

# Assemble the GoPiGo

 [dexterindustries.com/GoPiGo/getting-started-with-your-gopigo-raspberry-pi-robot-kit-2/assemble-gopigo-raspberry-pi-robot/](https://dexterindustries.com/GoPiGo/getting-started-with-your-gopigo-raspberry-pi-robot-kit-2/assemble-gopigo-raspberry-pi-robot/)

Below we have broken down each step to assemble the GoPiGo. You can click on any of the pictures to get a closer look at what is happening in the specific step.

Questions? [Ask away!](#)

Watch the full video, or see each step broken out below.

## Tools for Assembling the Raspberry Pi Robot

The only tool you'll need to assemble the GoPiGo is a small Phillips head screwdriver.

### 1. Unpack the Box.

The first step is to unpack the box. In the box you should find a pair of wheels, the GoPiGo Board, two motors, two bags with acrylic parts, two bags of hardware, a battery adapter, and a battery box (8 or 6XAA).

Your acrylic parts will come with a protective coating to prevent it from scratching. You can remove it, or leave it in place, whichever you prefer. Under the packaging, the acrylic is clear plastic.

The box contents.



### 2. Which Way Is Up?

We'll start with the body plate of the GoPiGo.

It's the largest acrylic part in the bag. The easiest way to figure out which way is up is to lay the board across the GoPiGo circuit board. You should see two holes line up for attaching the circuit board. In this step, we'll find these holes, and place the two support hex spacers into them to remind us which way is up.

The chassis and the hex spacers.

These two holes are now matched up to the GoPiGo Board. Click for a larger picture.

Attach the two short posts.

Attach the two short posts to the board. We'll leave these in place to remind us which way is up.

Double check that the GoPiGo mounting holes line up to the posts.

Last but not least, double check the posts properly connect the two holes on the GoPiGo board with the Acrylic. We will not attach the GoPiGo board in this step, we are just ensuring the acrylic, posts, and board are properly aligned.

### 3. Attach the Motors

To attach the motors to the chassis, we'll first find the four long bolts, prepare them, and then use the acrylic "T"s in the kit to attach the motors. Be careful when screwing the motor in place: if you over-tighten the bolts you can crack the acrylic.

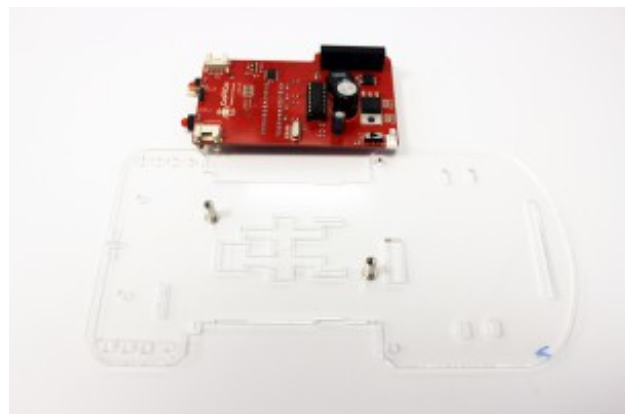
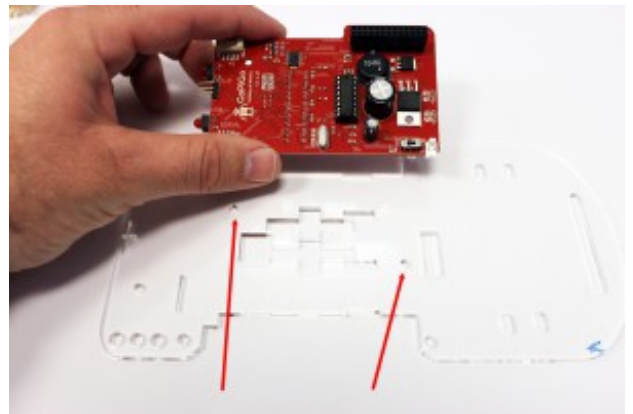
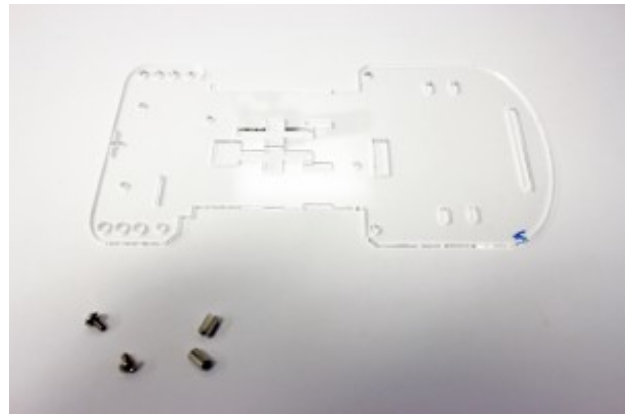
Find the long screws and corresponding nuts. These are located in the same bag as the caster wheel.

Prepare the bolts by attaching 1 nut to each bolt.

Prepare the bolts by screwing a single nut onto each bolt, all the way down to the screw head.

Next we find the acrylic "T"s. There should be at least four. We have packaged a few extra as backup. Insert one T from the top.

There are four "T"s with a few to spare. Find these and insert them into the chassis from the top down. This view is from the bottom.



After the T has been slid through the chassis, slide bolts through the T. The bolts should point from the inside out. The bolt heads should be facing outward!

Attach the Ts and insert the screws.

Attach the motor by sliding it sideways in on the screws.

Slide the second motor on. Slide the second T on to the outside of the chassis.

Slide two of the prepared bolts into the holes on the T. They should slide all the way through.

Screws inserted from the outside in, holding the motor to the chassis.

Finally, tighten up the bolt by placing a nut on each bolt on the inside of the chassis.

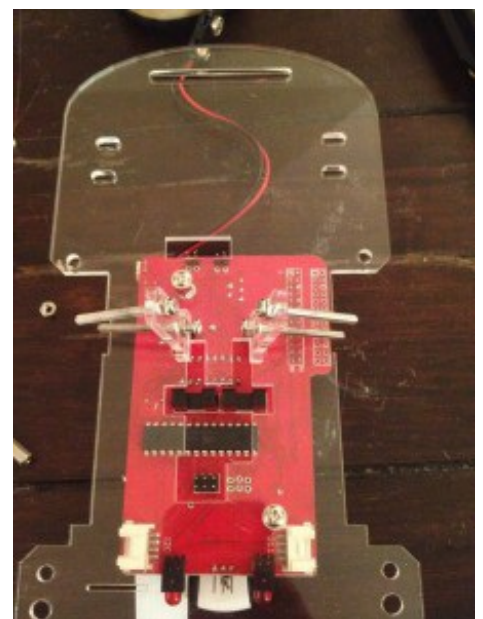
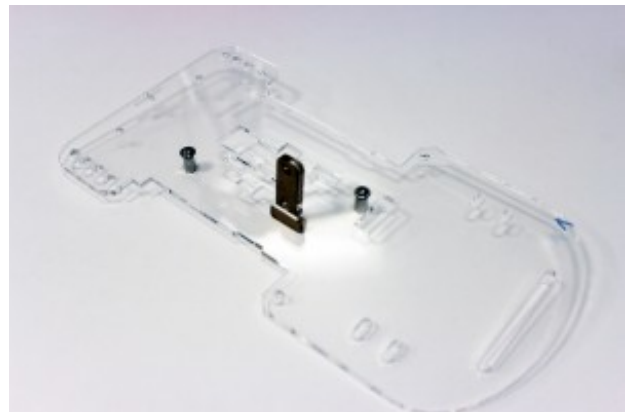
Tighten the bolts to fully attach the first motor.

Repeat the process for the second motor.  
Remember to insert the bolts from the outside inwards.

Attach the outside "T" bracket and insert screws. Add the nuts.

## 4. Attach Encoders

The encoders for the GoPiGo are cut in black. They fit on the inside of the motors, and



poke through the GoPiGo acrylic chassis. These are actually quite important: they provide feedback on speed direction traveled to the motors.

Note: Some have found that these can become loose or have a hard time staying on. You can secure them with a small piece of tinfoil or [blue tacky tacky](#).

Encoders ready to be attached.

Encoders properly attached.

## 5. Attach the GoPiGo Board

We return to the short spacers we placed on the top of the chassis in step 1. First place the GoPiGo board onto the spacers and line them up with the holes in the board.

Align the spacers with the holes on the board.

## 6. Attach the Caster Wheel

The GoPiGo comes with four types of hex supports.

We've already used the shortest of supports to mount the GoPiGo board. The longest of the supports are for the canopy and there are four. The middle length is for the attaching the battery box.

Finally the shortest are for attaching the caster wheel.

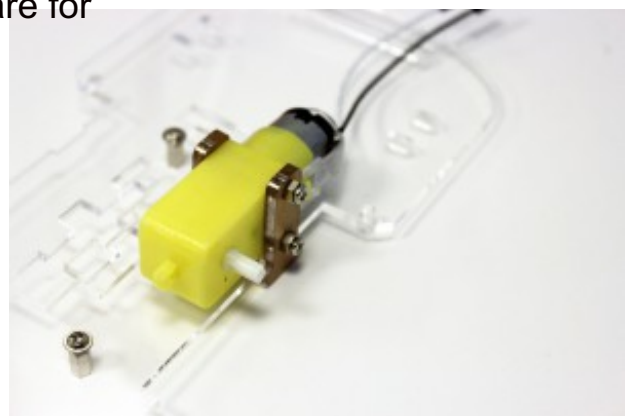
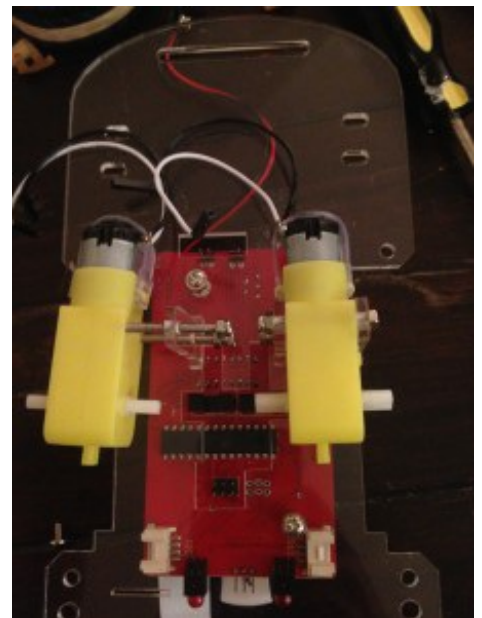
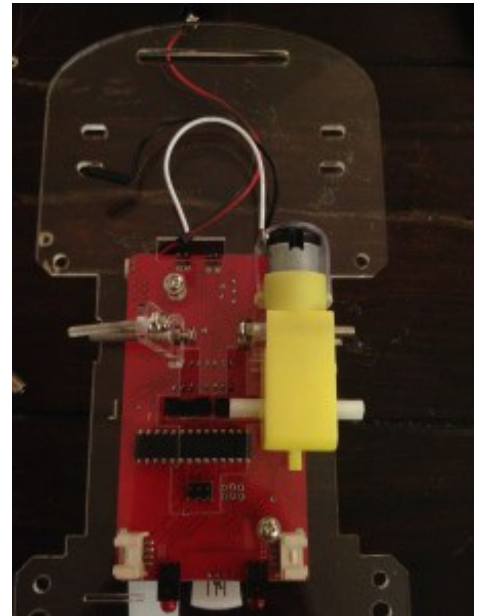
Included hex supports.

Double check your work. See how the two middle hex supports are about the size of the battery box?

First, attach the two hex supports to the back of the GoPiGo.

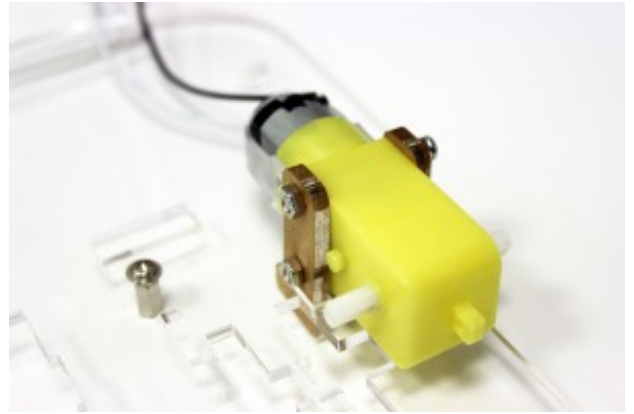
Attach the Caster Wheel. The whole process should take four screws.

Another view of the caster wheel attached to the GoPiGo.





Another view of the caster wheel attached to the GoPiGo.



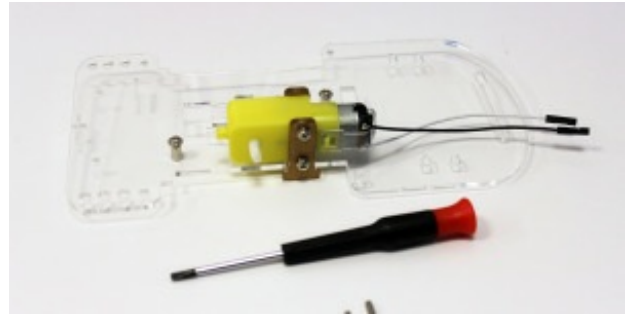
## 7. Attach the Wheels

Now we will attach the wheels. The only trick to this is to be gentle as you slide them on.

After attaching, be sure to back the wheels off so they're not rubbing against the screws.

Attach the wheels to the GoPiGo.

Check the gap. The wheels should not rub against the screws.



## 8. Attach the Battery Box

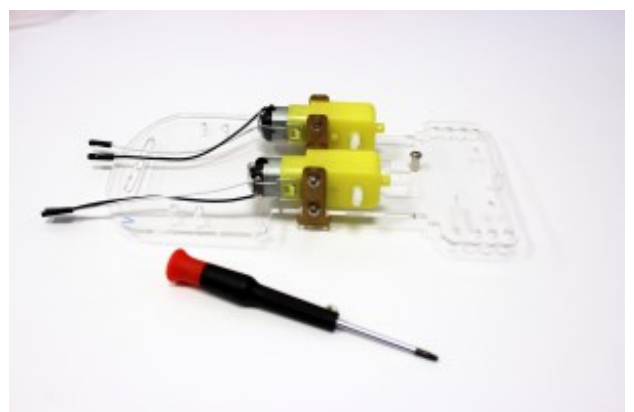
Next we will attach the battery box. Find the two hex spacers from Step 6 for the battery box. Screw them into the GoPiGo chassis.

First, we'll attach these spacers to the GoPiGo.

Spacers attached to the GoPiGo.

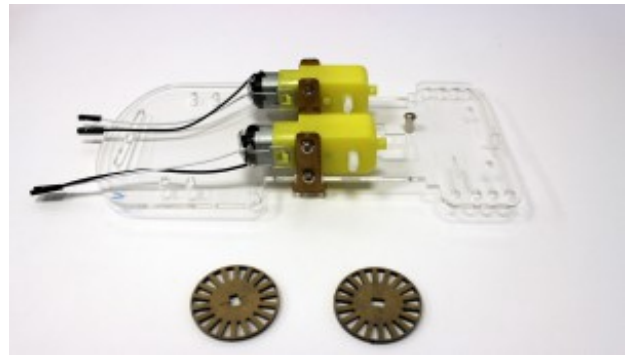


Next, attach the Battery Box Strap. This is a long piece of acrylic shown below attached to the battery box spacers. Attach one side first, leaving the screw loose.



Attach one side of the battery box strap.

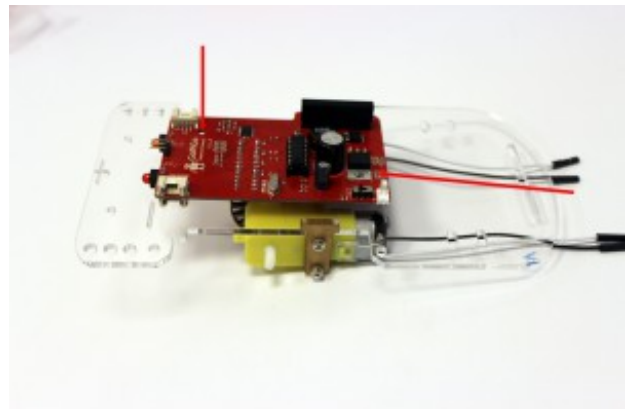
Add batteries to the battery box, and place the battery box within the spacers as shown below. Place the battery box as far back on the chassis as possible, especially if you are using a Model B (this will give you extra space and prevent the battery box from hitting the SD Card in later steps).



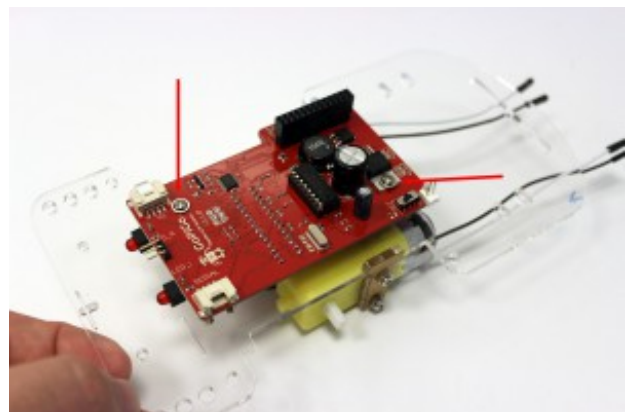
Tighten the other side of the battery box strap down to the spacer on the opposite side.

Tighten both screws. The strap is designed to put pressure around the battery box and hold it in place.

The battery box is tightly secured to the chassis. We can see a little bit of tension on the battery box.



The battery box is placed with a little bit of space between it and the GoPiGo board.



## 9. Attach Connect Power and Test

Attaching the power adapter to the GoPiGo board.

The power adapter properly attached to the GoPiGo. Notice the orientation of the colors of the wires.

The power adapter properly attached to the GoPiGo. Notice the orientation of the colors of the wires.

Power the board on and make sure the LED powers.

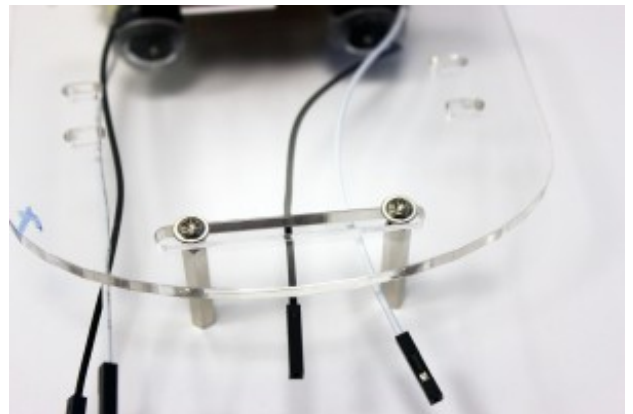
## 10. Attach the Raspberry Pi to the GoPiGo Robot

Now, with the power off, we are ready to attach the Raspberry Pi to the GoPiGo. Slide the Raspberry Pi over the GoPiGo by sliding the GPIO pins on the Raspberry Pi into the black plastic female connector on the GoPiGo.

GoPiGo with a Raspberry Pi Model B attached.

GoPiGo with the Raspberry Pi Model B+ attached.

The GoPiGo with the Raspberry Pi Model B+ attached.

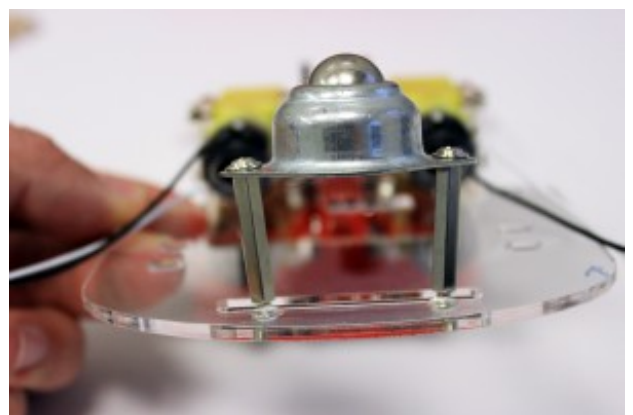


## 11. Attach the Top Plate

We will attach the top, protective plate or canopy. To attach the canopy, attach the four canopy hex spacers provided, screwing them to the chassis first, then the canopy.

## 12. Connect the Motors

Finally, with the power off, we will connect the motors.



**An important note about the motors:** You risk damaging the hardware if you flash the GoPiGo firmware with the motors connected. To be safe, be sure to disconnect the motors before updating firmware or running any of the install scripts provided.

Connect the motors as shown. To connect at first, the colors should be placed in an alternating pattern. Notice that the color of the motor connectors runs black, white,

black, white. After running the GoPiGo for the first time, if you find that the motors run backwards, just reverse both sets of motors. If the motors run in opposing directions while trying to run straight, check that the connectors are in an alternating pattern.

## Questions?

[Please ask away on our forums!](#)

