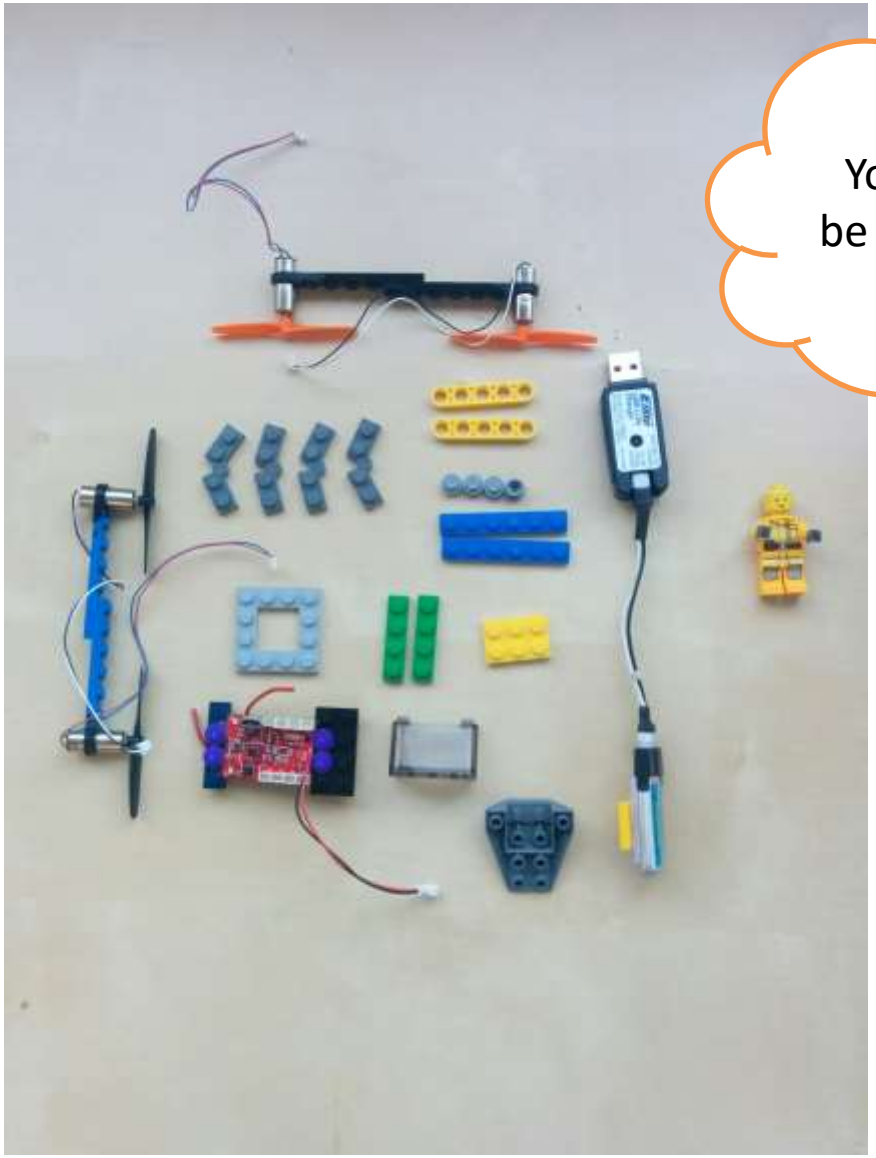
Flybrix Alpha Step-by-Step

February 10, 2016

Ready to build a quadcopter?



Your parts might
be different colors!

This is all the stuff you need.

(Your kit has some extras.)

Find your battery and adapter cable.

Find your battery charger.

Connect using the adapter cable.

Start charging your battery from a USB port.

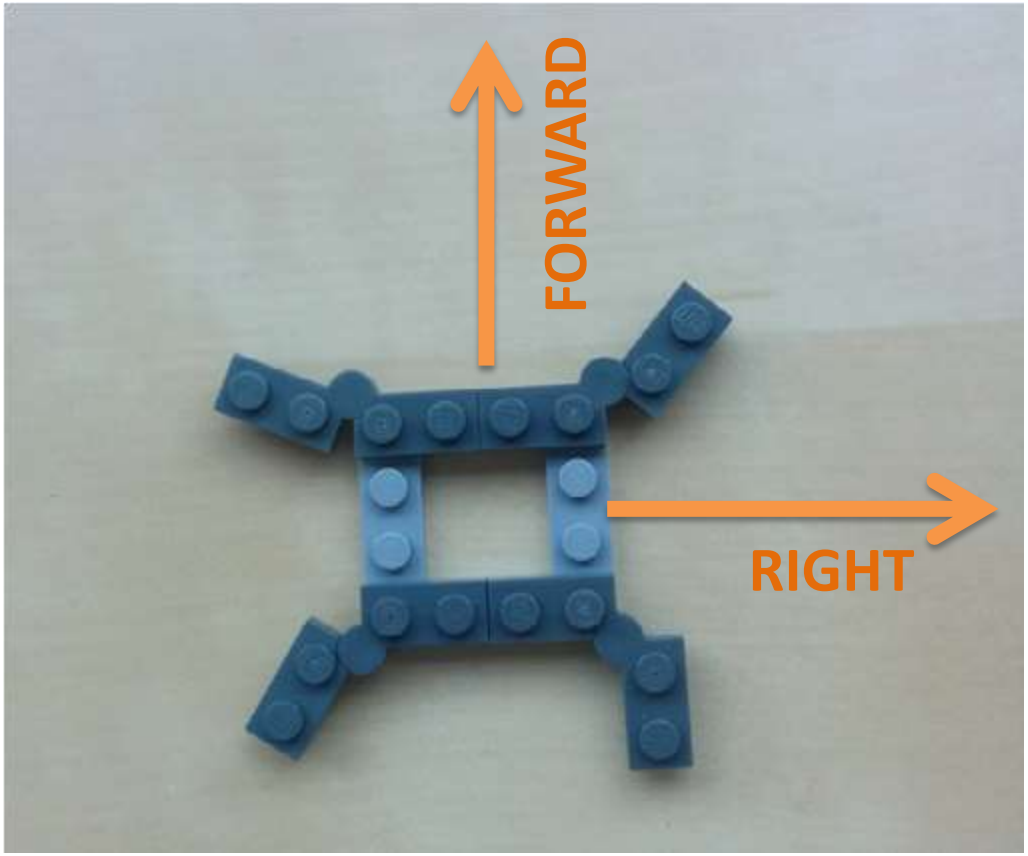
Each kit comes with a unique pilot.

Pants are overrated, don’t you think?

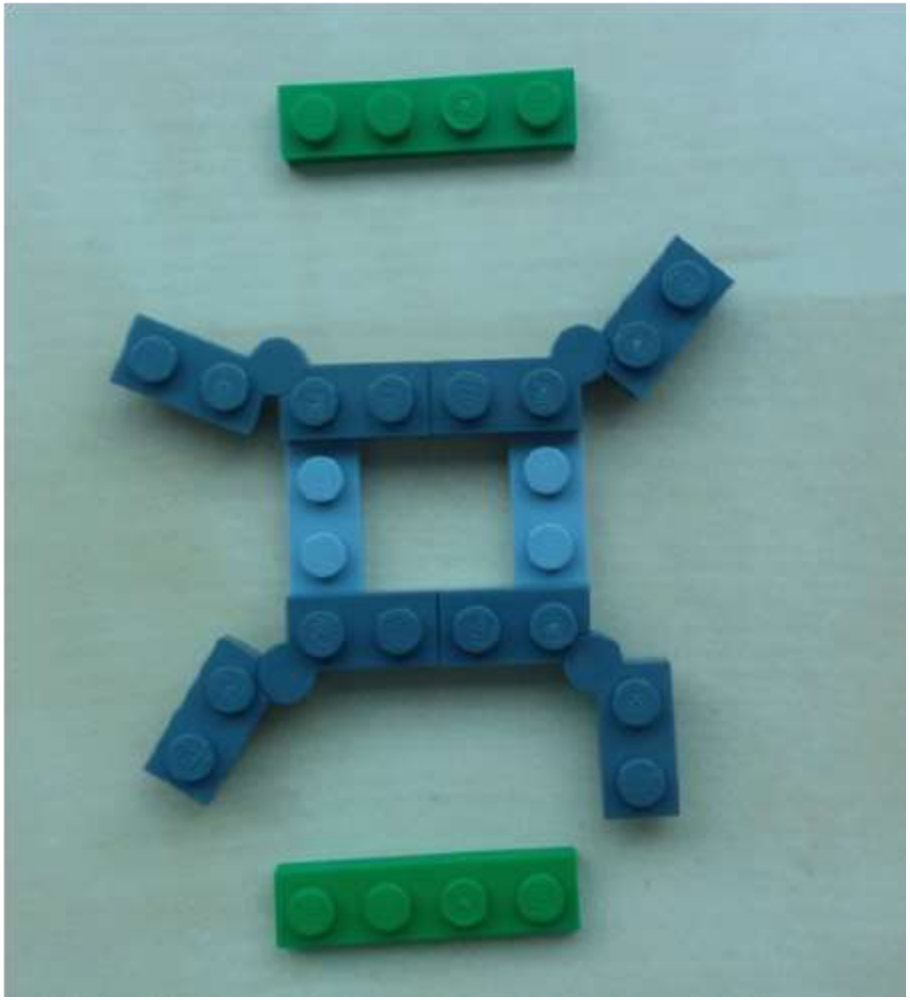
Ready to fly!

Let’s start with the main body.

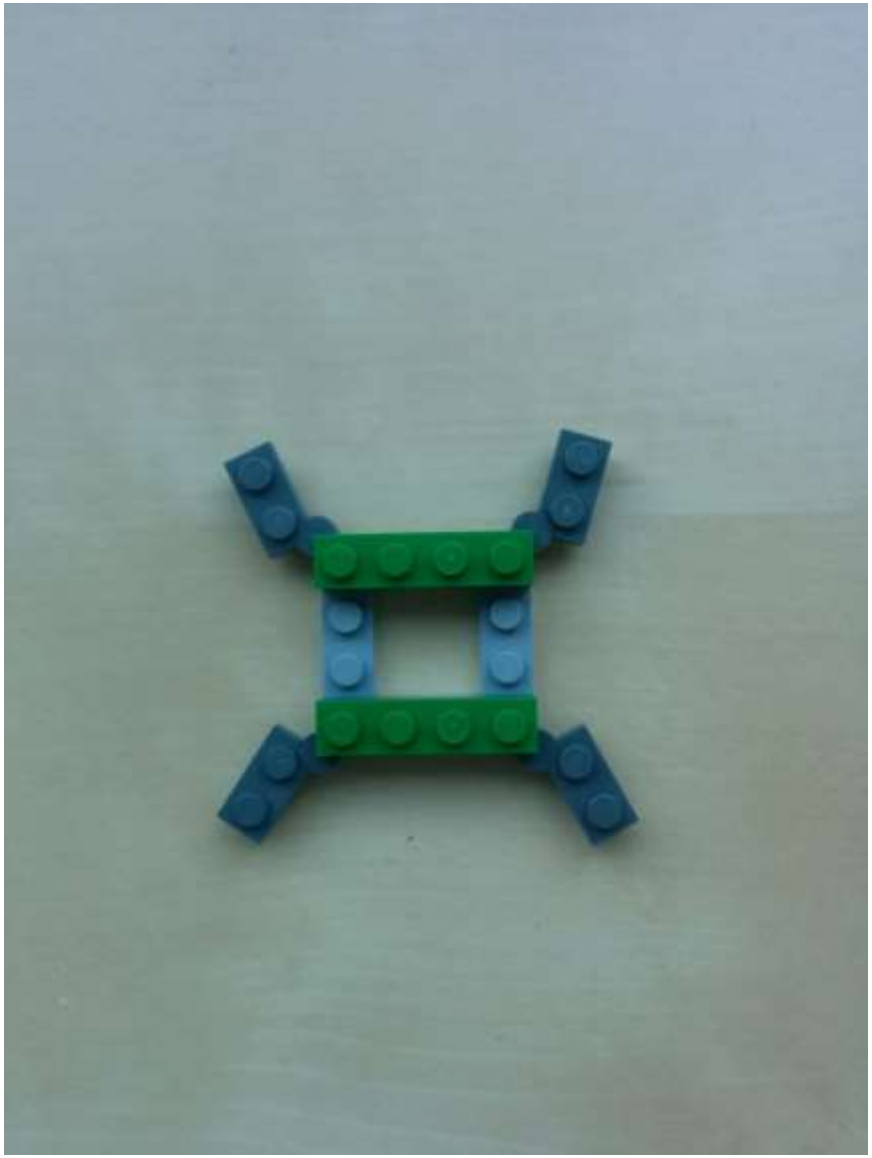
The hinged pieces will hold the motor arms.



Try to keep in mind the correct orientation.

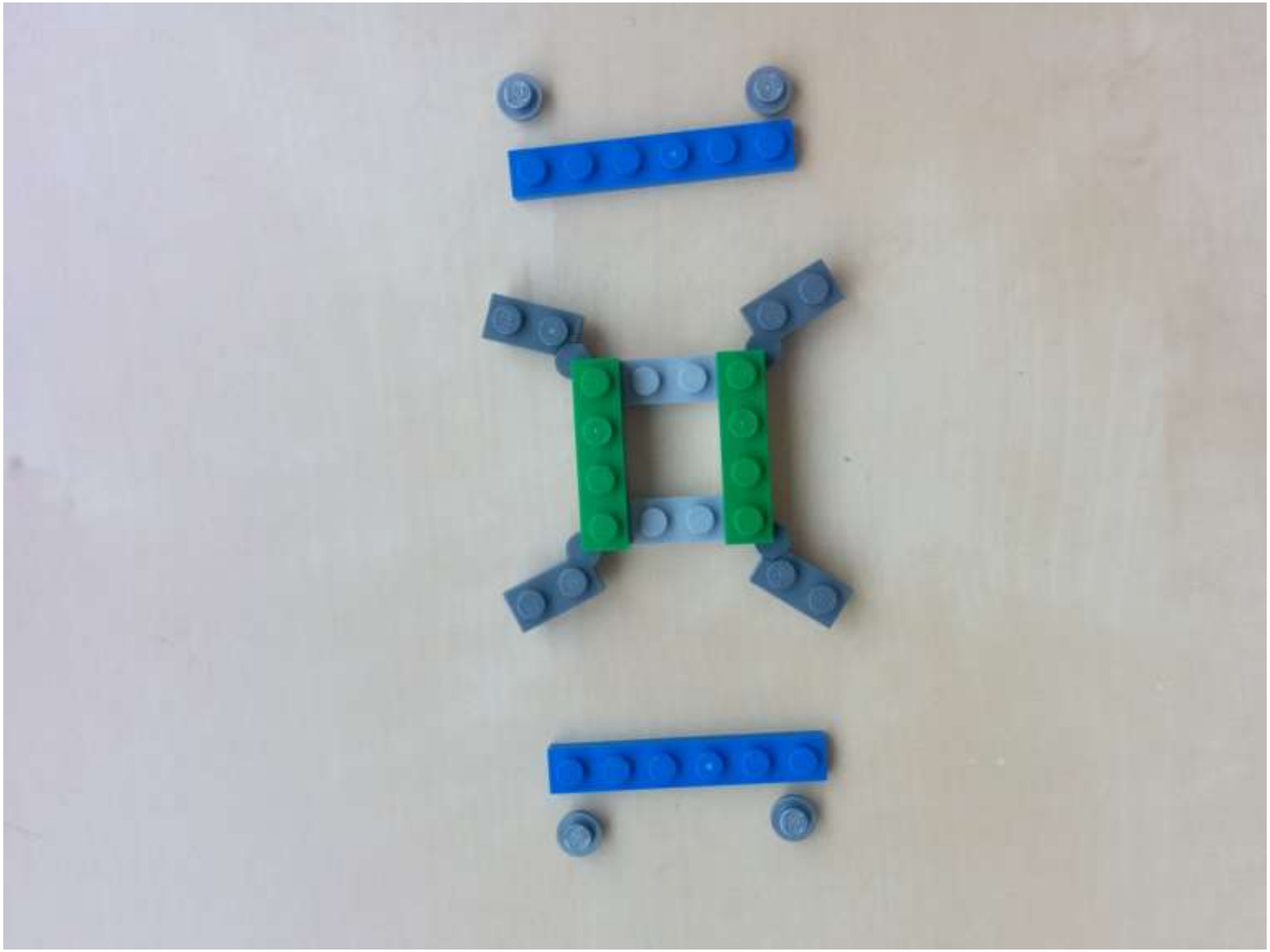


Find (2) 1x4 pieces.



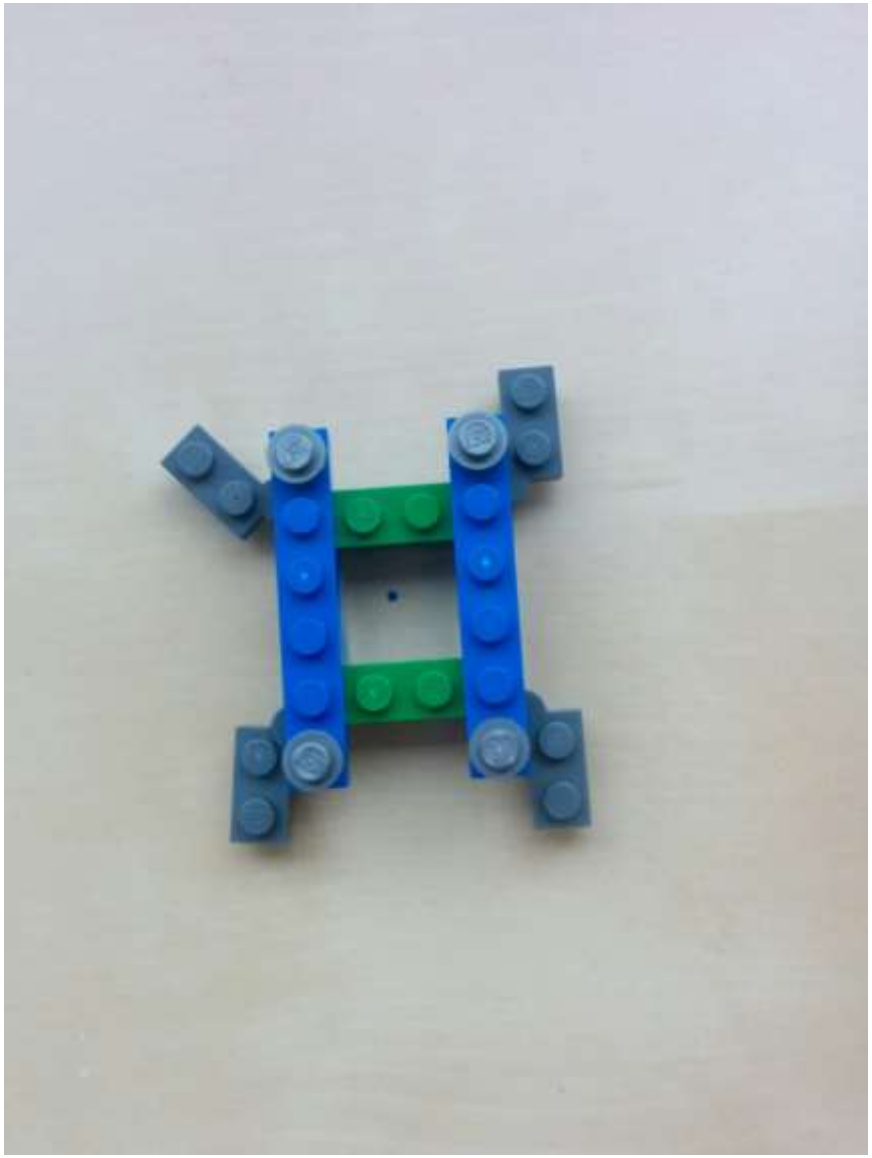
Sorry for being overly pedantic.

Skip ahead if you want!

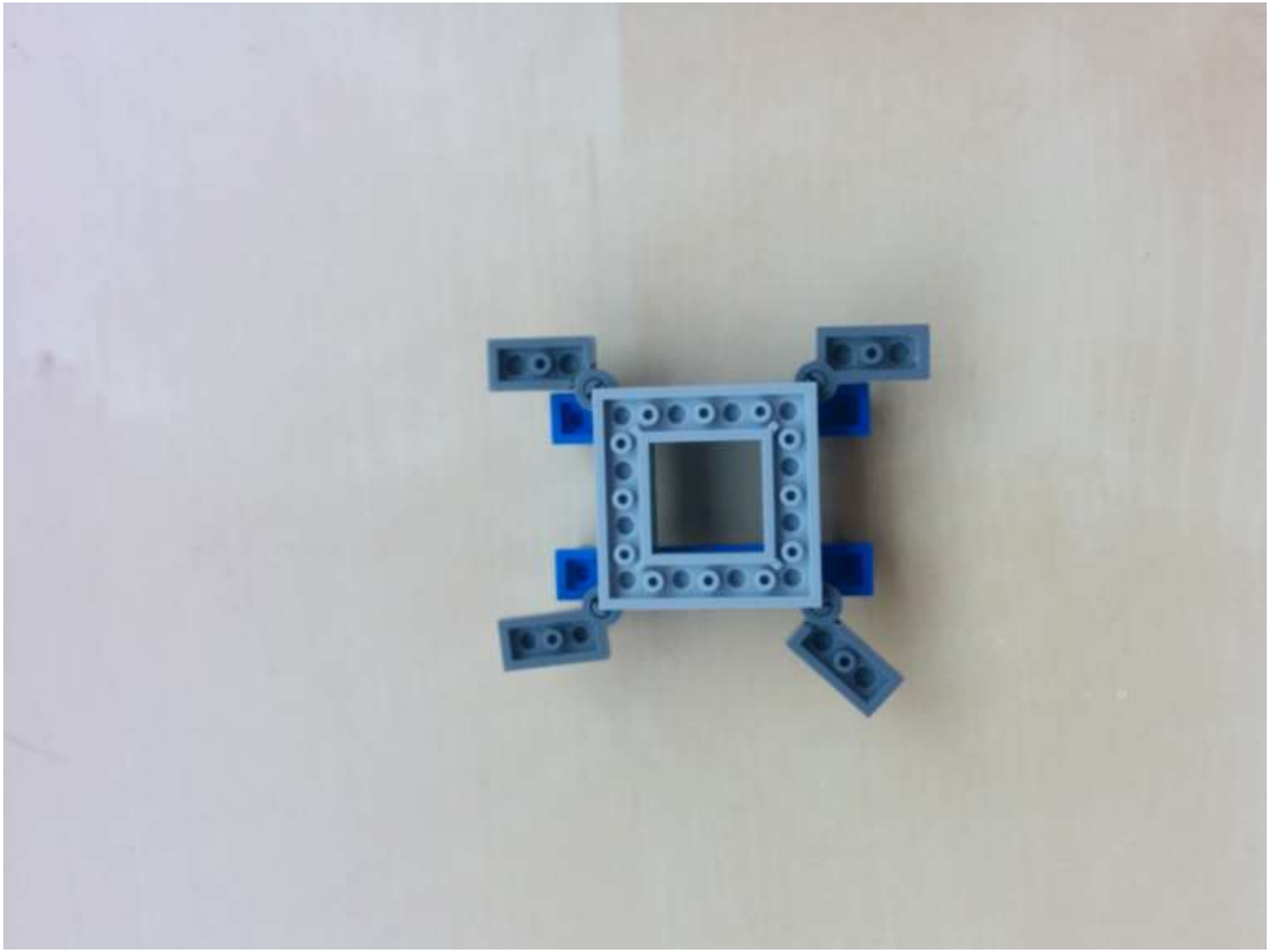


Find (4) 1x1 round pieces and (2) 1x6 beams.

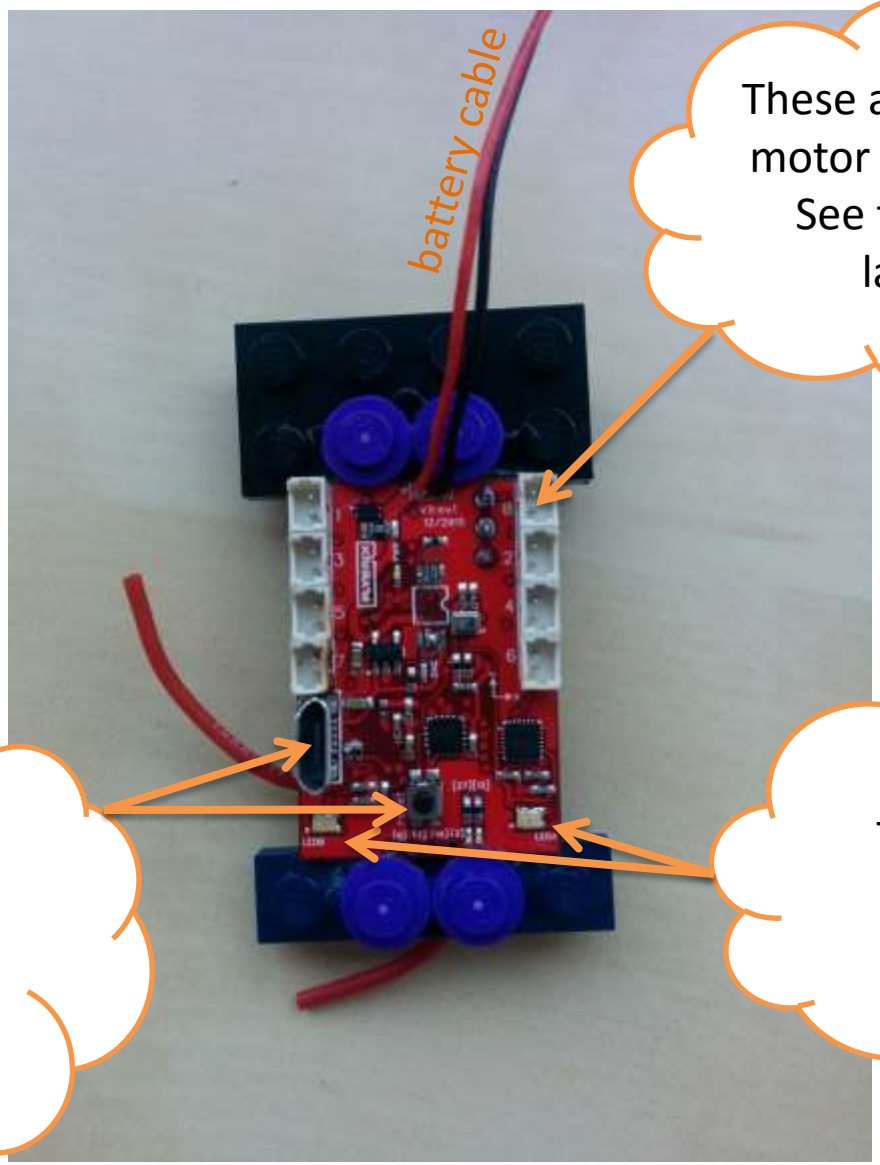
The round pieces go on top.



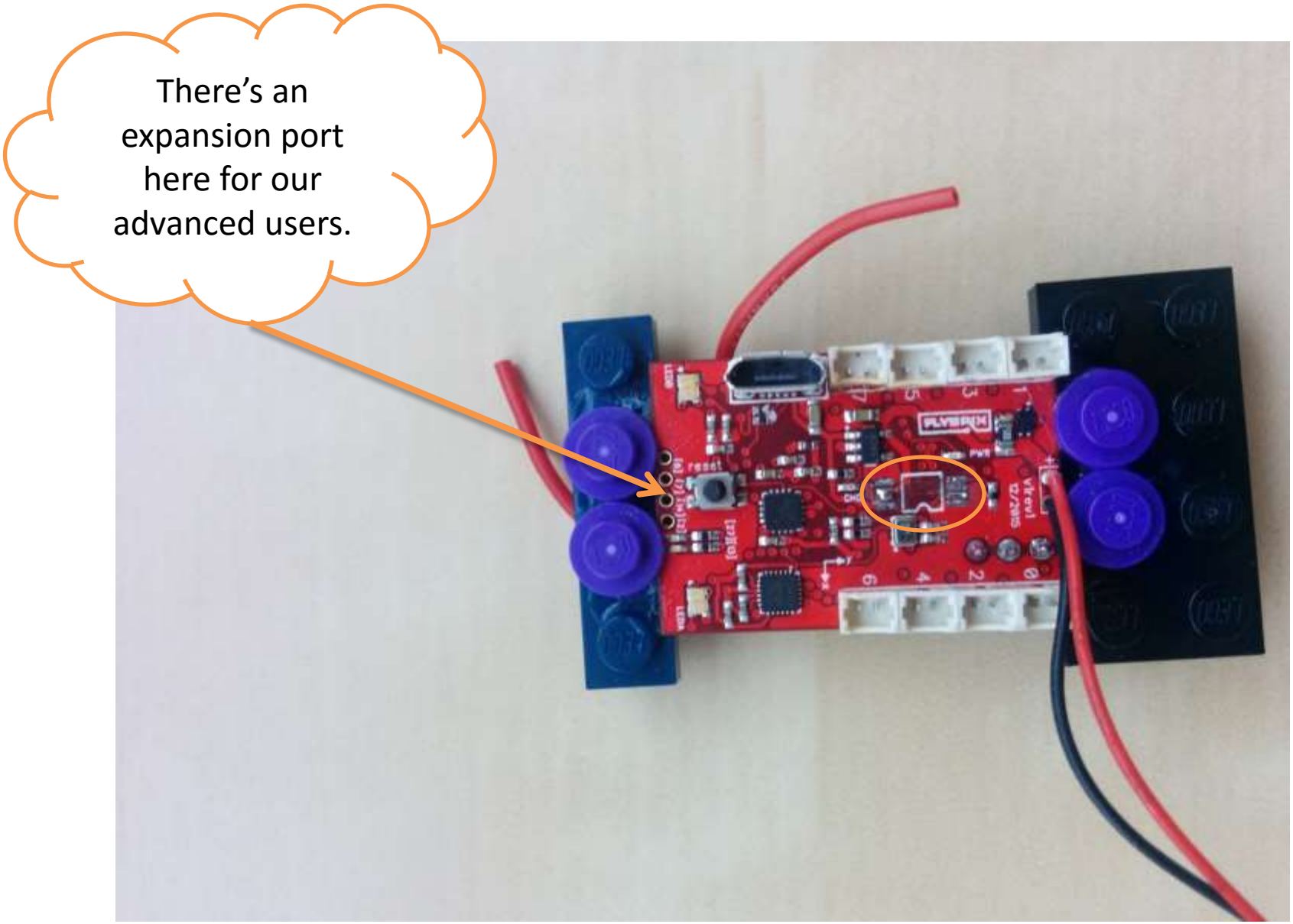
Keep things centered for balance.



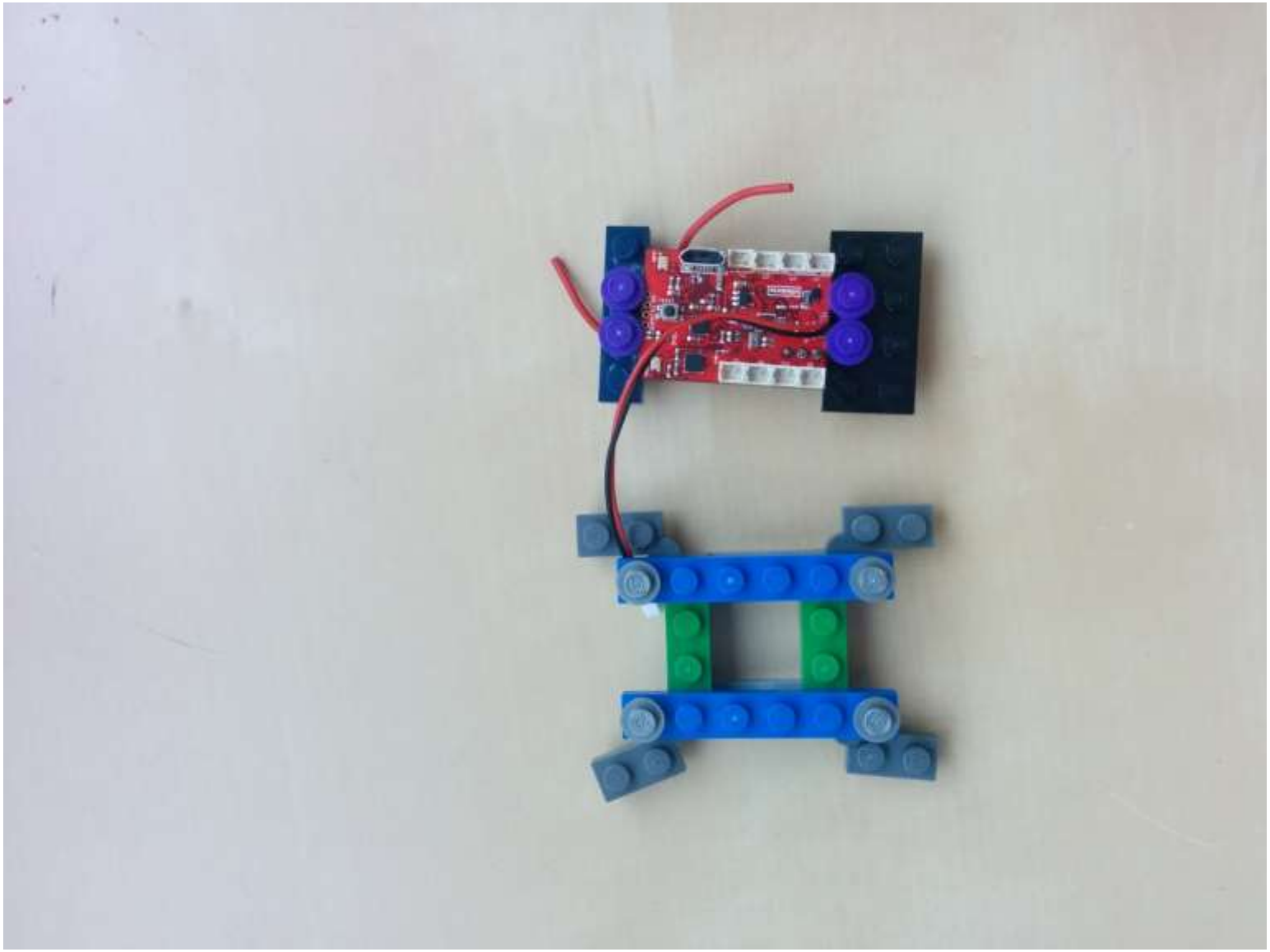
Here’s the underside.



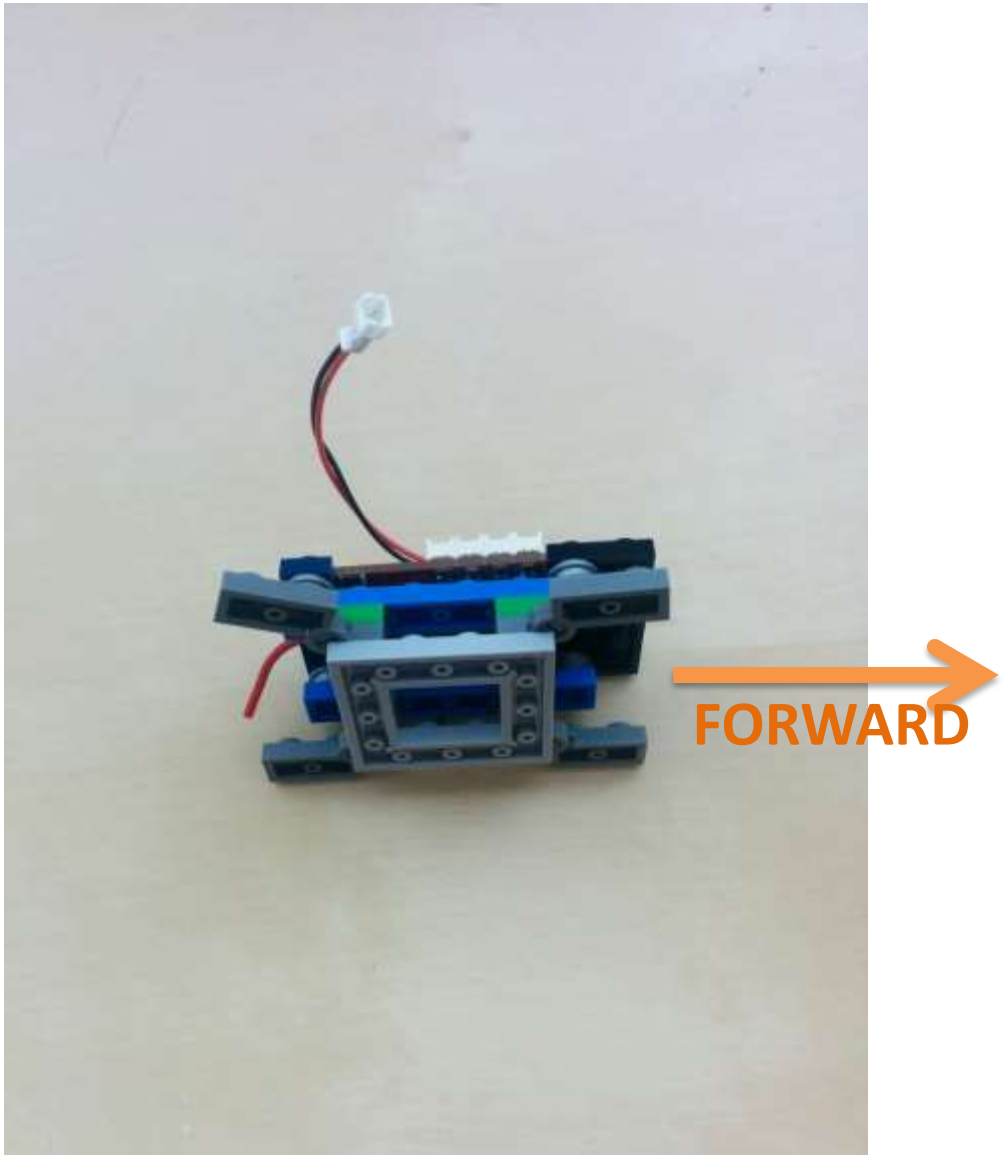
Find your flight board.



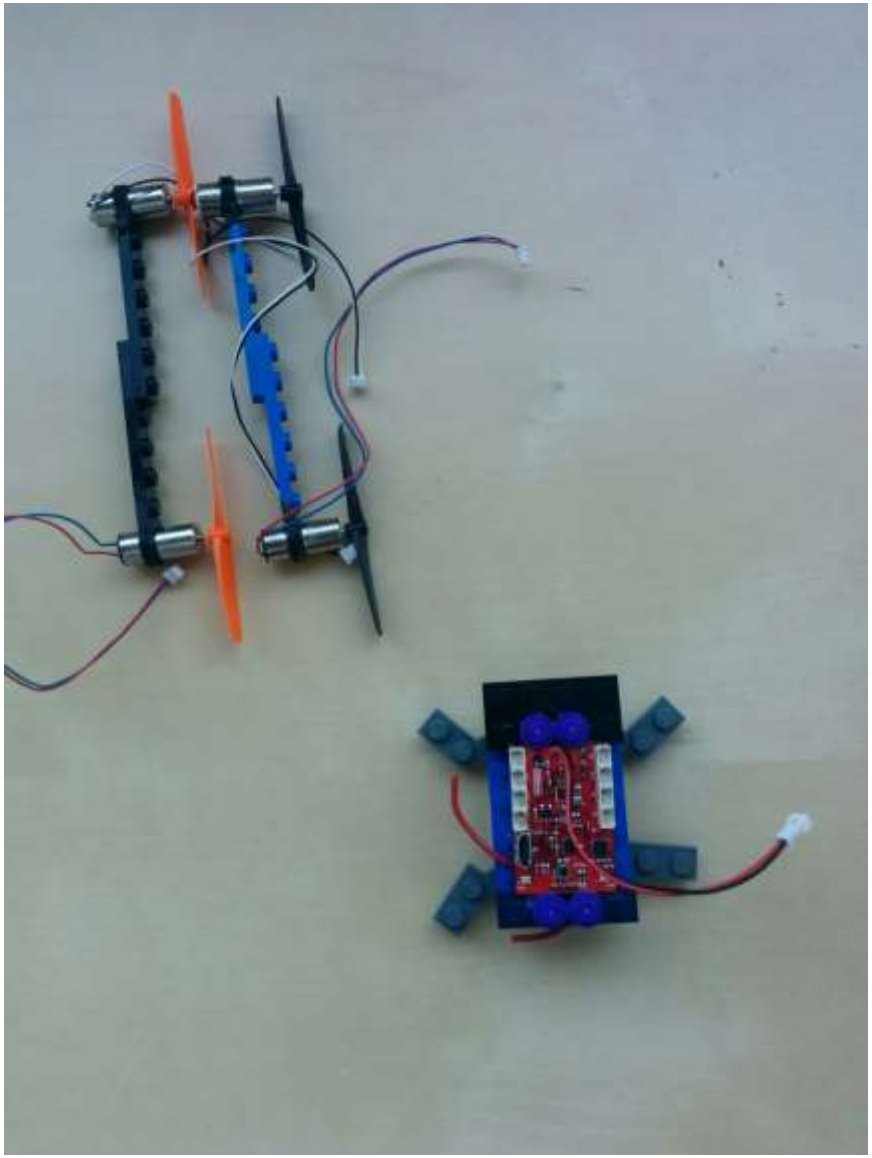
Nice rework right? Good thing we only made 100 alpha boards!



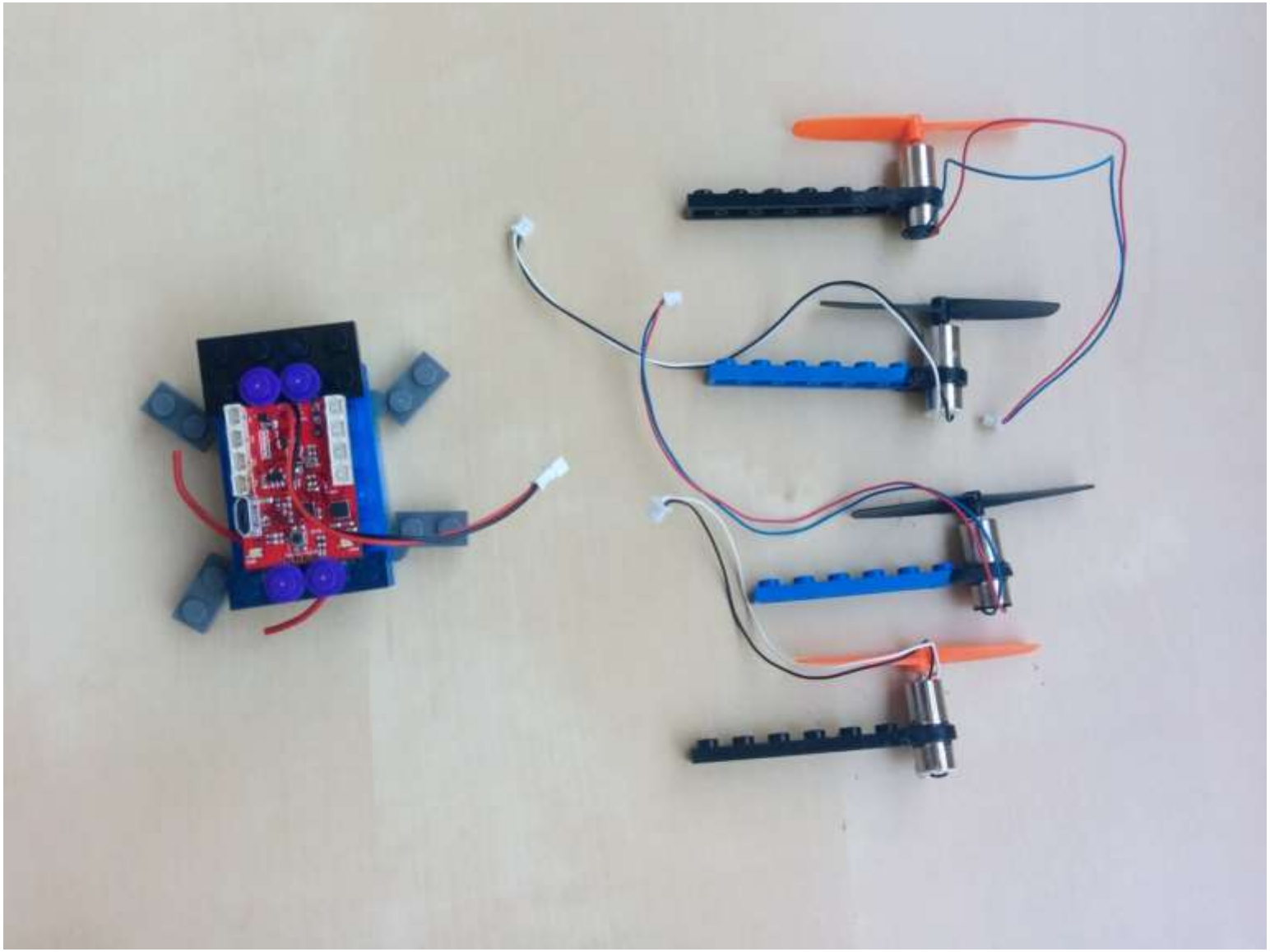
The flight board piece goes on top.



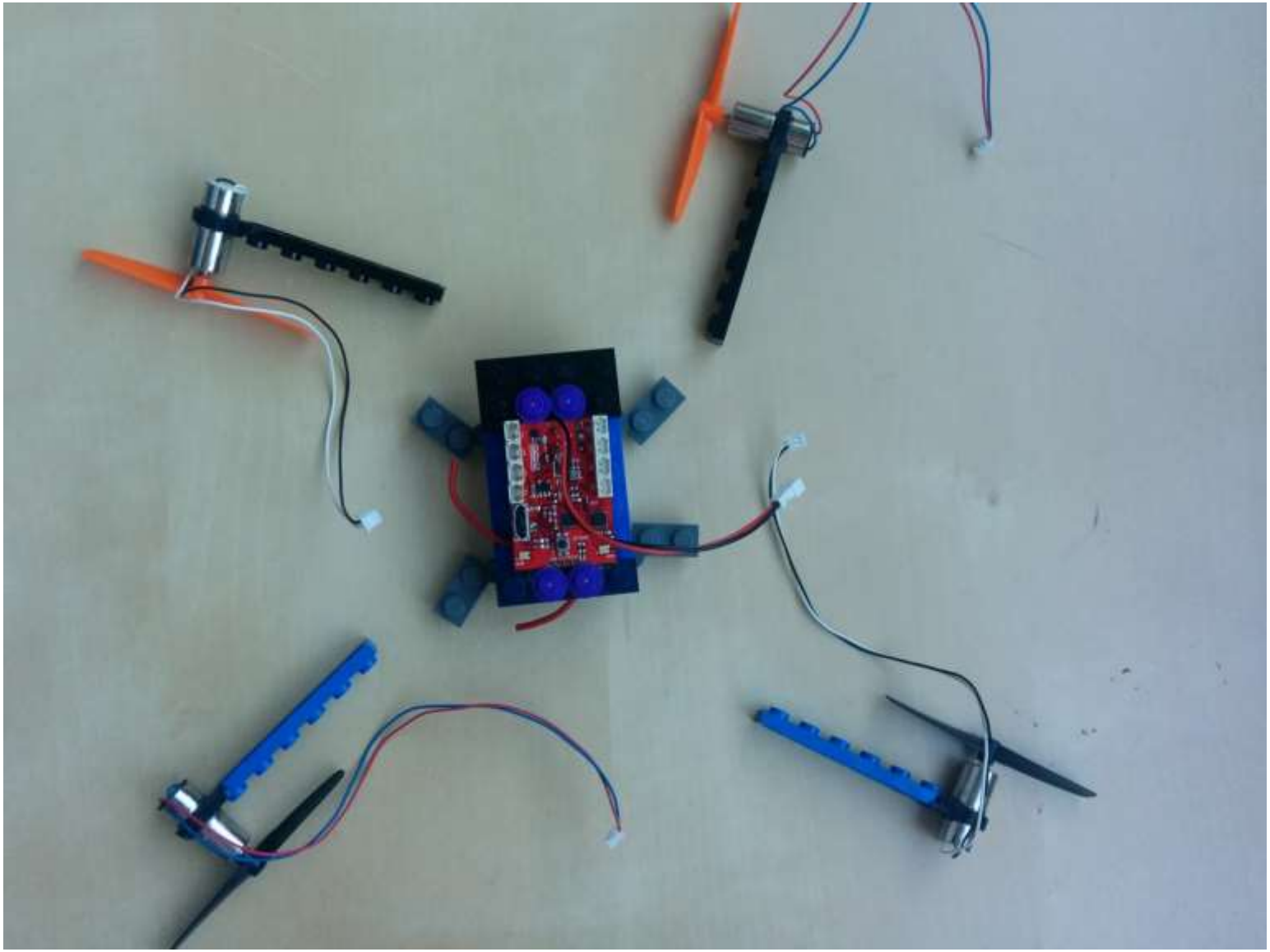
Like this.



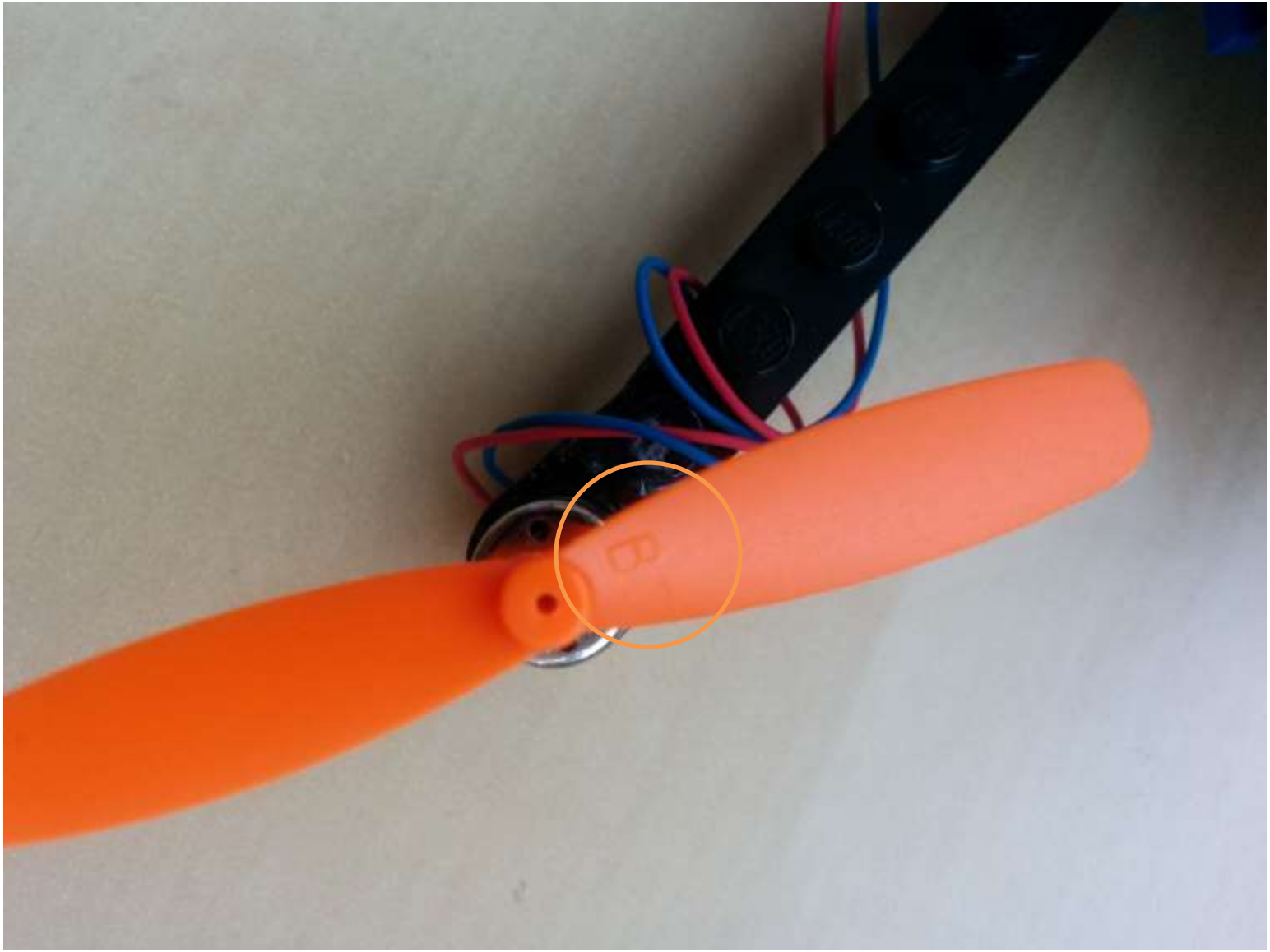
Find your motors arms



Separate the arms.

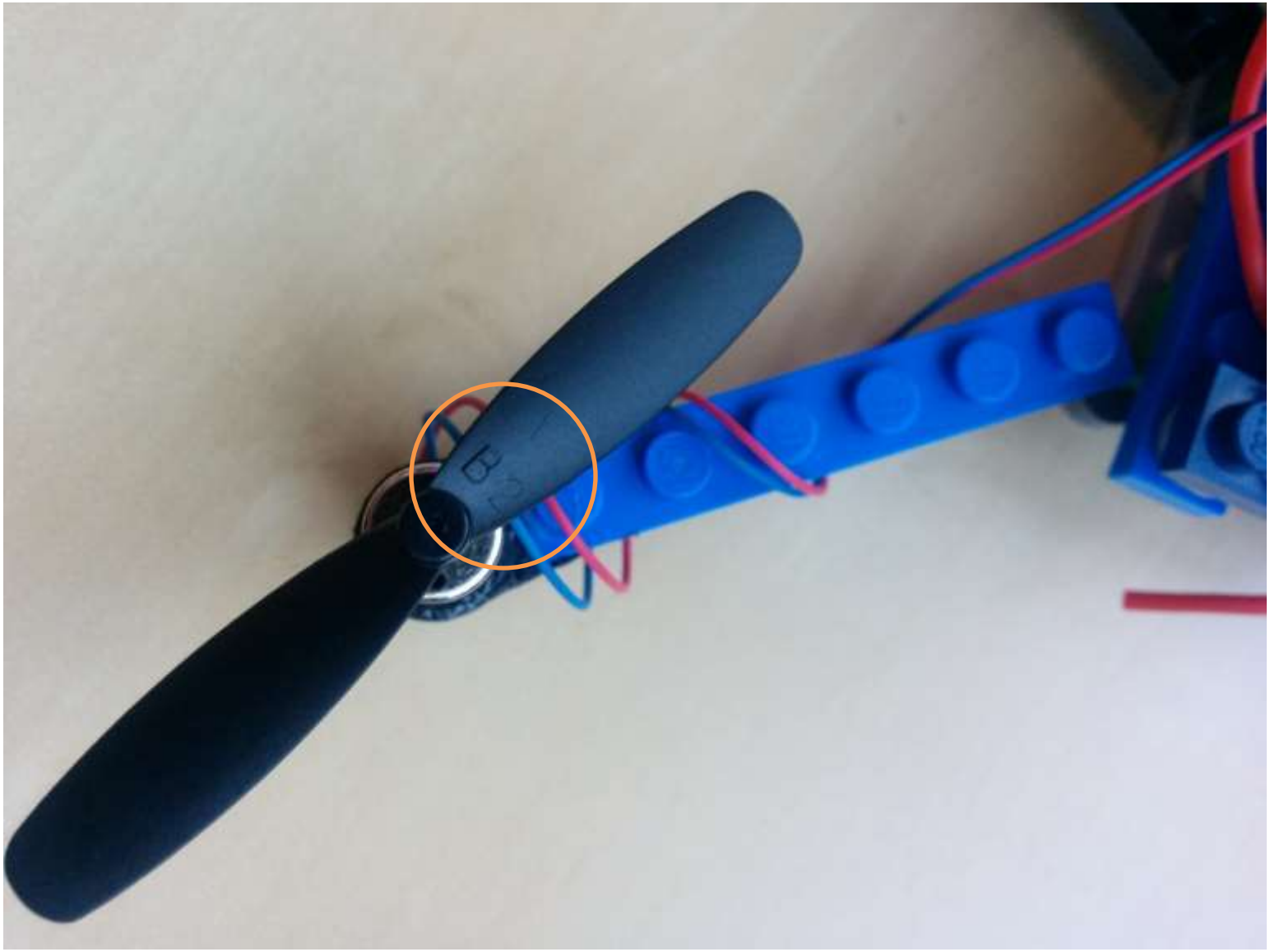


Pick a color to be in the front.



Okay, this is potentially tricky – see the “B”?

…and the “A”?

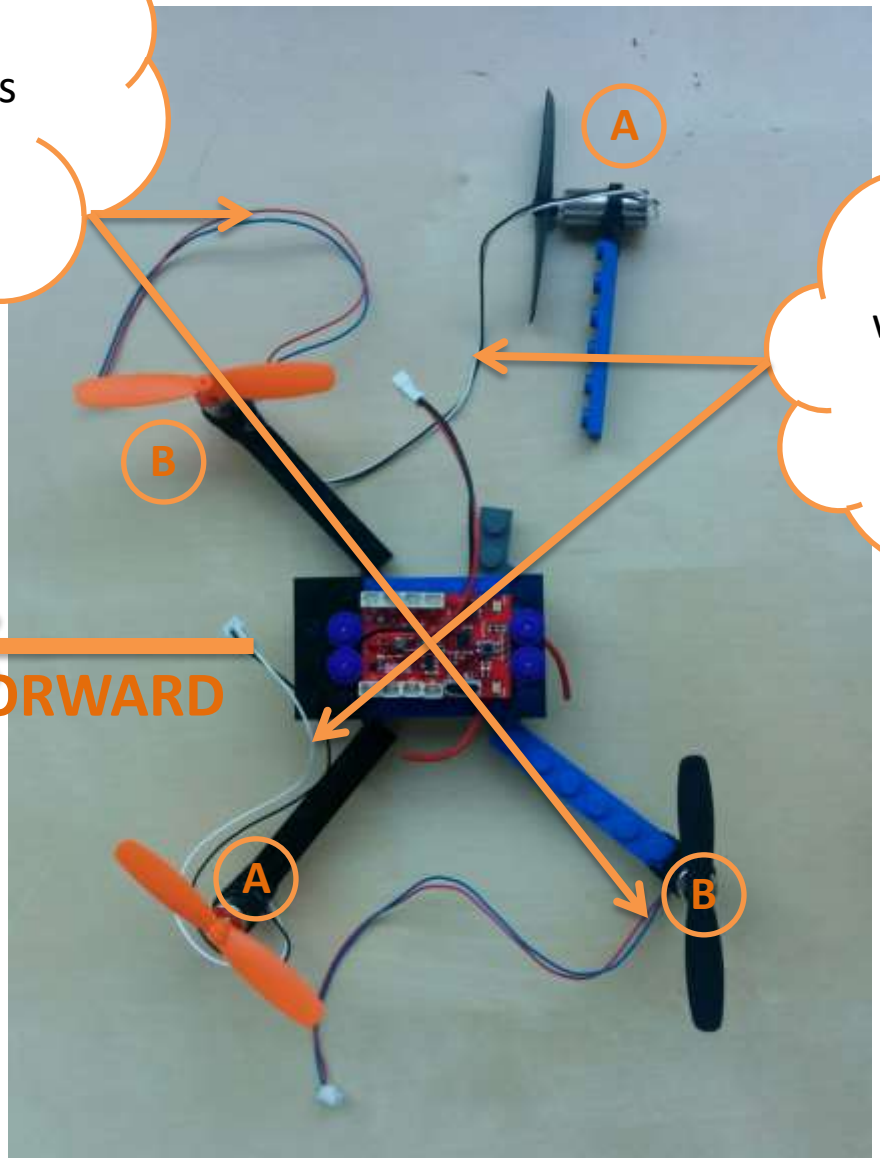


… and the other color’s “B”?

And “A”?

Red and Blue wired CCW motors go with “B” type CCW props.

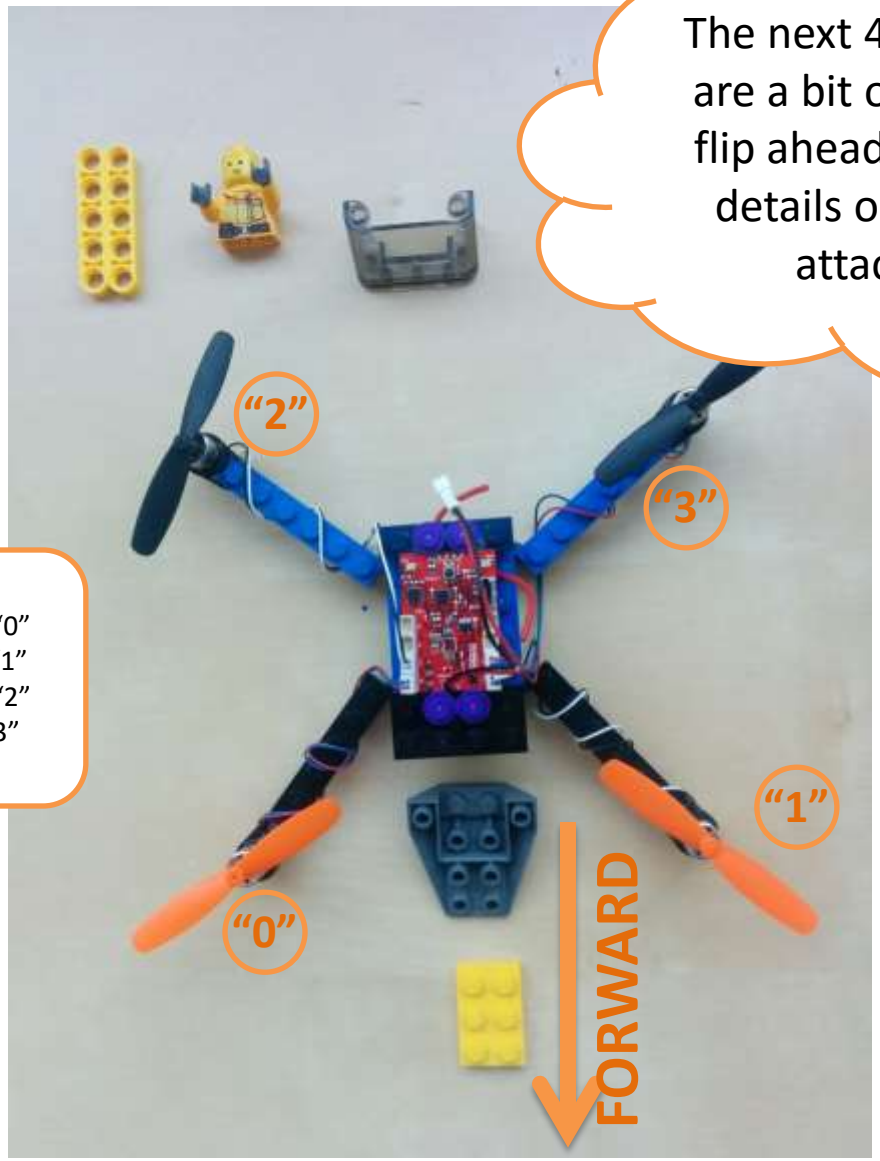
Black and White wired CW motors go with “A” type CW props.



“A” and “B” means a propeller designed for CW or CCW rotation.

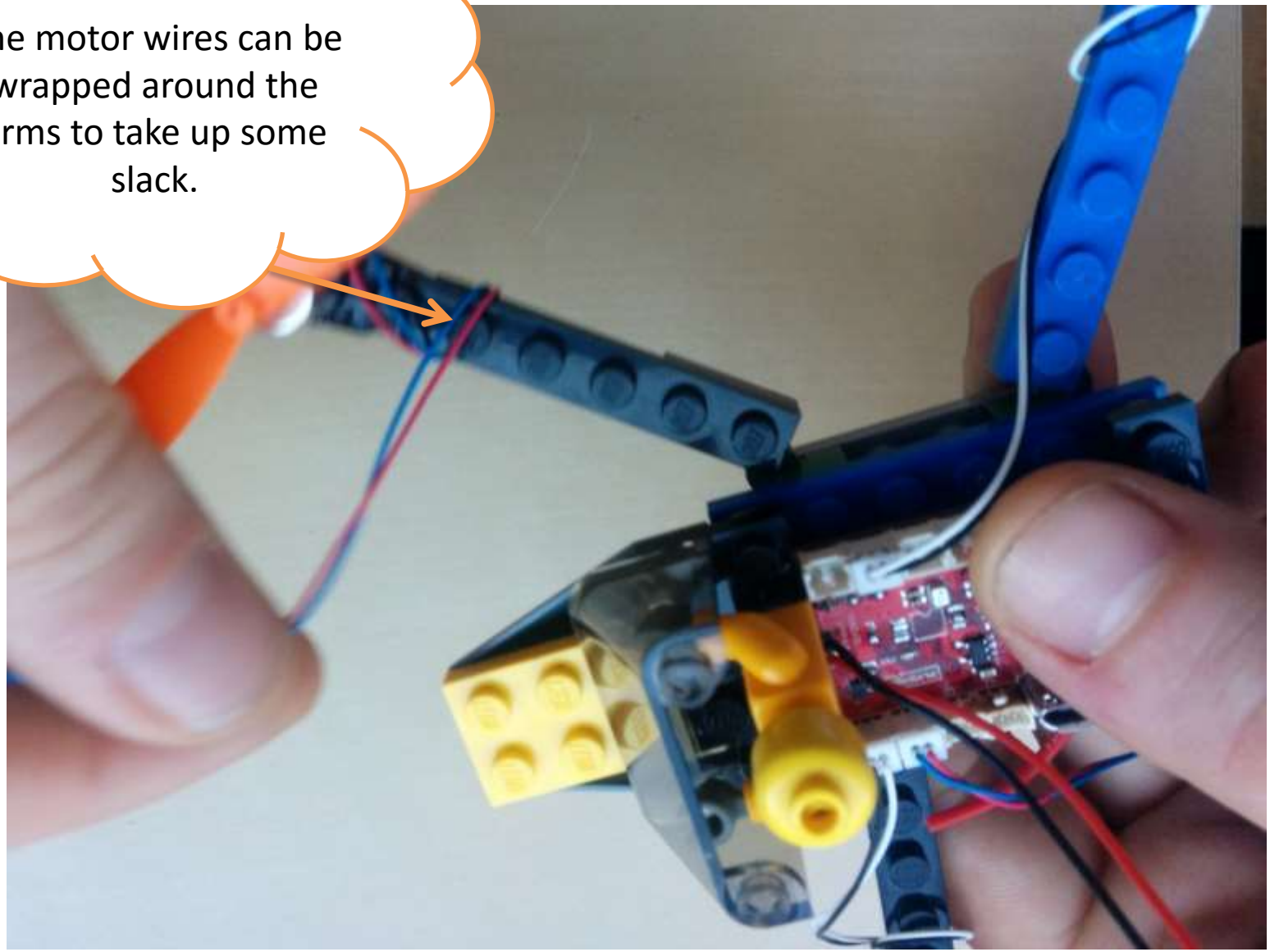
Let’s build the cockpit and brace the arms.

The next 4 or 5 pictures are a bit out of order – flip ahead to see some details on the motor attachment.



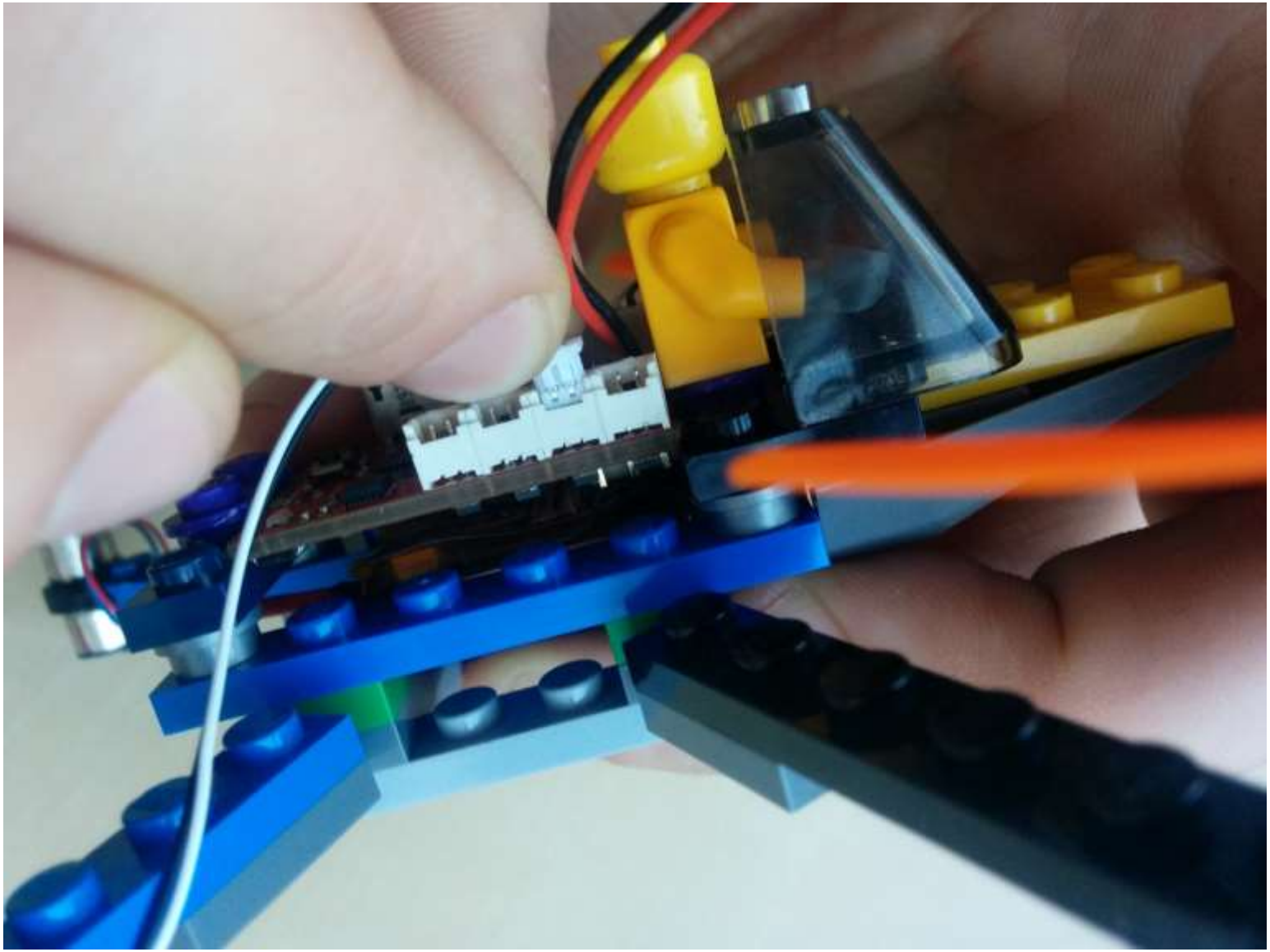
Front Right – R/B wire – Channel "0"
Front Left – B/W wire – Channel "1"
Rear Right – B/W wire – Channel "2"
Rear Left– R/W wire – Channel "3"

The nose snaps on below, with the 2x3 piece on top.



Your pilot sits on the two round pieces attached to the pcb.

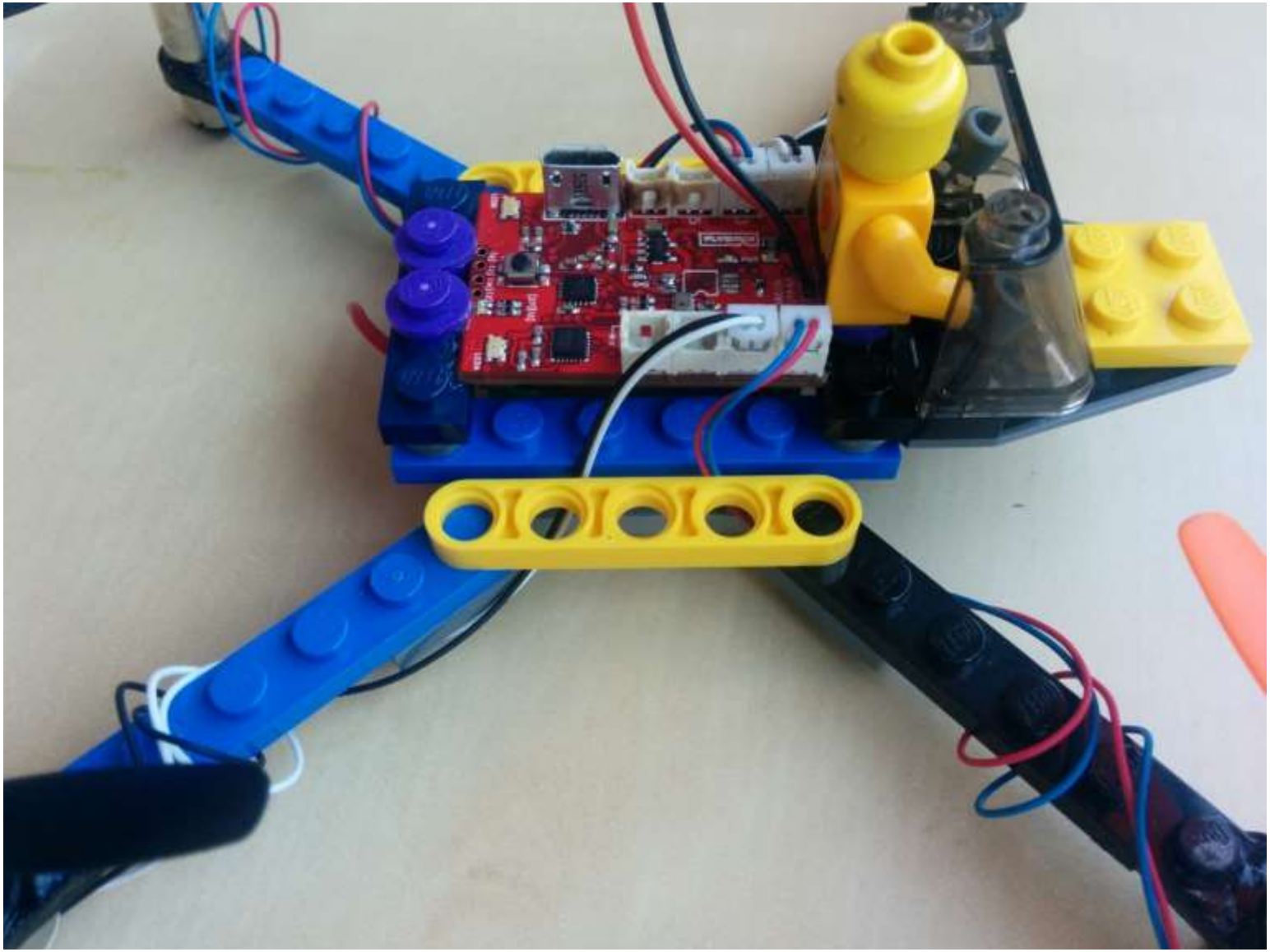
(You might have to adjust her arms behind the windshield.)



Note the orientation when attaching the motors.

Ready for the braces?

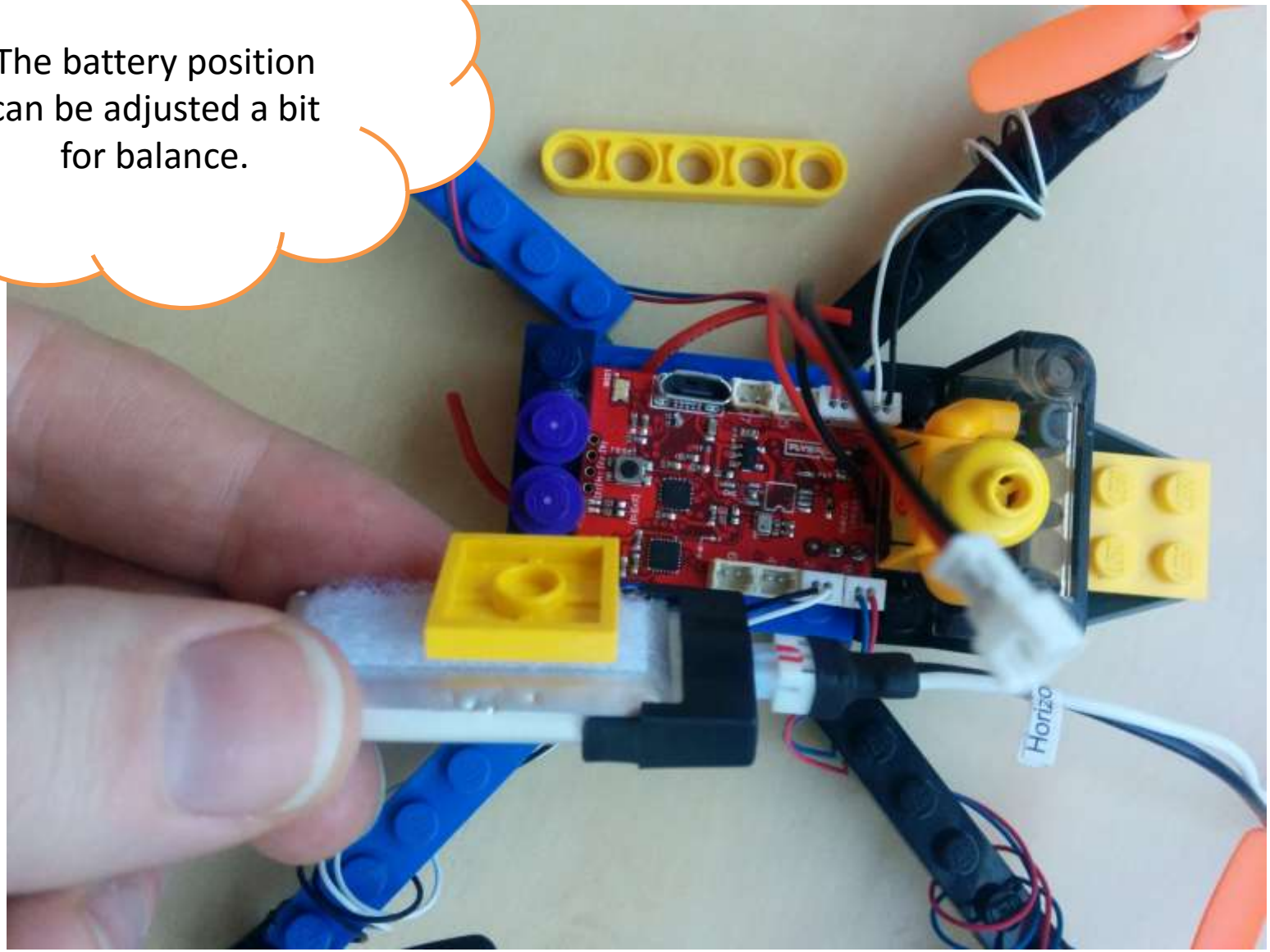
You’ll have to adjust the angles to get a good fit.



Slip the motor leads underneath the braces when you attach them.

Almost finished.

The battery position can be adjusted a bit for balance.



Is your battery charged up?

We like to face the battery connector to the rear.

You should see some blinking lights when you plug in your pcb.

Ready to bind to the transmitter!

We collect four pilot commands to be applied in the reference frame of the flyer:

Thrust creates a force in the positive **z** axis (“up”).
Pitch creates a torque around the **x** axis (“right”).
Roll creates a torque around the **y** axis (“forward”).
Yaw creates a torque around the **z** axis (“up”).

Here’s your transmitter.

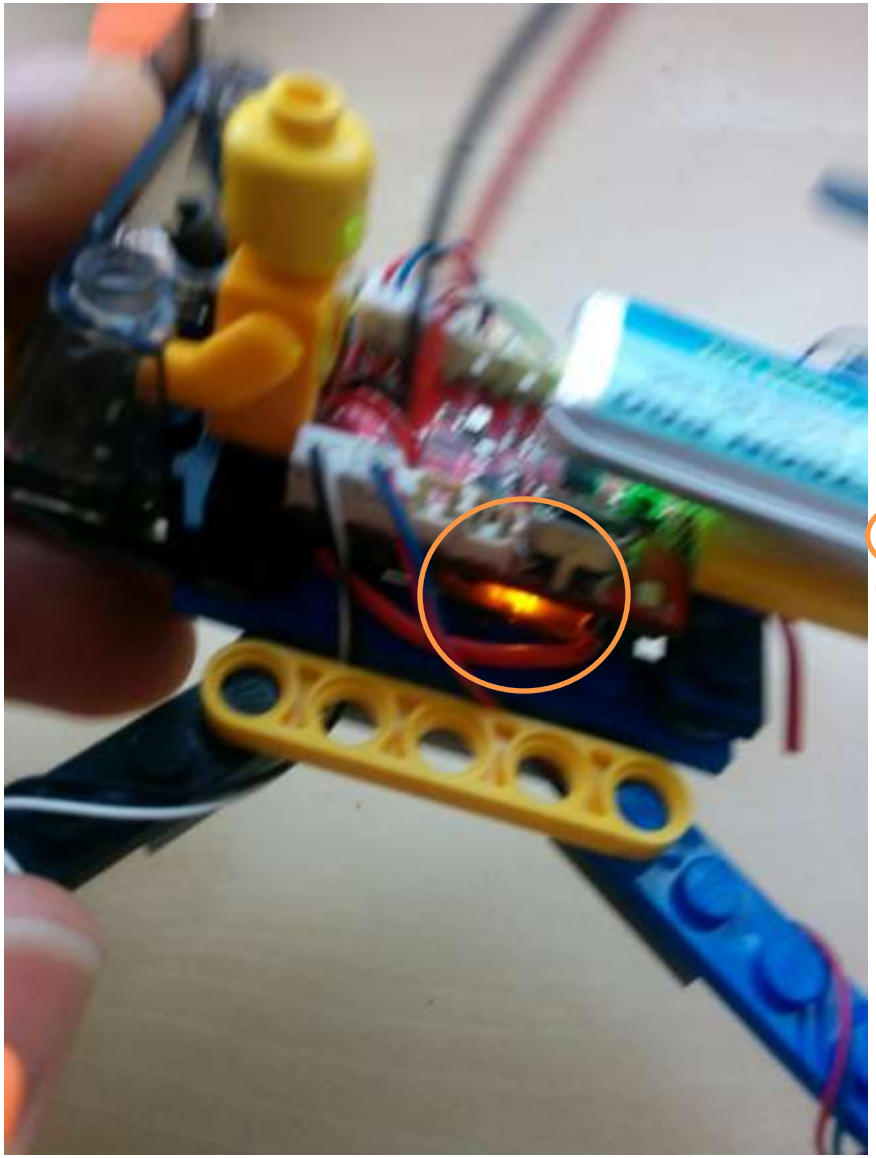
In addition to the four joystick inputs, you can set two high/low auxiliary commands.

AUX2 switches between “high” and “low” when you push the stick in towards the center of rotation. We use this input to arm the motors.

AUX1 is instantaneously “high” when you push the stick in towards the center of rotation. We use this input to bind the transmitter to the receiver.

“Bind” means to pair the transmitter with the receiver so the flyer listens to your controls.

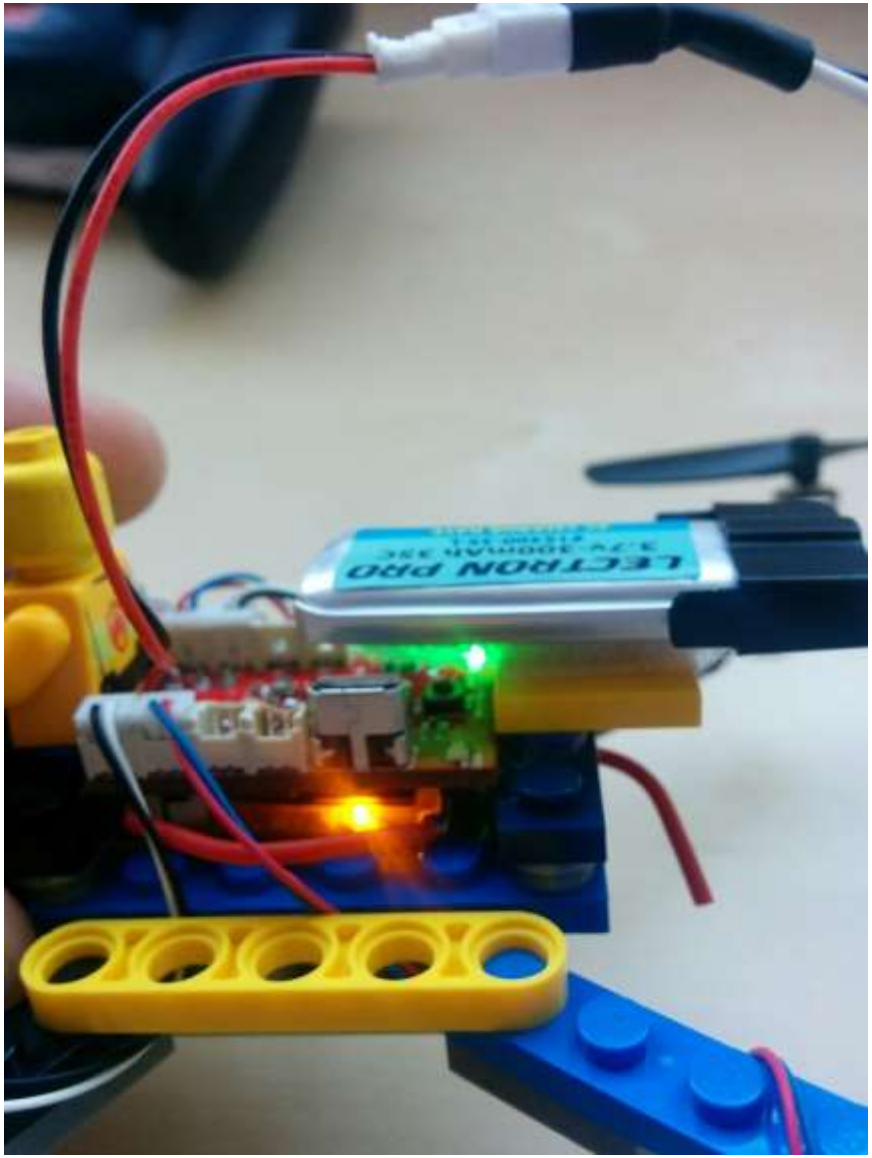
Push the left stick in while you turn on the transmitter to bind.



If it's not blinking, try disconnecting and reconnecting the battery.

See this blinking orange LED on the receiver daughterboard?

Hold the left stick in while you turn on the transmitter.



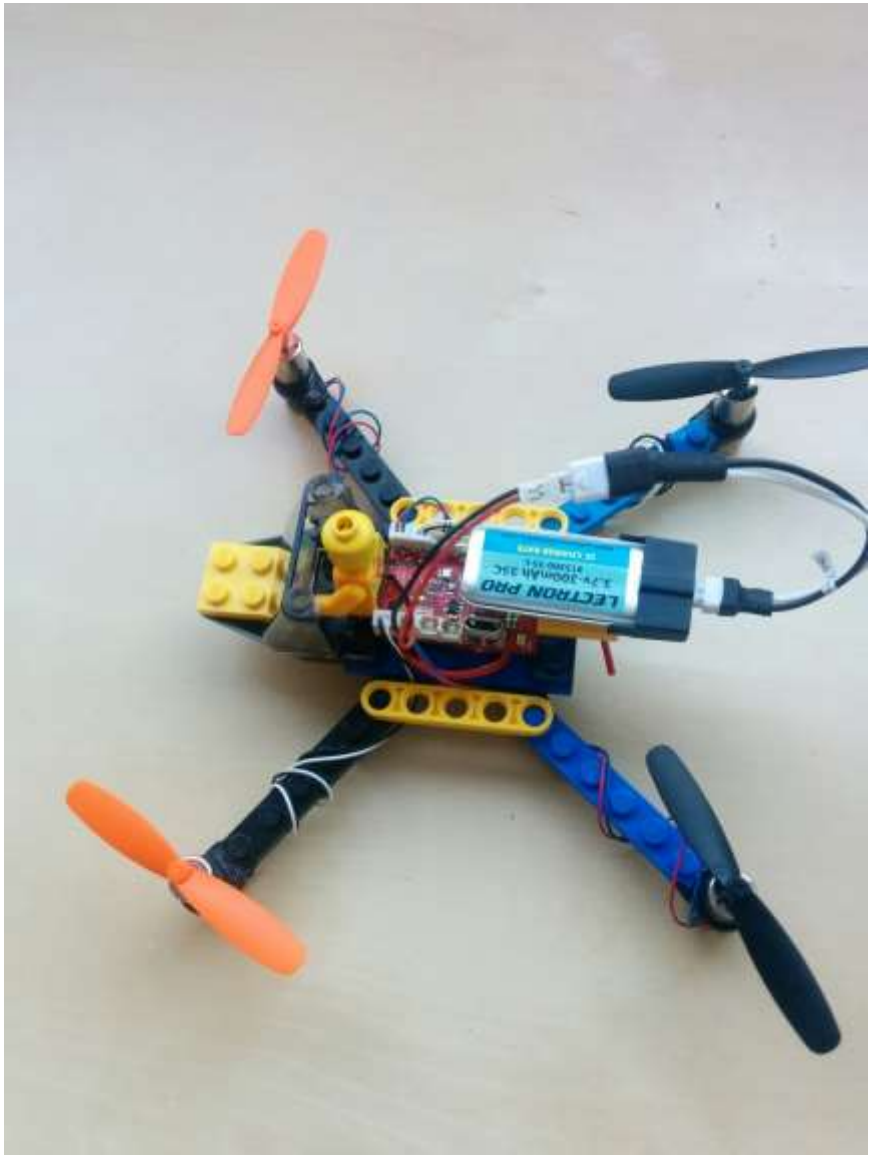
It will turn solid when you bind successfully!

Oh yeah – there will be a sequence of beeps when things go right.

You can release the left stick after you bind.

Push the right stick in to cycle AUX2.

The red light tells you whether AUX2 is “on” or “off”.



Push in AUX2 to arm for flight.

One last thing – the other little buttons allow you to set the “trim”… you’ll hear an ascending or descending tone when you push these buttons, and a louder note when you’re back at zero.

We're obviously still working on this documentation, so if you have feedback for us, please get in touch.

In the future, we'll planning to follow up with better explanations of what's happening behind the scenes, and to provide guidance on how to fly, how to tune, how to build other models etc..

If you would like early access to our github repository, just get in touch. We'll be releasing our firmware and chrome extension code in the very near future. We also plan to share our board schematics.

Thanks again for being in our alpha user program!

Our goal is for Flybrix to become the best platform for experiments in aerial robotics. We'd love to hear your design ideas for hardware and software!