

# Lawn Mower Chassis Upfit Robot

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## Assembly and Operation

### Short Description

Lawn Mower Chassis Upfit Robot Package - Wheelchair Motor System.

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



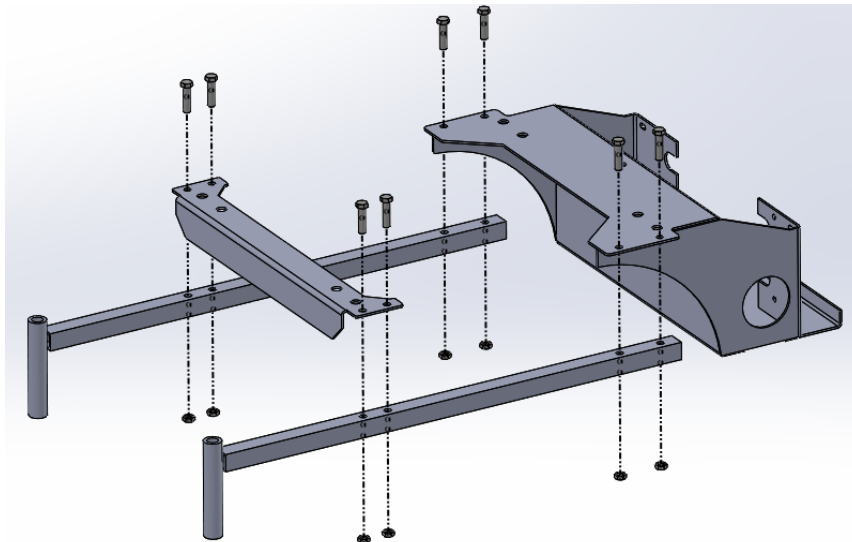
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## Mechanical Assembly

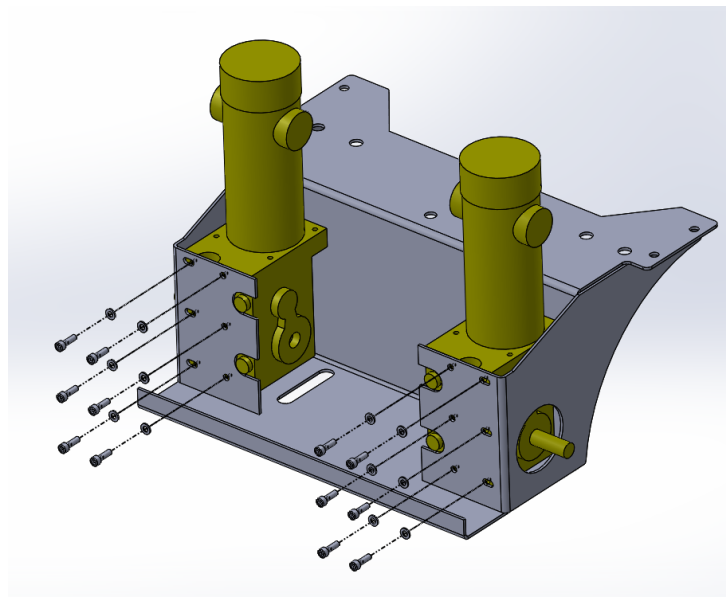


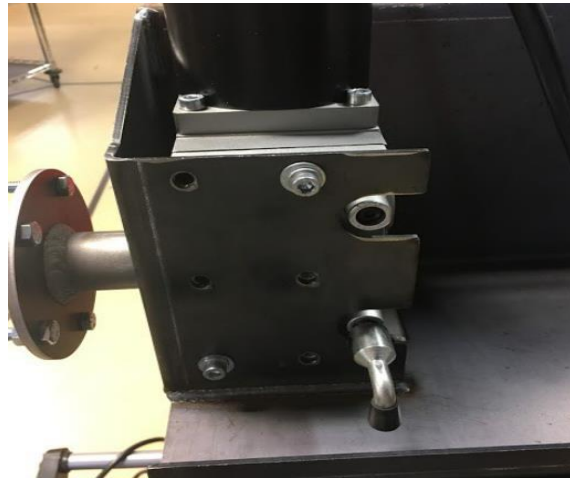
1. Assemble the frame as pictured below. Use the supplied hex head screws and nuts to bolt the parts together.



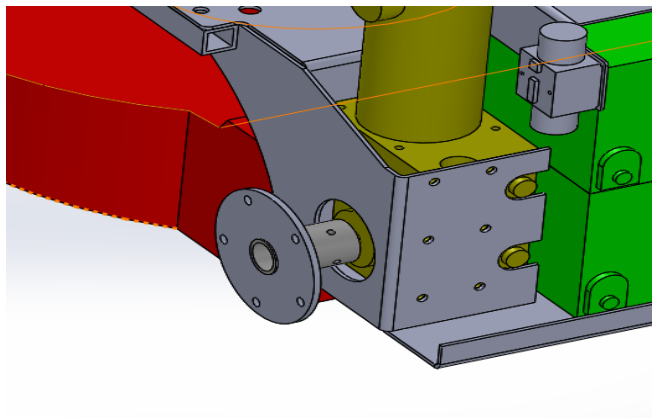


2. There is a brake on the back of the motors that needs to be removed before they are mounted. Remove the plastic cap from the end of the motor by removing the three screws. Unbolt the brake that is under the cap, cut the two small wires, and set the brake aside. Once the brake is removed you can put the cap back on the end of the motor.
3. Now remove the six socket head screws from the each of the motors. Set the cast aluminum bracket aside. Use the same screws and the included washers to bolt the motors to the chassis as shown in the pictures.





4. Slide the wheel hubs onto the motor shaft. Make sure the key on the motor is lined up with the keyway in the wheel hubs. Secure with the setscrews.



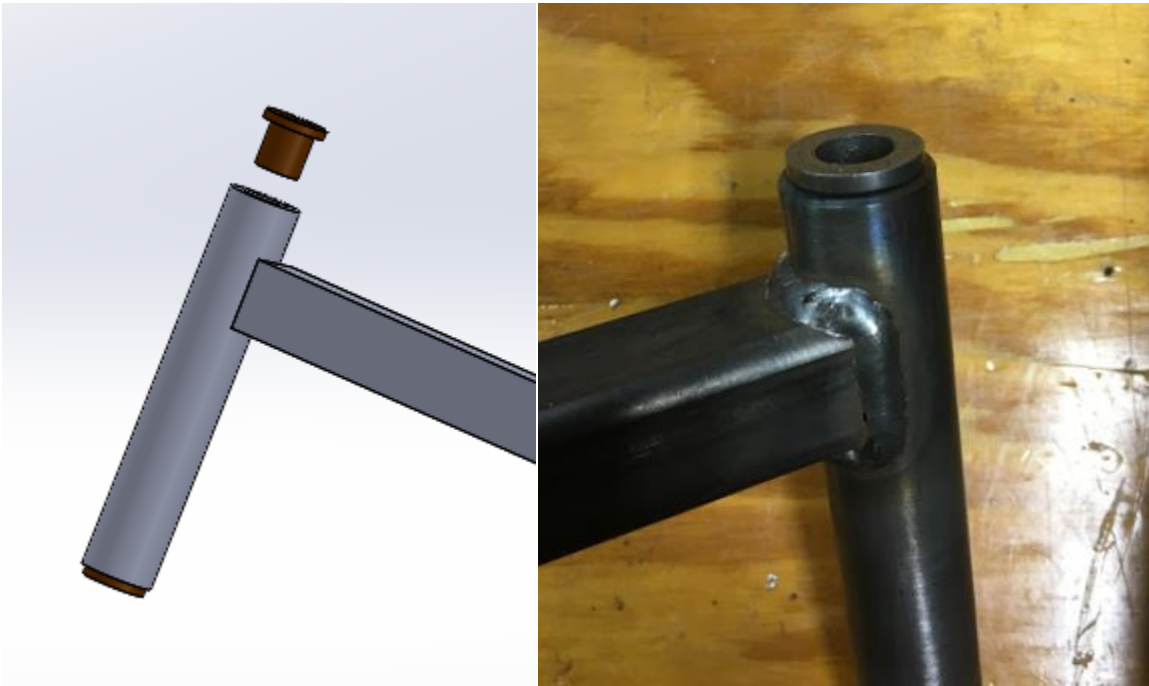


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5. To bolt the wheels on start by making a “stud” with the included screws. Insert the screws in the holes in the hub and secure them in place with a nut. Now slide the wheel onto the studs and secure with another nut against the rim of the wheel.

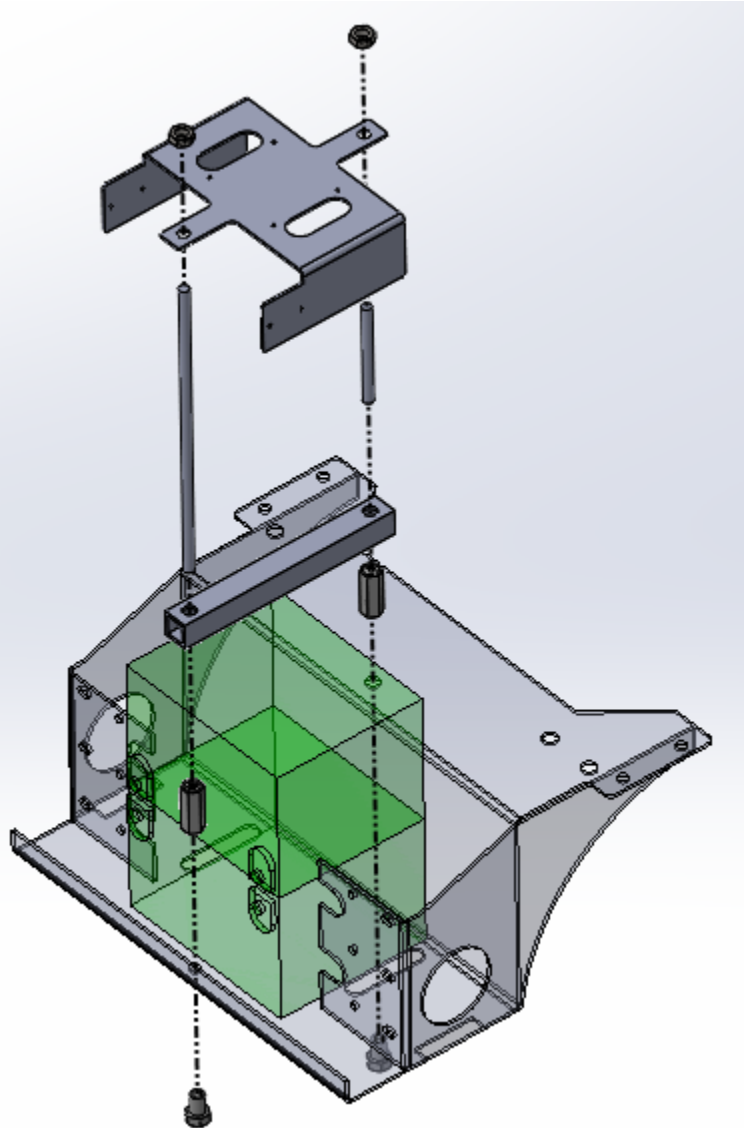
*TIP: Letting some air out of the tire will make removing the screws in the rim and bolting the wheel to the hub easier. DO NOT FORGET to put air back in the tires after bolting them on. If not inflated, the tube can spin inside the rim and tear the valve stem.*



6. Insert the bronze bushings in the castor tube ends. Slide the castor shaft through and secure it with a locknut. Insert the front castor wheels and bolt in place.

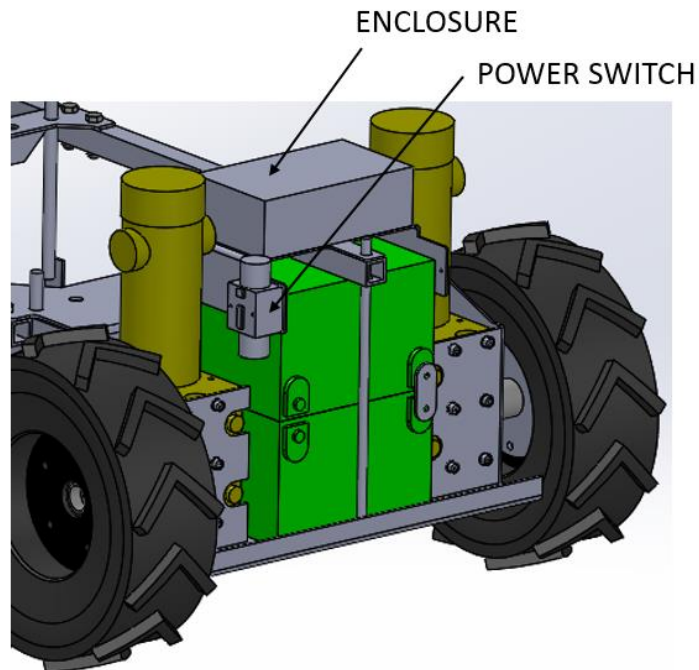


7. You now have a rolling chassis. Next, mount the batteries using the all-thread, hex head screws, coupling nuts, and steel tube to bolt them down. Also included is a bracket to mount the electronics enclosure, which should go on top of the tube and be secured down with the same nuts.

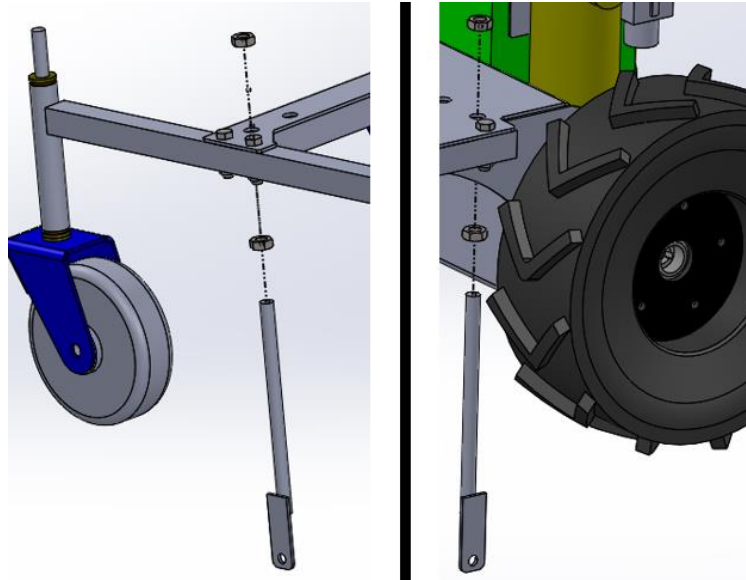




8. Mount the Sabertooth 2X60 motor controller inside the enclosure to protect it from dust and debris and then mount the enclosure to the plate on top of the batteries. The plate also has holes to mount a circuit breaker/switch that is used as the main power switch for the robot.



9. We have also included an aluminum plate that connects the positive terminal of one battery to the negative terminal of the other battery. This connects the batteries in series so there is 24 volts across the other two terminals.
10. Next install the mower mount brackets to the frame. Spin a nut a couple of inches onto the threaded rod, slide the threaded rod through the outer holes in the frame, and secure with another nut on top. The threaded rod allows for the height adjustment of the mower. Leave it loose for now, until the mower is mounted.



11. To mount the mower to the frame you'll need to remove the mower's wheels. Make a stud by inserting a screw through one of the holes used to mount the wheel brackets (from the inside of the frame) and securing it to the mower frame with a nut. When for studs are in place, lift the mower frame and insert the studs into the mower mount brackets hanging from the frame. Secure with a nut on the other side of the bracket.



## 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. For instructions see the section on “Servo Reversing” in the Spektrum manual.
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.



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