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1. Assemble the GoPiGo2

PIGO-RASPBERRY-PI-ROBOT-KIT-2/1-ASSEMBLE-THE-GOPIGO-2/ASSEMBLE-GOPIGO-RASPBERRY-PI-ROBOT/) » 1. ASSEMBLE THE GOPIGO2

ASSEMBLY INTRODUCTION

It's time to get going! Here you'll find step-by-step instructions on how to assemble your GoPiGo robot car. If you have any questions throughout the process, please don't hesitate to send us a message through the Forums (http://www. dexterindustries.com/forum/gopigo).

GoPiGo2 Assembly Introduction

[▶]

GoPiGo2 - A Walkaround the Robot

[▶]

TOOLS REQUIRED

- Small Phillips Head Screwdriver
- 8 AA batteries

PART 1. UNPACK THE GOPIGO2 BOX

The first step is to unpack the box. In the box you should find the following:

A. 2 wheels

B. 2 black encoder wheels

C. 4 acrylic spacer donuts

D. 4 t-shaped pieces)

E. 2 bags of hardware (2 mini posts, 2 small posts, and 4 long posts; 4 long bolts, 20 small screws, 20 washers, 8 small nuts, and 1 caster wheel)

F. 2 large acrylic pieces

G. 2 yellow motors

H. Battery Box (that fits 8 AA batteries) I. 1 Velcro strap

J. GoPiGo Board (red)

K. Power cable
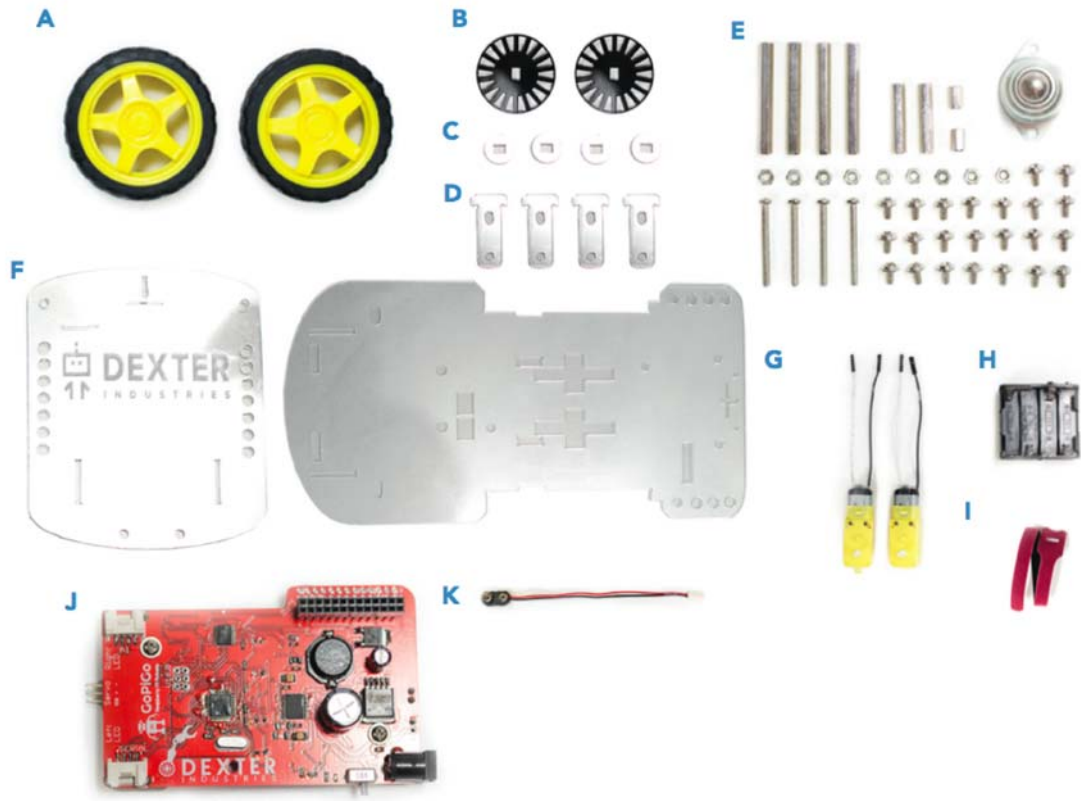
GoPiGo2 Assembly Step 1 Unpack the Box

PART 2. WHICH WAY IS UP?

Step A: We'll start with the acrylic body plate of the GoPiGo. It's the largest acrylic part. The easiest way to figure out which way is up is to lay the red GoPiGo board on top of the acrylic board and line up the holes. To better illustrate this step in our guide, we've used a piece of acrylic with the paper wrapping still on to make it easier to see the board. But your acrylic pieces will be clear.
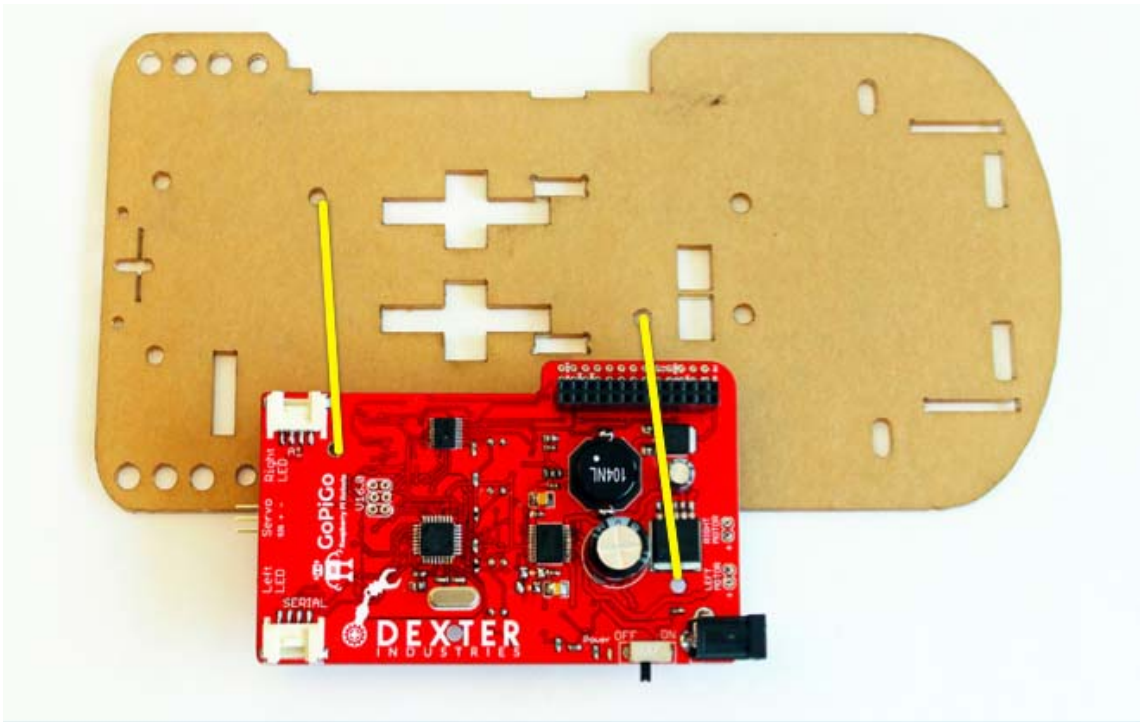

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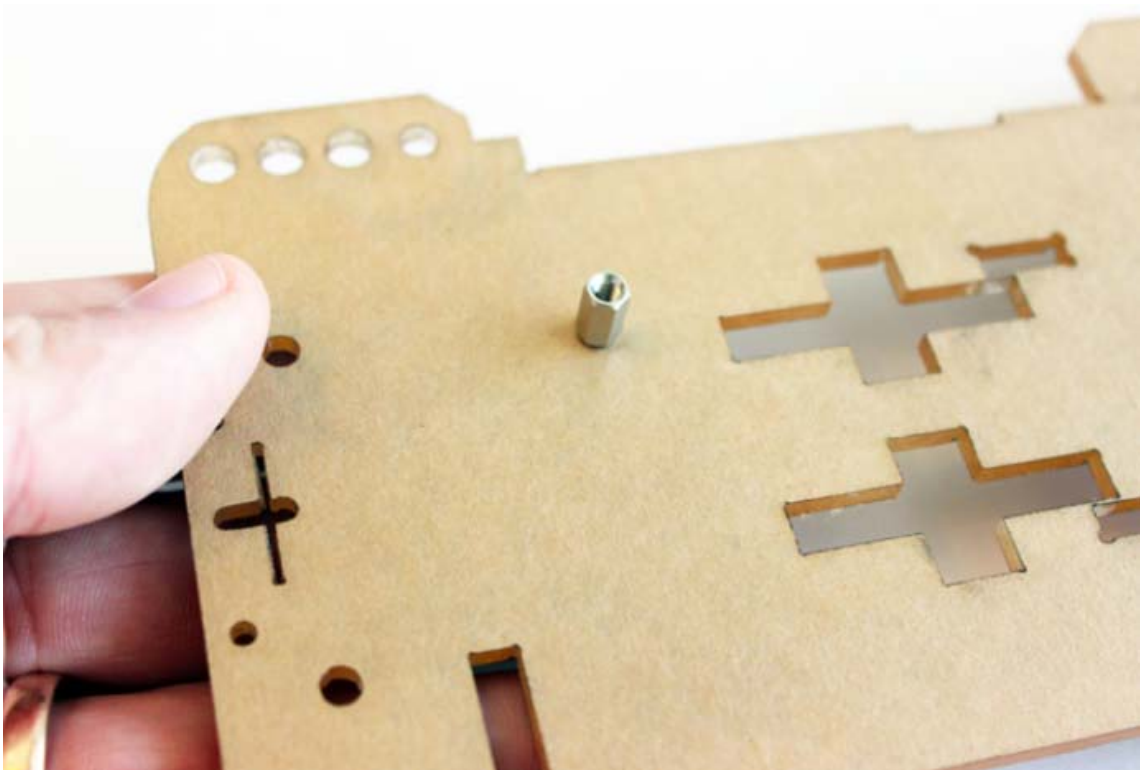
GoPiGo2 Assembly - Step 2 - Which Way is Up

Step B: You should see two holes line up for attaching the circuit board. In this step, we'll find these holes, and connect a washer, screw and mini post to remind us which way is up.
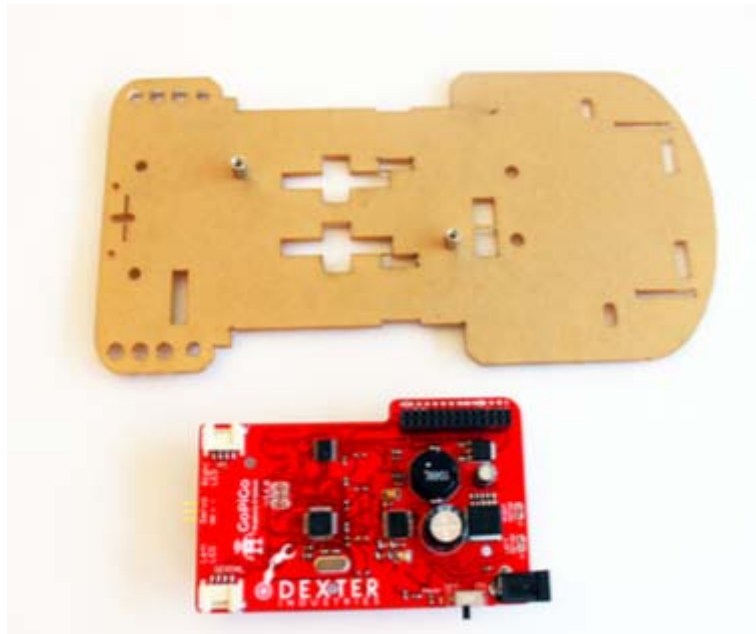
Step C: Use a screw with a washer on one side and attach the mini post to the side you have determined to be "up". The mini post attached to the board is shown above.
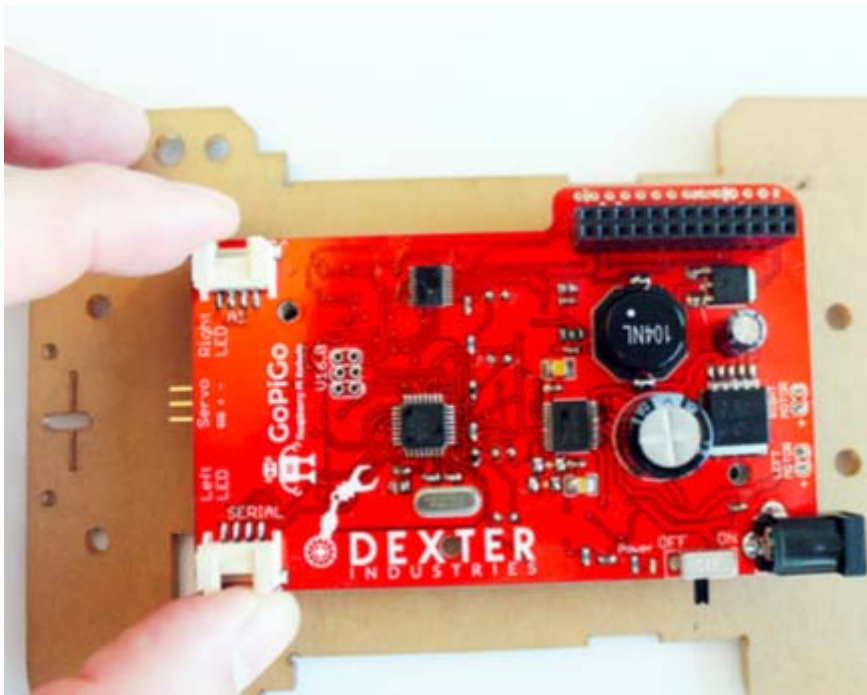
Step D: Last but not least, double check that the mini posts you've just put in the acrylic properly line up with the two holes on the GoPiGo board.

Step E: We will **not** attach the GoPiGo board in this step, we are just ensuring the acrylic, posts, and board are properly aligned.

PART 3. ATTACH THE MOTORS

Step A: To attach the motors to the chassis, we'll first find the 4 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.

GoPiGo Assembly - Step 3: Attach the Motors

Step B: Find the 4 long screws and corresponding washers. Prepare the bolts by attaching 1 washer to each bolt as shown in the picture.

Step C: Next we find the 4 acrylic "T"'s.

Step D: Insert both T's from the top of the big acrylic piece. Flip over the acrylic body so the bottom part of the T's are now sticking up, like in the picture below.

At this point, the mini posts you screwed in should be facing down (red arrows are pointing towards these), and you are working on the bottom side of the body (where you will attach the motors).

Screw is now on top and the metal post is below the acrylic piece.

Acrylic T's now sticking up through the acrylic piece.
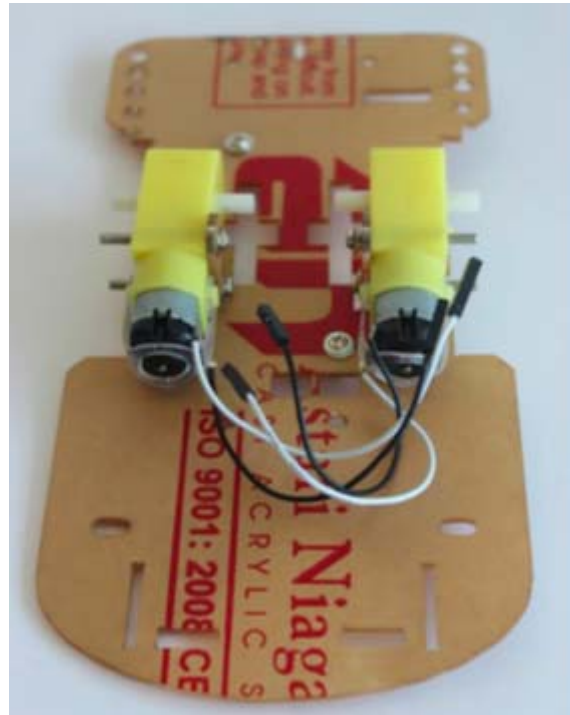
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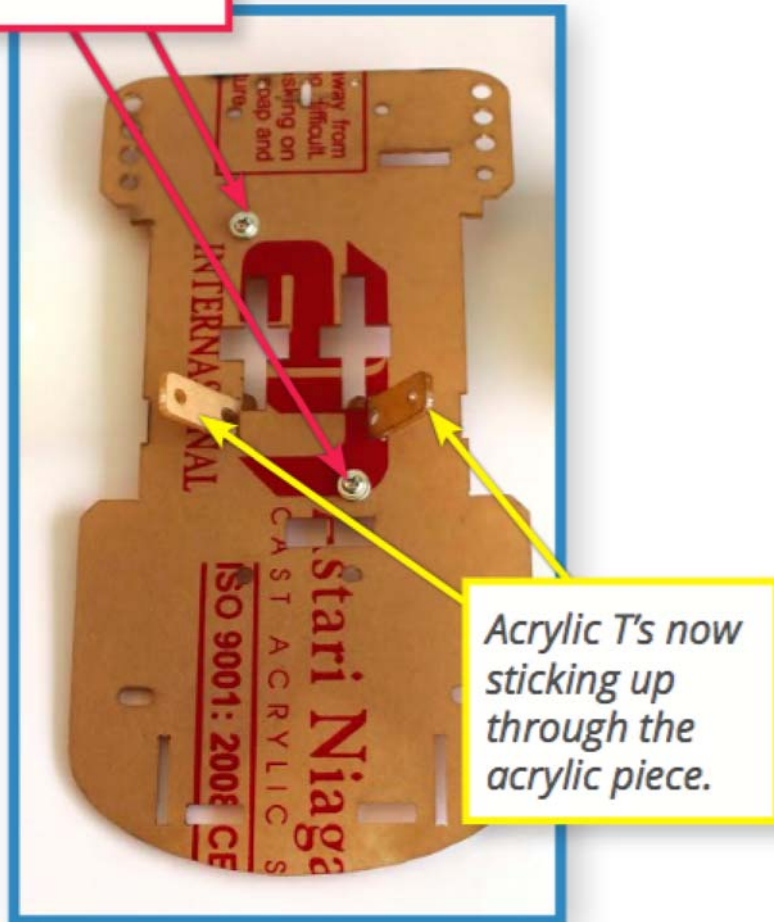
Step E: Now use the 4 long bolts (that you prepared by putting on the washers) and slide them in both holes on each T. Insert them from the inside so they are sticking out as shown in the picture.
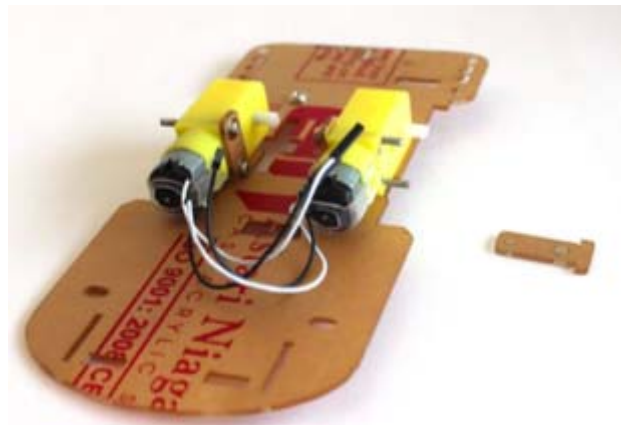

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Step F: Next, slide the motors on to the bolts as shown in the picture. The motor wires should be pointing towards the back of the GoPiGo, which is the rounded part of the acrylic.
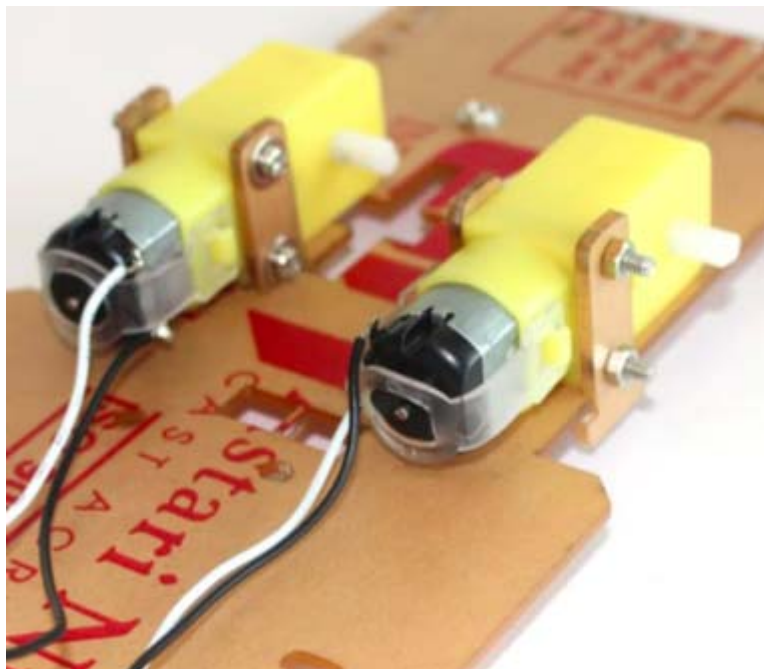

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Step G: Slide another acrylic "T" through the bolts sticking through the motor to act as a brace and hold it in place. Fasten a nut onto each bolt to hold the T in place like the pictures below.

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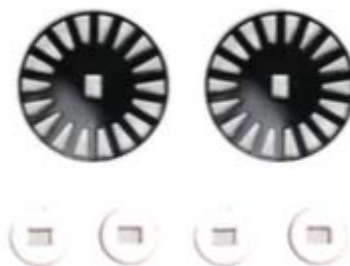
Step H: Hand tighten the nuts to hold the motors in place. Tighten the screws as much as you can. It can be hard to fit a screw driver in between the motors, so just hand tighten the nuts as much as you can from the outside.
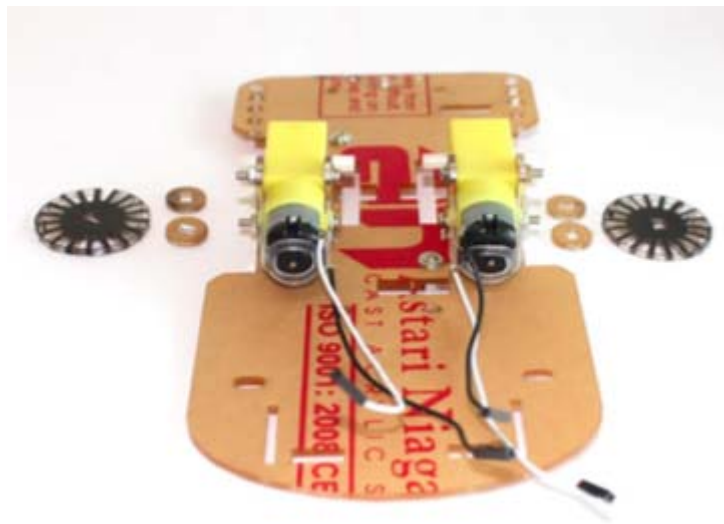
PART 4. ATTACH ENCODERS AND SPACER DONUTS

Step A: The encoders for the GoPiGo are cut in black (just take off the paper) and look like a little wheel. They fit on the inside of the motors, and poke through the acrylic body. They provide feedback on speed, direction and distance traveled to the motors. Most of the time the motors will work fine without them, but they can be used to control and refine the action of the motors.
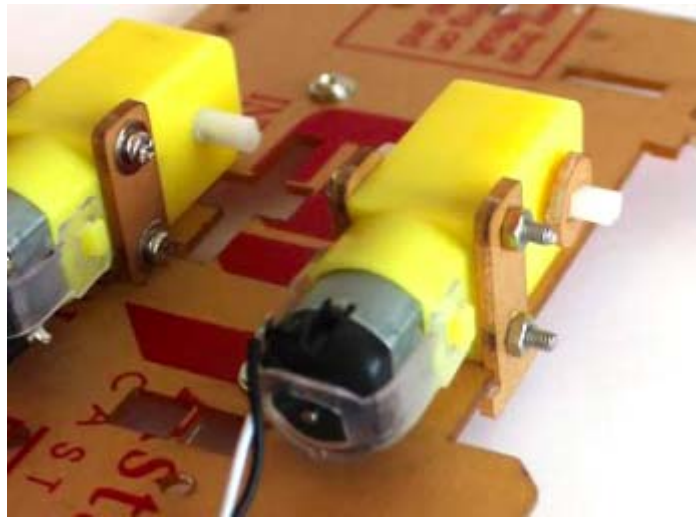
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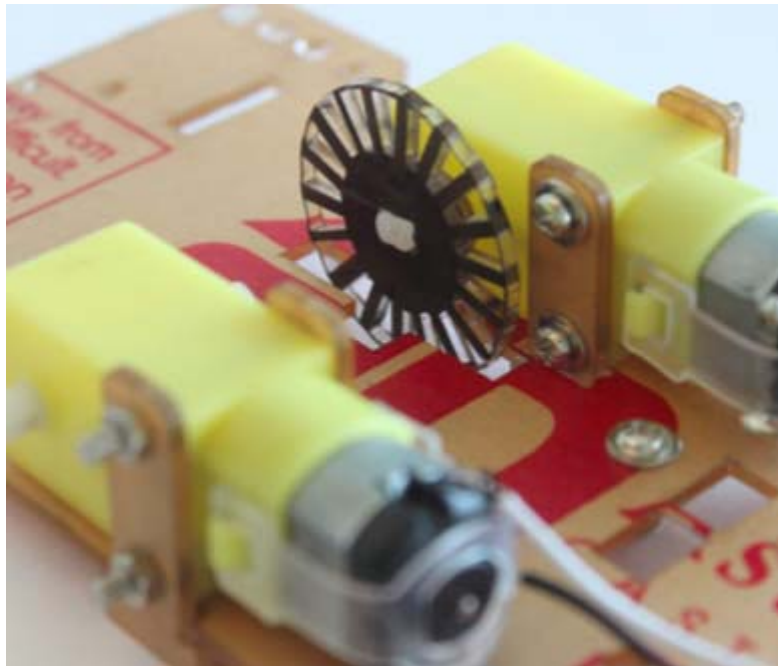
GoPiGo Assembly Step 4 Attach Encoders

Step B: First, we'll attach the 4 spacer donuts shown in the picture above. You can remove the protective paper. Slide one onto each of the white motor axles.

Step C: Now with the spacer donuts attached, attach the encoder wheels to the inside of the motors. The encoders slide onto the white motor axles.

PART 5. ATTACH THE GOPIGO BOARD

Step A: Now, flip the GoPiGo back over to the other side, so the motors are on the bottom and the posts are facing up. First place the GoPiGo board onto the spacers and line them up with the holes in the board. Use the small screws to attach the red GoPiGo board to the mini posts attached to the acrylic board.
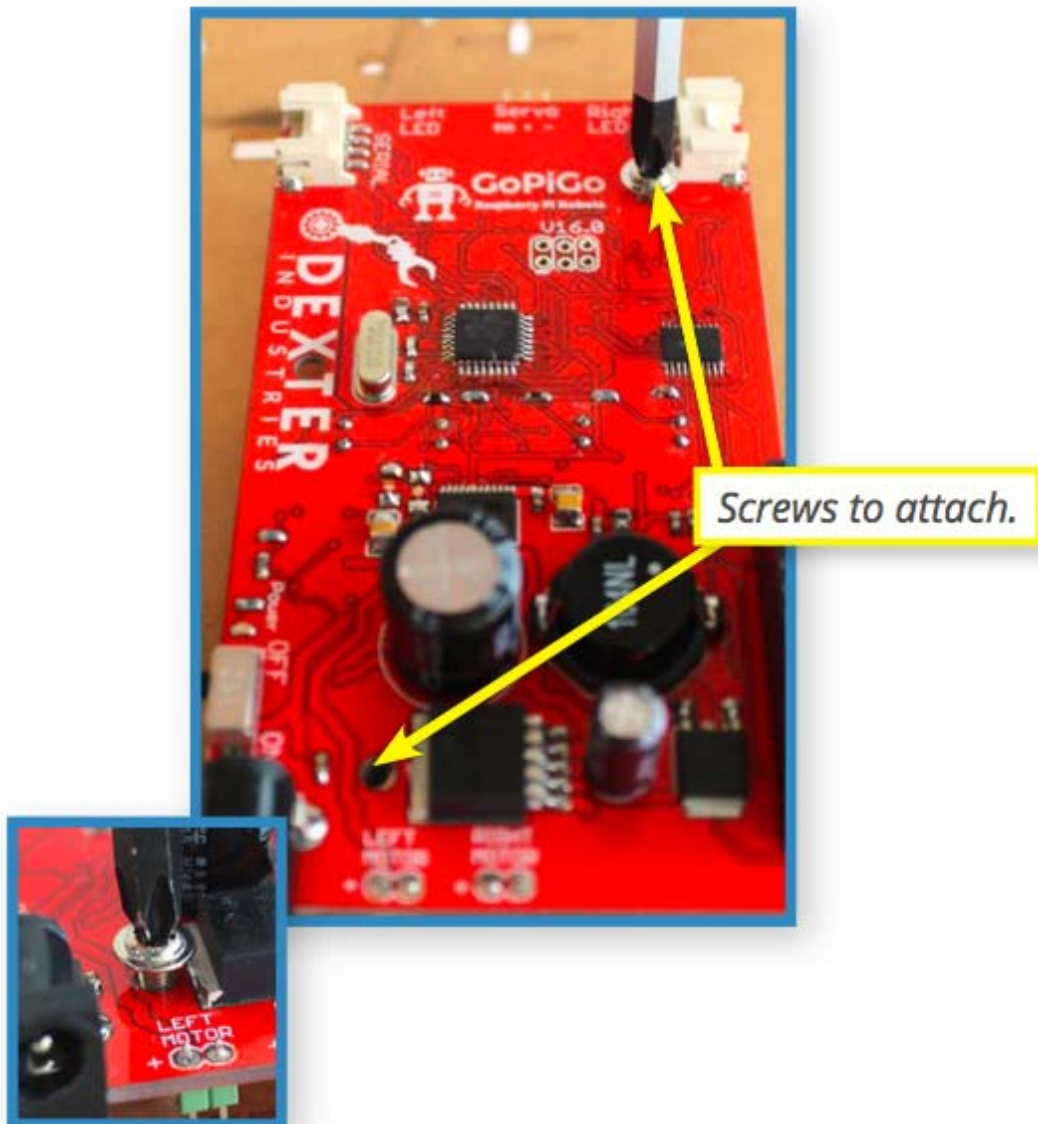
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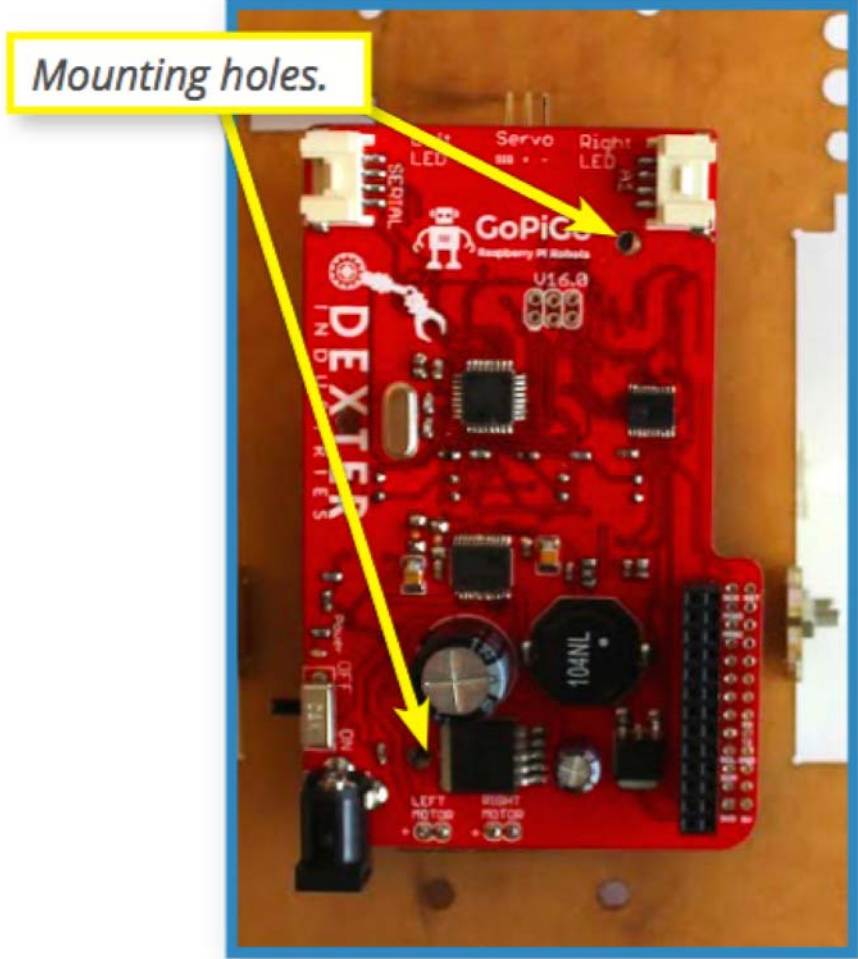
GoPiGo2 Assembly Step 5 Attach the GoPiGo Board

Step B: The mounting holes are as shown in the picture. Please put the two screws in these holes, and mount the board tightly to the GoPiGo body.

Screws to attach.

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PART 6. ATTACH THE CASTER WHEEL

The GoPiGo comes with three types of metal posts. We've already used the shortest of posts to mount the GoPiGo board. The 4 longest posts are for the canopy (top). The other posts you have left right now are for attaching the caster wheel.

GoPiGo2 Assembly Step 6 Attach the Caster Wheel

Step A: You will need the 2 caster wheel posts, 4 compression washers, and 4 short screws.

Step B: First, attach two posts to the caster wheel with 2 screws and 2 washers. Be sure to use the compression washers between the screws and the caster wheel. Tighten the screws as much as you can. It is okay if they lean in slightly.

Step C: Finally, attach the caster wheel to the acrylic body. Attach the caster wheel to the bottom of the GoPiGo, which is on the same side as the motors.

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PART 7. ATTACH THE WHEEL

Step A: For this part, we'll be attaching the wheels to the GoPiGo. You have already placed the spacer donuts on the white axle on the motor. That is where you will now attach the wheels. Be careful when attaching them, and check to see that the screws are not rubbing against the wheel. If they are, just pull the wheel off a little bit so they do not touch the screws.
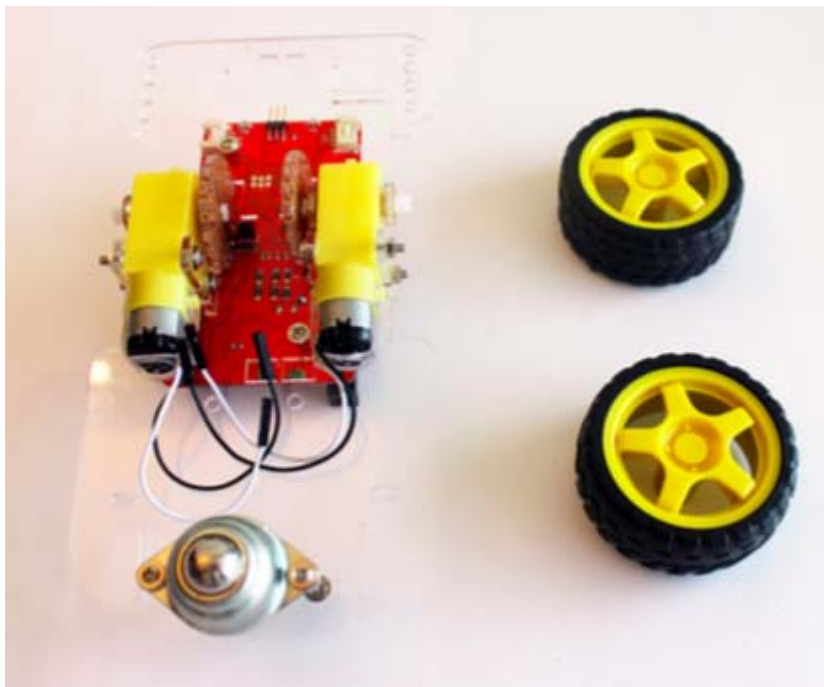
GoPiGo2 Assembly Step 7 Attach the Wheels

Step B: Check the gap between the wheel and the screws. The wheels should not rub against the screws, and the wheel should be able to rotate freely.

PART 8. ATTACH THE RASPBERRY PI AND CANOPY POSTS

In this part we will attach the Raspberry Pi and the 4 large posts. We will need the longest 4 posts, 4 screws, and 4 compression washers.
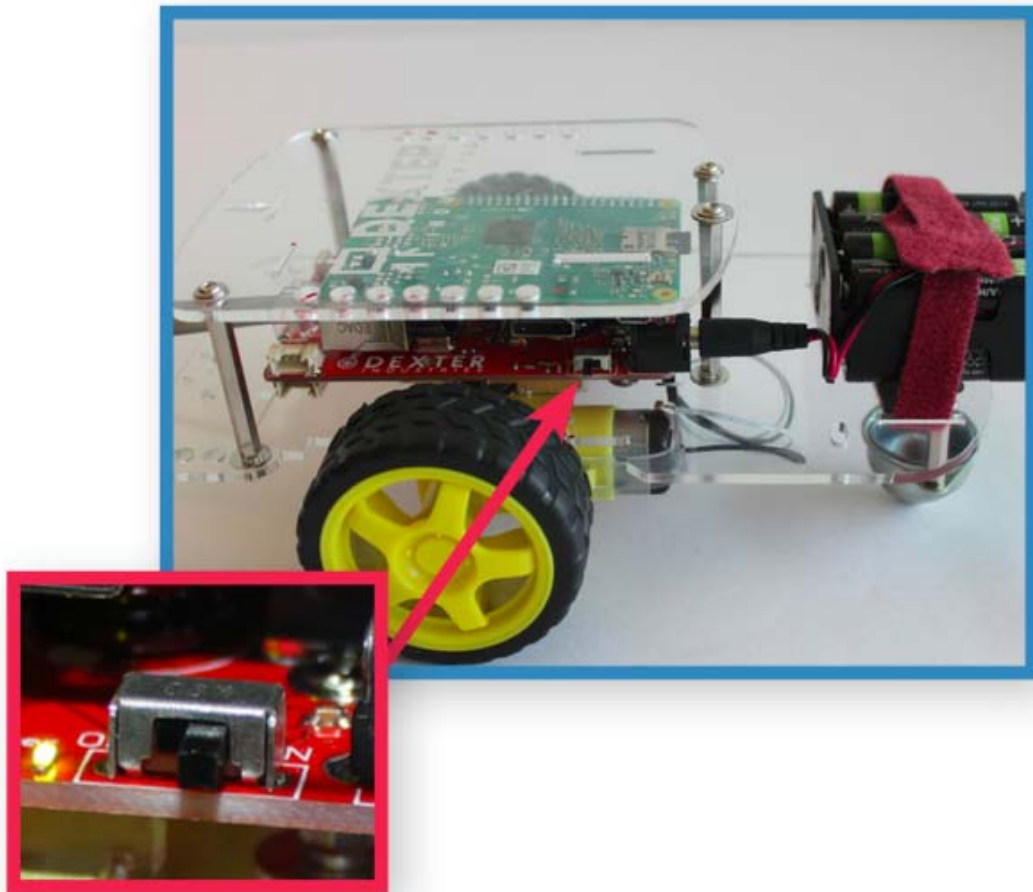
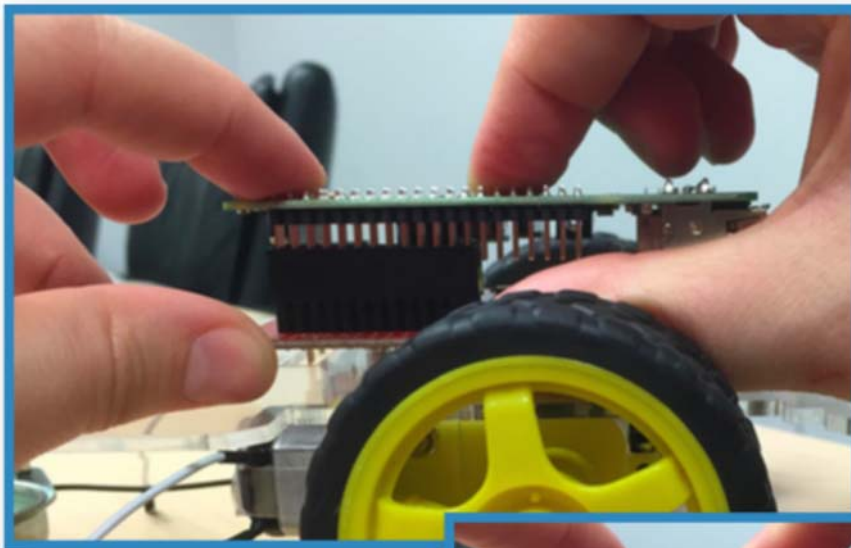GoPiGo2 Assembly Step 8 Attach the Raspberry Pi and Canopy

Step A: Make sure the power is off – there is a switch on the red GoPiGo board, so make sure that is switched to "off".
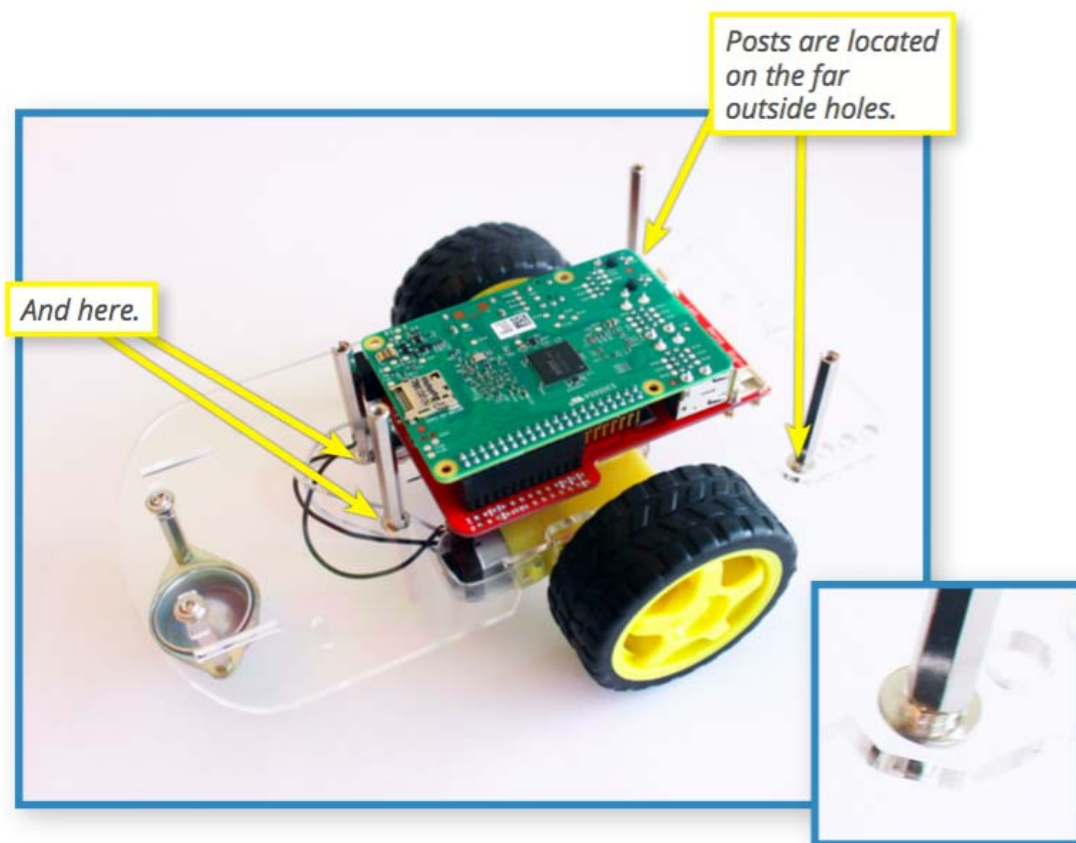

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Step B: Slide the Raspberry Pi (green board) on the GoPiGo as shown in the picture below. You will line up the metal pins on the Raspberry Pi with the black female part on the GoPiGo board. Push down to make sure it is in all the way and secure.

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Step C: Next, attach the 4 metal posts to the GoPiGo body with the screws and compression washers.

Posts are located on the far outside holes.

And here.

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PART 9. INSERT THE SD CARD

The SD Card is the hard drive of the GoPiGo Robot. We will insert it into the Raspberry Pi (the green board).

A note of caution: never remove the SD card while the robot is powered on. The posts behind the SD card are designed to prevent the SD card from being knocked out. Removing the SD card while the GoPiGo is powered can corrupt the SD Card.
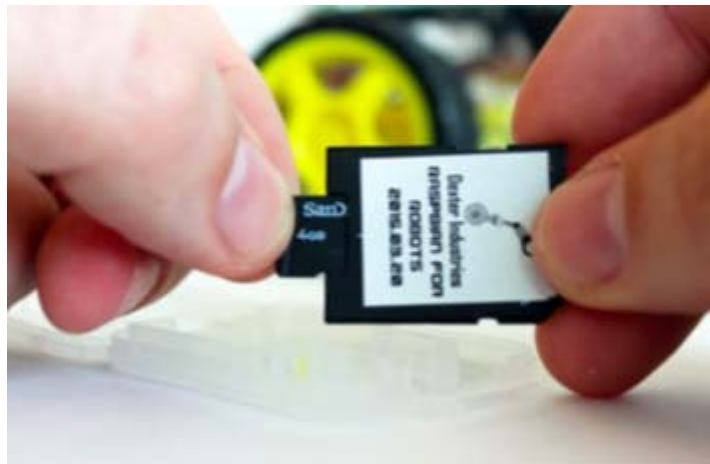

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GoPiGo2 Assembly Step 9 Insert the SD Card

Step A: The SD Card from Dexter Industries comes packaged in a plastic jewel case. The microSD Card comes inserted in an SD Card adapter. Remove the microSD card from the adapter.

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Step B: Hold the microSD Card from the sides, careful not to touch the metal on the card with your fingers. Turn the microSD Card so that the metal pins are facing down, towards the Raspberry Pi. Insert the miscroSD card into the metal slot on the Raspberry Pi until you hear a "click". When you hear the "click" the microSD Card is properly inserted.
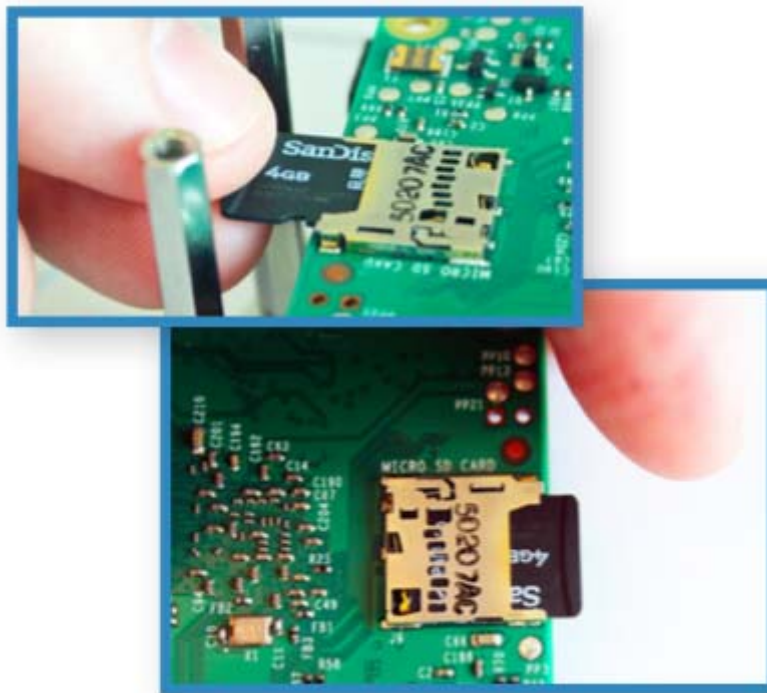
PART 10. ATTACH THE CANOPY

Now with the Raspberry Pi mounted to the GoPiGo and the SD Card in place, we will attach the acrylic canopy to the top of the GoPiGo. We'll need 4 short screws, and 4 compression washers.

GoPiGo2 Assembly Step 10 Attach the Canopy
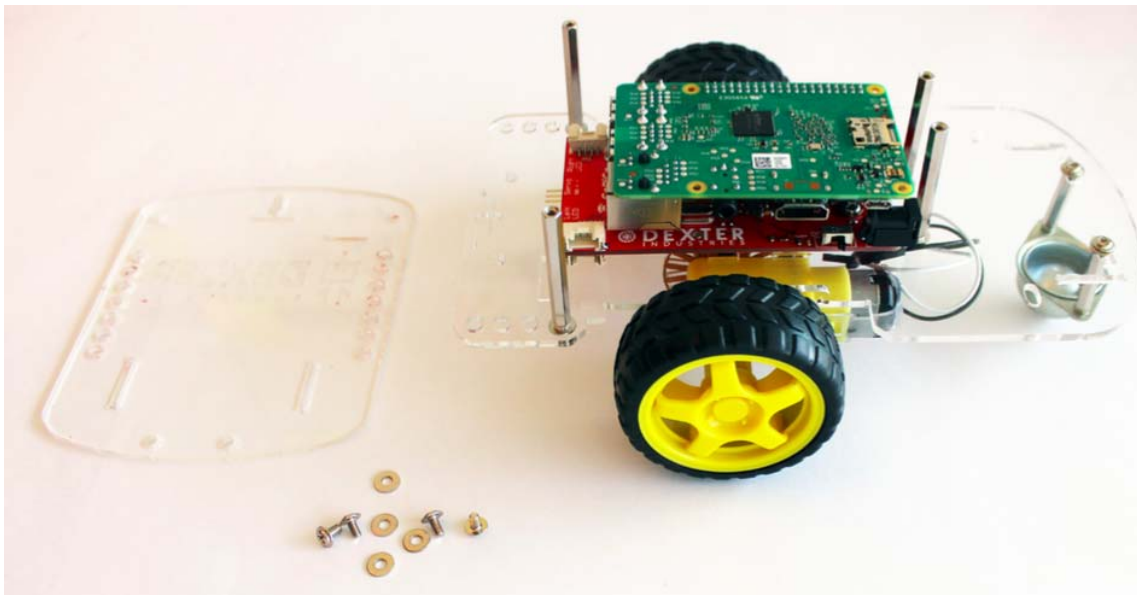
Step A: Place the canopy on top of the GoPiGo, turning it so that the lettering is readable from the outside. Attach the four screws with washers on them and then tighten them with your screwdriver. The four screws are highlighted with yellow lines in the picture below.

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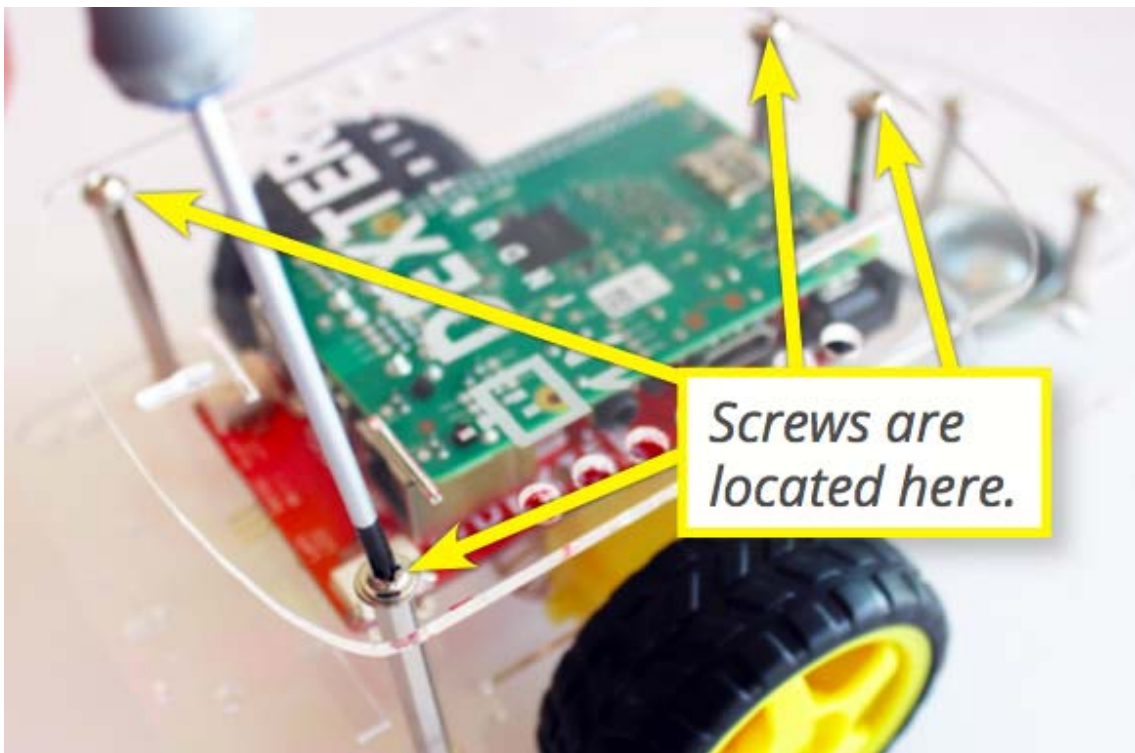
PART 11. ATTACH THE BATTERY PACK

Before you attach the battery pack, fill your 8XAA battery pack with fresh (preferably rechargeable) AA batteries. We will need the Velcro strap, and the 9V power cable for this step.