Midiverse Modular

MVM004 – Dual Arcade Button Build Guide

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This guide provides basic instructions to build your MVM004 Dual Arcade Button module.

Module size: 16HP
Power consumption: draws 28mA from the +12 rail

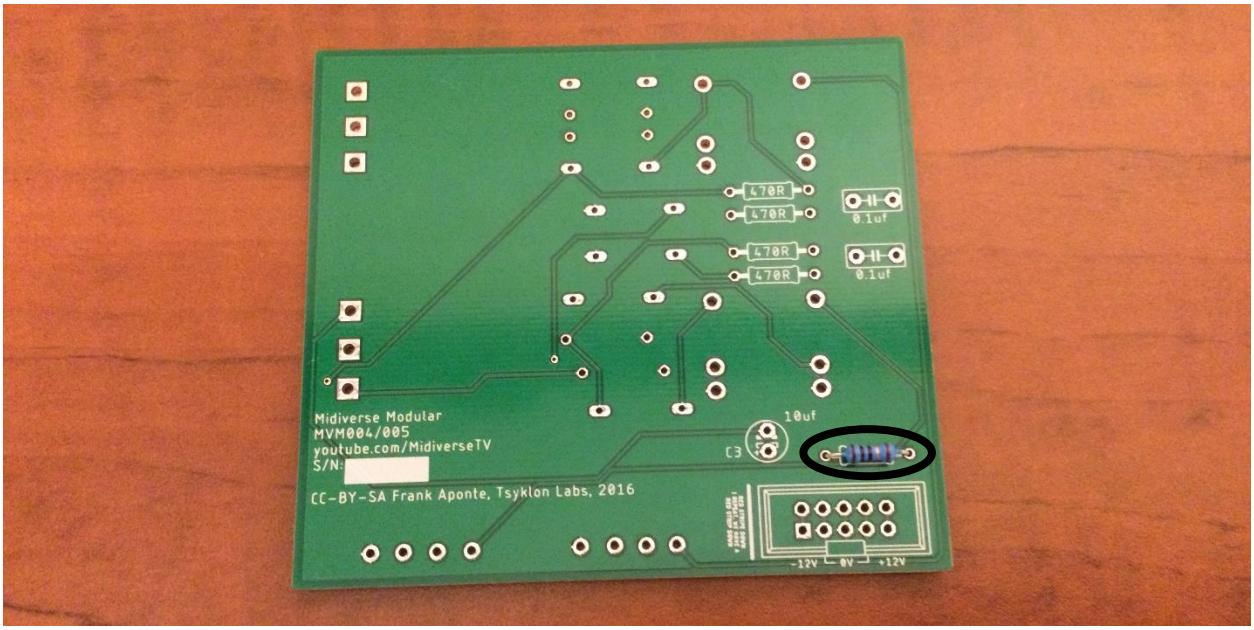
In addition to basic soldering equipment, you will need wire strippers. A hot air station is required for securing the heat-shrink tubing to the arcade button terminals, but the use of the tubing is optional for this build.

This kit comes with the following parts:

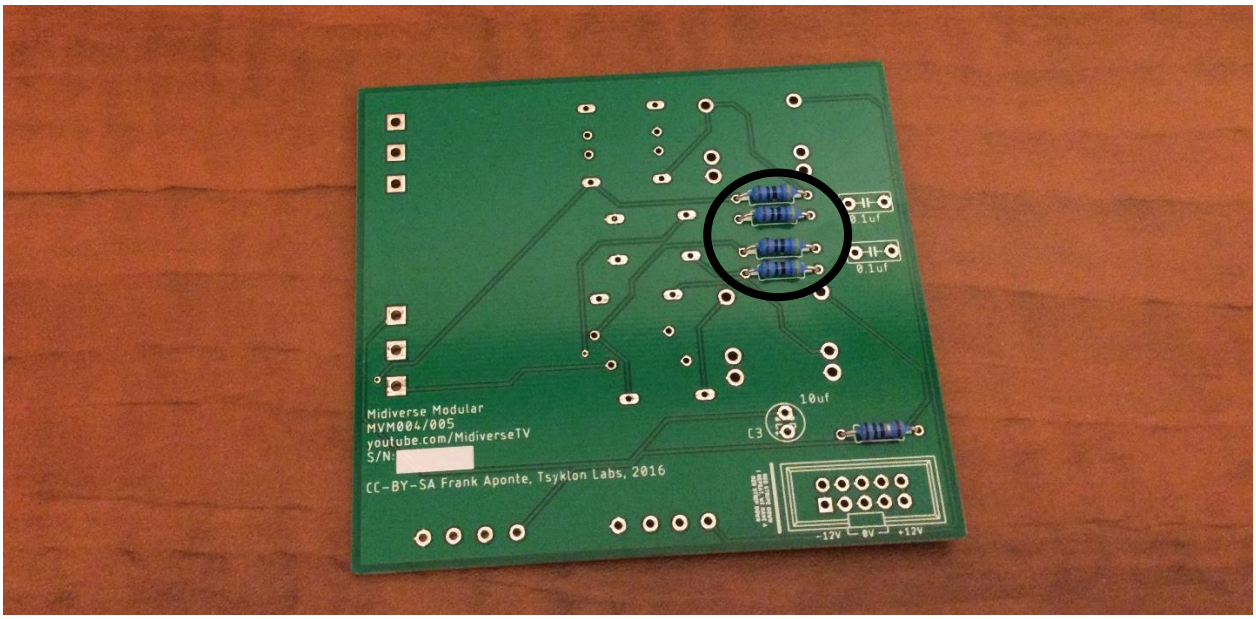
Reference	Qty	Value	Notes
Dual Arcade Button PCB	1		
Dual Arcade Button Panel	1		
R9	1	10R	Brown, black, black, gold, brown
R3, R5, R7, R8	4	470R	Yellow, purple, black, black, brown
R4, R6	2	10K	Brown, black, black, red, brown
R1, R2	2	20K	Red, black, black, red, brown
D1, D2, D3, D4	4	1N4148	
D5, D6	2	1N4733	
C1, C2	2	0.1uf	Ceramic
C3	1	10uf	Electrolytic
J2, J3, J4, J5	4	3.5mm Jacks	
VR1, VR2	2	B100K Pots	
J1	1	10 pin power connector	2x5 shrouded header
Arcade buttons	2		
Black wire	4		
White wire	4		
Heat-shrink tubing	8		
White Knobs	2		

Build Instructions:

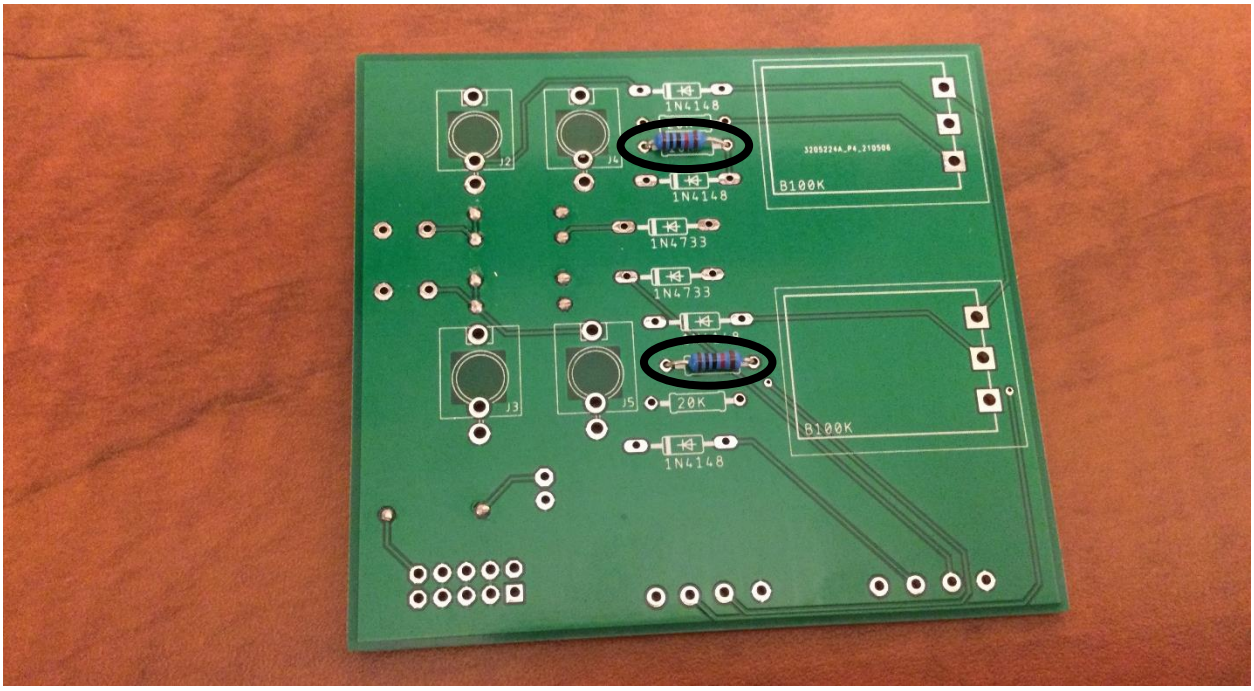
Start by populating and soldering the resistors. First, the 10R resistor.



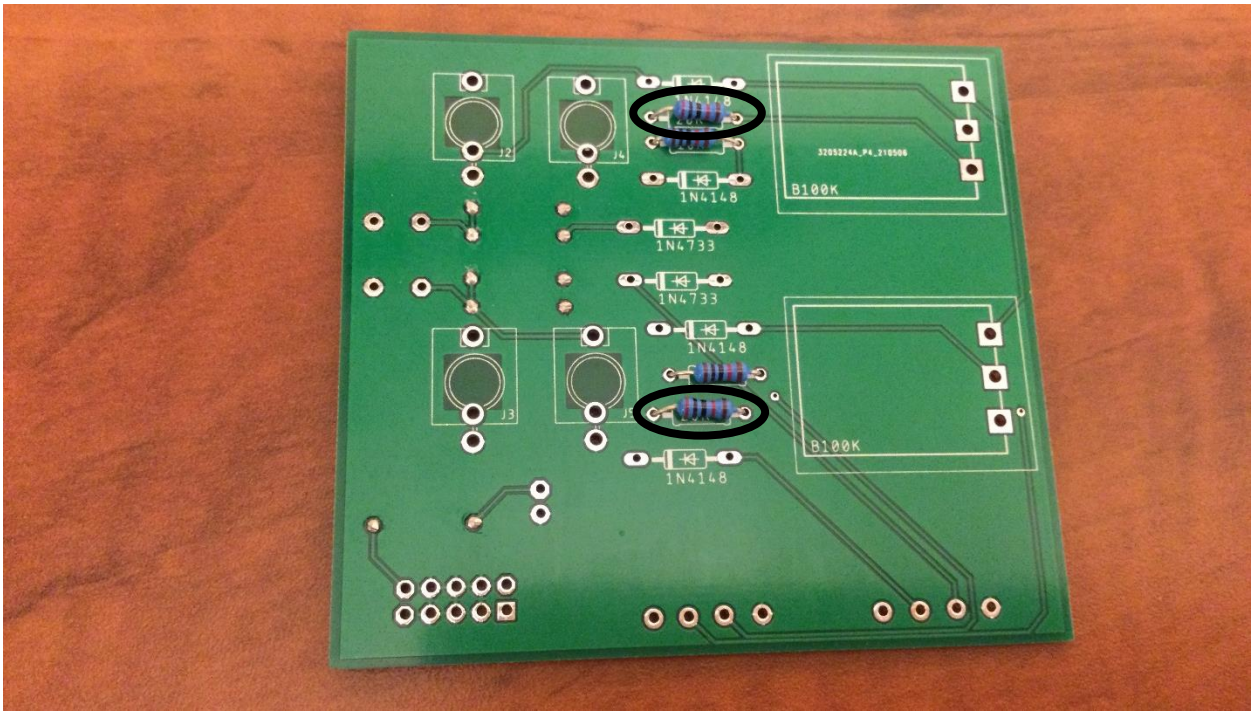
Next, the 470R resistors.



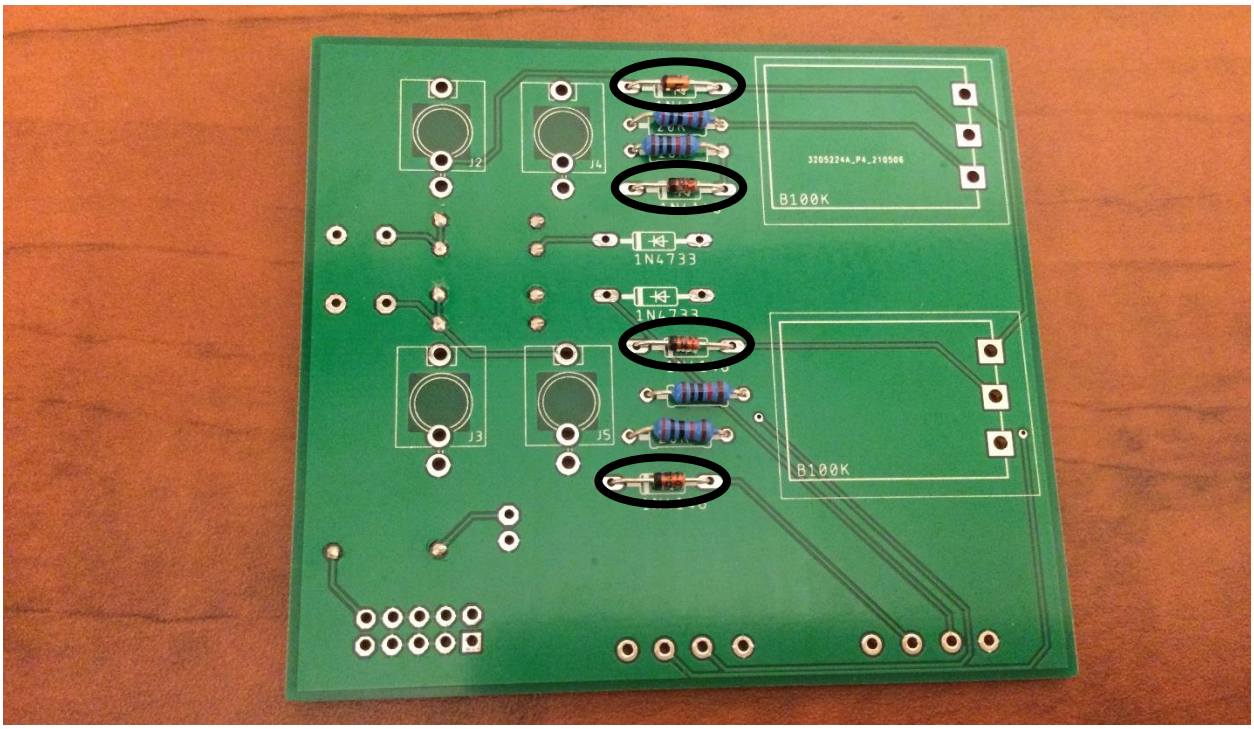
Next, the 10K resistors.



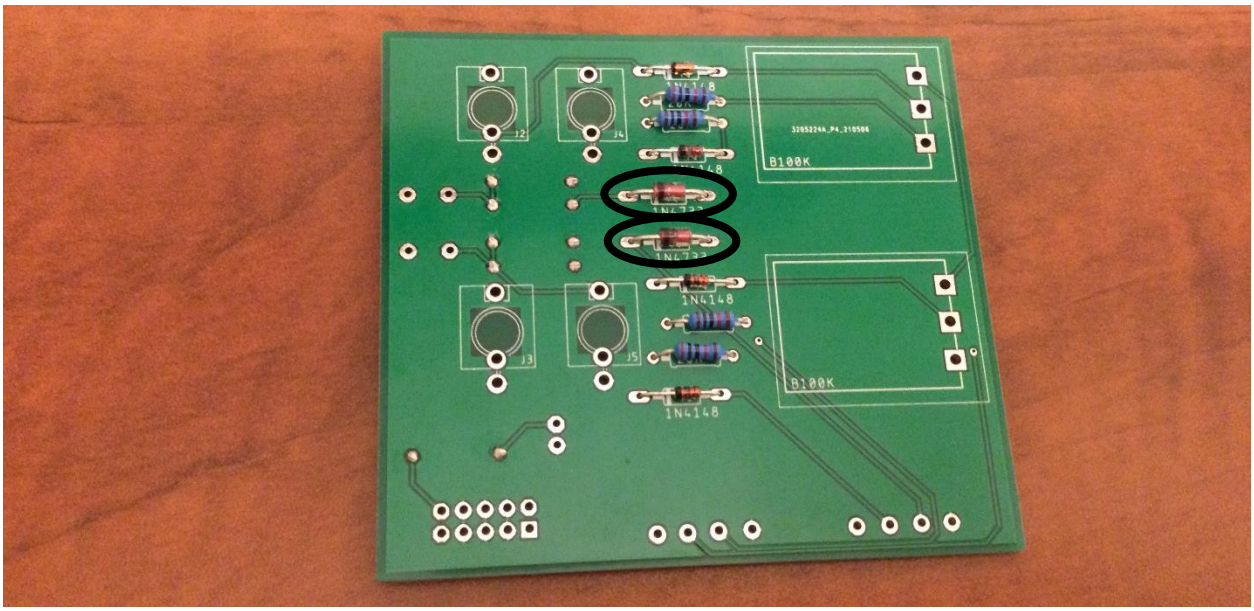
Next, the 20K resistors.



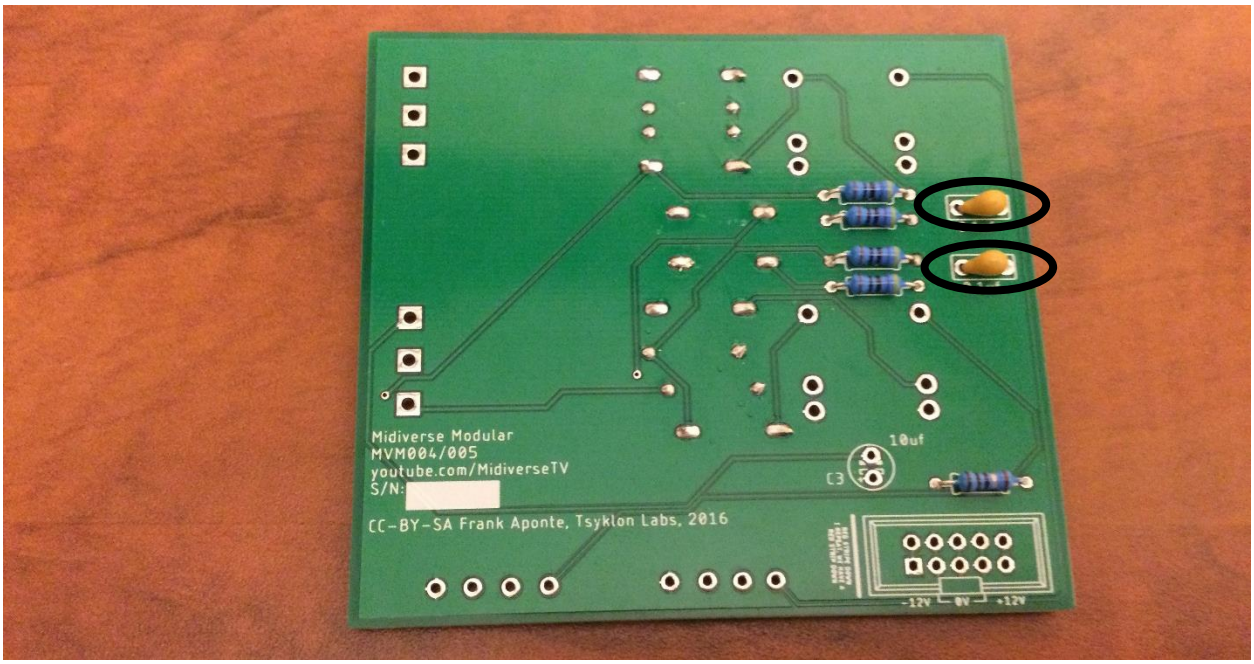
Next, populate and solder the diodes. Start with the 1N4148 diodes. Be sure to pay attention to the orientation. The black line on the diode should align with the white line on the PCB.



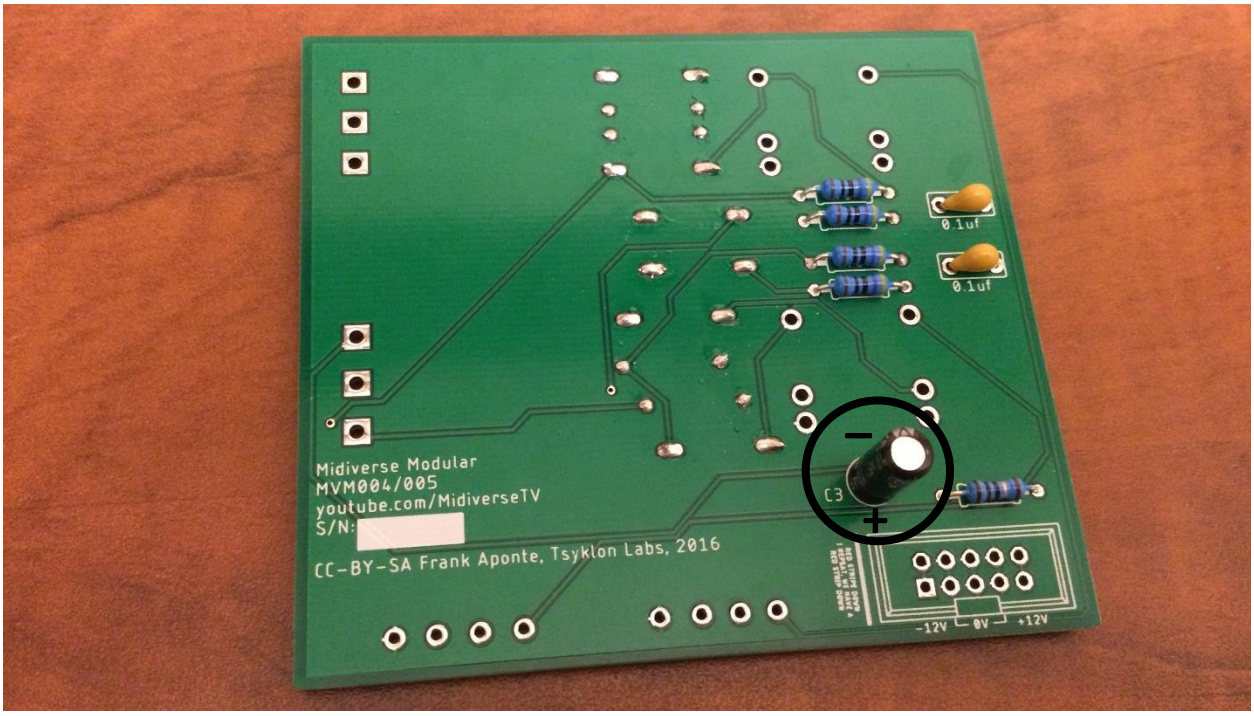
Next, the 1N4733 diodes. Again, be sure to pay attention to the orientation.



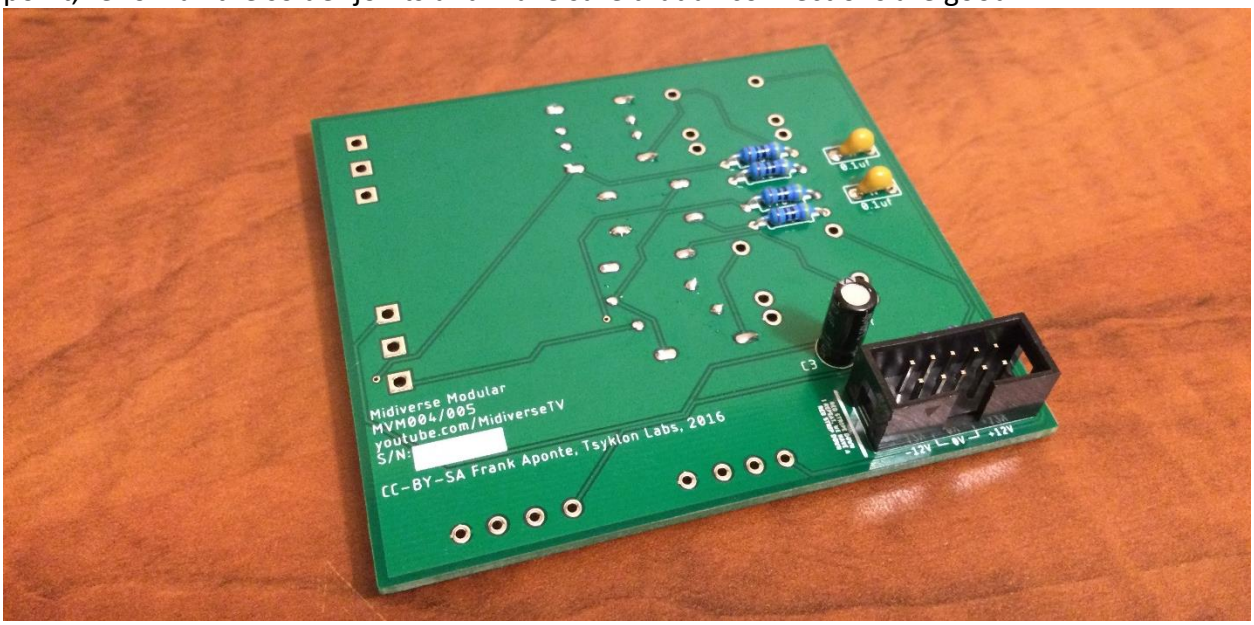
Then, populate and solder the capacitors. Start with the 0.1uf ceramic capacitors.



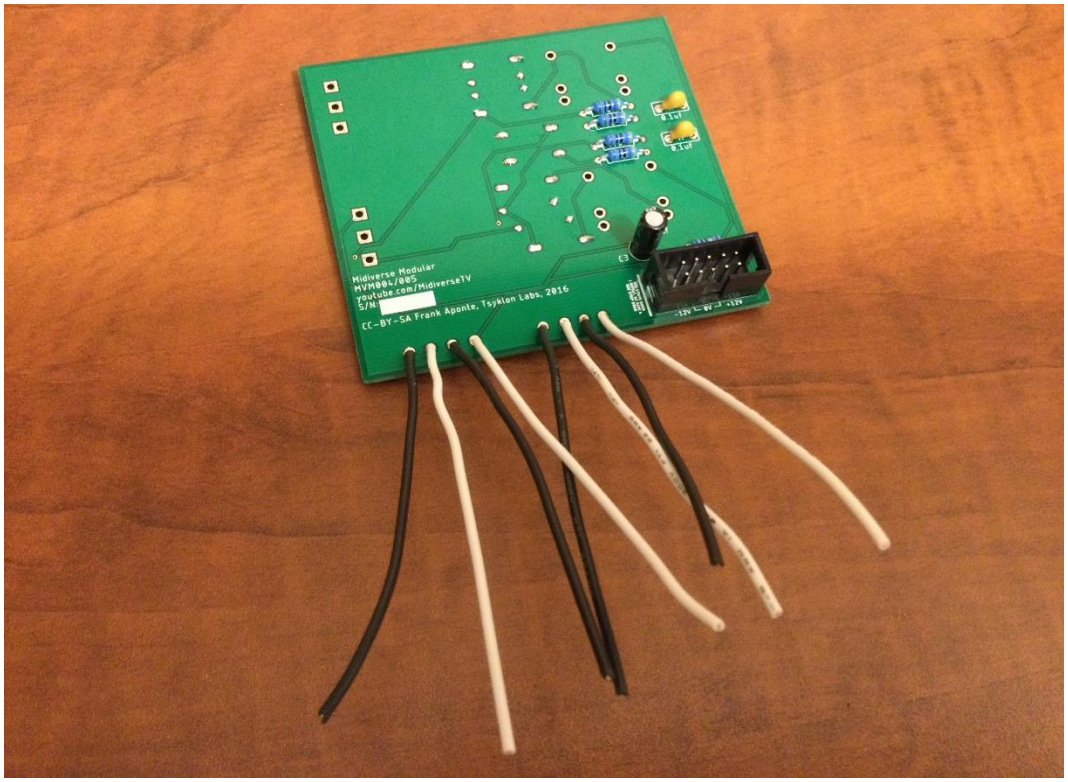
Next, the 10uf electrolytic capacitor. Be sure to pay attention to the orientation. The long leg of the capacitor should go through the pad with the + sign (toward the power connector). Make sure that the negative stripe on the capacitor aligns with the picture below.



Next, solder in the 2 x 5 power connector. Be sure to pay attention to the orientation. The notch should be oriented towards the edge of the PCB, as shown in the picture below. At this point, reflow all the solder joints and make sure that all connections are good.

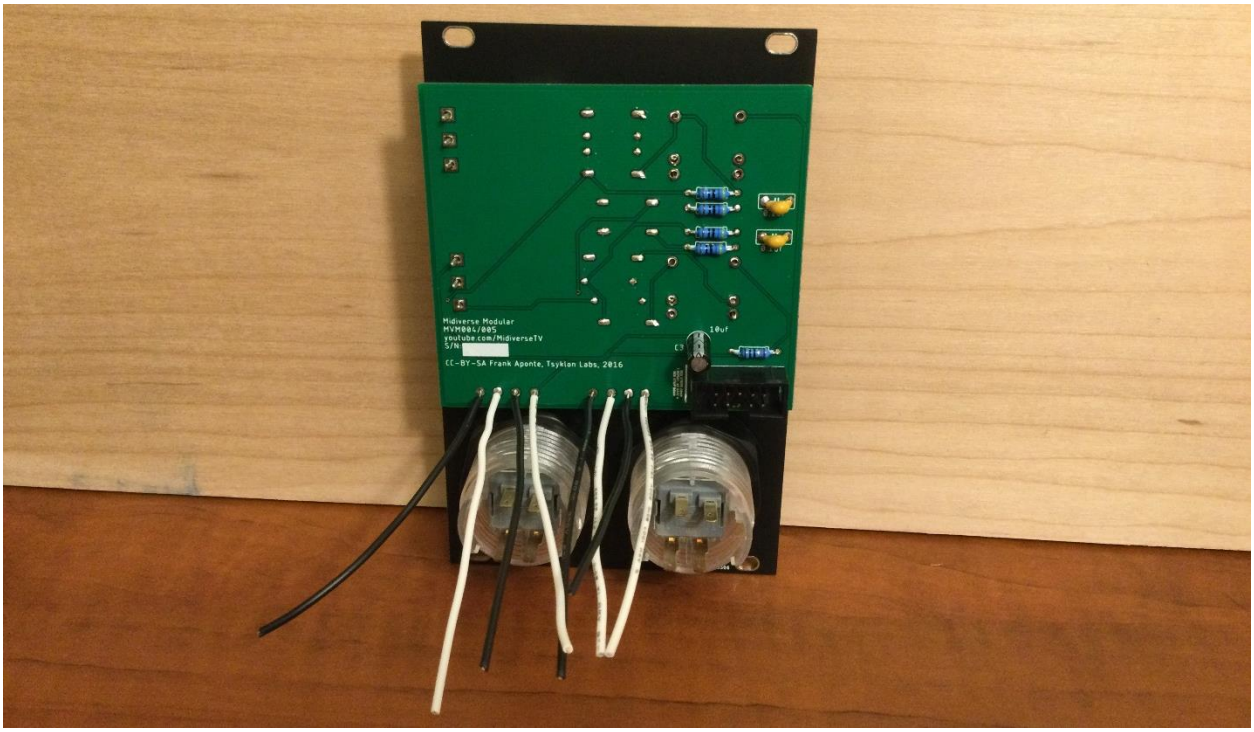


Then, use the wire strippers to expose a small section of the wire and solder the wires to the individual pads as shown below. I find that alternating the black and white wires helps to orient myself when connecting them to the arcade buttons.

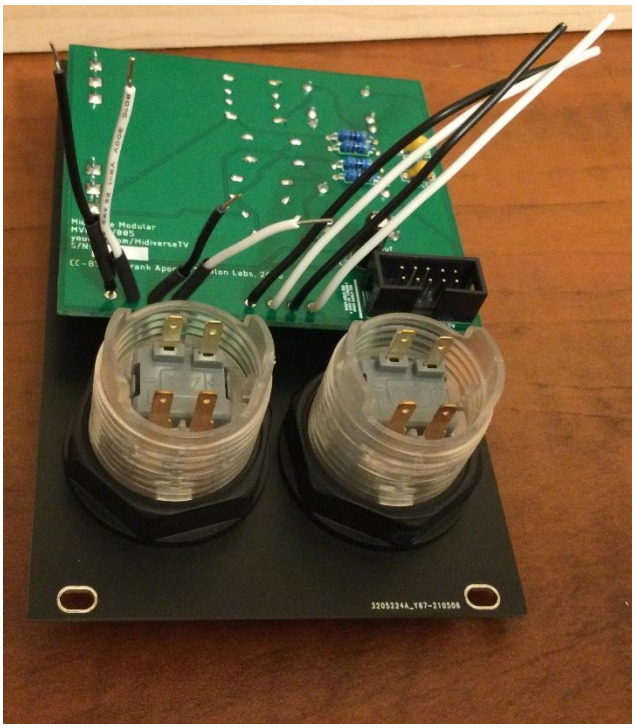


Connect the arcade buttons to the panel. Be sure to pay attention to the orientation of the buttons. The + and – connector terminals should be on the bottom with the arrows pointing down. See the picture below. The holes in the panel are slightly larger than the arcade buttons, so be sure to center the buttons while attaching them to the front panel.

Once the arcade buttons are secured to the front panel, populate the 4 jacks and 2 potentiometers on the PCB. Before soldering the components, be sure to attach the front panel by tightening the nuts with your fingers. This step is very important as it is difficult to align the jacks and pots with the holes if the front panel is not attached. Once the panel is attached, flip the module over and solder the components in place.

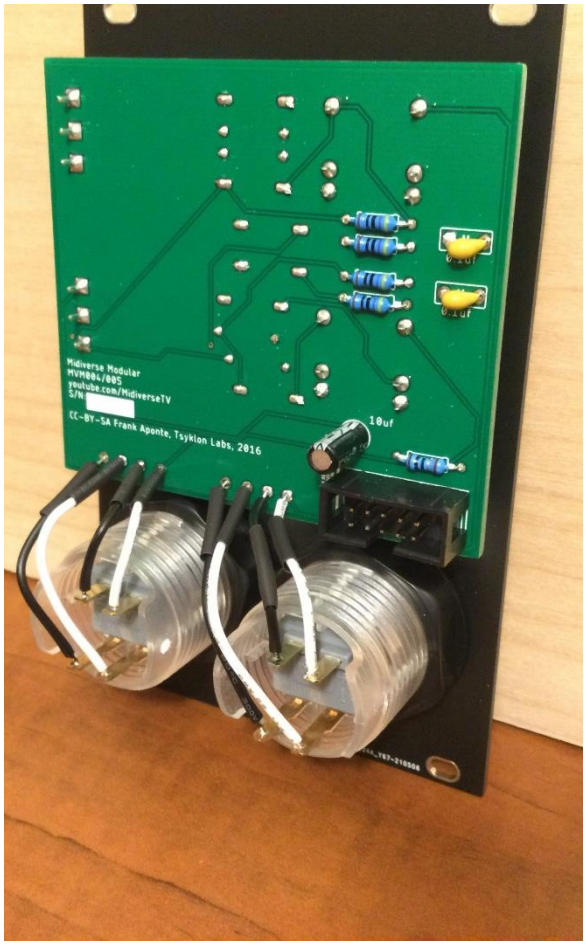


Next, the arcade buttons. Start by connecting the wires to the arcade button on the left. The black and white wires on the left will connect to the far terminals (+ and – terminals) on the arcade button, while the wires on the right will connect to the closer terminals. Cut the wire to length and slide the heat-shrink tubing over the wires, as shown in the left picture below. Connect the shorter wires to the closer terminals and solder in place, as shown in the right picture below. Be sure to not overheat the arcade button.

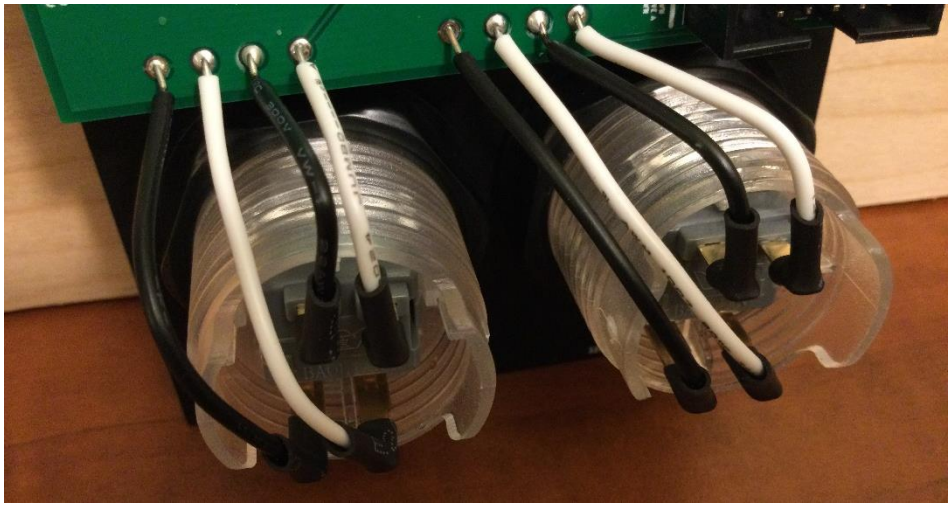


Next, connect the longer wires on the left to the far terminals and solder in place. Remember to not overheat the button. You can see that the black wires always connect to the terminals on the left, and the white wires connect to the right terminals on the arcade button.

Repeat this same process for the second arcade button, as shown below.



Cover the connection between the wires and the arcade button terminals with the heat-shrink tubing. I find that using tweezers/forceps to pull the tubing over the terminal is easier than using your hands. Then use a hot air gun to secure the tubing over the connections.



Tighten down the nuts on the jacks and potentiometers on front panel. Finally, put the white knobs onto the pots. You can use the ridge of the potentiometer and the screw on the knob to assist with the alignment of the knobs. You're finished!