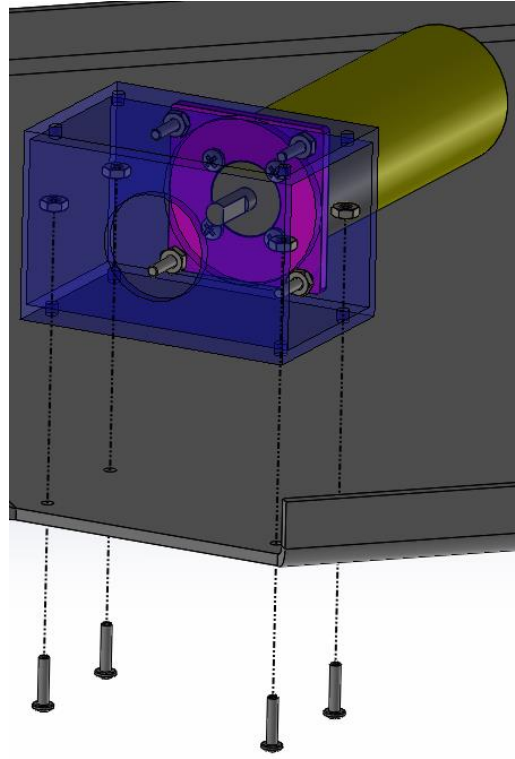
1. Start by mounting the motors to the motor plates. Use Loctite to keep the screws from vibrating loose. (Use Loctite on all screws that do not use locknuts).



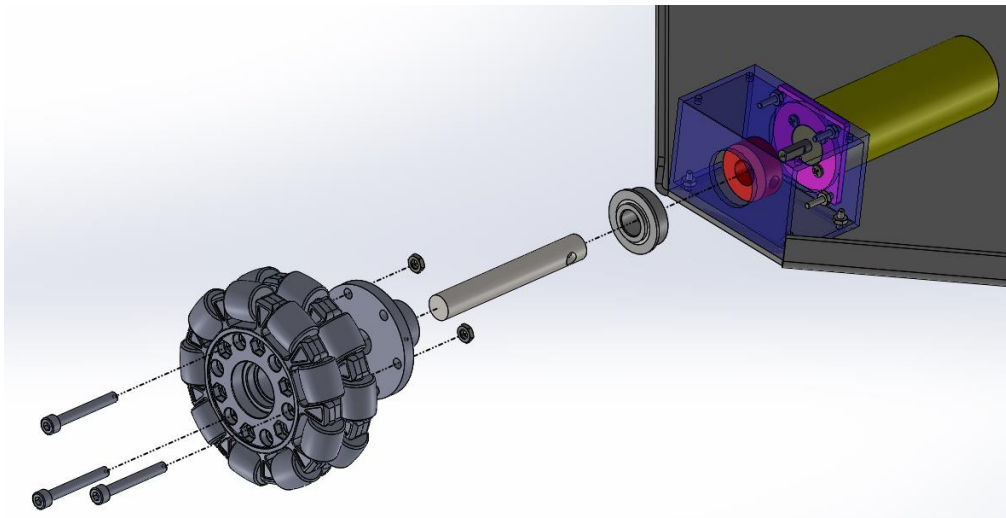
2. Use the included #4-40 hardware to mount the motor plate to the motor tube.

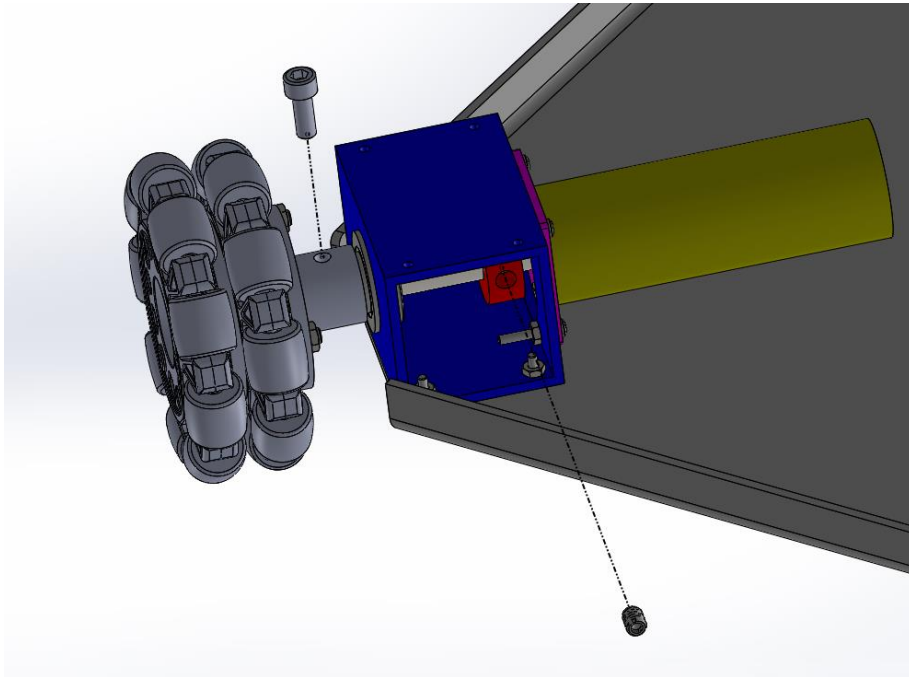


3. Mount the tube to the chassis plate using included #4-40 hardware.

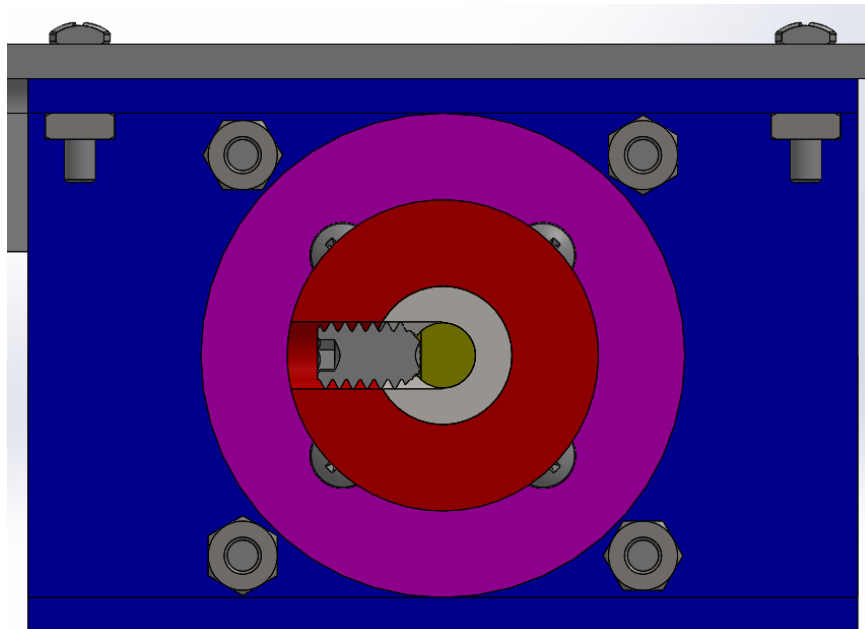


4. Mount the omni wheels to the aluminum hubs using the hardware included with the wheels. Slide the steel shaft through a shaft collar and onto the motor shaft. Slide the ball bearing into the hole in the motor tube opposite the motor. Now slide the hub onto the shaft so that it rests against the bearing.



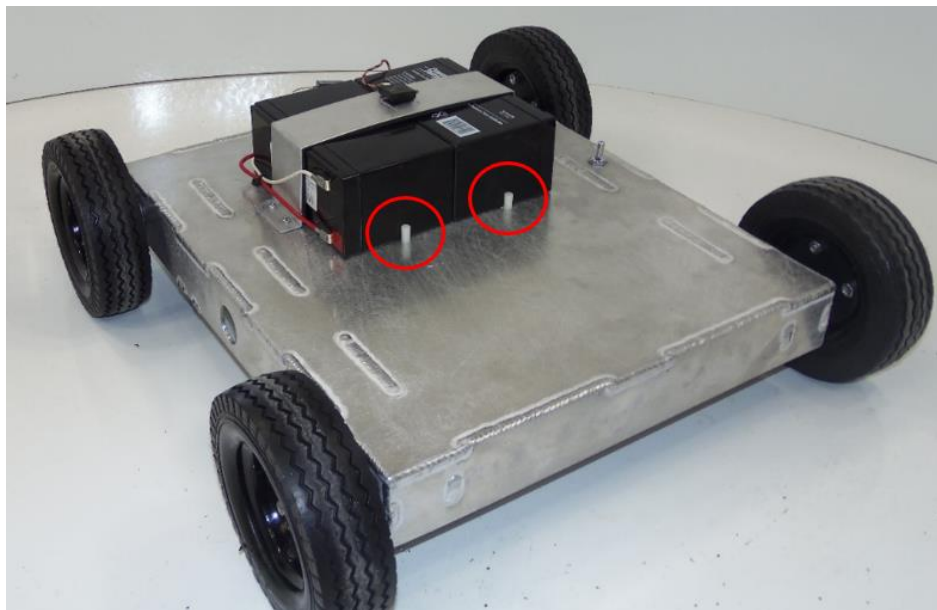


5. Tighten the socket head screw in the aluminum hub onto the steel shaft. Also tighten the set screw in the lock collar, through the hole in the shaft, and onto the flat part of the motor shaft. See section view below for clarification.





6. Position the batteries on the chassis where you want them to be mounted. Use the battery bracket to mark the necessary mounting holes to be drilled (typically these will be 1/8" holes). Drill the holes in the chassis and mount the battery bracket using the included hardware and, if necessary, foam tape to ensure a tight fit. Also included in the battery bracket hardware kit are some plastic spacers. These are to keep the batteries from sliding underneath the battery bracket (see picture below). Position the spacer against the end of each battery and use a 3/32 drill bit through the spacer to mark the hole in the correct place. Drill out hole to 1/8" and mount the spacers with the included hardware.



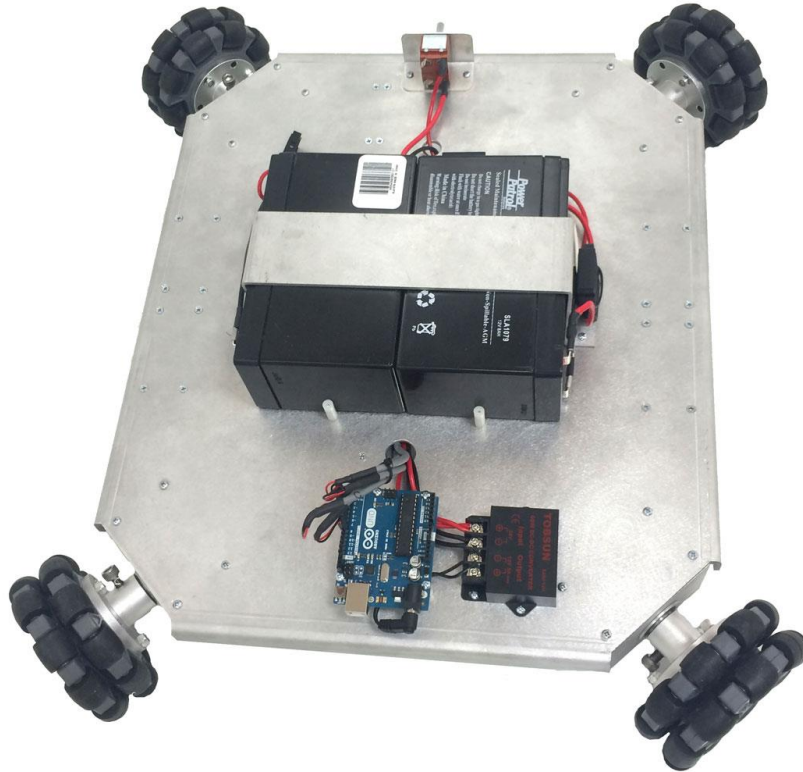
Picture for battery mounting reference only



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7. Pick a spot to mount the switch and motor controllers. Mark and drill holes (1/8" for motor controller, 1/2" for switch). Optionally, switch mounting brackets are available for purchase for easier switch mounting (see link below).

[Switch Mounting Bracket](#)





Electrical Assembly

For electrical assembly please find the schematics for "Vectoring Robot" on our website:

[Schematics](#)

For additional support on wiring, soldering, and crimping, please read the following support pages:

[Electric Motor Hookup Support](#)

[Electric Power Hookup Support](#)

[Soldering Tips](#)

[Crimping Wires](#)

Operation

1. Before powering on the robot make sure it is up on blocks so the wheels can spin freely. Occasionally some or all of the wheels start as soon as the motor controller gets power. In this case the settings of the motor controller need to be changed.
2. Make sure to use the correct DIP switch settings. If using a Sabertooth motor controller in R/C mode switch 1 should be DOWN (closest to the number) and all other switches should be UP. If using a different mode see the manual for the motor controller you are using on Dimension Engineering's website.

Binding a Spektrum Remote

3. Insert the bind plug into the receiver and power on the robot.
4. While pressing the Bind button, power on the transmitter.
5. Release the Bind button after the receiver's LED stays illuminated. This indicates the receiver is bound to the transmitter.
6. While the robot and transmitter are still powered on, remove the bind plug from the receiver.
7. If the wheel aren't moving as desired, it may be necessary to swap the Aileron and Elevator plugs or to reverse the channels on the transmitter. To reverse channels see the instructions for "Servo Reversing" in the Spektrum documentation.



General Terms

1. SuperDroid Robots, Inc is not responsible for special incidental or consequential damages resulting from any warranty or under any legal theory, including, but not limited to lost profits, downtime, goodwill, damage to, or replacement equipment or property, or any cost of recovering, reprogramming, or reproducing any data stored. ANY LIABILITY SHALL BE LIMITED TO REPLACEMENT OF DEFECTIVE PARTS. SuperDroid Robots, Inc. is further not responsible for any personal damages, including, but not limited to bodily and health damages resulting from any use of our products.
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3. Agreements shall be construed in accordance with the laws of the State of North Carolina, and the rights and obligations created hereby shall be governed by the laws of North Carolina.
4. In the event a dispute or controversy arises, such dispute or controversy (including claims of default) shall be brought in the courts of Wake County, North Carolina and the plaintiff hereby agrees to this choice of venue.