WIRING AN ARCADE MACHINE 101

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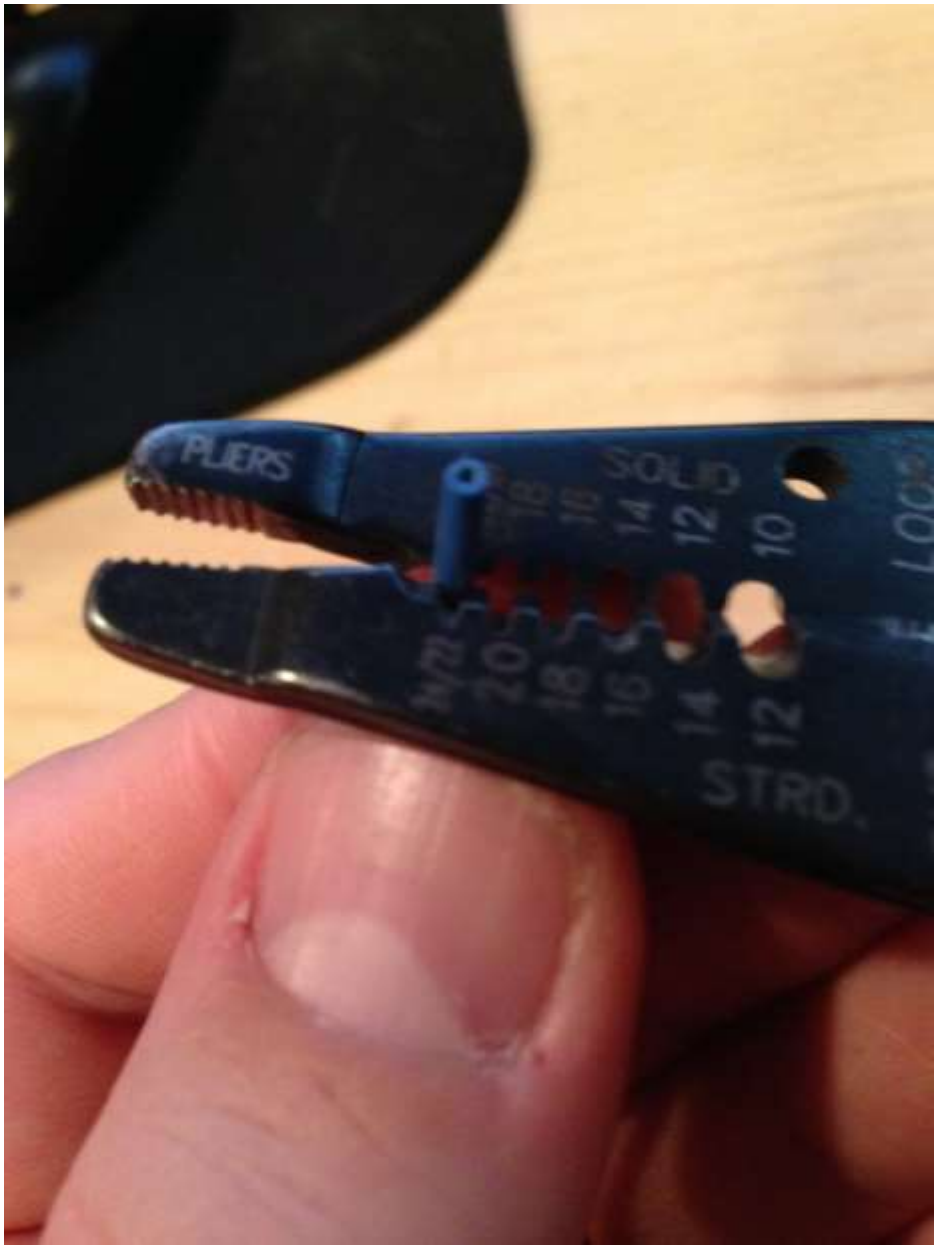
Stripping Wires

To strip a wire, place the end of it in the slot in your stripper. I believe you have size 20 wire so (contrary to my picture below) place the wire into the 20 slot on your stripper. Once in place clamp shut your stripper. While holding onto the wire, and also holding the stripper clamped shut, twist the stripper around in a circle around the wire. The idea is to cut a circle in the plastic casing around the wire.



Once you've given the stripper a good rotation around, pull the stripper upwards. You might have to give it a decent tug, but when you're done you should see the plastic casing left on or near the stripper, and that the copper wiring of your wire is exposed:

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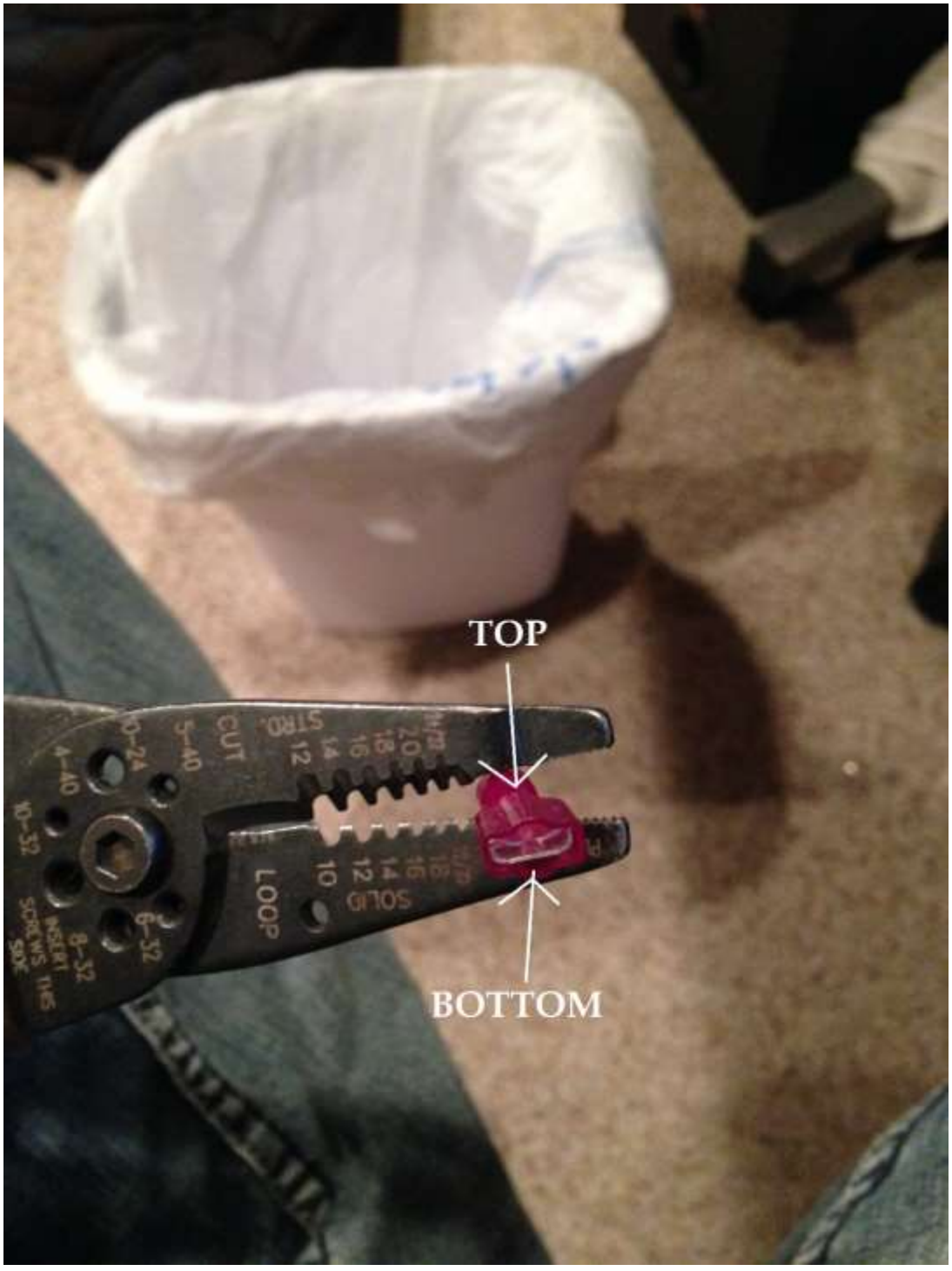
Crimping on a Quick Disconnect

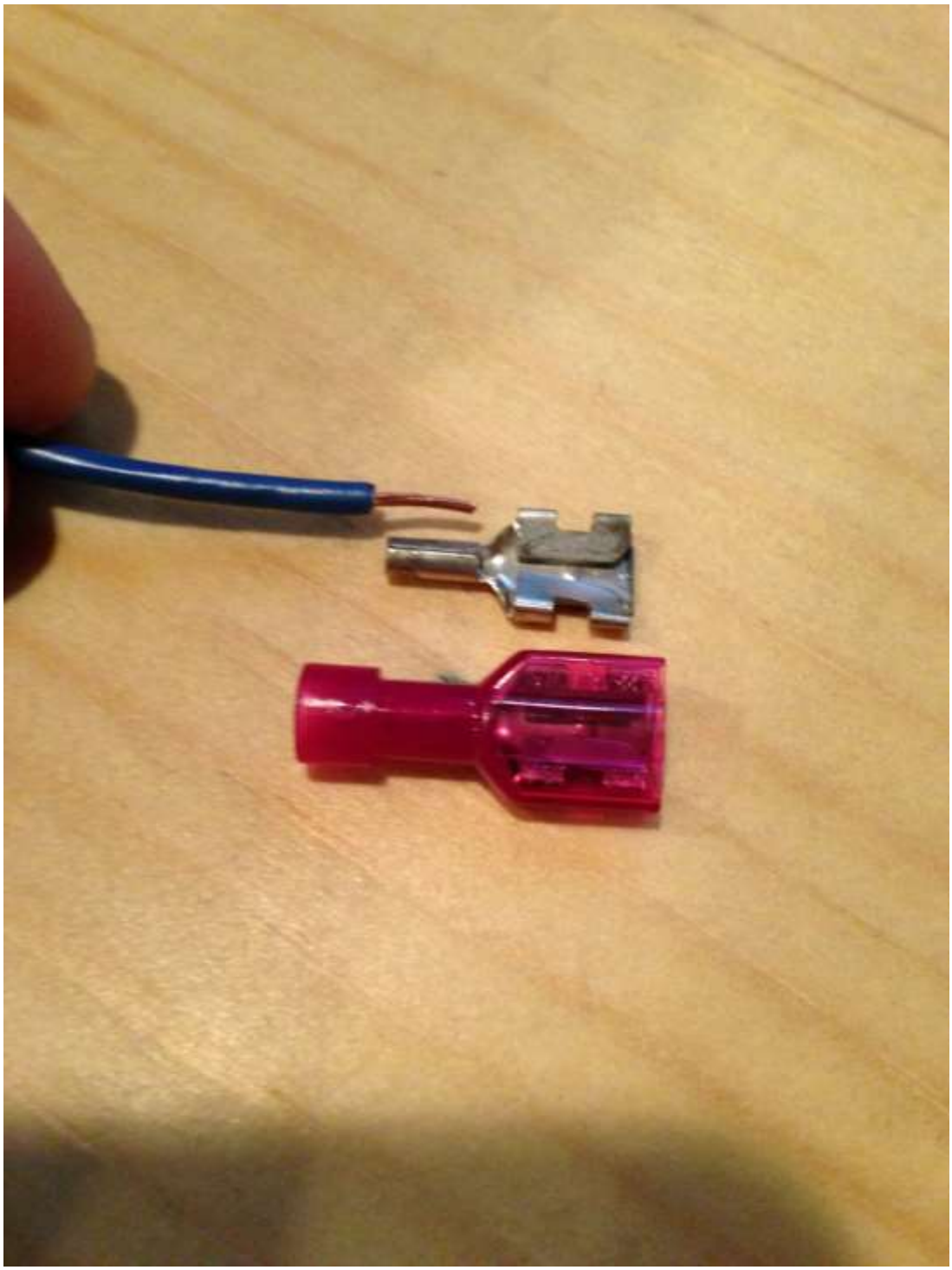
First, to identify the “top” and the “bottom of the quick disconnect… If you look at one of them you will see they are arranged something like this: /`_'\

The solid side that goes all the way across, we will call the bottom. The part where there’s a gap between the two parts, we will call the top.

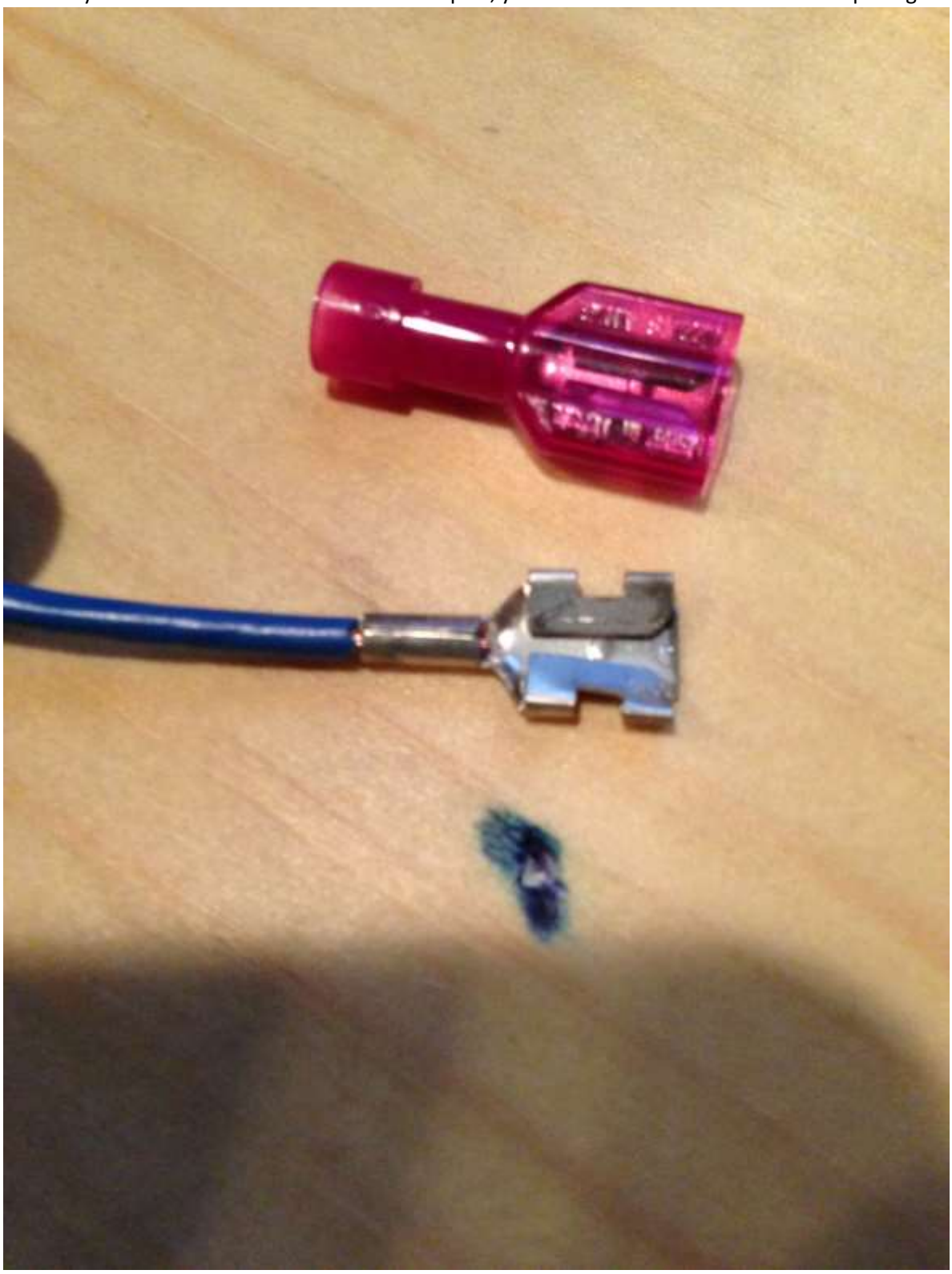


To make this easier to demonstrate, for the following pictures, I’ve removed the casing around a quick disconnect.

The idea is to strip enough wire so that the exposed copper parts go to the end of the “tube” part of the quick disconnect, but not much farther.



So once you've inserted the wire into the tube part, you shouldn't see much of the wires poking out of the tube:

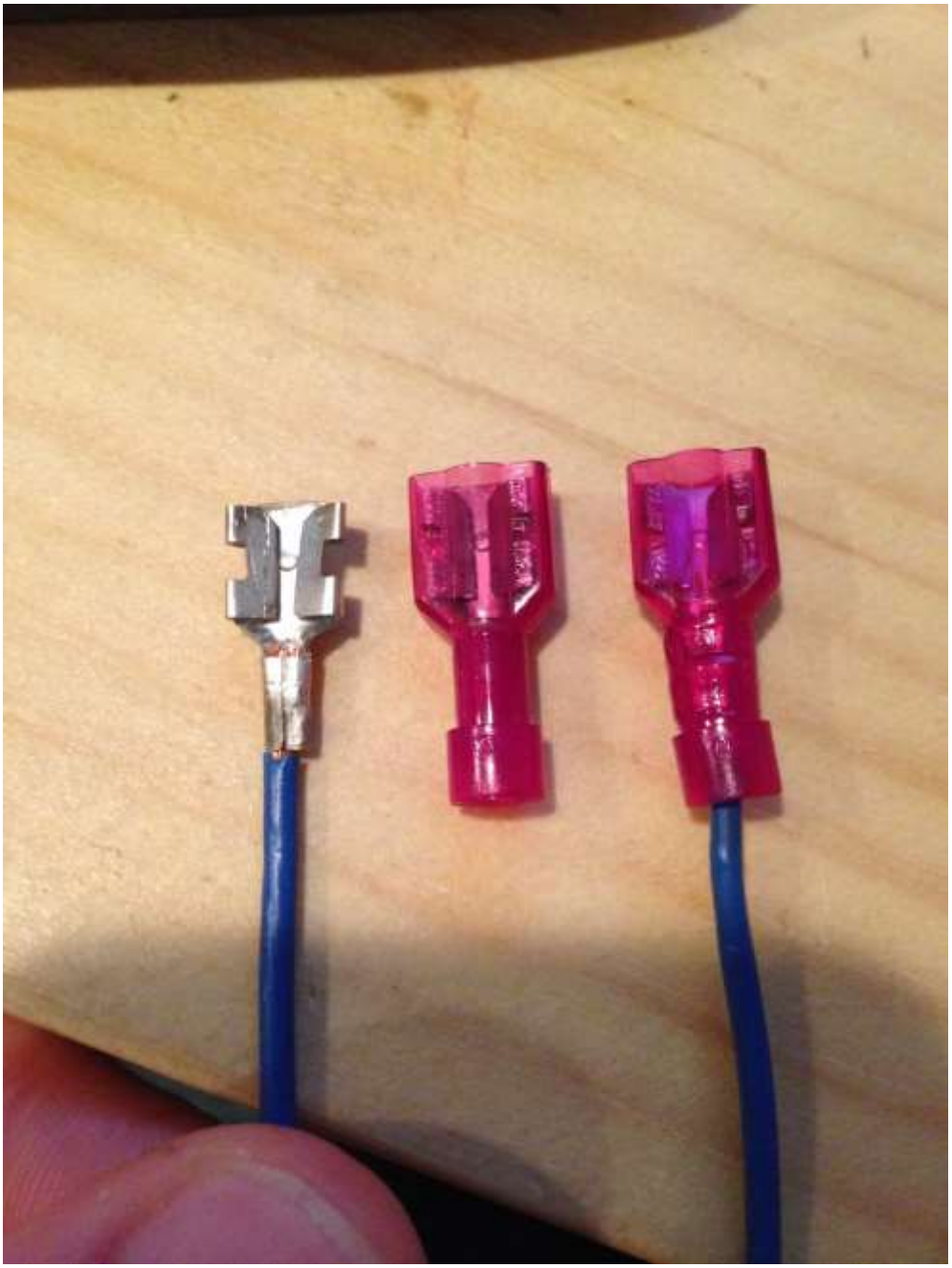


Next, it's time to crimp the wire. Your stripper/crimper tool should have some "teeth" on them which are used to crimp wires. Locate the size 20 wire section of the teeth. They will have a "point" side which fits into the valley on the other side. You want to make sure the "point" side of the crimper is pointing into the "bottom" of the quick disconnect.

Now, once it's correctly held in place, clamp together the crimper tightly. You don't want to absolutely kill the thing, but you do want to press tightly so that it creates an indentation in the tube part:

Next, move the crimper a little bit down and repeat on the bottom half of the tube, so that there are two crimps holding it in place:

That should be it. Give the wire a little pull while holding onto the quick disconnect to make sure that it's being held in place properly. If done correctly, obviously, the wire should stay connected to the quick disconnect, and should not be able to be pulled apart easily. Actually it should hold pretty tight no matter how hard you tug, but there's no need to stress test each and every one to its full extent but when you're playing around initially, figuring out how to do this stuff, be sure to test a few of them and pull on them to make sure they're holding tight.



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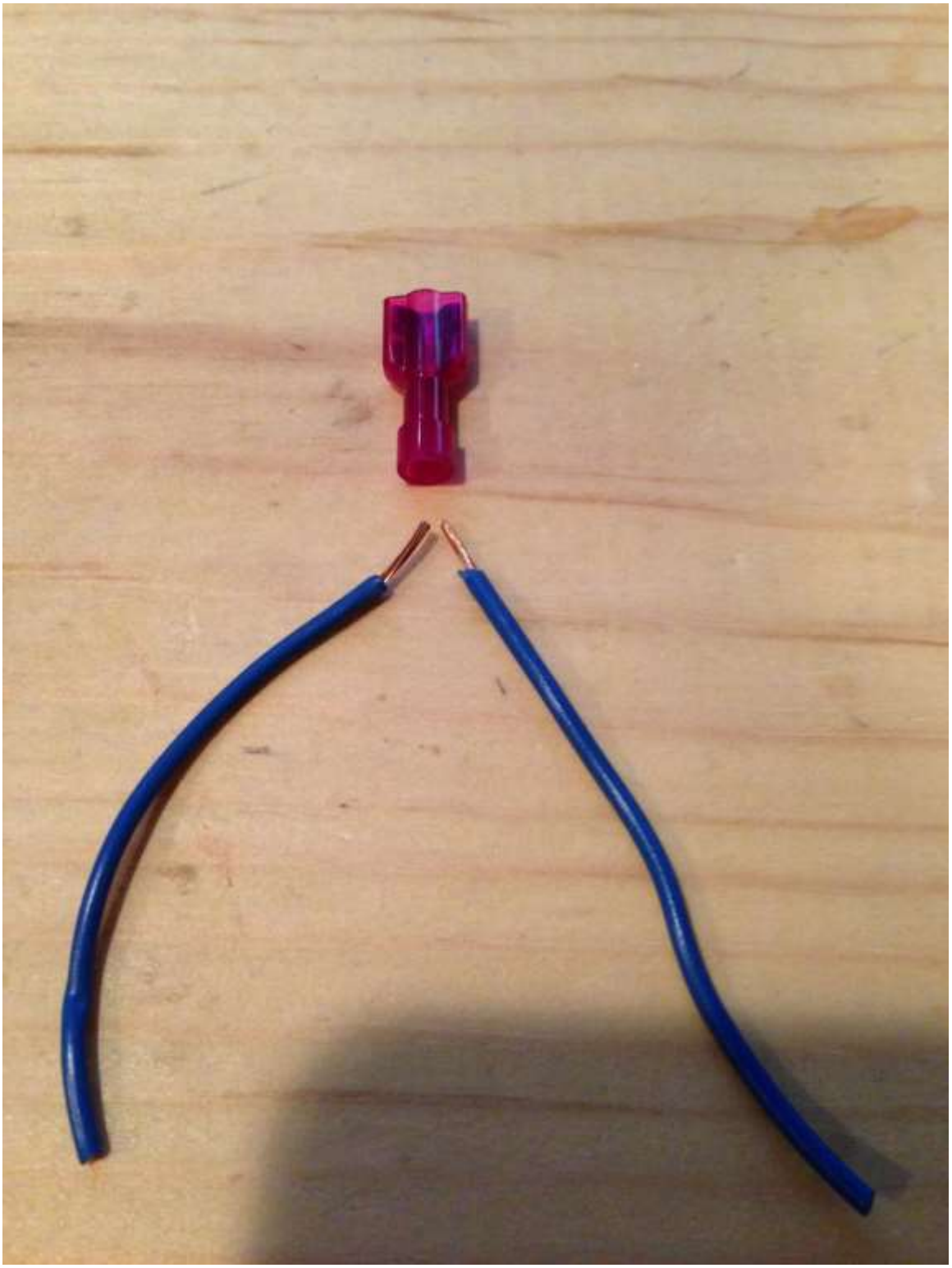
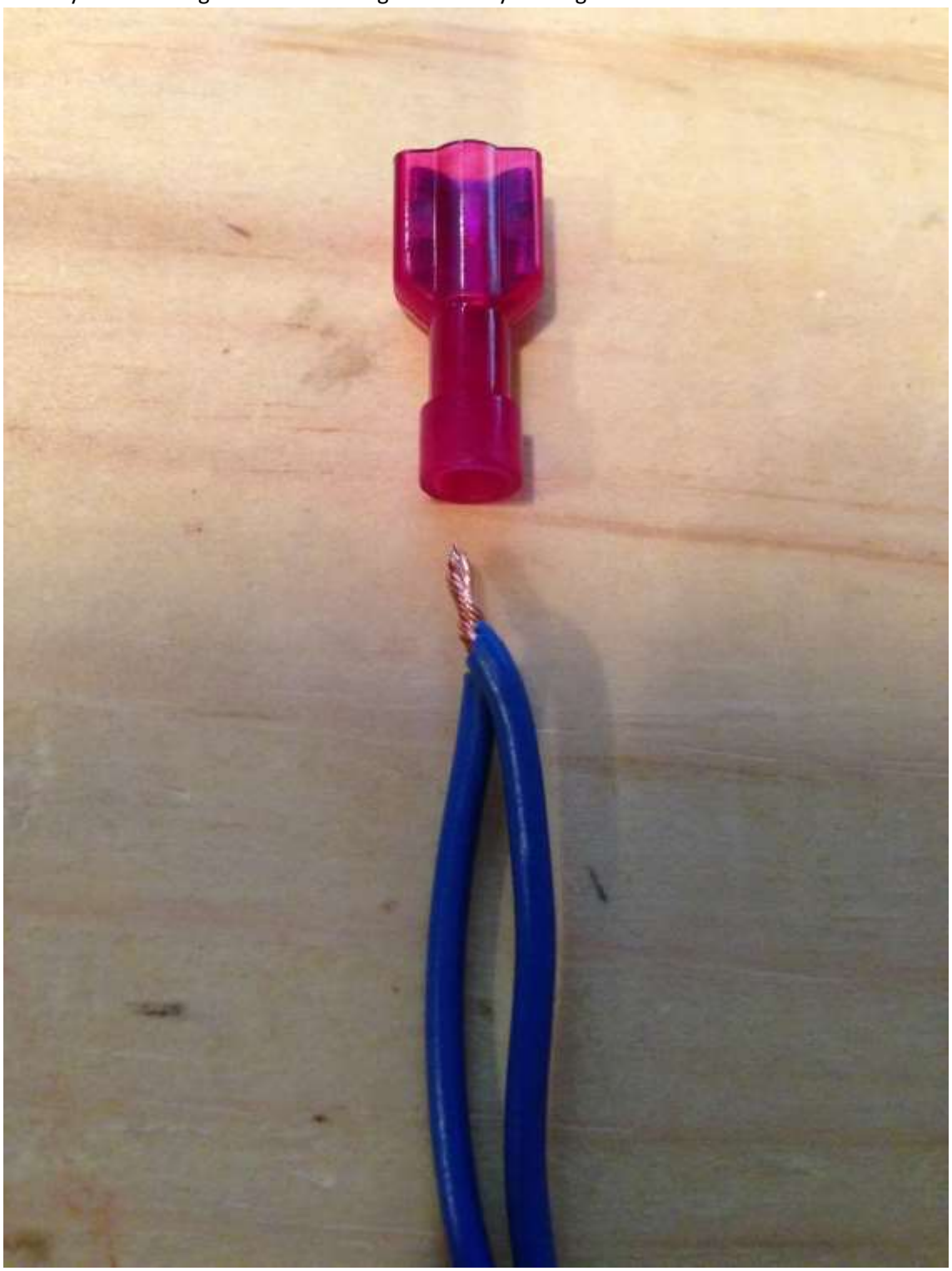
Making a Daisy Chain Wire

This is very similar to what you did above, except that you use two wires in the same quick disconnect, instead of just one.



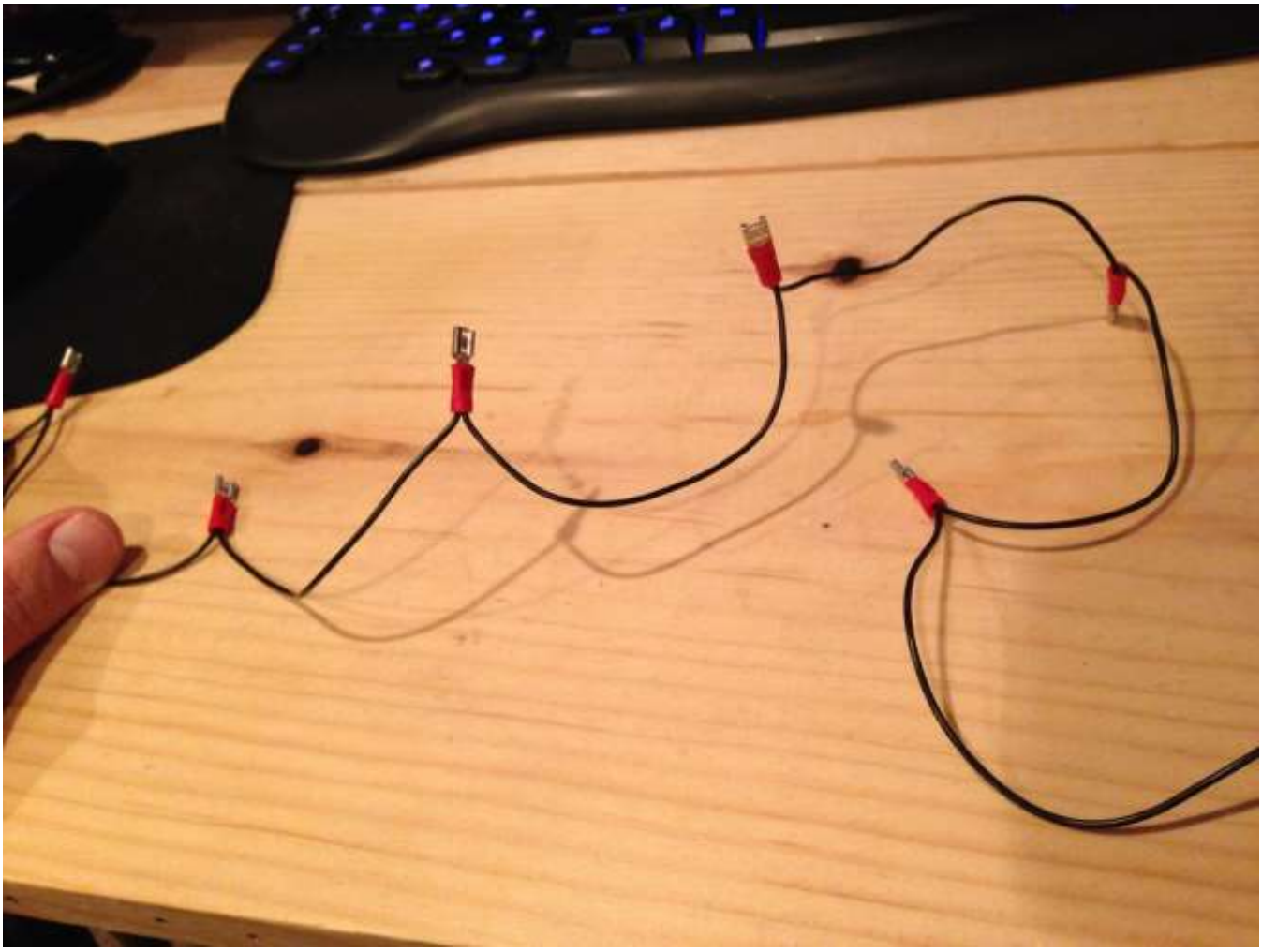
Start by first twisting the two wires together with your fingers.



Same rule as before. You want there to be enough wire to go to the end of the “tube” part, but not much further.

Once the wire is the proper length, is twisted together, and in place, crimp it together in the same fashion as you did before.

For the “ground” or “common” wire of your controls, which we will cover in greater detail later on, you will be daisy chaining a wire from one control to the next. The same ground wire will go to each and every switch you have. So they will go from button to button, to the switches on the joysticks, etc. So in the end, you will wind up with one wire with tons of disconnects on it, that will link together everything.



Note, I am only telling you this for informational purposes at this time. You should not make this daisy chain wire ahead of time because each distance between controls will differ along the way.

I believe that’s it for the basics. Feel free to strip a few wires and crimp a few quick disconnects so that you feel comfortable with it. You’ll be doing it a lot!

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Wiring your Keyboard Encoder

Well, to be technical, it sounds like you are going to be using a GP-Wiz and not a KeyWiz. So it's not technically a "keyboard" encoder. But it serves the same function.

A Keyboard encoder gets recognized by Windows as a normal keyboard. When you push a button on your control panel, windows just sees it as a letter or number being typed on a keyboard.

On the other hand, the GPWiz gets recognized by windows as a "gamepad" or "controller" of sorts. So it just sees it as a gamepad with like 40 buttons on it. You then use an extra piece of software which translates these button presses to be keyboard letter/number presses instead.

So these are two similar methods, slightly different, but they both accomplish the same thing.

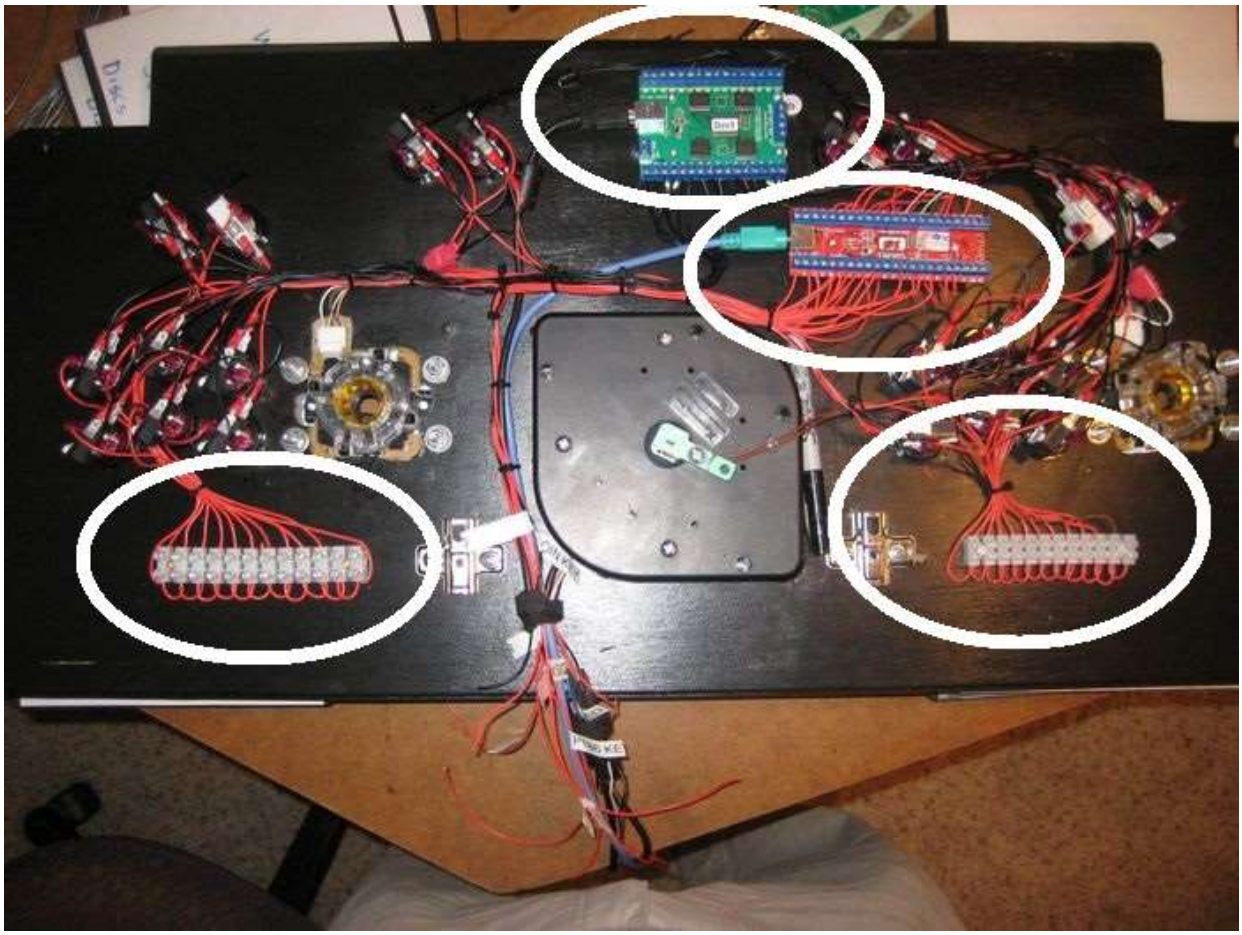
Each of your controls, be it a button or a joystick direction, has a switch on it.

The Normally Closed connector, we do not use at all.

We do use the other two however. When wiring up your GPWiz, you will be wiring one wire from the Normally Open connector to a port on the GP-Wiz. I like to refer to the Normally Open wire as the "live" wire. So you will be wiring up 4 live wires per joystick (since they should each have 4 switches built into them) and then one live wire per button. Since the GPWiz has 40 ports on it, you should have plenty of open ports available to you for all your controls.

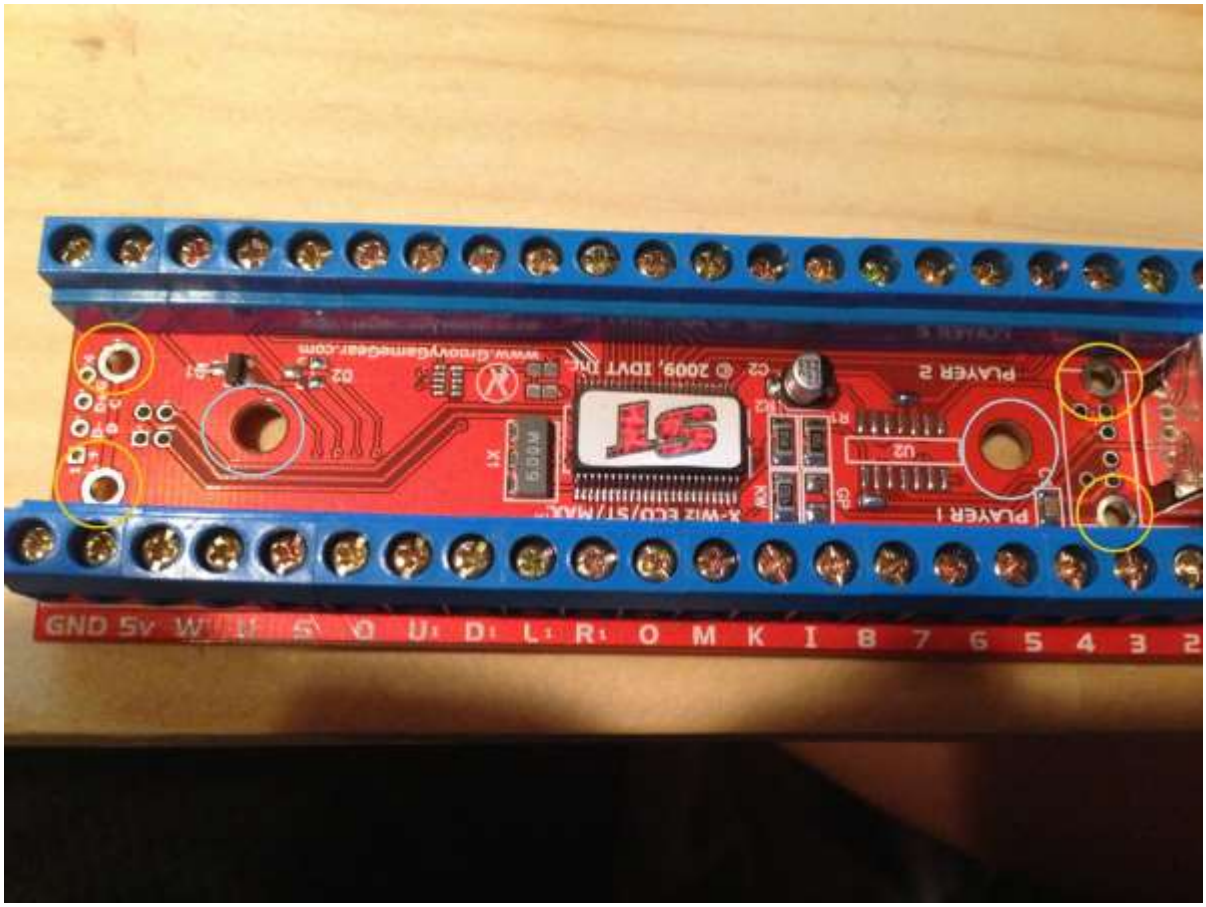
Here is a picture of the GPWiz from the GGG website:

The first thing you want to do is mount your GPWiz onto your control panel. Remember that ultimately there will be four things that you need to mount there, so plan accordingly:

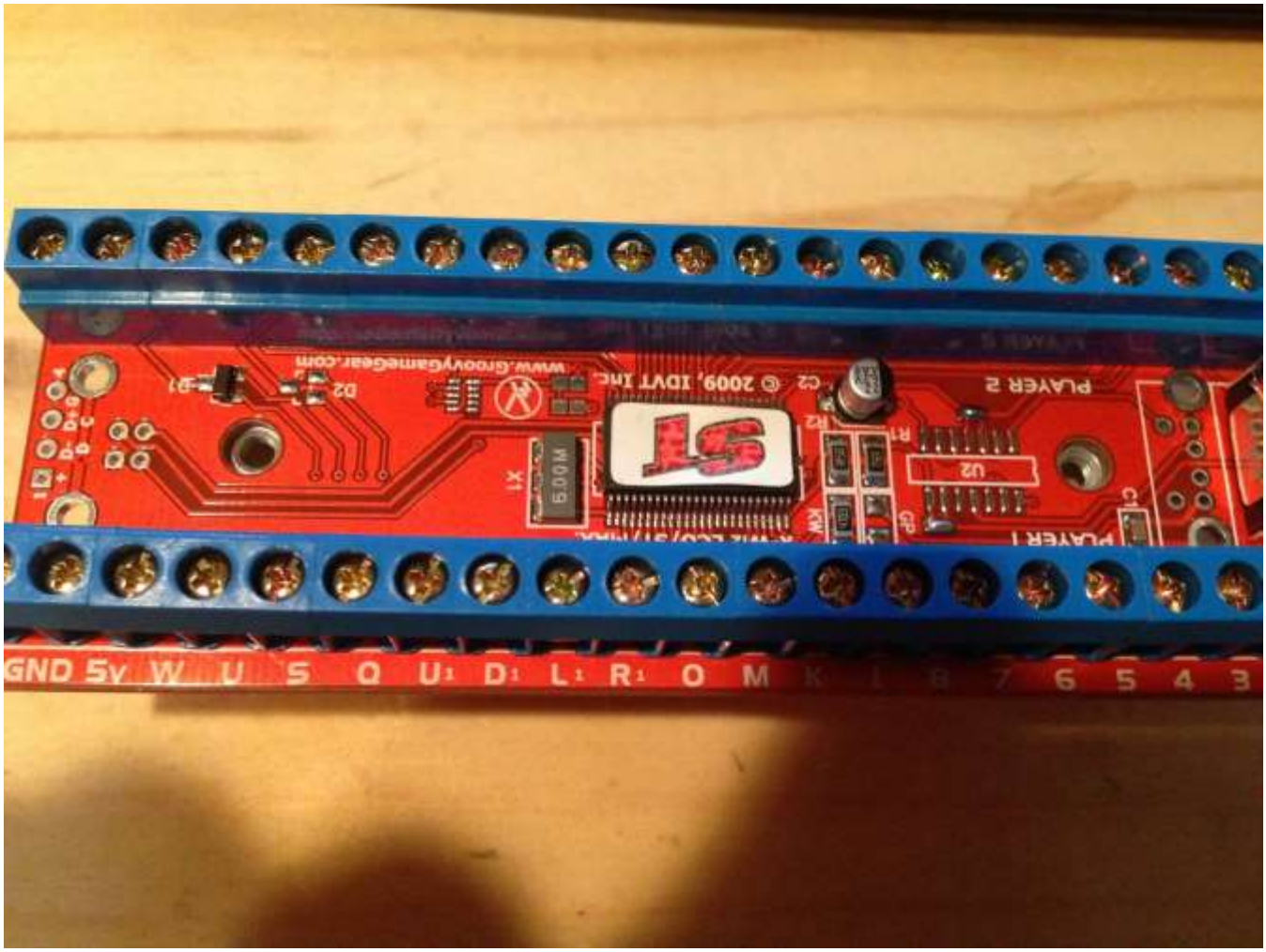


I believe you purchased mounting feet for your USB devices. I don't know if you have the exact same feet as I do, but they are probably pretty similar. They provide you with screws, which connect the feet to the GPWiz. They do not provide you with the screws to attach the feet to your CP. So if you don't have some little screws to attach these to your CP, you will need to get some.

My picture below is of a KeyWiz, but I would have to think that a GPWiz is very similar. But there are probably four mounting holes of the same size. I've circled them below in yellow. If your mounting feet are anything like mine, the screws are too big to fit inside of these holes. But test it out with your board and feet to make sure. If they fit, use these four holes. If not, there are two larger mounting holes (also circled below) toward the center which you will have to use instead.



If you end up using the two middle holes, like I will be, you have to line up the mounting feet where they need to be first, but don't put the little screws in them yet. As you can see, the feet are entirely beneath the board, so there's no way to access the other hole and attach the feet to the CP. So you line them up as shown below, then carefully lift the board away. Then attach the feet to the CP.



Once the feet are attached to the CP, then of course you put the board back on the feet and use the provided little screws to hold it in place.

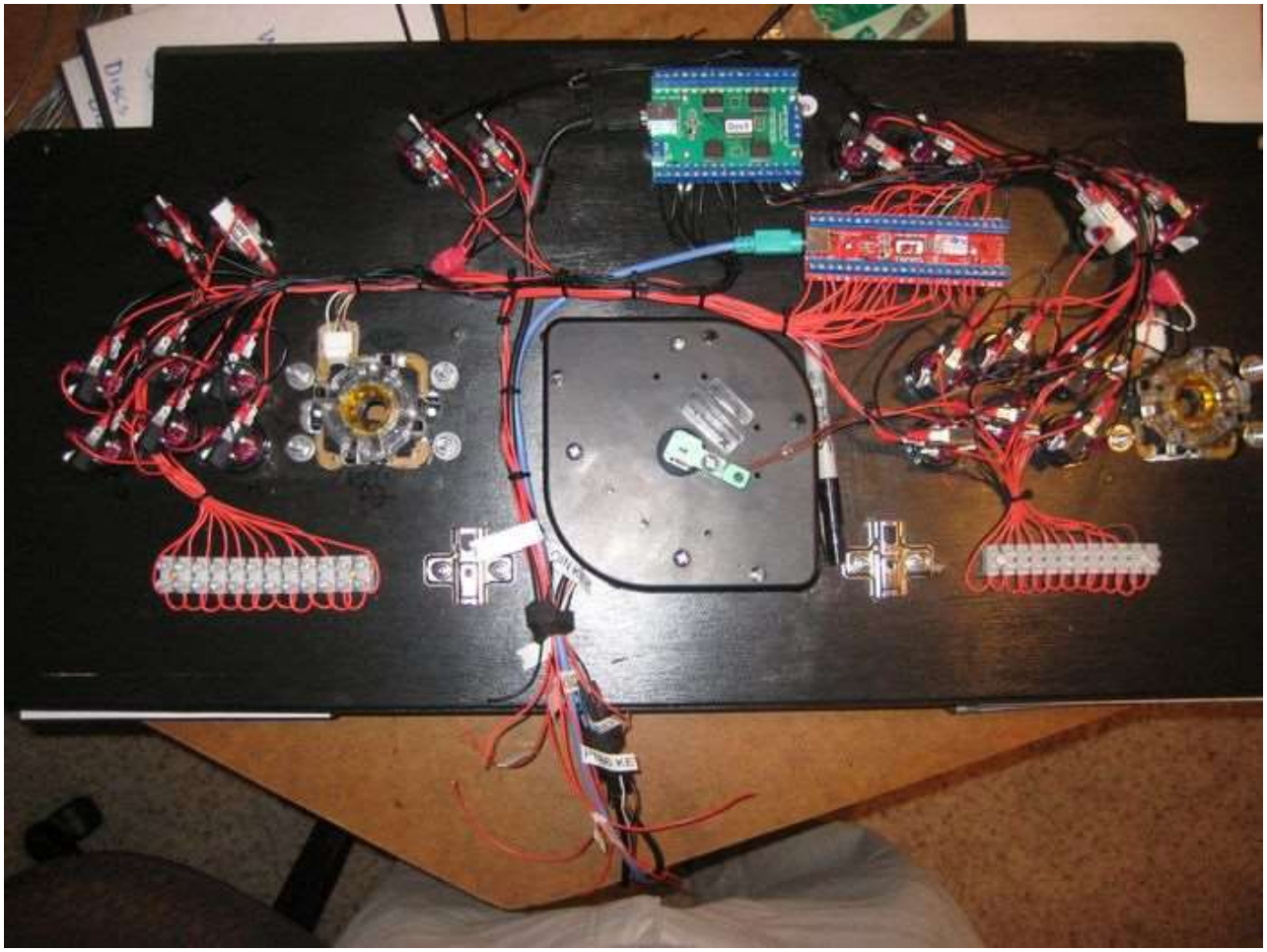
If your provided feet screws are small enough to use the four smaller mounting holes on the board, then you don't need to do this little dance above, I don't think. I believe if you are able to use the four holes, then the feet will stick out far enough for you to get at them with a screw driver. So you would simply attach the feet to the board, and screw the four mounting feet to the CP.

Pretty straight forward. It should just end up looking like this:

You will probably want to attach your other boards as well. So your LEDWiz and the two mini euro barrier strips. Next you will place all your controls there, and think about where you want to place all the wires. If you look below, you will see that the controls are all pointing in certain directions:

And here you can see it with all the wires attached. I tried to get it so that the wires sort of pointed in the same direction, so that I would have bunches of wires that I could zip tie together.

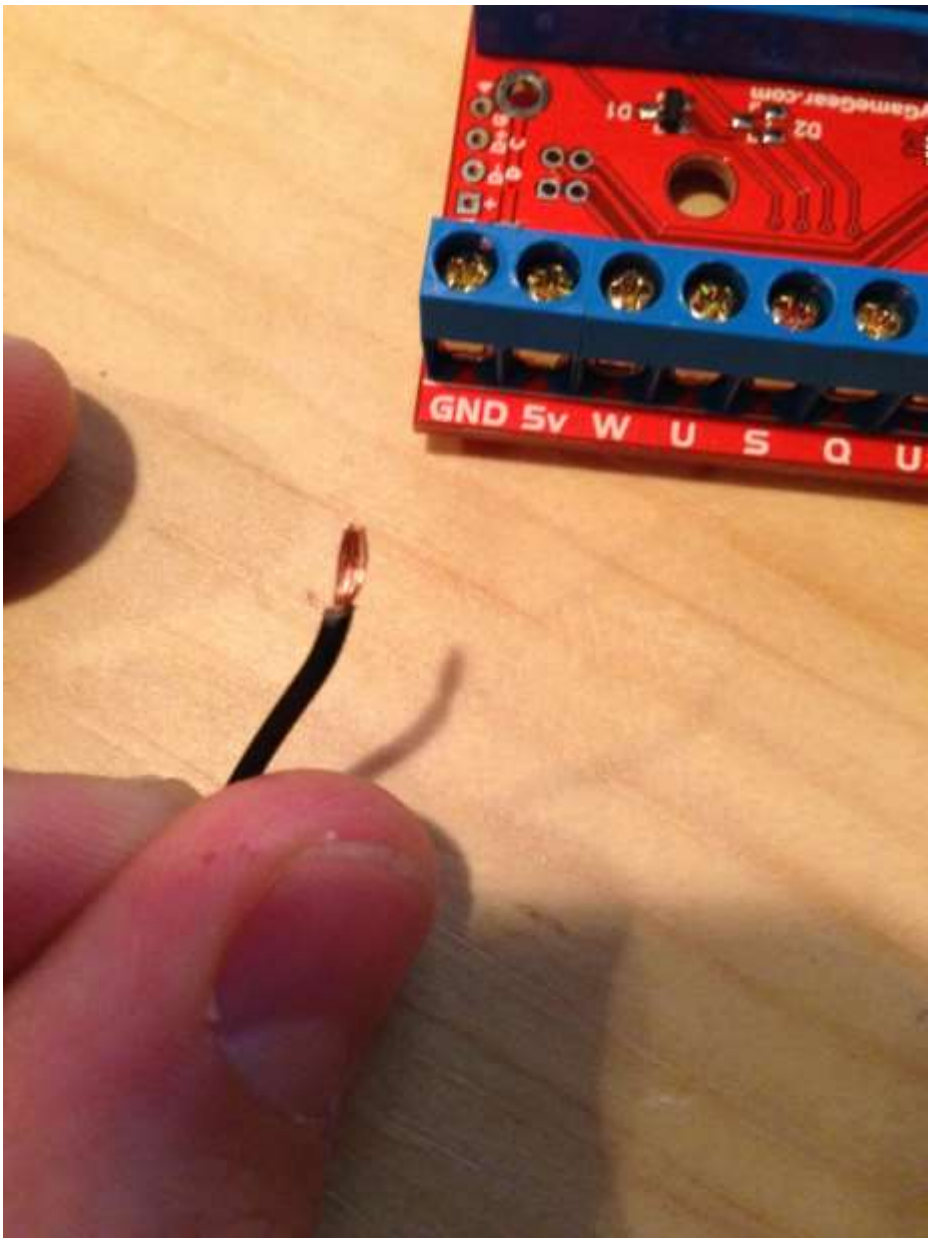
There is no wrong way to angle things. It's just a matter of keeping things clean looking, and also not wasting too much wire.



This is really an art form, getting this to look clean. There are some great examples on the forum of people who did insanely clean wiring jobs. I think the best you or I can hope for is simply "acceptable" like mine above. ☺

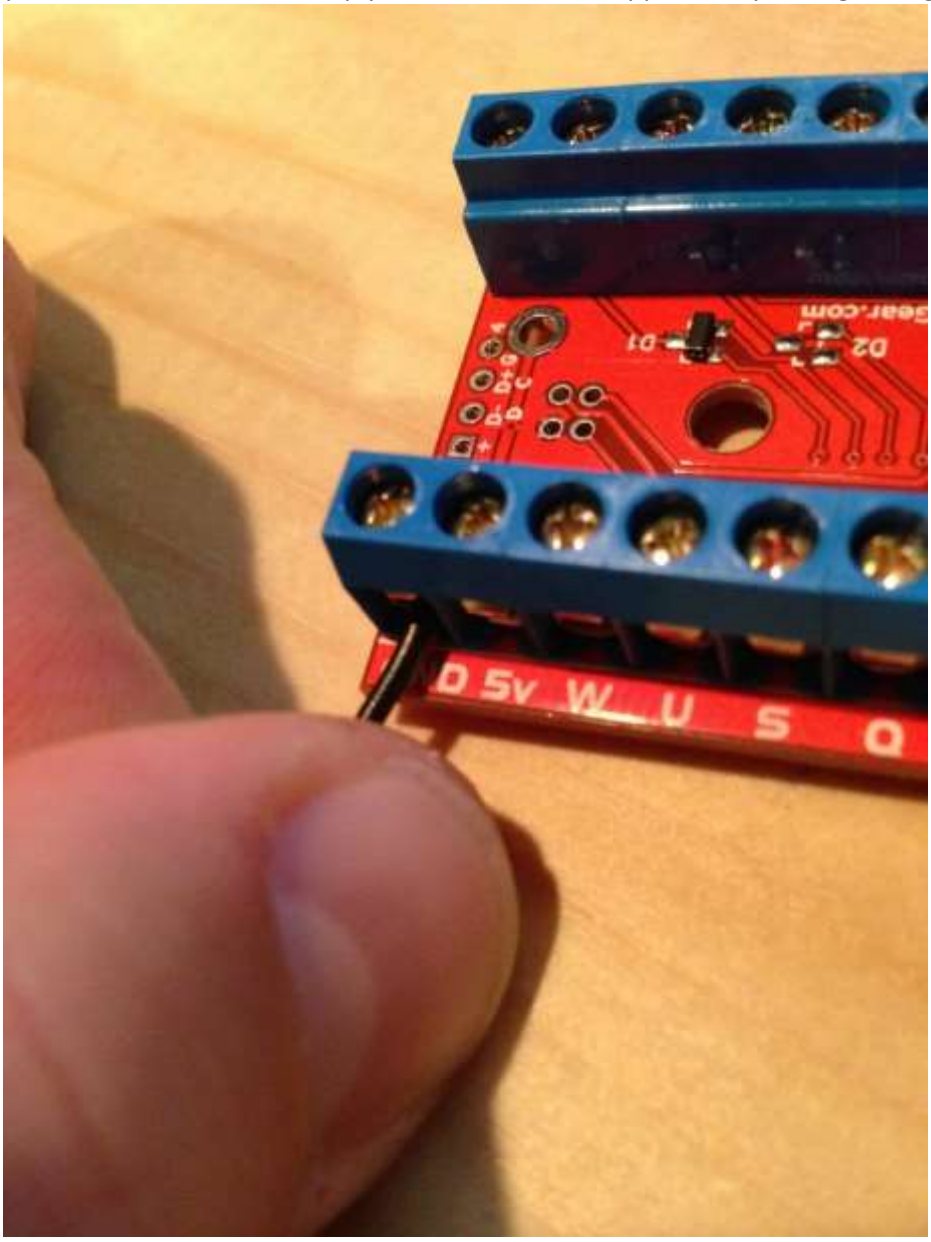
Ok, now to actually wire. I believe you got two colors of wire, one of them being black, and the other blue, I think. Black is traditionally the “common” or “ground” wire. So don’t use that wire just yet. To begin with, you’re going to want to use your colored wire.

You will need to strip the end of each wire and then screw that end into the GPWiz.



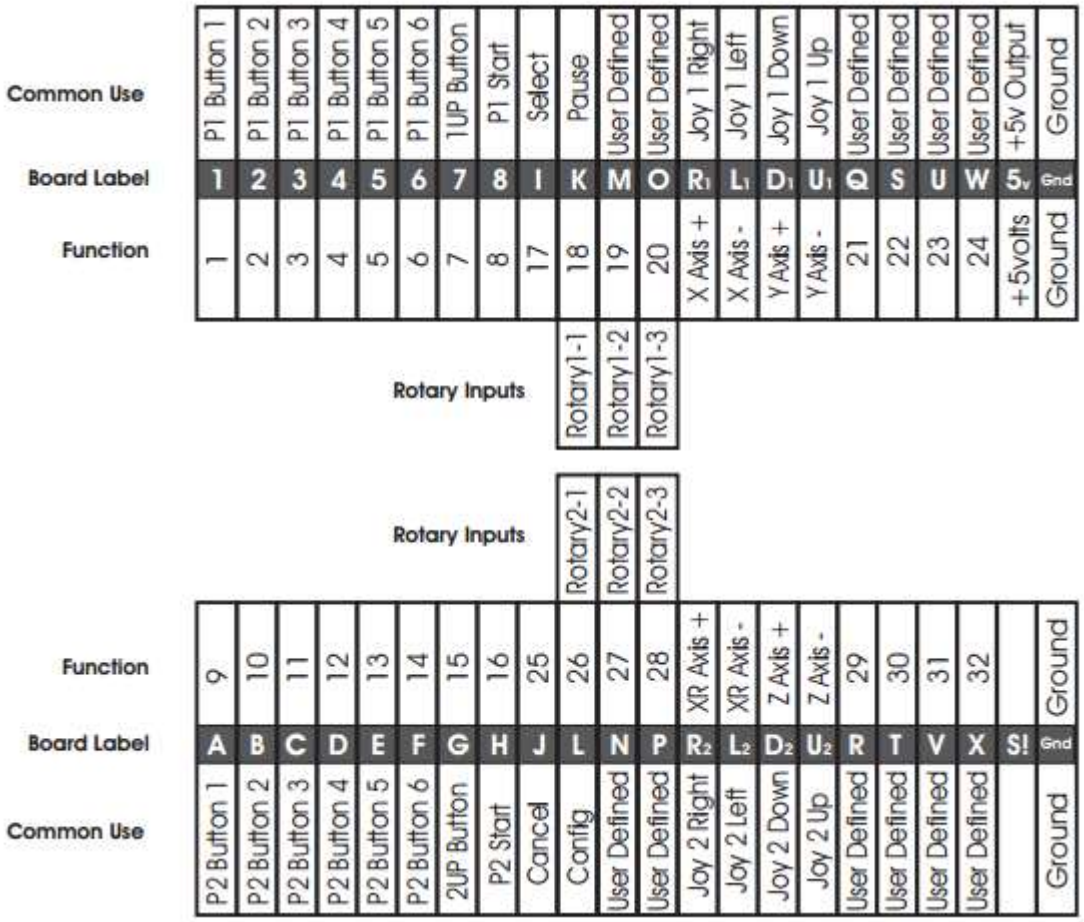
I recommend twisting the wires at the end before inserting them into the GPWiz. That way there is less chance of stray wiring crossing into the wrong port.

When you insert the wire into the little slot, the idea is so that there is no exposed copper. If you can see copper sticking out, then you've stripped off too much casing. Your stripper/crimper should have a cutting section that you can use to cut wire. Simply cut off the excess copper until you've got it right.



So ignore the ground wiring for now, that will come next. So first, use the colored wire, and run a wire to each button, joystick switch, etc, to the "normally open" connector on each switch, which I call the "live" wire. Then, of course, crimp on a quick disconnect to attach the wire to the switch.

If you read the instructions that come with your GPWiz, you will see a chart like this:

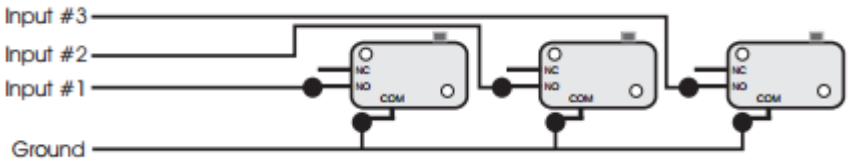


You can follow this if you'd like, but really it doesn't make one lick of difference which thing gets hooked up where in this case. As I mentioned earlier, we will be using software to "map" all the button presses and make them into key presses instead. So it really doesn't matter what button is hooked to what port. We can set any button to be any keypress we want. So anything except the +5volts, S!, and the two Ground ports are fair game here.

So wire up a wire to each button you have, even the ones on your admin panel behind the coin door. Actually for the coin door buttons, you might want to not do the quick disconnect portion just yet. I would probably just leave them hanging, with a little bit of extra wire there to work with. I think you ended up getting a molex connector to go in between your main CP, and your coin door panel. So hold off officially hooking up the wiring to the coin door panel until we're ready to do the molex stuff (much later). So, again, attach a wire to the GPWiz for those buttons, leave the wire a bit longer for the time being, and leave them hang inside until you're ready for them. Label the wires if you think you might lose track of what's what.

Note, that the power button does not need a wire to the GPWiz. Those wires all link into the PC, not the GPWiz.

Now, once you've got a live wire attached to each button, it's time to do the "ground" or "common" wire. As I mentioned before, this is where the "daisy chain" wire comes into play. Here's a pic from the GPWiz instructions just demonstrating that you'll be using one wire and linking together all of the ground wires to all the different switches:



I believe the GPWiz actually has two ports for the ground. So you could actually use two ground wires and split things up if you wanted to. Entirely up to you.

You will want to use the black wire for this part. However you choose to do this, or to split things up, the main thing is just that you have all the controls linked together via a daisy chain wire, and that that wire connects to a ground port on your GPWiz.

I guess here I would recommend leaving the coin door admin panel until last in the chain. You only need to leave one wire down there for the ground, and then later when you're ready to wire up the coin door panel, then you can daisy chain the wire for the admin panel at that time.

That's it for the keyboard portion of the wiring. The LEDWiz wiring will come next. That's a bit more complex, but uses most of the same types of concepts and tactics as are used for the keyboard stuff.

In case anything I've said is unclear, here are the instructions that come provided with your GPWiz as well. They tell you to do the ground wire first. Doesn't really matter of course which order you do them in…

The first thing you should do is connect a wire from one of the ground terminals to the first switch in your chain. Then connect a wire from the same switch terminal you hooked the first one to, to one of the terminals of an adjacent switch. Repeat this until all switches are connected together with the ground wire, or "daisy-chained." After that, connect the normally open contact of your switch to the desired input on the GP-Wiz40. Do this for the switches on all controls you wish to use. Refer to the diagram below for an example.

When all wiring is complete, plug the B side of the USB cable into the GP-Wiz40 and the A side into a USB connector on your computer. If this is the first time you have installed a USB HID device, you may need the install disc for your OS. Follow the prompts on the screen, if any are presented to you. After the proper drivers are installed, you should be able to insert or unplug the unit without needing to go through these steps again. The "Gaming Options" dialogue for your OS should report the unit as available for use. The joystick portion should require no calibration, but if it does not appear to be centered, the calibration routine should be run and the instructions followed per your OS's requirements. Your controls should now be functional and can be tested through the controller dialogs in the OS.

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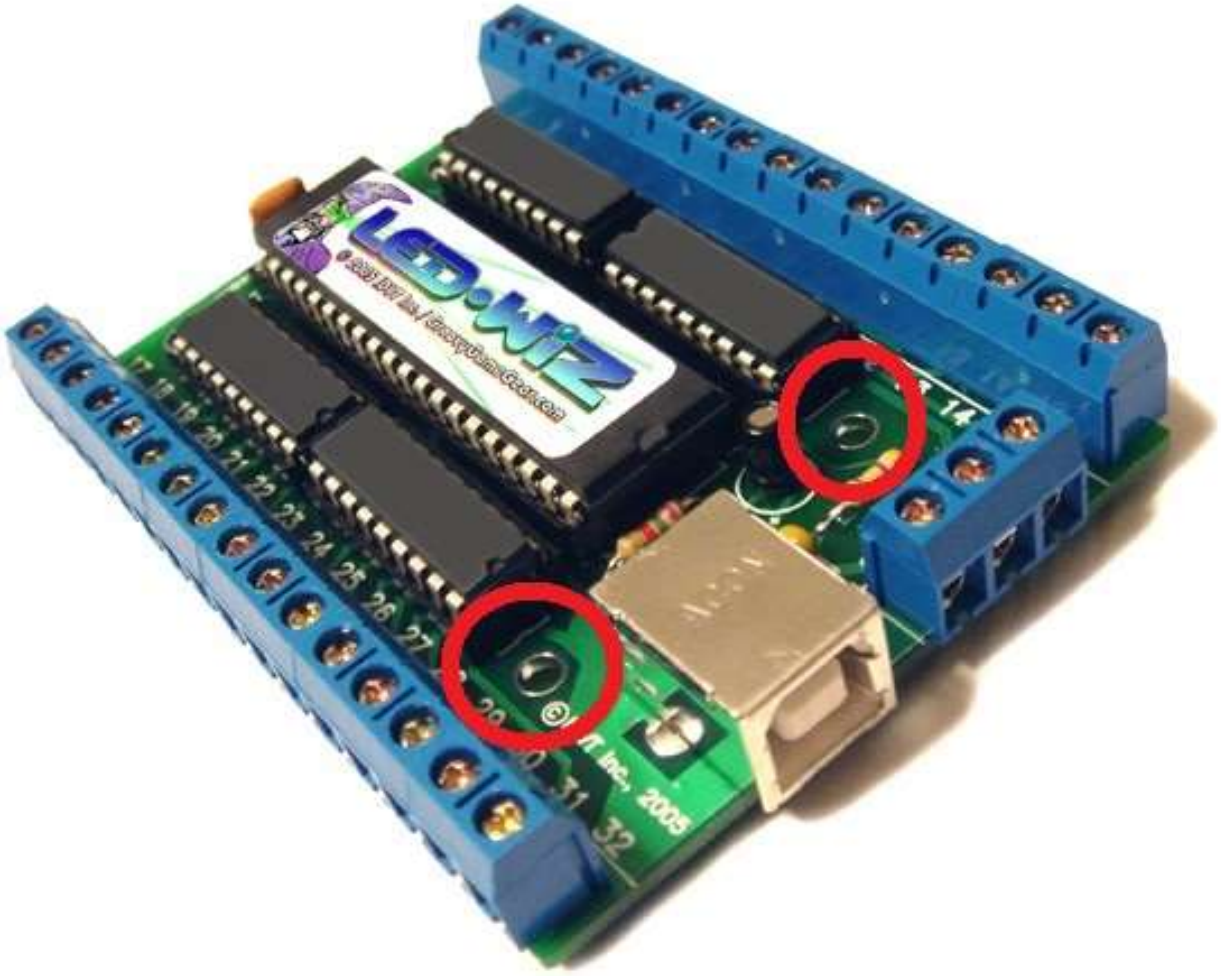
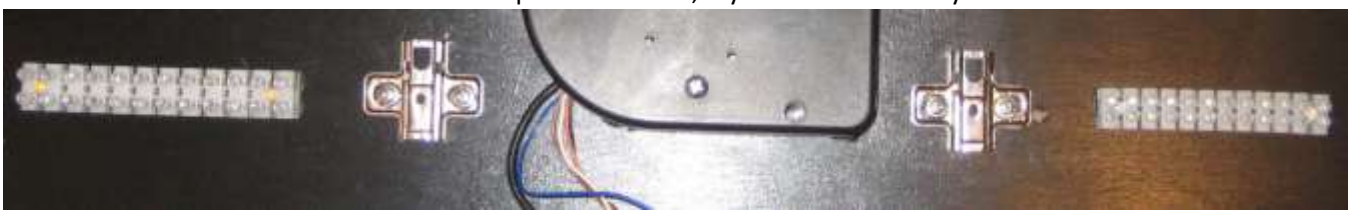
Wiring your LEDWiz

First, mount your LEDWiz to your CP. I don't have one in front of me, but judging from the picture online, it looks like it should have similar holes to mount with the feet, just like we did with the GPWiz. So just repeat that process. If the mounting holes are too small for your feet's screws, and there's no alternate holes to use, let me know and I can give you a work around for how to mount it.



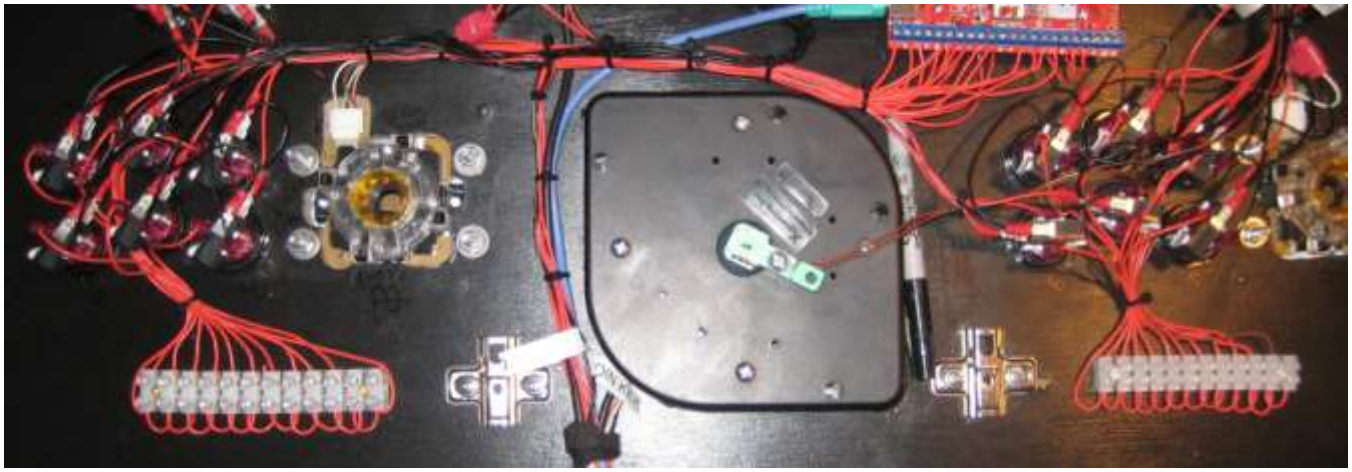
Next attach the two mini euro terminal strips to each side, if you haven't already:



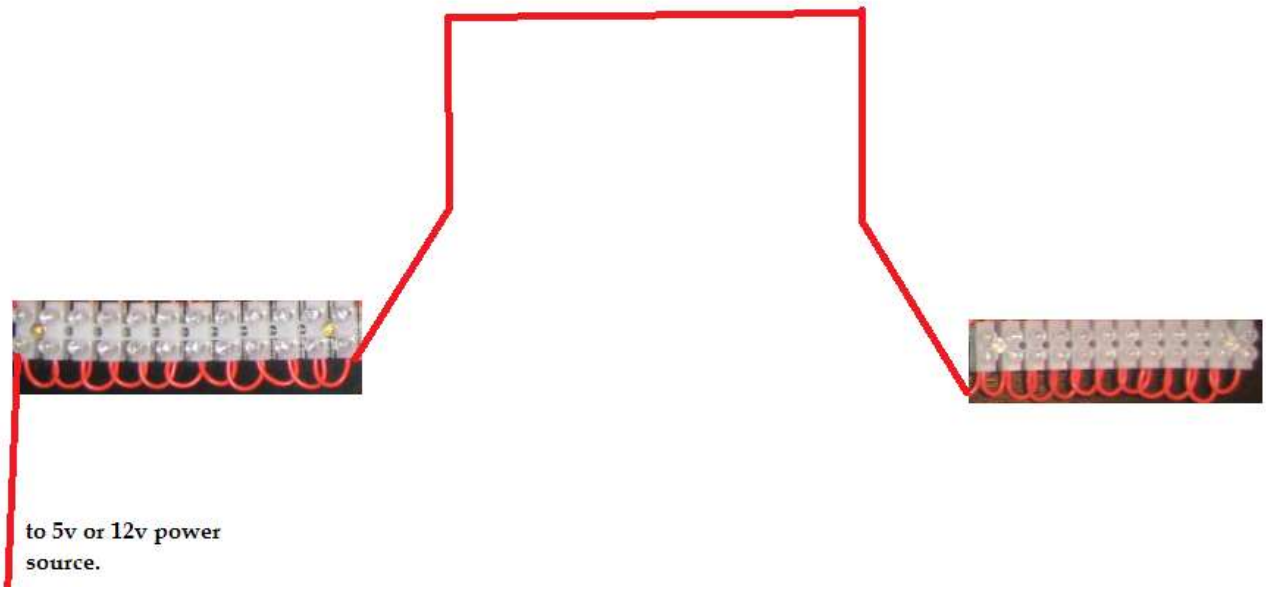
I like to attach one on each side of the control panel to split it up with player 1's lights going to the one side, and Player 2's going to the other side.

To actually mount these, you will need to find some smaller screws to fit through the holes in between the different sections. No need to use mounting feet for these terminal strips. Just find some screws that fit, and screw them in to hold them in place:

Once everything is mounted in place, you can start by wiring the terminal strips. For the LED lights, you can't actually do "daisy chain" wiring like before, but this terminal strip is really pretty similar in concept. There's technical reasons that I won't go into, and don't fully understand, but just trust me that we have to do it this way instead of the daisy chain stuff like with the GPWiz. So first take a gander at my terminal strips:



What is actually happening is that these two terminal blocks are linked together. So in that clump of wires above, this is actually what's happening:

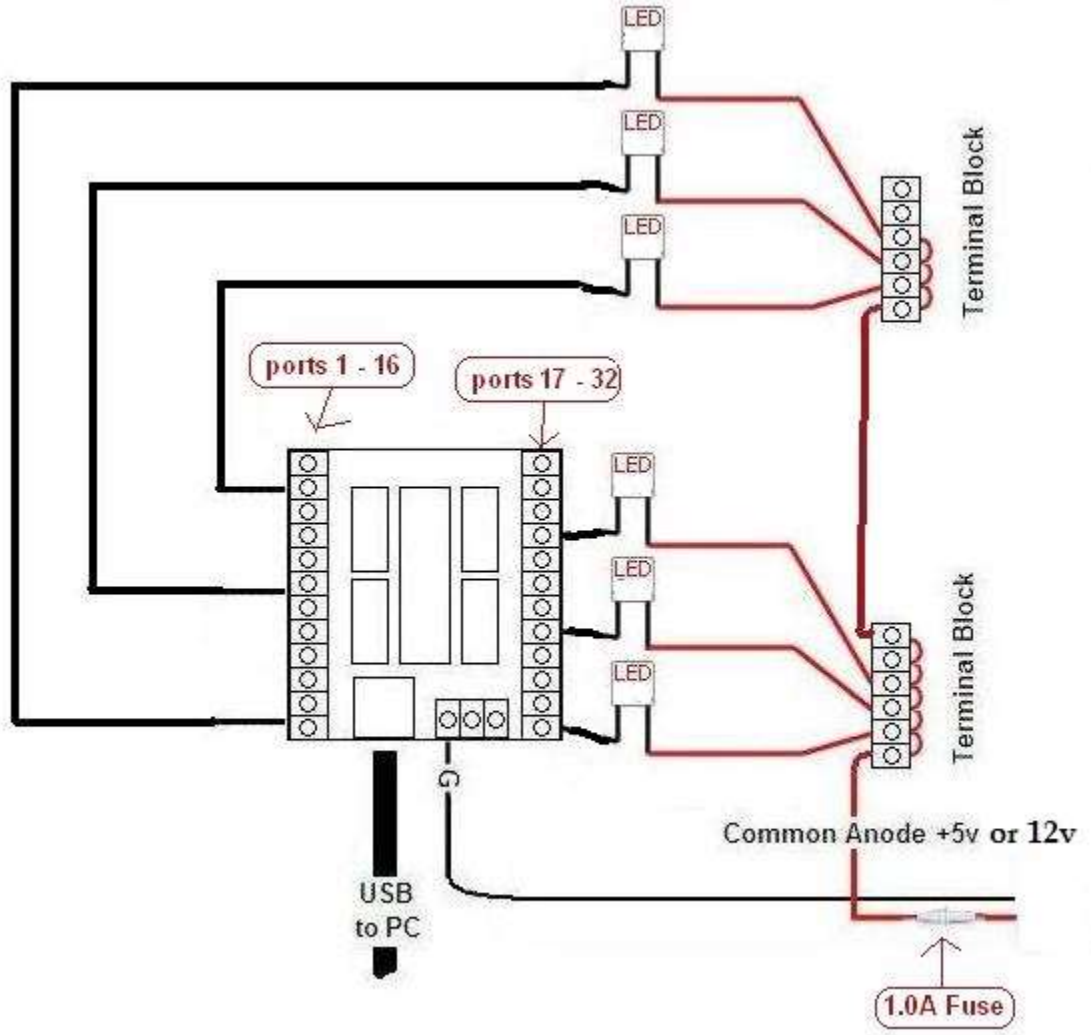


Remember I asked you before to figure out what voltage power your button LEDs use? Well, this is where that will come into play, eventually. These are the “live” wires, so use the colored wire for this part of things. First start out by making the little loops on the bottom of the terminals. There’s no secret here, it’s the same as before. You strip the wires, twist them together, insert into the terminal block and screw them into place. Same as before you want to make sure there is no copper exposed outside of the terminal block.

There’s nothing special about that connector wire in the middle either. It’s just longer than the other loops. I felt, in my case, that it looked cleaner if I brought the connecting wire up and around my trackball to link together the two terminal blocks. So do whatever you feel is best for your CP. Just link the two terminal strips together.

When you make it to the wire at the very end of the terminal strip, you can see above, that’s the one that will eventually go to your power source. Imagine where you intend to mount your power supply inside your cabinet. Leave a wire from the terminal blocks all the way inside your cabinet, over to where your power supply will be. Leave the wire a little long and just let it hang inside of the cabinet for now. We’ll be coming back to that later on.

To give you a little sneak peak, this is the basic overall idea of how the wiring for the LED-Wiz will look like:



Now, as you can see from my little wiring schema above, you will be wiring up one (colored) wire from a terminal block port to each LED that you have on each of your buttons. There are two connectors on each LED post. It actually does not matter which side you hook up the “live” wire from the terminal blocks to. Just make sure you are consistent throughout. So if you put the “live” wire on the “left” connector, make sure you do that for all your LEDs. I believe the buttons you have on your admin panel are not illuminated. If that’s true, then naturally, you don’t need to wire anything to those for lights. So go ahead and wire up a colored wire, from the terminal strips, to each LED on each of your buttons. Same deal as the rest of the stuff so far, you know, stripping wires, screwing them in place on the terminal block, making sure there’s no copper exposed. And then putting a quick disconnect on the other side.

Next you're going to do the ground wiring, so use black wire for this. As you can see from my schema a few pages above, you will wire a ground wire from the other connector of each LED to the ports on the LED-Wiz. For these, you will probably want to follow the same lineup as I did. See below for my chart. If you don't have illuminated controls for something I have listed below, just leave that port open. Like for instance, the coin door. In your case you can just leave that port empty. Similarly, I think your Config button is on your admin panel, and isn't illuminated, so leave that port empty as well.

LEDWiz Port	Control
1	P1B1
2	P1B4
3	P1B2
4	P1B5
5	Trackball
6	P1B3
7	P1B6
8	P2Coin
9	P2Start
10	P2B3
11	P2B2
12	P2B6
13	P2B5
14	P2B1
15	P2B4
16	Coin Door
17	Reset
18	Exit
19	P1Coin
20	P1Start
21	Config
22	Pause

So I don't think this part needs any more explanation. Same stuff as everywhere else. Quick disconnect on one side, and the other end of the wires go to the LED-Wiz ports, no exposed copper.

Lastly, you will want to leave a wire from the ground port on your LED-Wiz to the inside of your cabinet, where your power supply will be. Same thing as last time, just leave a little extra wire there, and leave the wire hanging inside of the cabinet for now. We'll come back to that later.

At this point you should have everything all wired up on your control panel! Now you can also hook up the USB cables to your GP-Wiz and your LED-Wiz. Hopefully these USB cables are long enough to make it to your computer. If not, you will need to order some LED cables that are long enough.

So now you will have two USB cables and several other wires hanging on the inside of the cabinet. I believe these are all the wires that are hanging from your CP down into the inside of your cabinet:

1. Live wire for your Config button
2. Live wire for your Reset button
3. Live wire for your Save button
4. Live wire for your Load button
5. One ground wire, which you will eventually daisy chain to all the four buttons above.
6. One live wire leading to your terminal disconnects (that go to your LEDs).
7. One ground wire leading to your LED-Wiz

I think that's it. Let me know if I am wrong on that. So hopefully you bought a molex connector that has at least 7 holes on it. Now is the time when I think it makes sense to hook up the molex connector in between all of these wires. You probably want to place the molex connect pretty close to the control panel, so that you can disconnect it right there, if ever needed. So without further ado, wiring up the molex connector is next…

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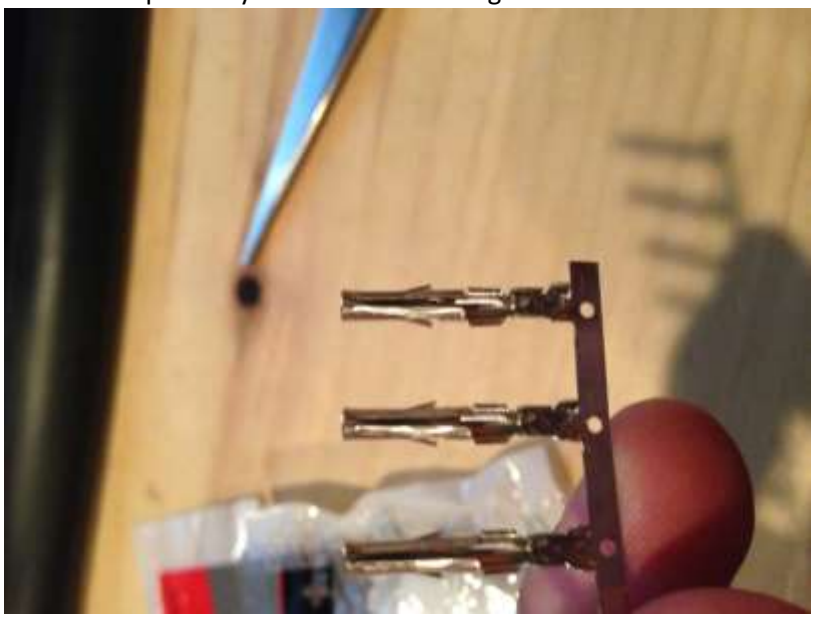
Wiring a Molex Connector

Now, in case you didn't figure it out, you're going to use this molex connector for all the 7 wires mentioned above. Not the USB cables of course. **If you haven't done so already, label all these wires so that you know what each one is for, and so that you can keep this straight going forward.** Label the wire ABOVE where you want the molex connector to be, and then label it again BELOW where you want the molex connector to be. Once it's all labeled, go ahead and cut those 7 wires in half right there in between.

They do make special tools for this sort of thing, but I've never used one. I've looked around on the internet to see if there were guides out there that walk you through how to do this with just a stripper and pliers, but I couldn't find any, so I'll document it for you my way, so that you don't have to buy a tool that you would only use once.

First, you will see that there are two sides to the molex connector. They may sell them separately, if so, hopefully you bought both sides. It does not matter which side you make the female and which the male. Each side of the molex connector should come with its own set of pins. Naturally, you will attach all the male pins to the same side of the wire as the other 7, and attach all the female pins to the other side of the wire that you cut off.

Your molex pins may come connected together on a little metal stick:



Just bend one back and forth a few times and it will break off

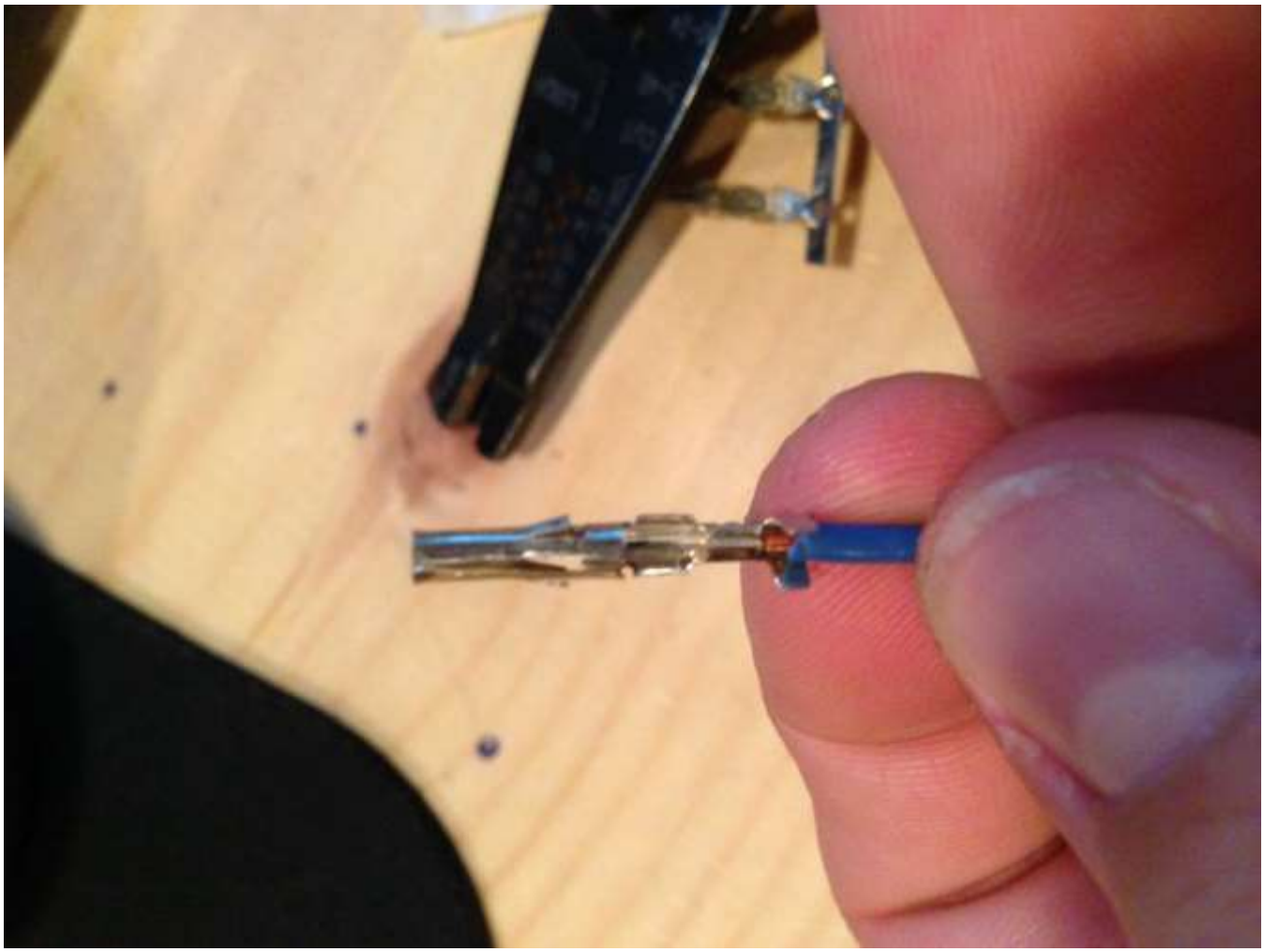
Next you will notice that there are two sets of little “flaps” on the end of the pin

As you can see from the previous picture, one set of flaps you will be clamping around the stripped copper wire and the other you will be clamping down a little lower around the wire that still has the plastic casing around it.

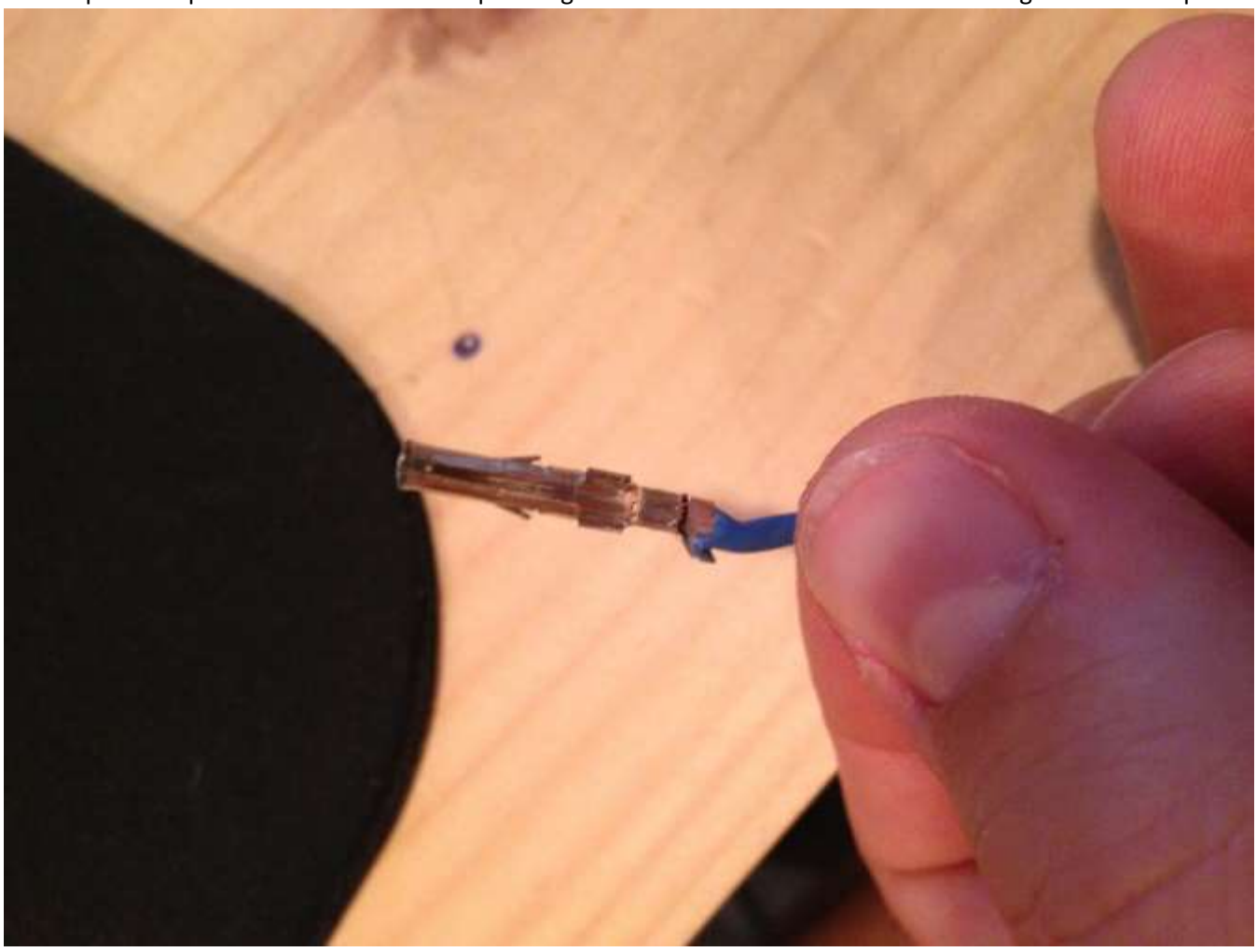
Go ahead and strip the wire like normal. You don't need to strip much off these. As you can see from the picture below you want the copper to be just long enough to go to the top of the upper flaps for the copper wire. The lower flaps should have the wire there with the plastic there.

Now using a pliers (or the pliers on your stripper/crimper tool) you will be carefully folding over one flap at time around the copper wire.

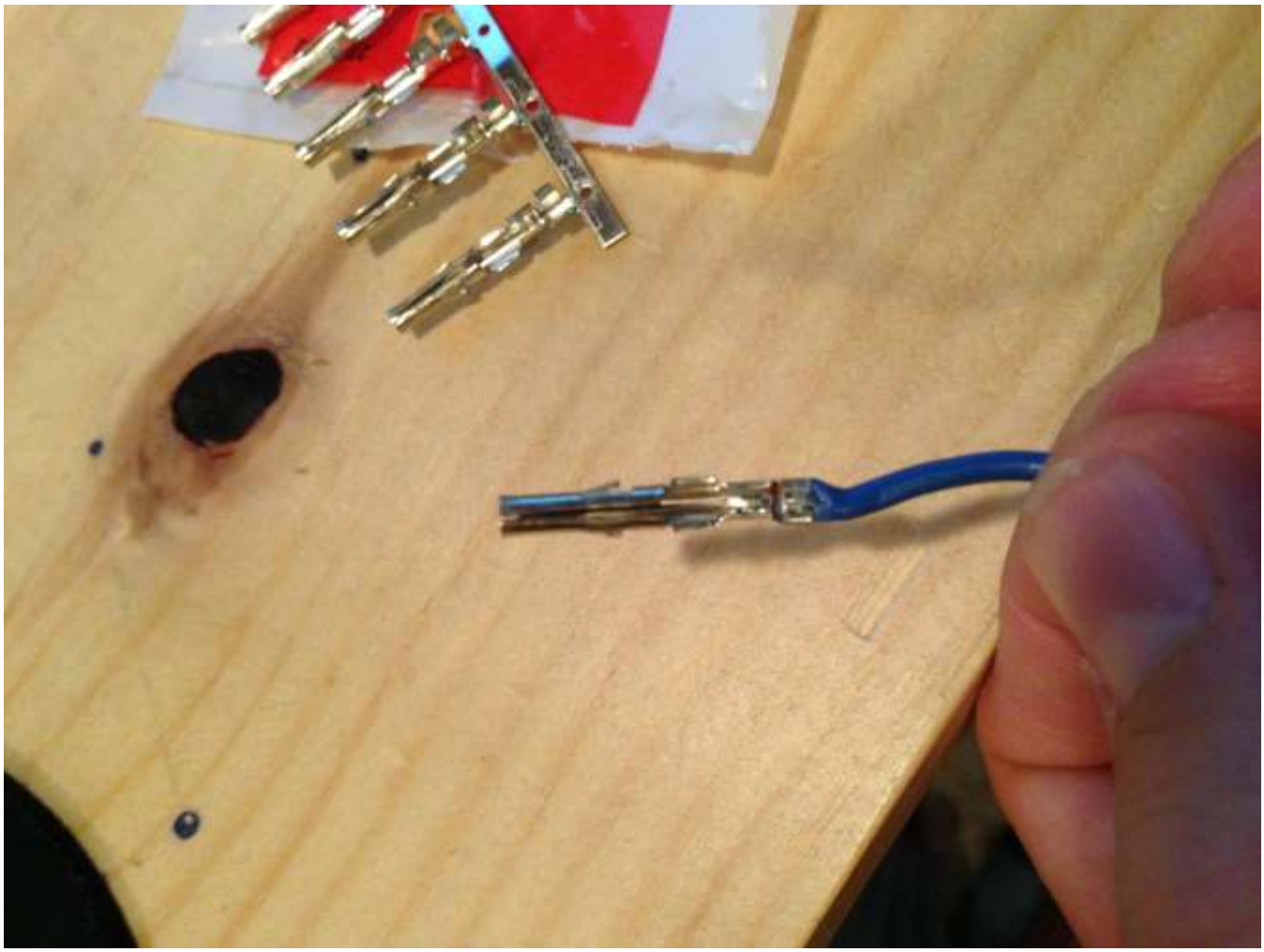
Next fold the other side of the flap over, right on top of the other one. Once both flaps are in place, just use the pliers to give the pair a good clamp, real tight, so that the flaps are very securely holding around the copper.



Next repeat this process for the bottom flaps that go around the wire that still has the casing on it. One flap first:



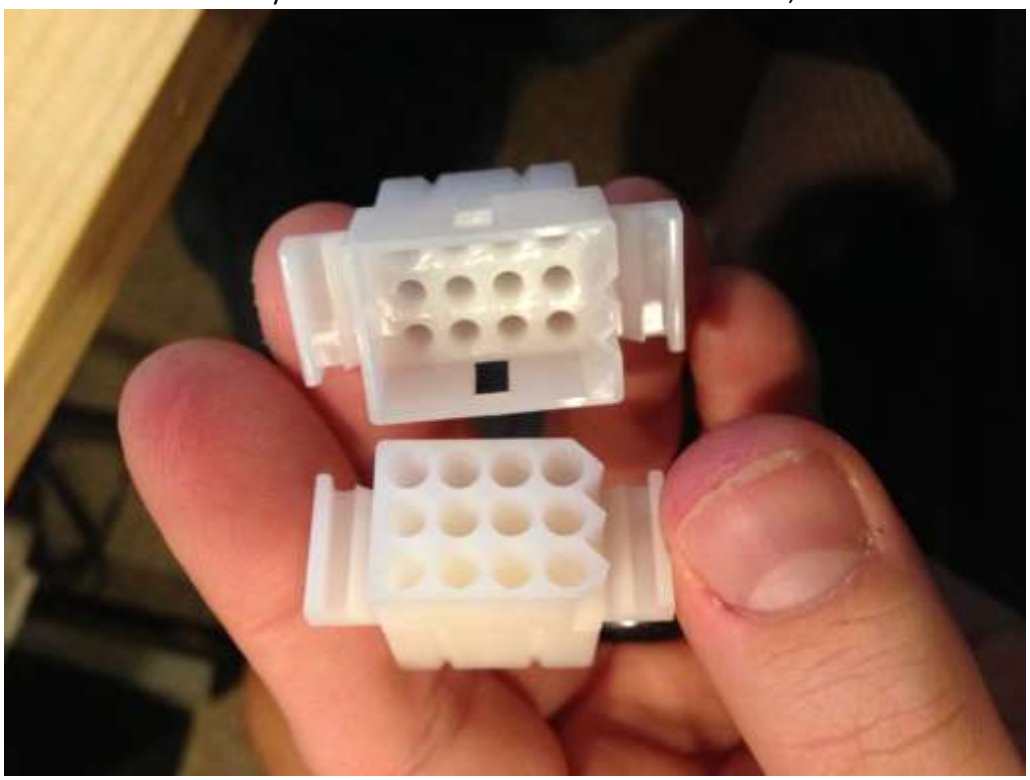
Then the other:



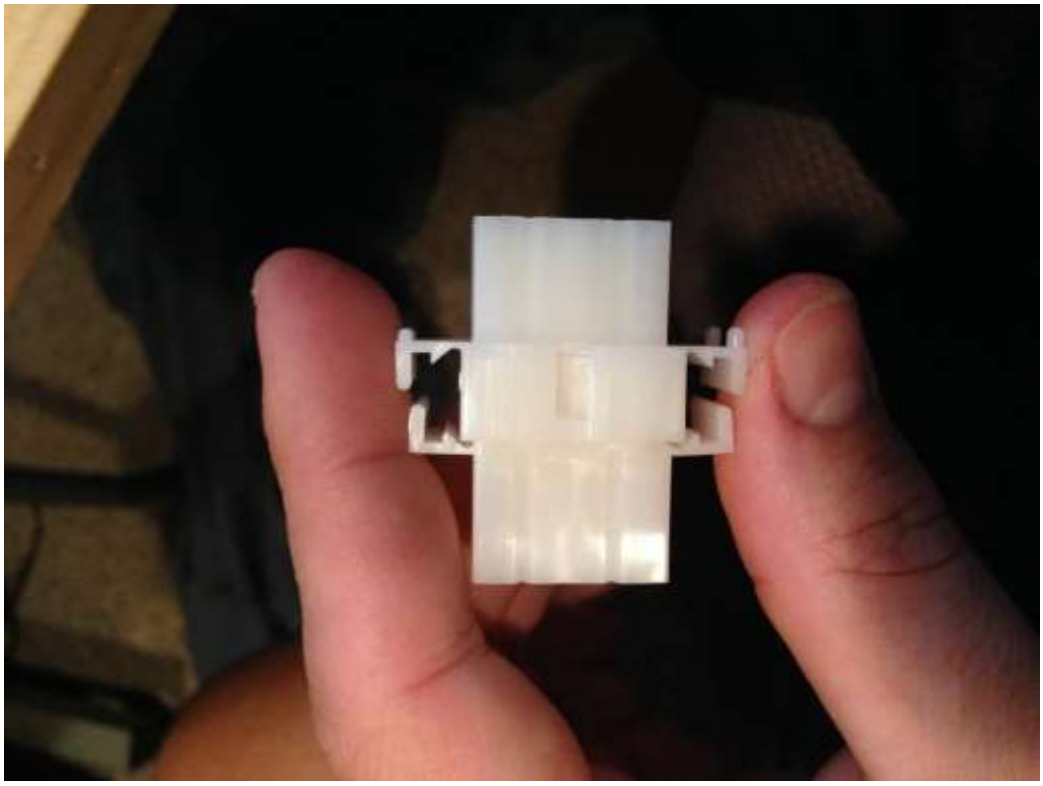
Then again, just give the pair of flaps a good squeeze to make sure they are holding onto the wire tightly.

Now do this for all the wires. 7 males ones, and the 7 female ones. Once you have all 14 pins attached, you can continue on to the next step.

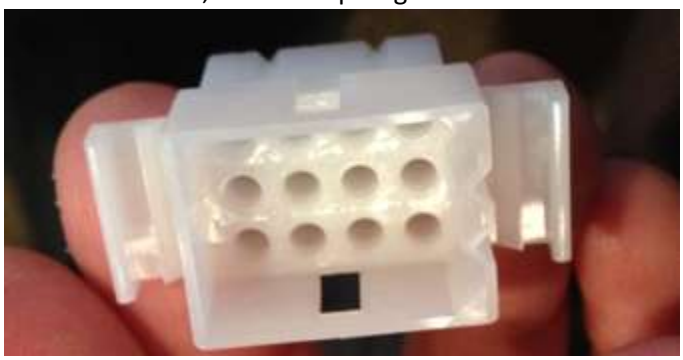
Here's both sides of my molex connector. Yours should be similar, if not the same:



There's no trick to them, ultimately they will just go together. There are ridges on one side of each side of the connector, so it's impossible to connect them together wrong.

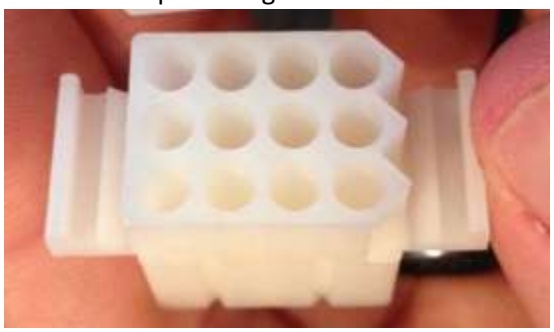


Next you will be putting the pins into the different connectors. If you did not keep track of what pins went to which connector, the MALE pins go in this one:



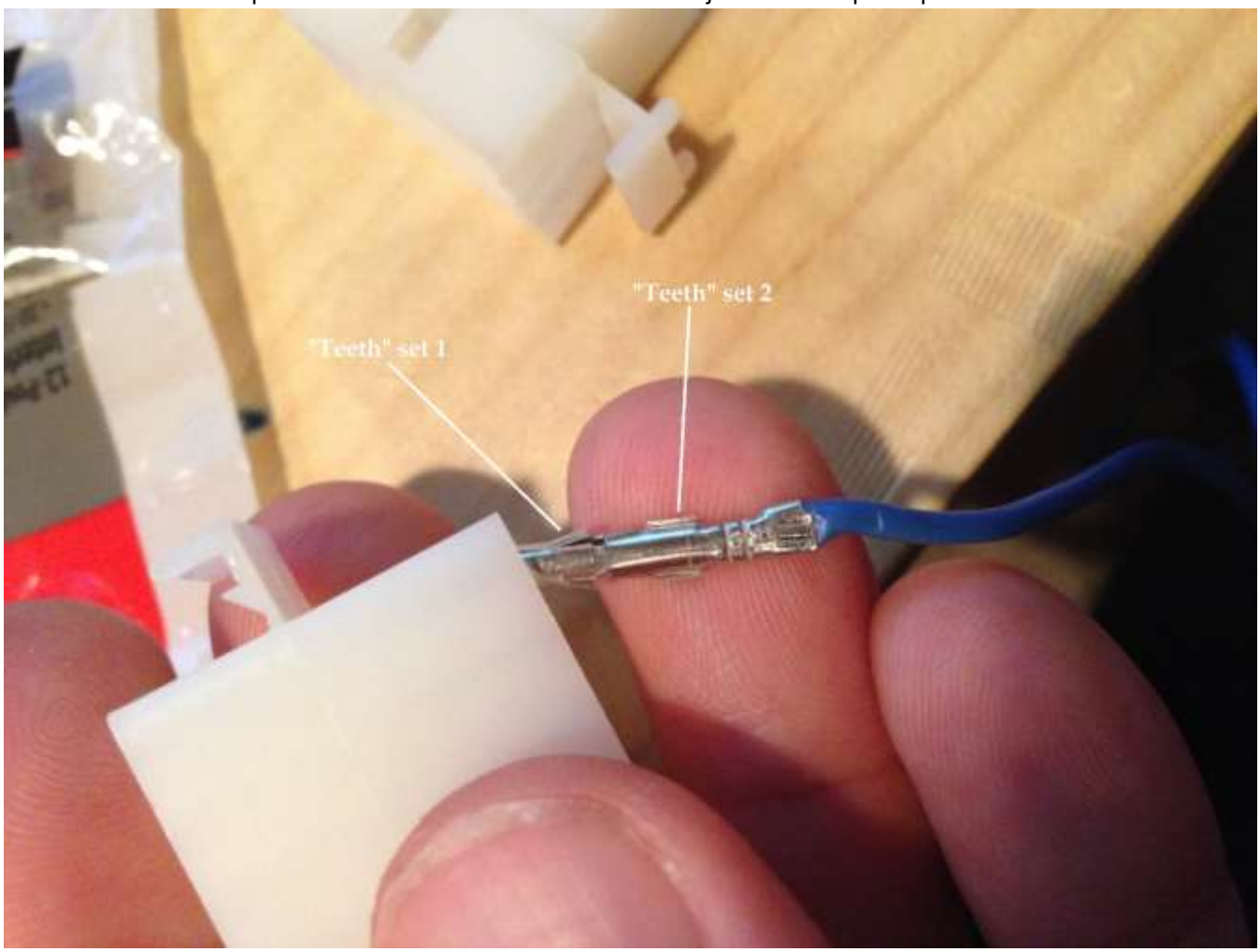
This is a different size connector, but it will give you the idea. Your male pins will just poke through the connector like this:

The FEMALE pins will go in this connector:



Again this is a different connector, but you get the idea. The female pins will reach to about the top of the plastic connector.

You will see that each pin has two sets of “teeth”. These teeth just hold the pin in place inside of the connector.

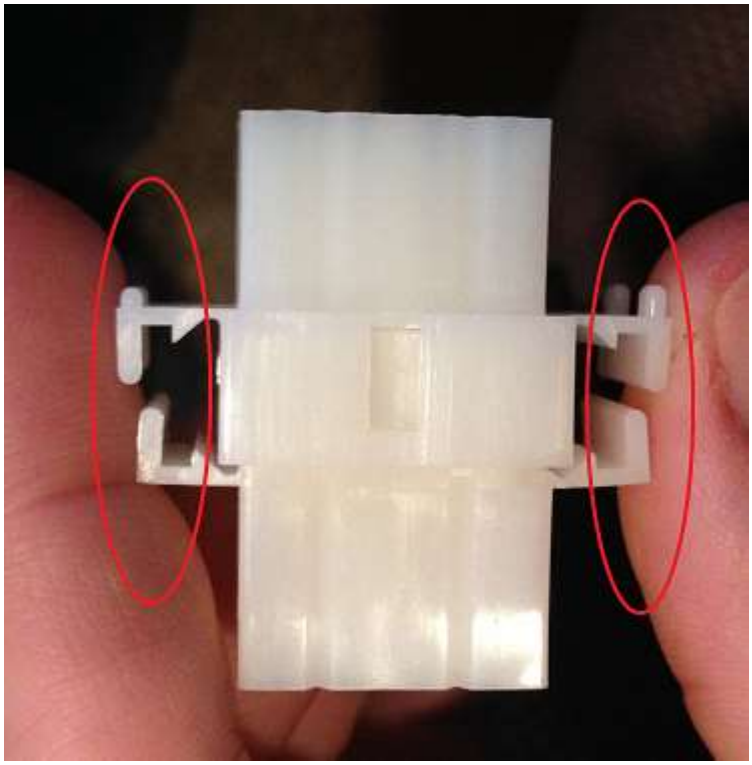


There's no special way to put the pins in. Simply push them in there. No need to muscle it in there too much. Just gently push them in. There is an ever so small ridge inside of each connector, so you should feel something very slight as the pin snaps into place.

Now, be VERY careful that you put in the pins into the holes that match up with the other side connector. It's not very easy to remove a pin once it's been inserted. You actually have to buy a special tool to get it out (which they do sell at Radio Shack usually). But just be careful and you won't need it.

On the first connector, it does not matter at all what holes you put the pins into. You should have them labeled in some fashion. Once you have one connector on the one side all hooked up, then move over to the other. It can be easy to get mixed up if you're trying to rush it. But pretend like the two connectors are connected, and line it up so the wires match up on both sides of the molex connectors. If you're sure you have them all lined up correctly, then push the pins in.

At this point you should have all the pins in both sides of the molex connector. Now you can just connect the two together. If you've done everything right, the pins should just slide in together neatly. The tension of the female and male pins together should hold the two sides of the connector together. But if for some reason the connector feels loose, you can just use rubber bands or zip ties around the edges to hold the connector together:



At this point, you can wire up your admin panel now too.

You can attach quick disconnects for these four wires and attach them to the normally open spot on your associated switch:

1. Live wire for your Config button
2. Live wire for your Reset button
3. Live wire for your Save button
4. Live wire for your Load button

Then you can make a daisy chain for the fifth wire, the ground wire, and attach that to the Common/Ground connector on the button switches on the admin panel:

5. One ground wire, which you will eventually daisy chain to all the four buttons above.

Don't do anything with the last two wires just yet. I mean, you should have them in your molex connector, but don't do anything with the resulting two wires inside of your arcade machine yet.

6. One live wire leading to your terminal disconnects (that go to your LEDs).
7. One ground wire leading to your LED-Wiz

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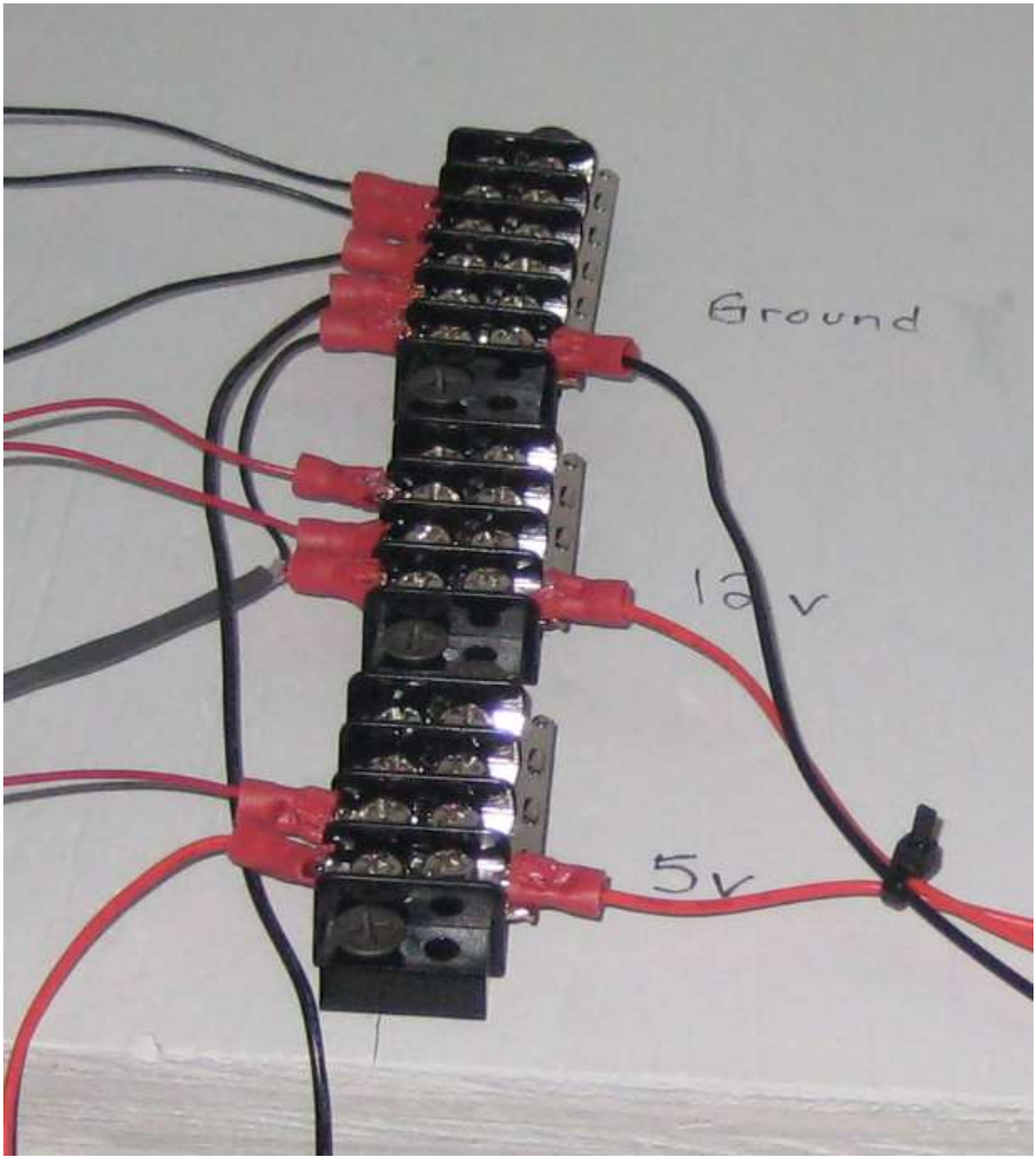
Barrier Strips and Jumpers

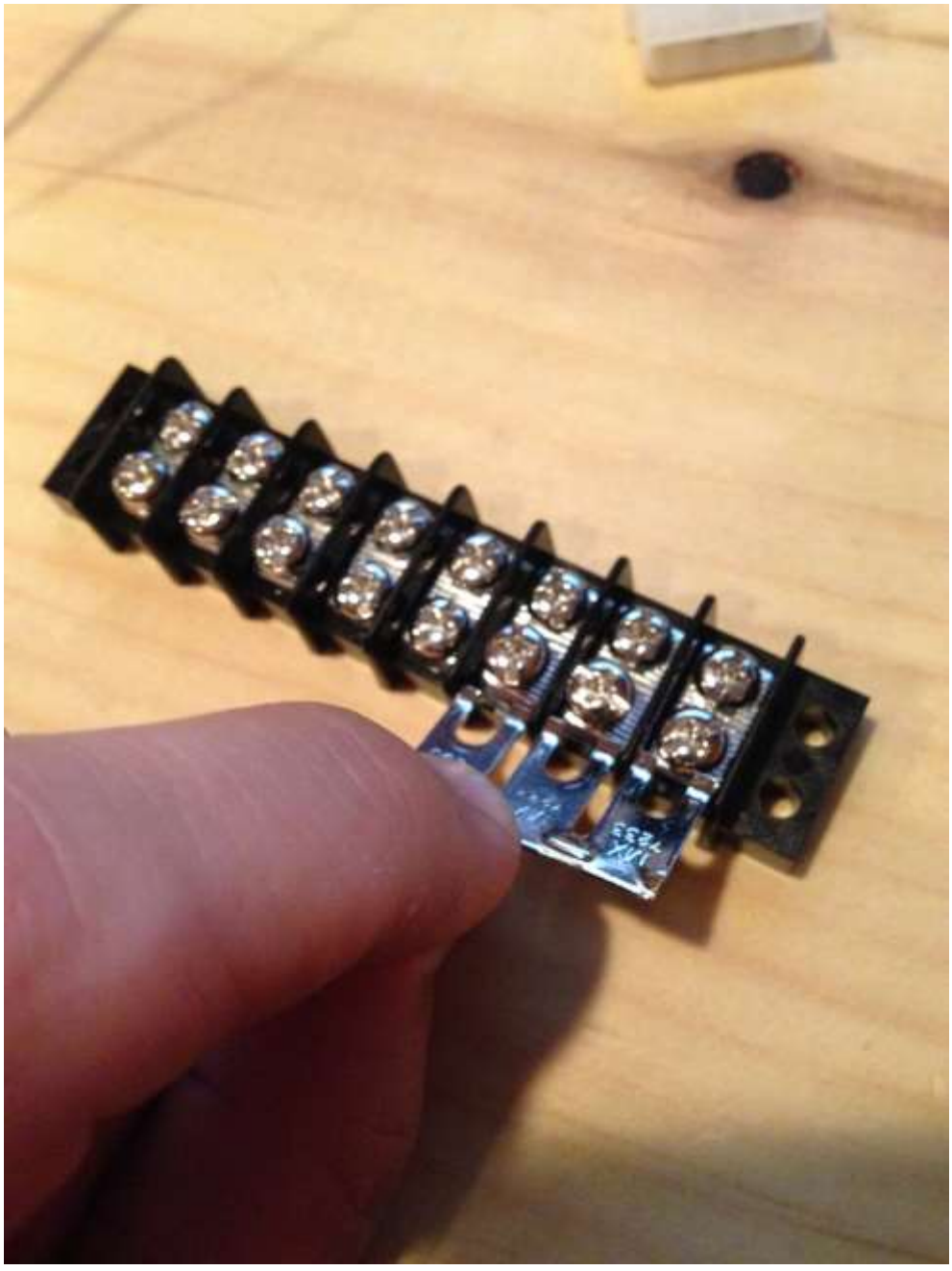
OK, now you need to wire up the barrier strips and the jumpers. There will be one barrier strip for each item: ground, 12v and 5v. If you happen to have bought different size strips, use the larger one for the ground, and the smaller ones for the 5v and 12v. To peek ahead, this is ultimately the sort of thing that you will be putting together:



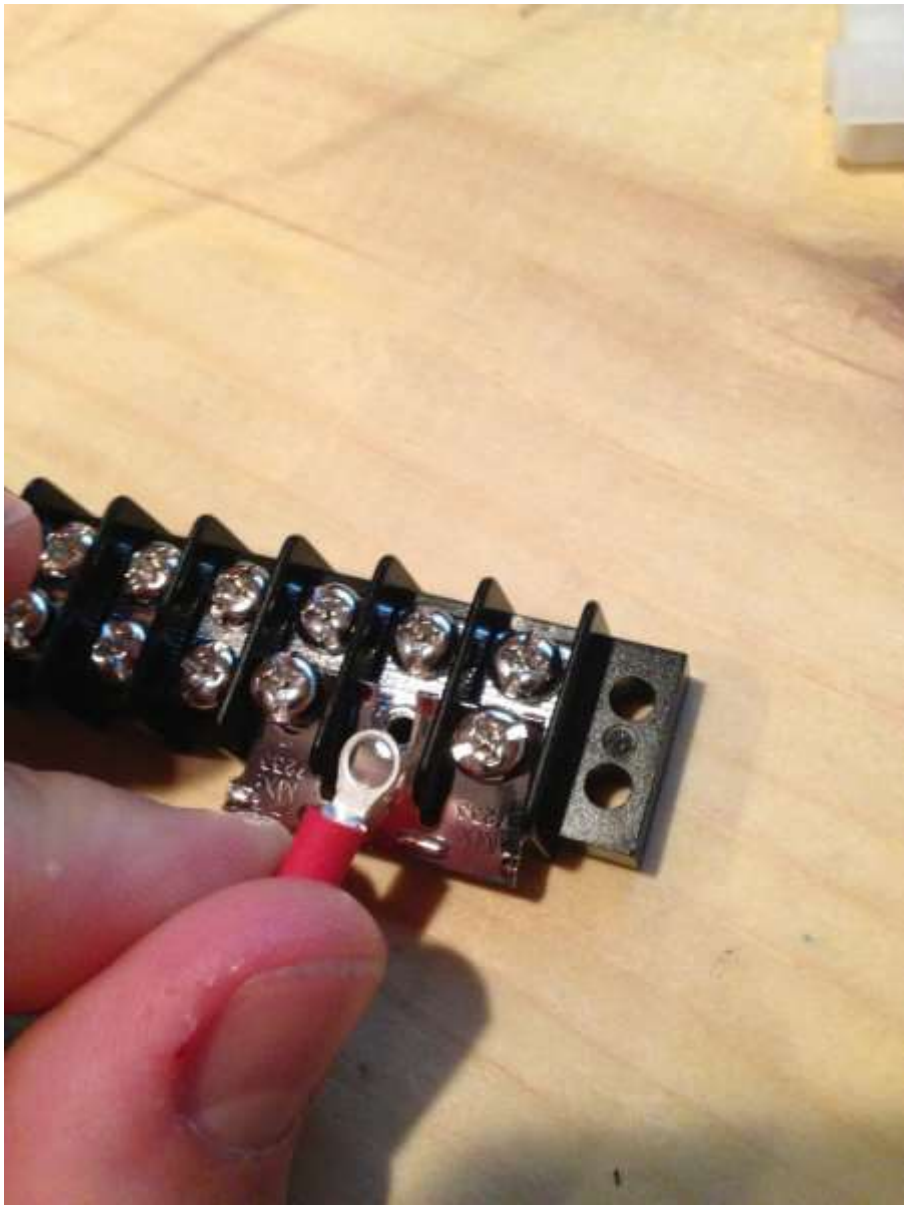
So this bank of barrier strips will be placed next to your power supply. So I will assume that you know where you intend to mount the barrier strips and power supply. The barrier strips and the power supply all have mounting holes, so you can mount it right on the side wall on the inside of the cabinet if you want to.

Now, to take a step back, read through this first so I can explain the general strategy of what we're doing. Then after the explanation I'll tell you specifically what to actually do.

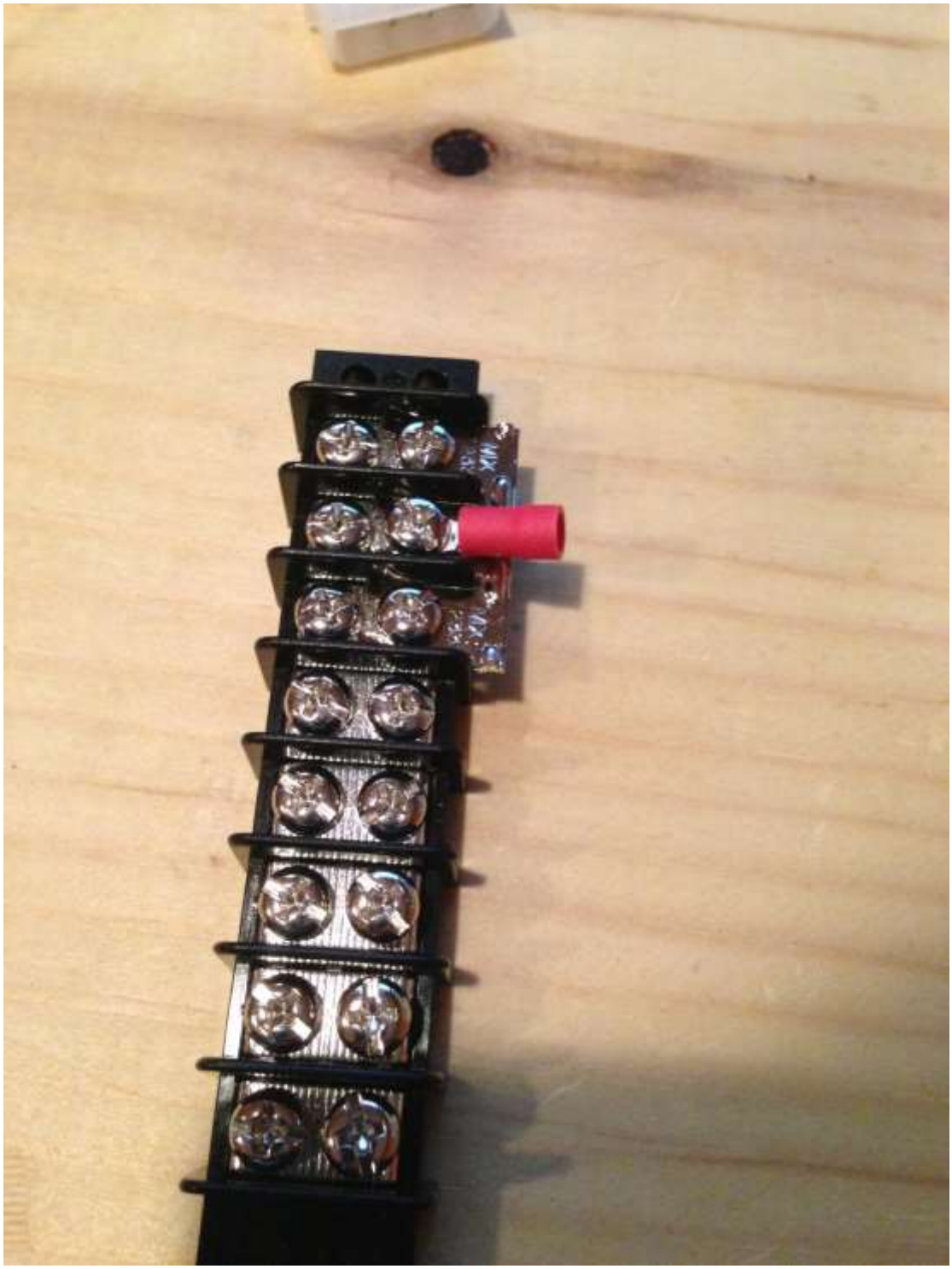
The first thing you will be doing is unscrewing all the screws on one side of your barrier strip. Then you will slide in the barrier jumper under the screws. I don't have a full jumper, but you get the idea:



Next, you'll be removing one of the screws entirely, and putting an O-ring (which will have a wire attached to it obviously) under one of the screws, on top of the barrier jumper. It does not matter which screw you attach it to:

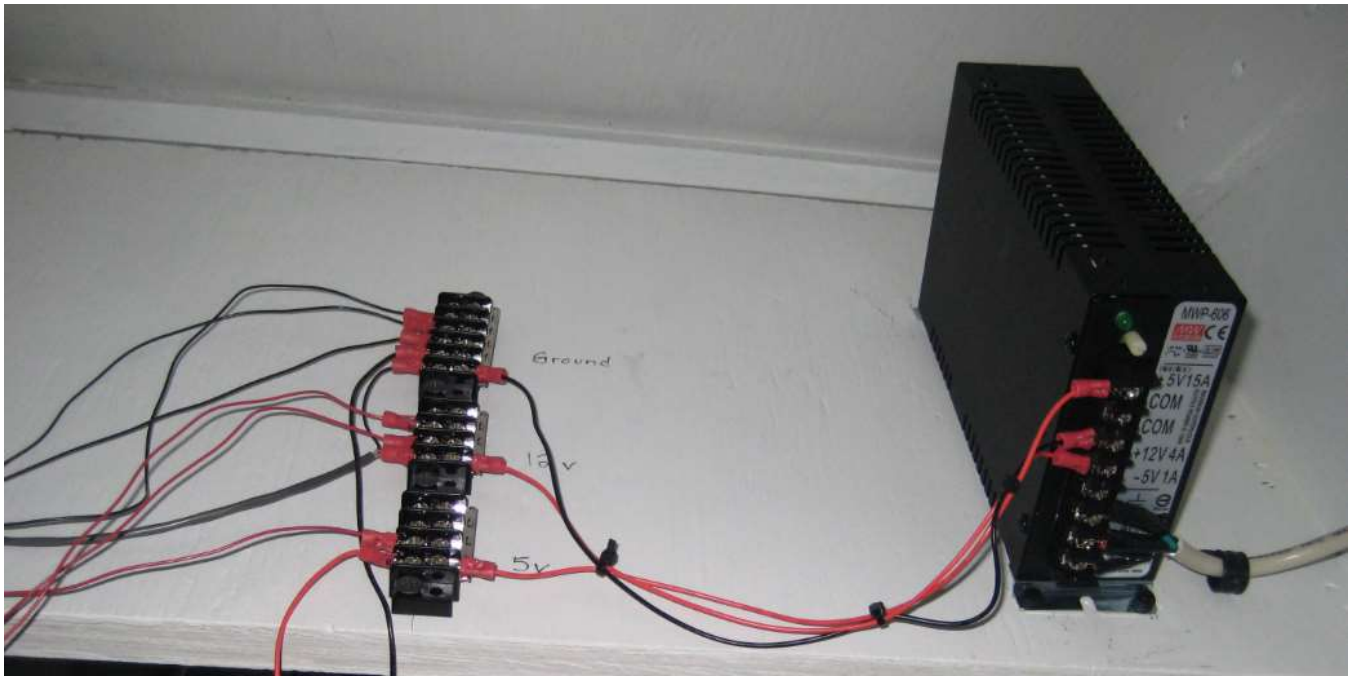


Then put the screw back in and tighten them all. So the barrier strip will look like this. Albeit it will have a full barrier jumper, and will have a wire coming off of the O-ring. What this is doing it taking that wire, and linking all the different screws together and splitting it up so you can hook multiple wires up to the other side of the barrier strip, and have them all be the same thing. This is not unlike, in concept, to what you wired up earlier with the euro-style barrier strips:



The O-ring wires connecting to the “right” side (in the picture above) of the barrier strip will connect to the hookups on the power supply. The screws on the power supply are similar to the barrier strip ones.

So you will be hooking up one wire to the +12V hookup, one wire to the +5Vhookup, and one to (one of) the ground hookups on the power supply. The wires you will be rigging up will then, if you haven't figured it out, have an O-ring on each side. Each wire will connect over from the three items I mentioned above over to their own barrier strip:



We'll be coming back to the wires on the "left" side of the barrier strips above shortly…

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Power Supply Cord

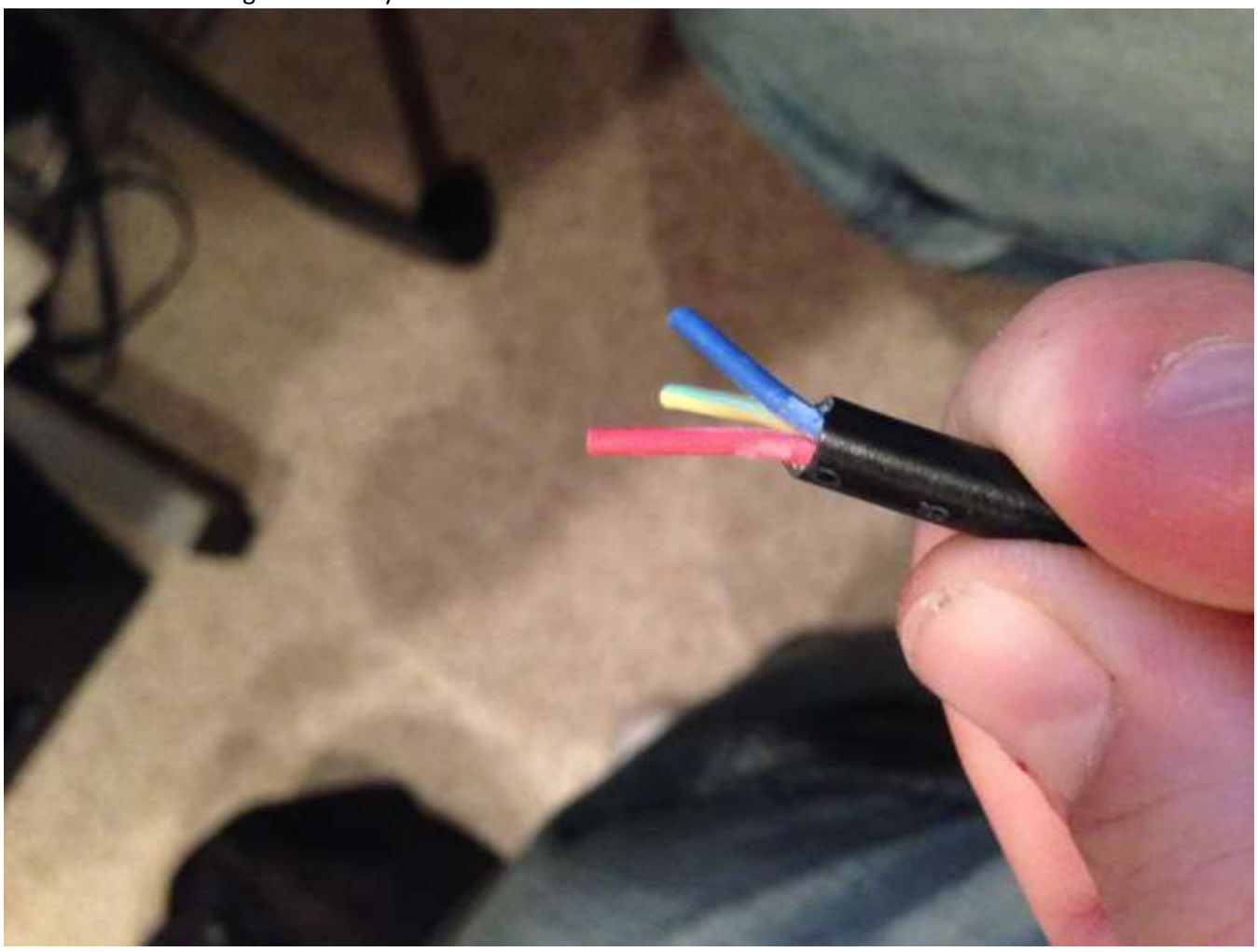
The first thing you want to do is find a three pronged power cord that you no longer care about. I think you mentioned earlier that you had an old PC power cord that you were going to use for this.

You can just cut off the hookup for the PC:

Inside the cord, you will see three wires:

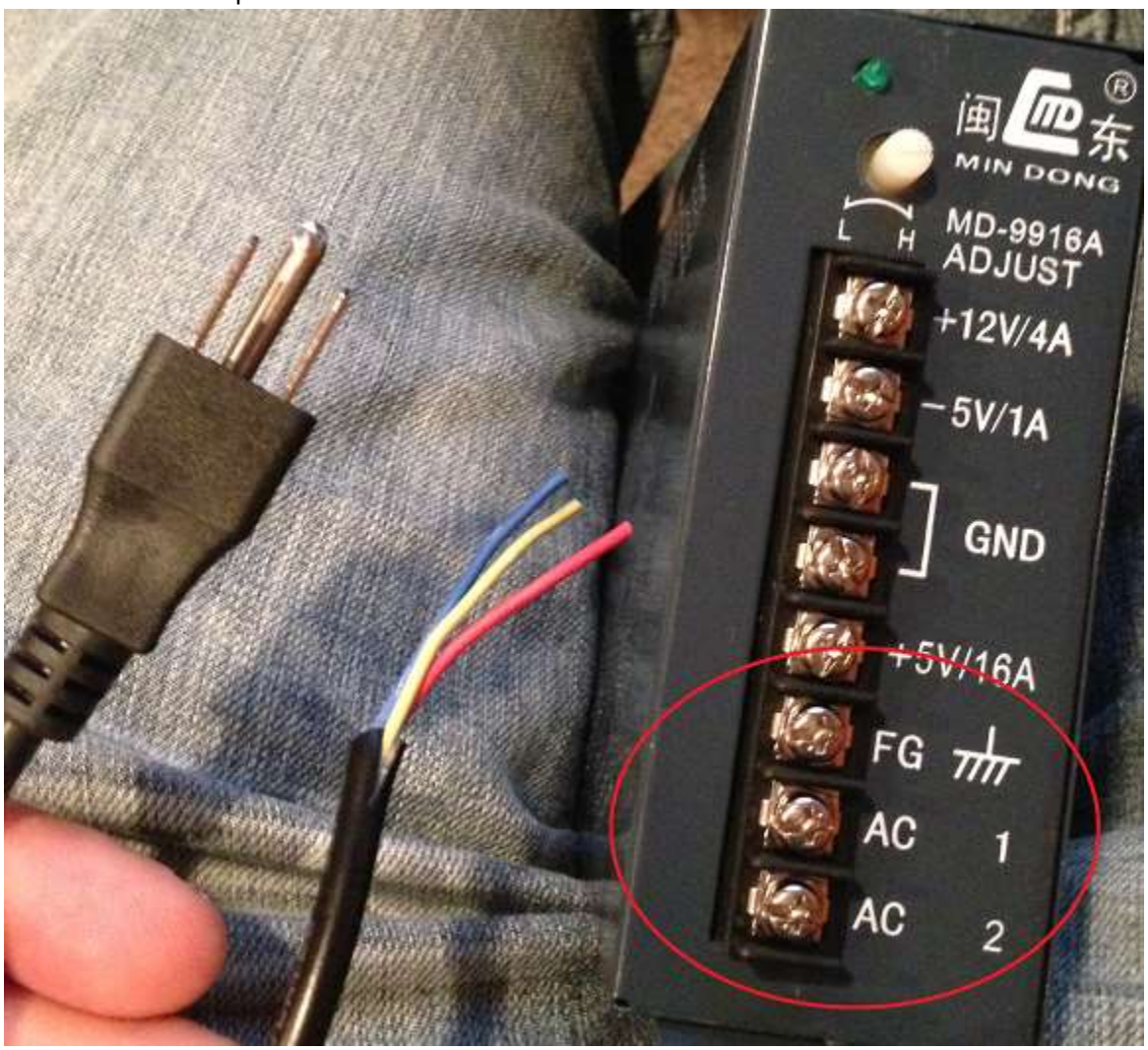
Use a small knife, or whatever method you want, but cut the casing around the three wires:

Then cut off the casing down a ways:



Note, be careful not to nick these wires in particular. Like in my example picture above, you can see the red and blue wires sort of have chips in them. If either of those went too far, and have wires exposed, then I would probably just cut more casing off, and cut off the bad wire from the top.

Now, you're going to attach an O-ring to each of these three wires. These three O-rings will attach to the FG, AC1 and AC2 hookups:



Do me a favor when you have a moment and cut open the cord you intend to use. Let me know what color your wires are inside of the cord. Mine were blue, red, and yellow with a green stripe, but yours might be entirely different. I will fill in the details for you of what wire goes to what hookup later once I know what color your wires are…

The three wires are the Ground, Neutral, and Hot.

I've done this twice now, and my wires were two different colors each time.

The first time the colors were these:
Green = Ground, White = Neutral, and Black = Hot

Now in my example above from my pictures, the colors were these:
Yellow w/ green stripe = Ground, Blue = Neutral, and Red = Hot.

In any case, you will hook up your Ground wire to the FG hookup with the weird symbol next to it.
Then you will hook up your Hot wire to the AC1 hookup.
And your Netural wire to the AC2 hookup.
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Hooking up the Fuse / Fuse Holder

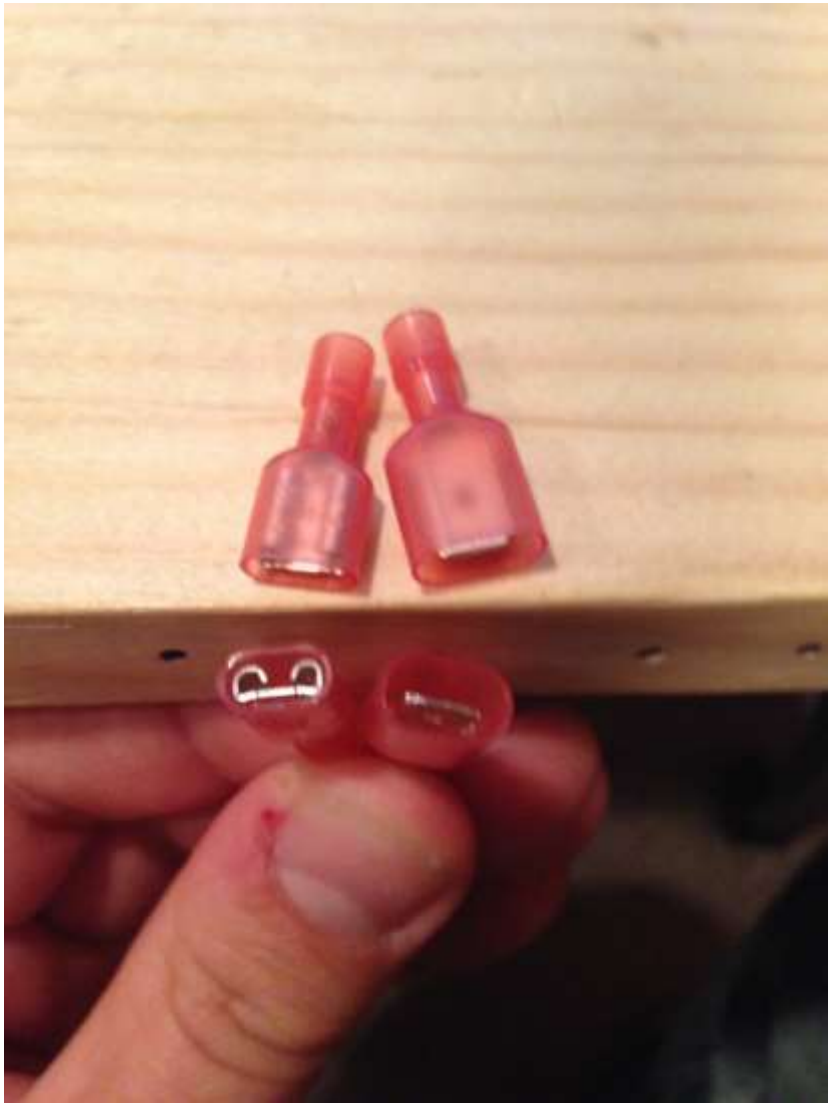
I don't have a fuse holder at the moment, so here is a picture of one I found online. Yours should look similar:

If your wire for your fuse holder is one continuous wire, like shown above, you need to cut that wire in half. Right in the middle, so that you have a separate wire coming out of each side. So just something like this awesomely photo shopped version:

Now, remember that “live” wire, coming from the barrier strips on your control panel? Well, it’s time we deal with that one. You need to attach this fuse holder to the end of that wire. So you need to join two wires together to do this. I do not believe it matters which direction the fuse is going as long as it’s in there. So you shouldn’t have to think about which side is the correct side to attach where. The reason we need the fuse, is so that, if there’s ever a freak accident all your LEDs won’t all die. LEDs can “pop” if they get too much power to them. This should never happen of course, but lightning strikes or who knows what other freak accidents can occur. So the idea is that the fuse would break before the large surge of energy makes it to your LED. Much easier to replace a 50 cent fuse than 20 LED bulbs at a buck each.

This, I believe, is the first time you’ve had to do this sort of thing, attaching two cut wires together. There are multiple ways to do this.

The first way is that you could pick up some quick disconnect pairs:



As you can see, one end is a quick disconnect like you are familiar with. The other connector is a spade like connector which slides into the other. So it just joins the two wires that way. This way is nice because you are familiar with stripping and quick disconnects already. You only need to do this on one side of the fuse holder, so that it’s attached to the live wire from the CP. I don’t think I told you to buy these quick disconnect pairs, but they should sell them at hardware stores.

The next option is to simply twist the two wires together like so:

Then you have to put some sort of cover over that connection. There are a few different things you can use:

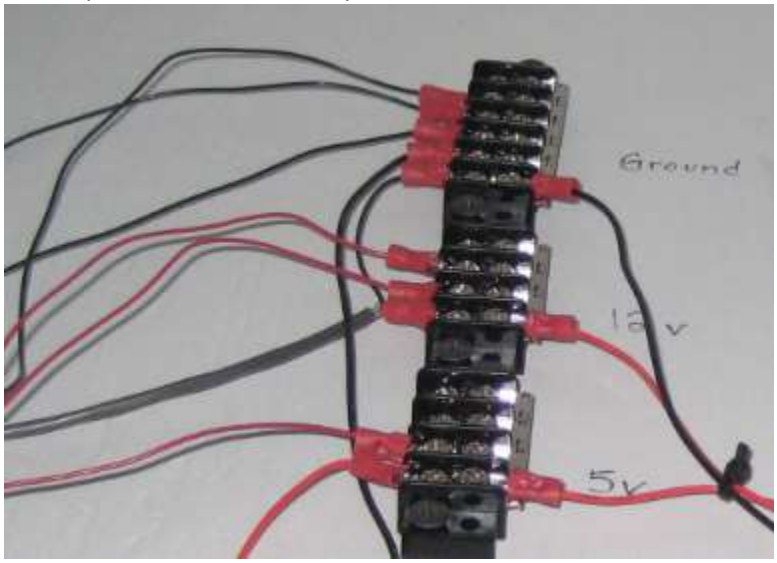
1. Normal electrical tape, this is fine, but doesn't always stick together that well.

2. Liquid electrical tape, this stuff works great.

3. Heat shrink tube. Just a note with the heat shrink tube, this one requires a heat gun or a hair dryer, and you need to put it on the wire BEFORE you twist the two wires together.

All three of these are available at hardware stores if you don't have them too.

So at this point you should have the fuse holder attached to the wire via one method or another. You can then put the fuse inside of it as well, if you haven't already. Use whatever size I mentioned earlier. I can't remember if I told you a 0.5A or a 1.0A fuse, use whatever I decided on. On the other side of the fuse holder, you will be attaching an O-ring to the wire. Now, you should have looked up, as I mentioned earlier, what voltage your LEDs in your buttons need. Either 5v or 12v. This wire, coming from the fuse holder, will be the first thing you hook up to the "left" side of your barrier switches from before.



So attach your wire to the left side, as shown above, to either the 12v or 5v barrier strip.

While you're at it, let's deal with the other remaining wire coming from the CP. The last wire, if you remember, is the ground wire coming from your LED-Wiz. With this last wire, attach an O-ring to it, and then attach that wire to the left side of the Ground barrier switch that you made. So now all of the wires you have coming from your CP should have been addressed.

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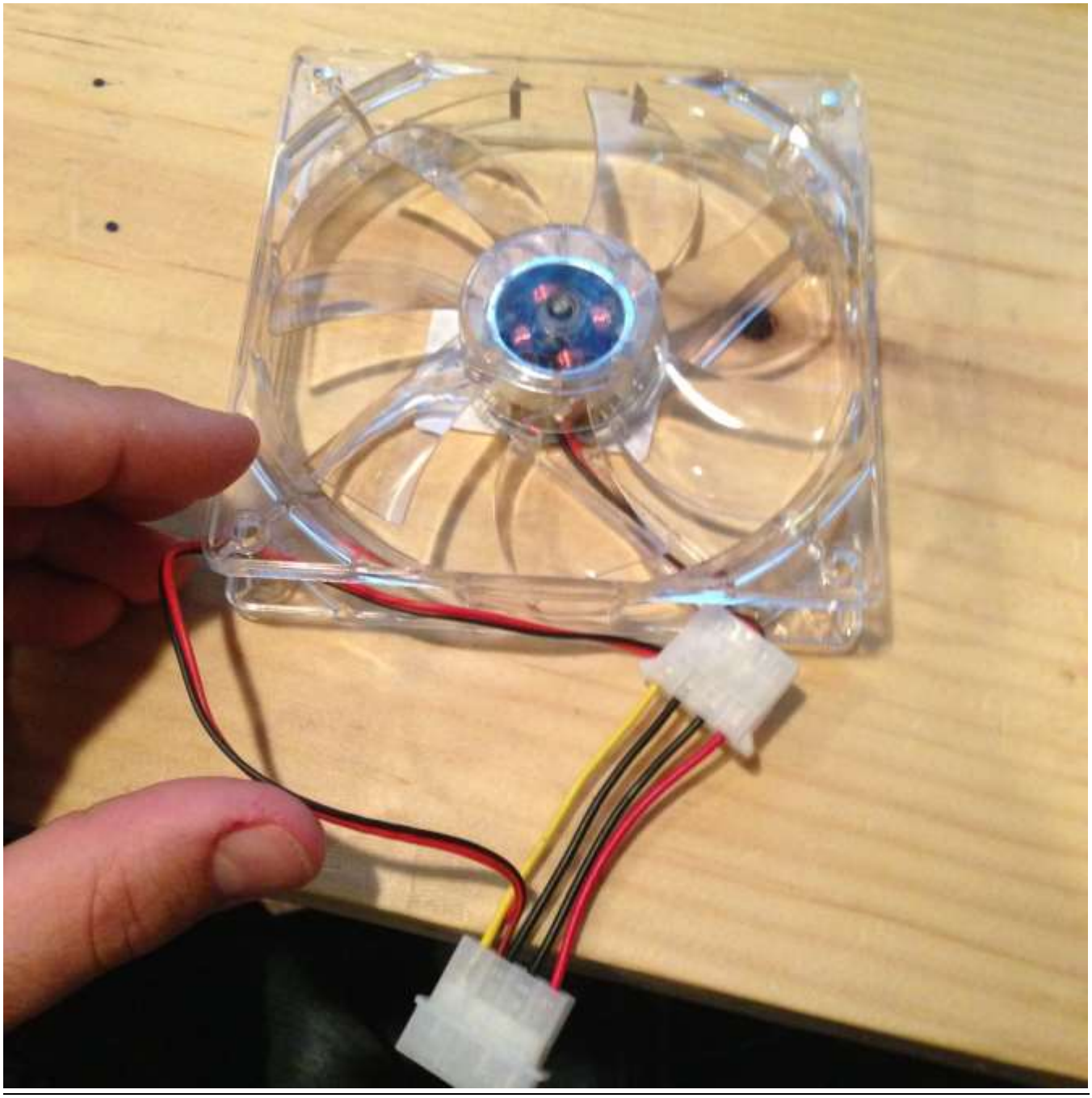
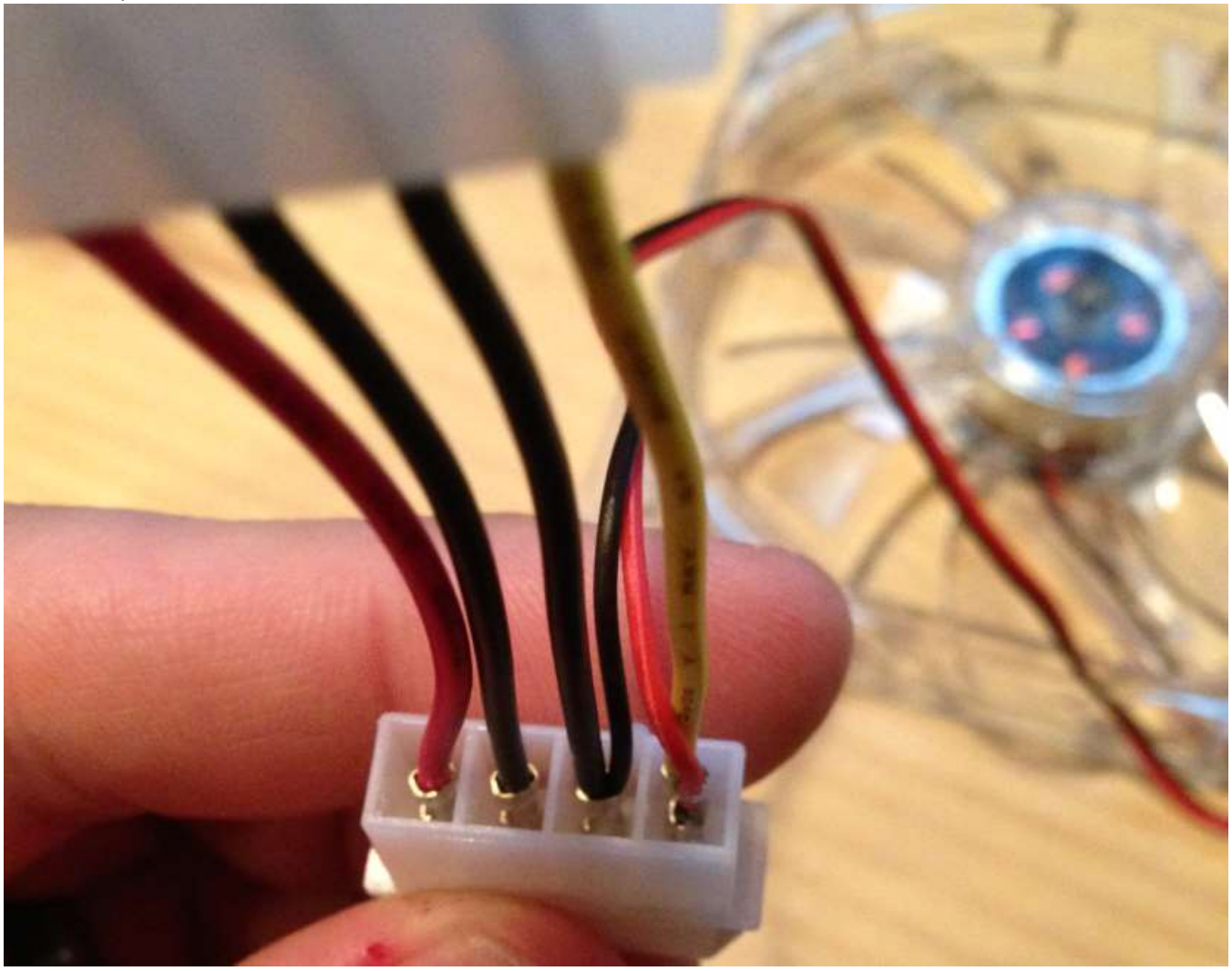
Wiring up your fans:

Your fans will have two wires coming off of them. They will probably have a PC hookup coming off of them as well:



We're actually going to be cutting off that PC power connector, but before we do, we need to figure out if your fans are 5v or 12v. Take a look at the two wires coming off the fan, and look at where they tie into the PC connector power wires:



So as you can see above, the black goes to black (meaning Ground), no surprise there. Then the other wire, ties into the Yellow wire. When it comes to PC power supply cords, red color indicates 5v, and yellow indicates 12v. So my fans are 12v. Once you know what voltage your fan needs, you can chop off the PC power hookup. Now you just need to simply extend the wires from the fans and tie them into your barrier strips you made. So the black goes to the ground barrier strip, and the other wire to either the 12v or 5v barrier strip. To "extend" the wires, you just need to do the same thing we did before with the fuse holder and either use quick disconnect pairs or twist the wires and cover. Use the black wire for ground and the other colored wire for the "live" wire.

Then, of course, repeat this same procedure for your other fan.

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Wiring up your marquee light

I think you have the same one that I just brought from GGG:

At the end of this string of LEDs you should see that there are two wires there. You can also see from the instructions (circled below) that the LED strip is 12v.

If you haven't guessed it, all you need to do is extend these wires down to your barrier strips. Black to the ground barrier strip, red wire to the 12v barrier strip. Use the black wire for ground and the other colored wire for the "live" wire.

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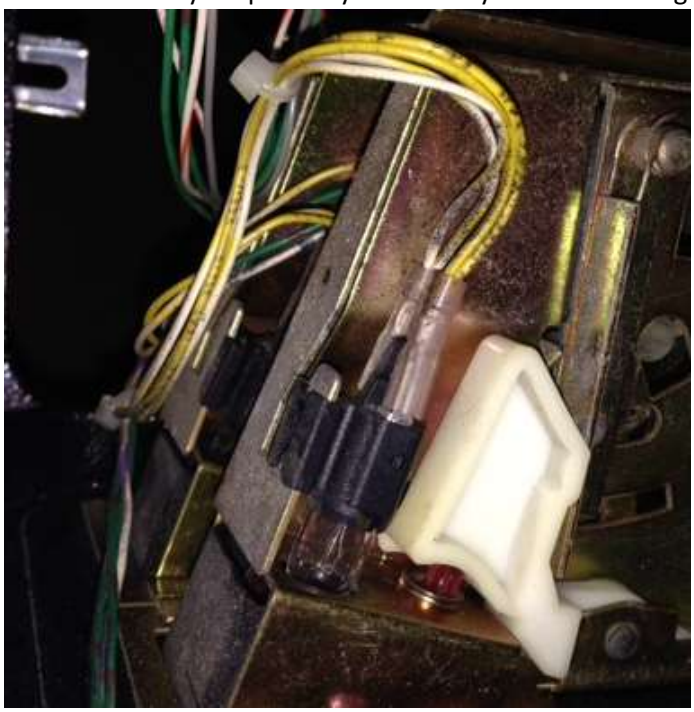
Wiring up the coin door lights

This one you will have to mostly figure out on your own. You should have found out what voltage your coin door bulbs are. You can usually google the identifying letters around the bulbs on the internet to find out more info on it. As with everything else, they are probably 5v or 12v. They may actually be 6v, but a 5v power source would work just fine. In any case, you just follow the same thing you did with the fan and the marquee light. Wire up the wires back to the appropriate barrier strips.

I took a look at your picture you sent of your coin door lights:



Looks like the one light I can see here has two sets of two wires connecting to it. I would think that the second wire probably just daisy chains over to the light on the other coin reject button. You would just have to follow the wires along and find the two wires that you need to with up to your barrier strips. Once you've determined which two wires you need, I would think that the yellow wire would be the 5v or 12v wire, and the white wire would be the Ground or Common wire. Although, really, as long as you have one wire going to each, I don't think it matters much which goes where, as long as you have one of each.

Alternatively, you could just say screw it, and remove those existing wires, and just wire up your own new ones.

If the light does not light up when you turn things on, your first thing to try is to pull out the bulb, flip it over and plug it right back in. It's possible the live wire and the ground wire just need to be switched, and flipping the bulb would achieve that. So this is actually true for all your LED bulbs in your buttons too. If they don't light up when they're supposed to, flip them over and try them out that way instead.

Now at this point, I believe you should have all your powered devices wired in. If I am wrong on that and I'm missing something, please let me know.

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Hooking things up to your smart power strip

You should have a smart power strip that probably looks something like mine:

This is pretty easy. You just plug in your PC power cord (the one coming from your actual PC, not the one you hacked up) into the CONTROL OUTLET (the blue one). Hook up all your other devices into the other "controlled" outlets. The Red ones are "constant hot" outlets. There's no reason to use these here that I can think of.

So this power strip can tell when you turn the computer on. When the PC is on, all the other outlets turn on.

When you're ready to test this out eventually, if you find that it's not working correctly and isn't turning on/off the other outlets when the PC is on, there is an Adjust knob on the side you can toy with:

Then, of course, you can mount the power strip on the side or elsewhere in the cabinet, or else just let it sit on the bottom of your cabinet.

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Wire Tidiness

At some point you will want to use zip ties to keep your wires tied together if you haven't already. Alternately, you could wait to do this until the very end until you've had the chance to turn everything on and make sure that it all works. i.e. that all the lights light up, and all the button presses are registering.

Other than zip ties, it's up to you if these are even necessary, but you can use little wire holders you can find at the hardware store to hold wires in place along the inside of the cabinet, like these:

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Wiring up your PC Power button

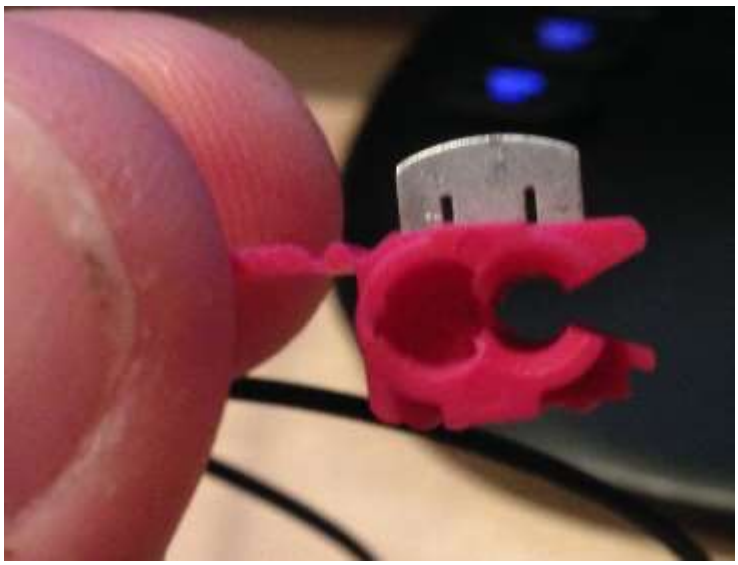
Despite the fact that I'm covering it last, this part is sort of separate from all the previous wiring. So you're free to do this wiring at any point that you'd like to.

Before I can actually give you specifics of what to do, you have to first learn how to splice a wire. Splice meaning tap into a wire and duplicate it, but leave the original wire in tact.

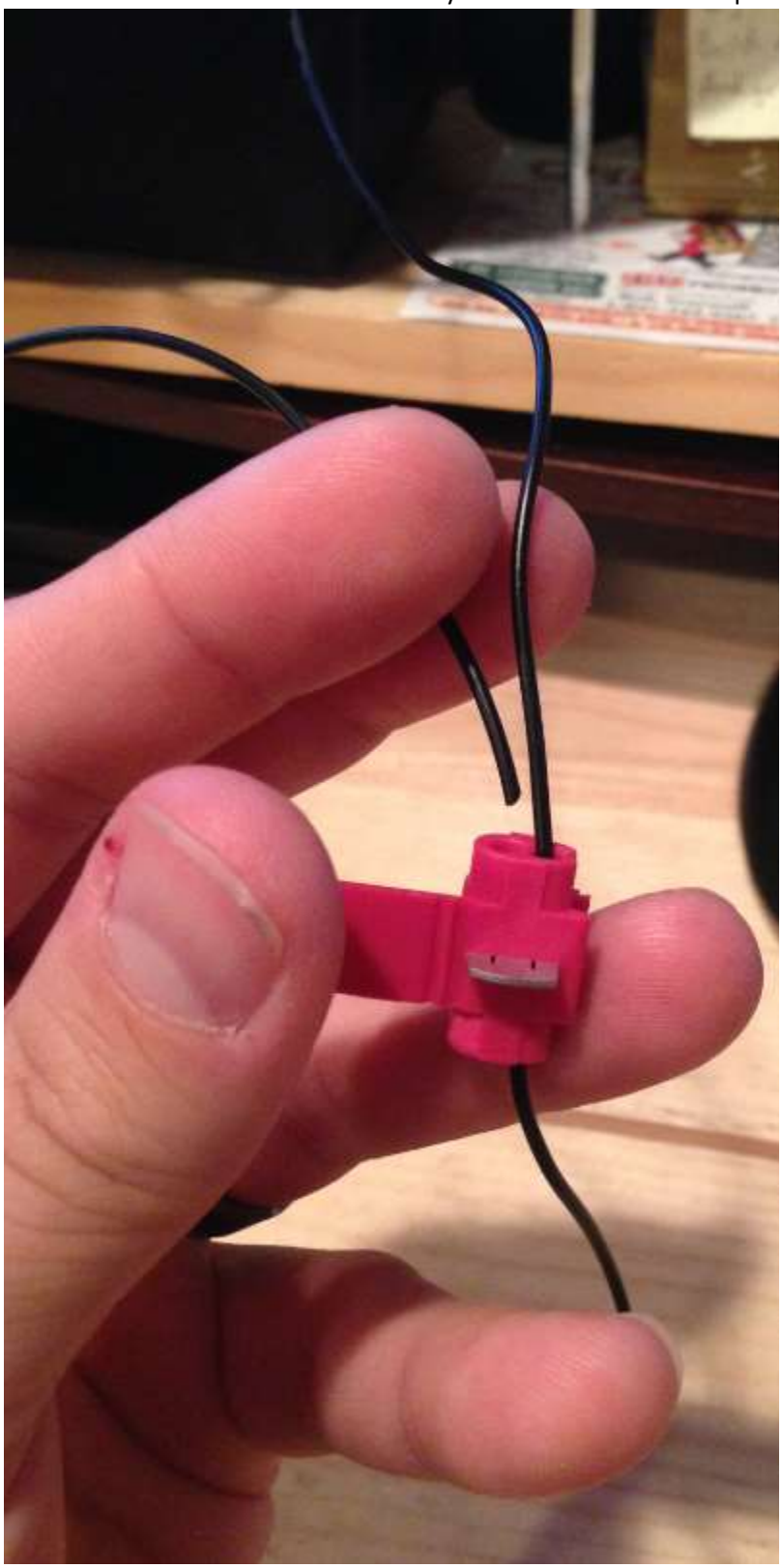
So first, here is a side pictures of the wire splices that you should have bought.

You can see that one of the slots goes all the way through the splice. This is where you put the existing wire, the one that you want to tap into (in your case, your pc power button wires).

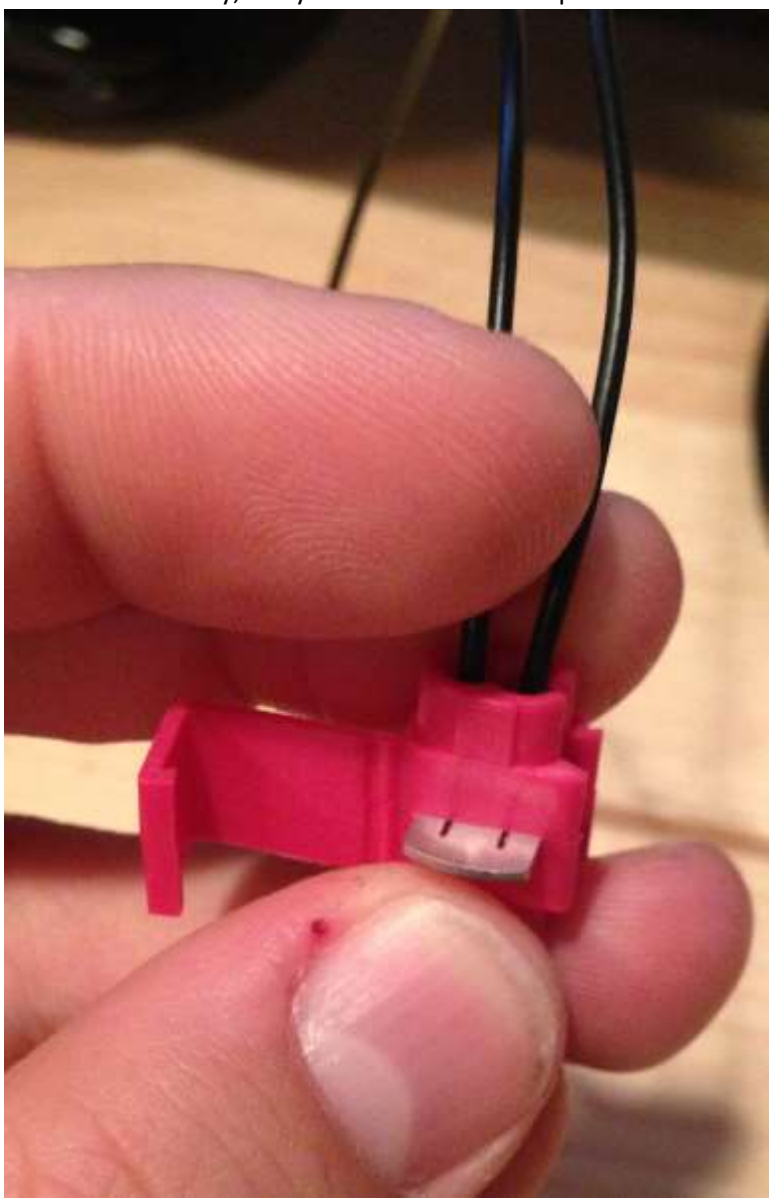
The other slot you can see only goes in part of the way and then stops. This is where you will be placing your new wire:



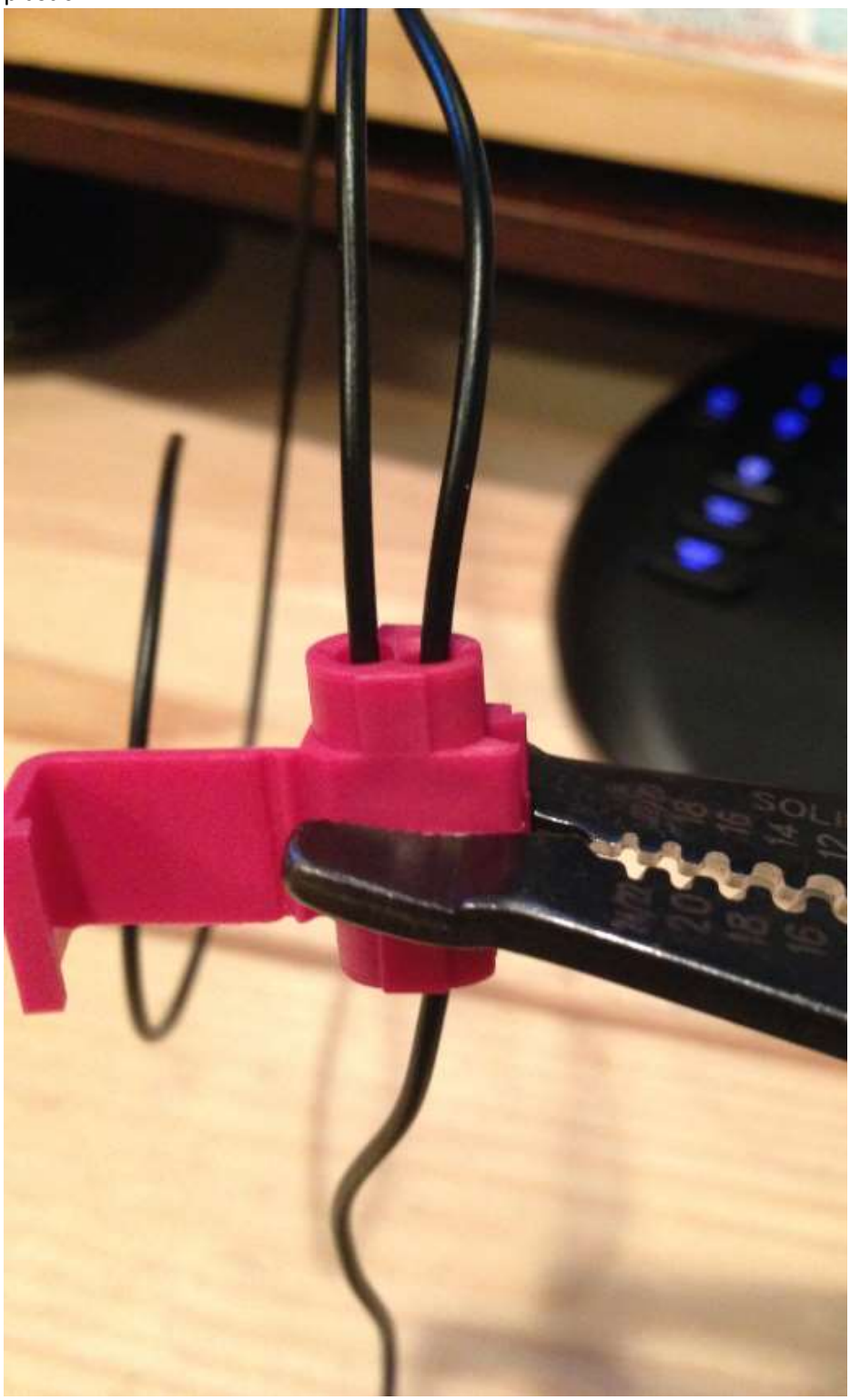
So as I mentioned here you can see the one wire going all the way through. This would be one of your PC power button wires. Then on the other side you can see me about to put in the end of our new wire:



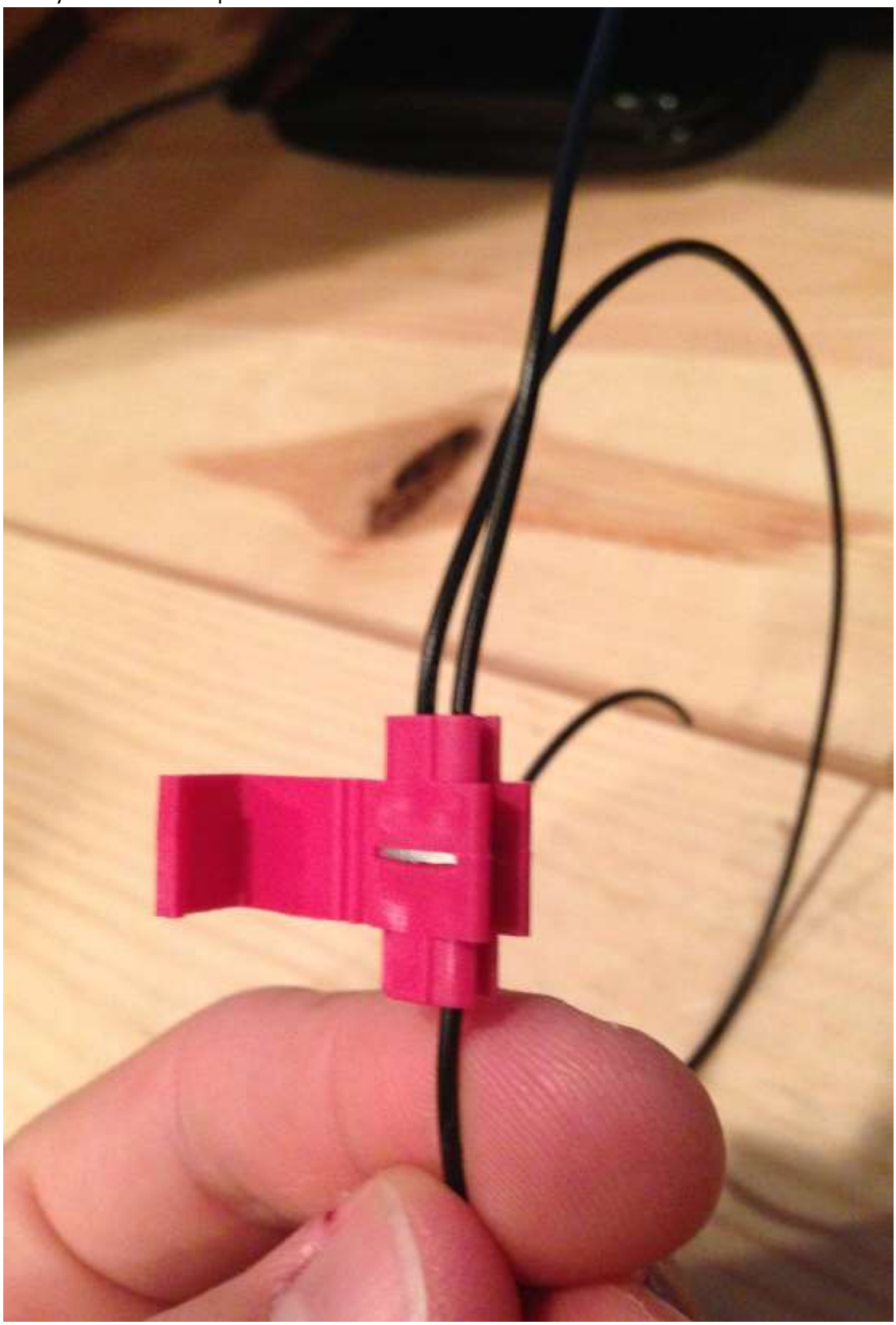
This is sort of tricky, but you have to hold the splice and both wires in place with just one of your hands.



While holding onto the whole setup with your one hand you are going to use your pliers to push in that metal piece that's sticking out in the middle of the splice, until it's all the way pushed in and is even with the red plastic.

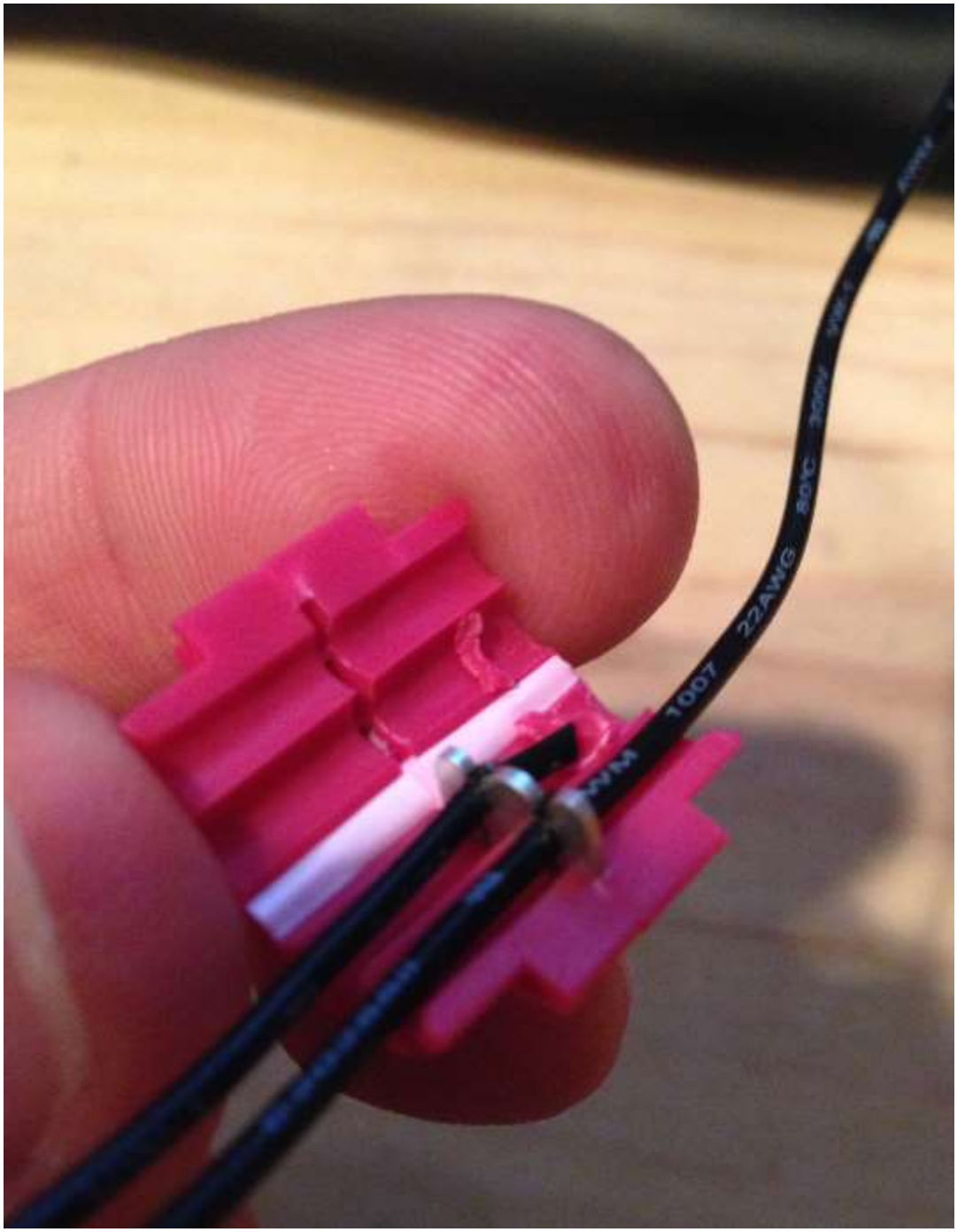


Here you can see it all pushed in:

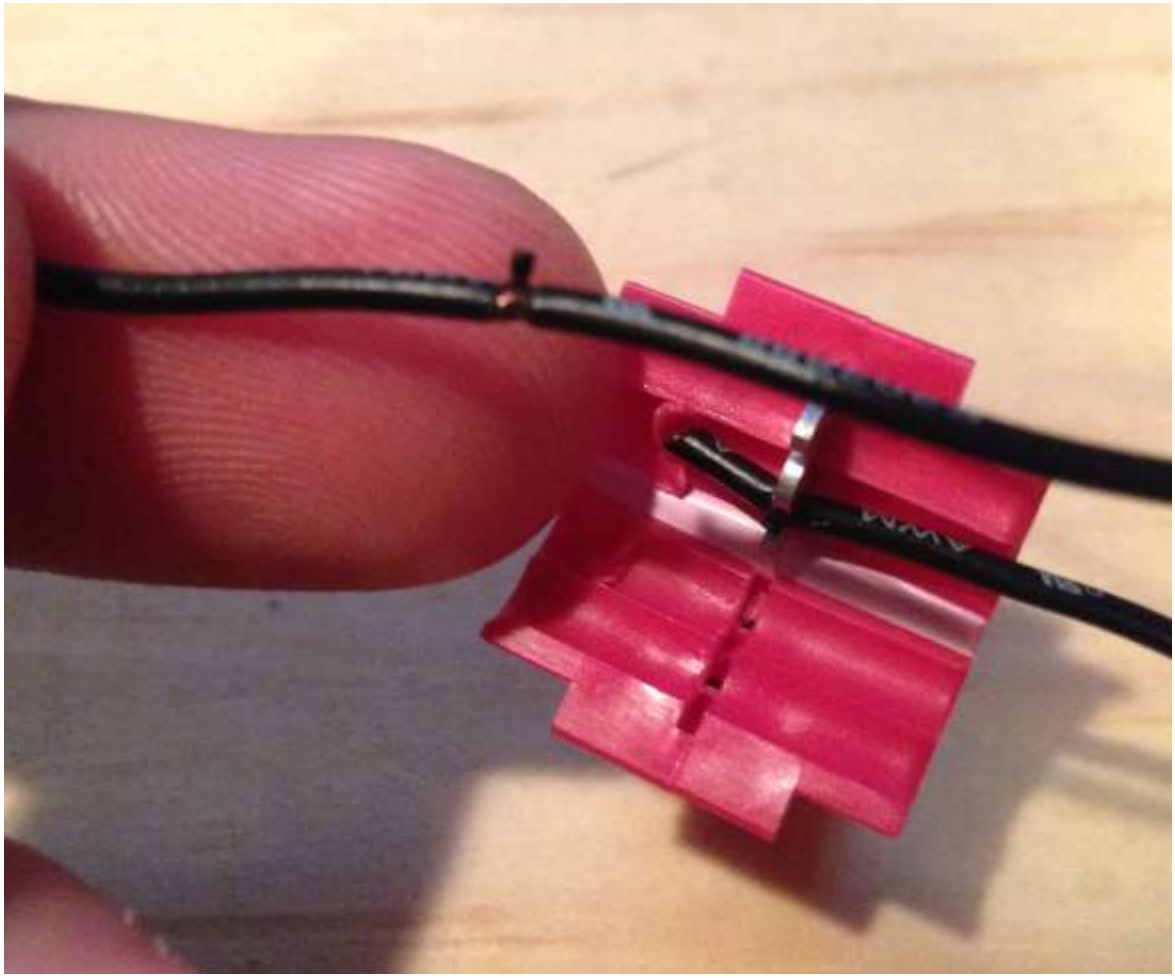


Lastly, you just close up the little clip that goes around the splice.

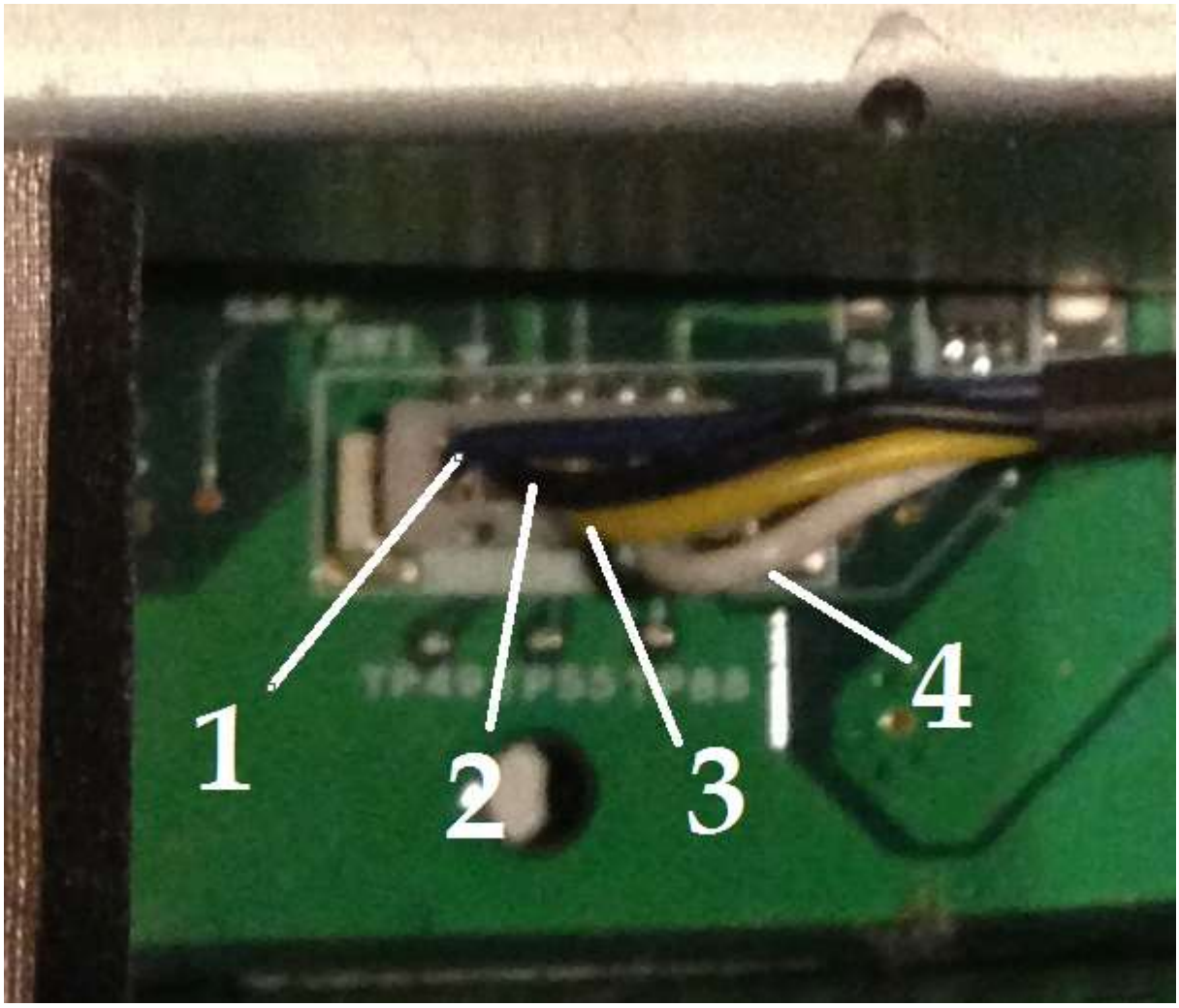
Now I did pry open mine to give you an idea of what is happening inside the splice. You can see where the wires get split by that metal piece. It cuts into both wires a little bit, and the metal piece connects the copper wires then, thereby duplicating the wire. As you can see, it's important that each wire sits in its little slot correctly before you push in the metal piece.



These splices are intended to be reversible. So the good news is that if, by some freak thing, we can't get the power button to work, you could remove these splices. Below you can see the wire that I pulled off the metal piece, right above my finger. You can see the copper is exposed a little, but otherwise, it's still connected and is still a relatively intact wire. All you would have to do to back out of this is to cover up the exposed copper on the original wire:



OK, now that you know how to splice a wire, we can apply it to your situation with your power button. Before I get to my instructions, I took a look at your picture you sent me. It looks like you have four wires. Blue, Black, Yellow and White, in that order. To make things clear for myself, I'm just going to call them by number. 1=blue, 2=black, 3=yellow, 4=white.



Here's what you need to do:

1. Make sure the PC is unplugged.
2. With the PC unplugged, hold in the power button on the computer to drain any lingering power from the PC.
3. You will probably have to use a knife to carefully cut the casing from around the wires, so that you have room to work with, and attach in the splices.
4. First, I think you should just splice wires 1 and 2 to begin with. That's my best guess as to which wires are the ones that we need. For your new wire, make sure you use enough wire so that the wires will reach your power button on your admin panel.
5. Once you've spliced the two wires, then strip the ends of them. No need to attach a quick disconnect to them just yet. Once both wires are stripped, set them aside so they are not touching anything else, or each other.
6. Now it's time to plug in your computer and get power to it.
7. To simulate a button press, grab a hold of both wires. Don't touch the copper parts with your hands, only hold onto the wire with the casing around it. Pretty sure nothing would happen if you touch the copper anyway, but still, don't. Now quickly and momentarily touch the copper parts of the two wires together. Again, just momentarily. So touch them together and then pull them apart.
    a. Did the PC power on? If yes, then those are the two wires you need. Shut off the PC, and unplug it from the wall. Now you can attach quick disconnects to the two wires, and then hook them up to your power button on your admin panel. I don't think it would really matter which wire goes where, but I guess if it ends up being these two wires, put the black one on the ground connector on the button switch.
    b. If the PC did not power on, these are not the wires you need. For your next steps, I would splice wires 3 and 4 and repeat the above process. I would leave the splices for 1 and 2 in place for the time being. But for your second attempt, just try wires 3 and 4. Again, make sure the PC is unplugged when you're doing all this splicing.
    c. Did the PC still not turn on? If so, then you should try out all the other possible combinations of wires. So, those combinations would be 1 & 3, then 2 & 3, then 2 & 4, and then 1 & 4. Hopefully between these 6 total combinations you will have found the right combination of two wires.
    d. Now, total worst case scenario, you can't get it to work, no matter which combination of wires you use. Very unlikely. But, in that case, you know how to extend wires. So you could just cut all four wires, extend them so the wires (and entire button) reach your admin panel, and then jimmy-rig the existing PC power button and mount it to your admin panel somehow in place of the button you were going to use. That way at least you can turn on the cabinet without having to dig around inside the cabinet.

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