

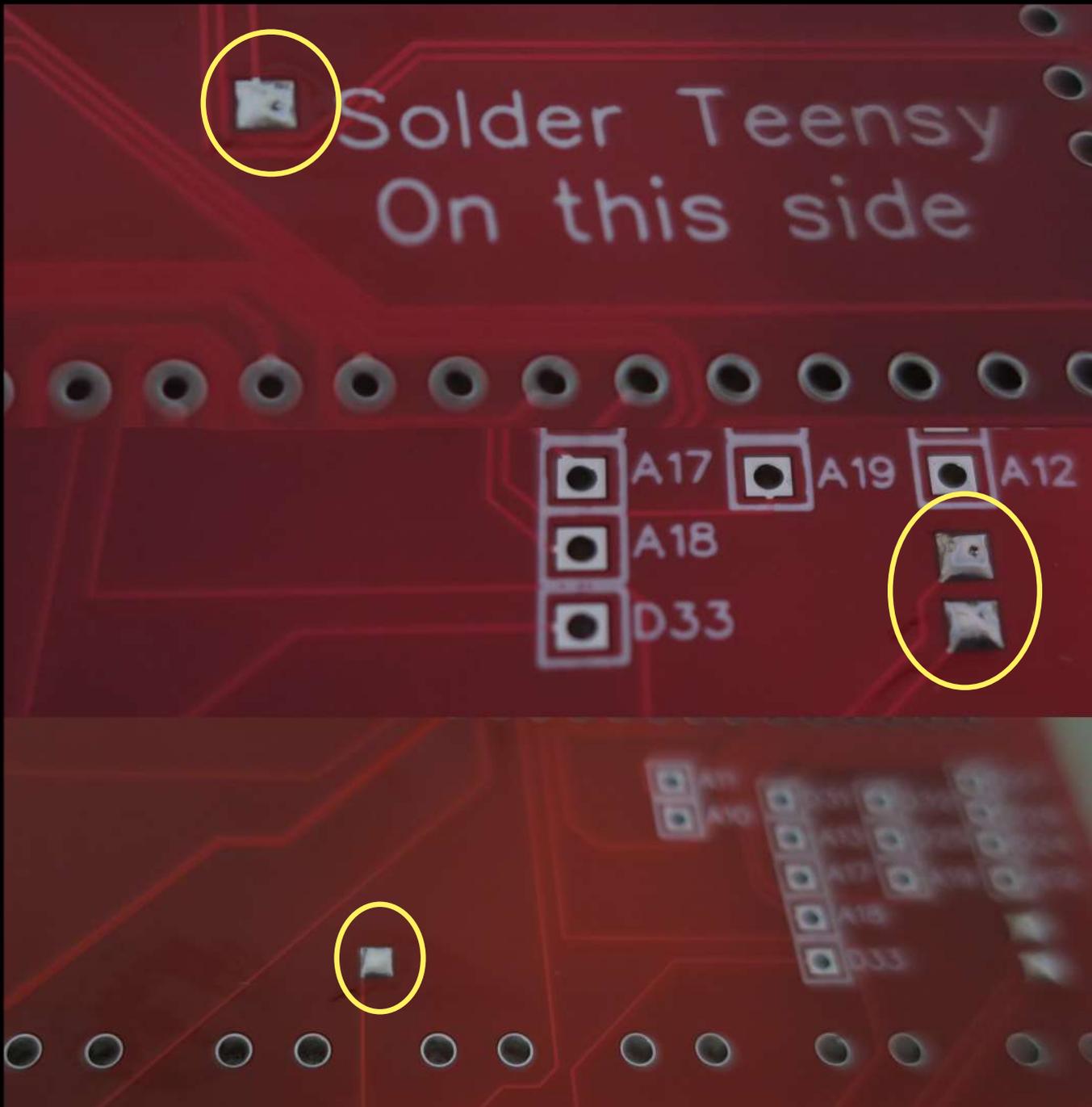


**STEP 1 :**

Start by solder the Axoloti header. In many of steps I will recommend to not plug totally trough the holes.

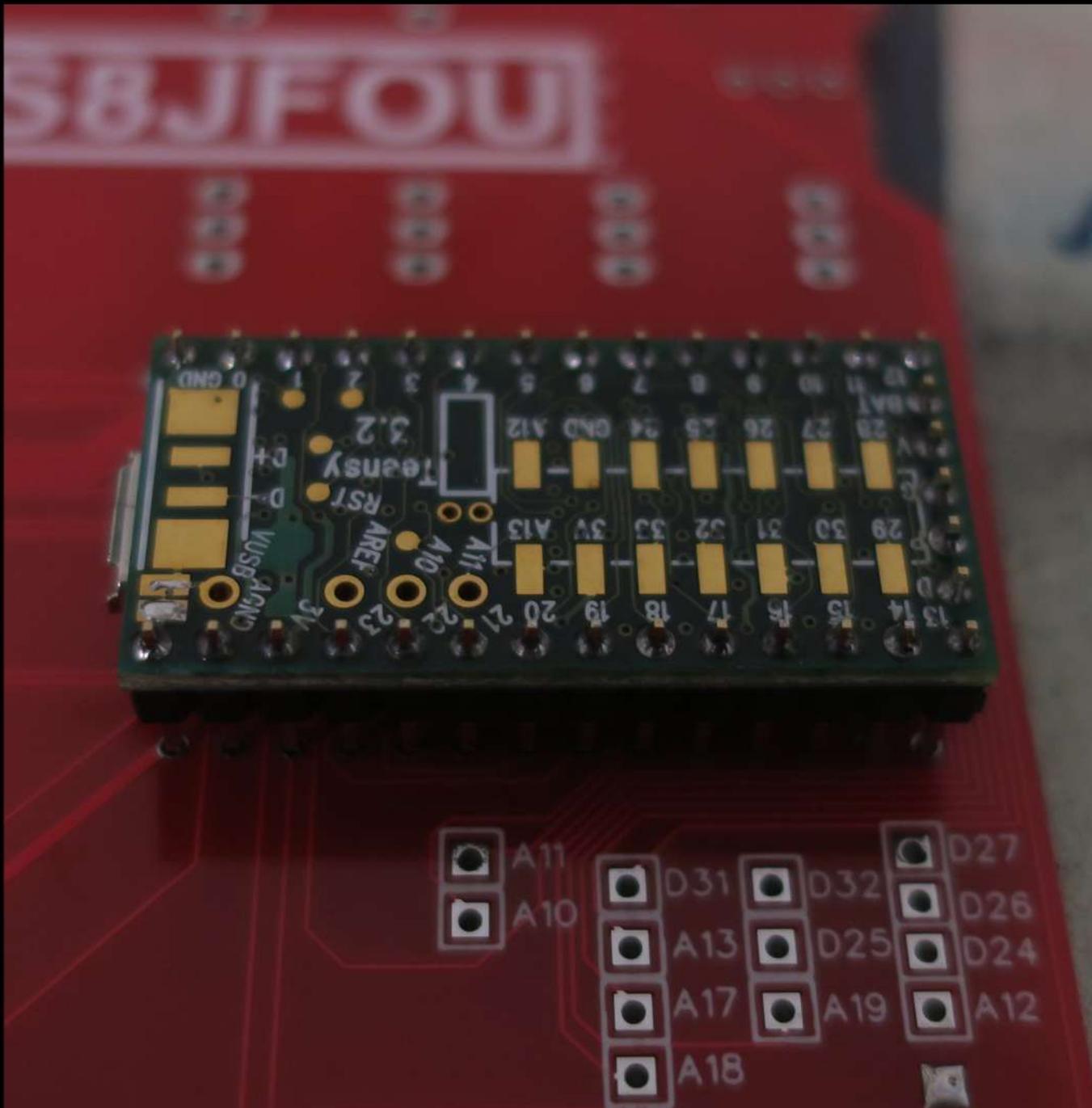


As you can see on the backside, the header should not overstep the surface of the PCB, because the sliders will come after that.



STEP 2 :

Fill these little holes.

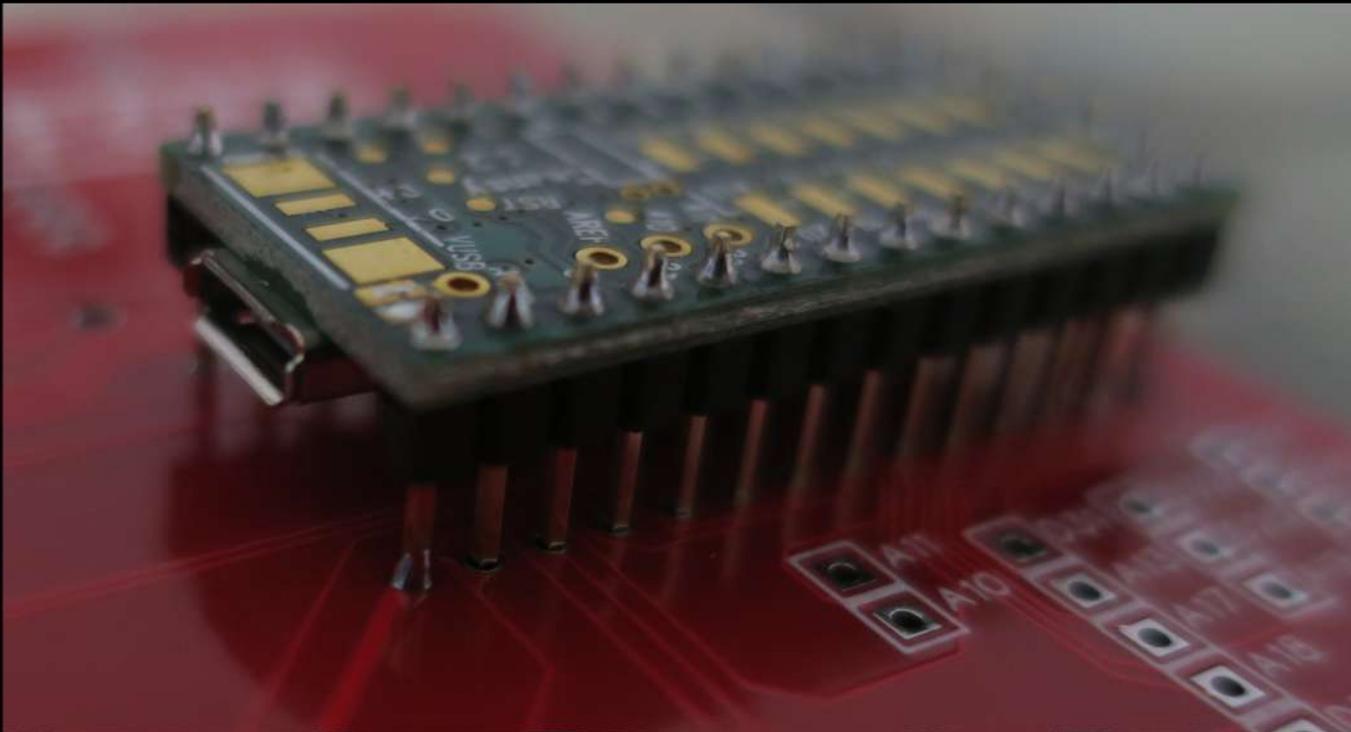


**STEP 3 :**

Solder the header to  
the Teensy 3.2

I'm helping myself by placing  
the other side of the header  
to the PCB.

By doing this you'll be sure that  
the header will be solder to the  
Teensy in the right position for  
the next step.

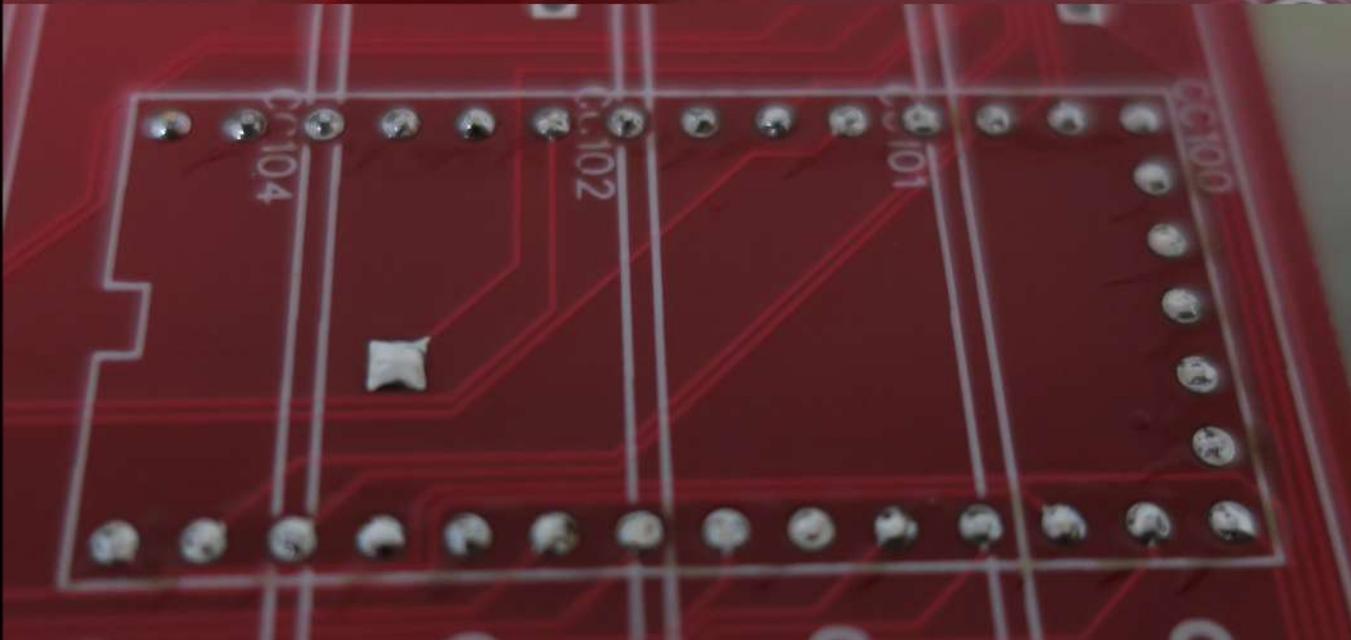


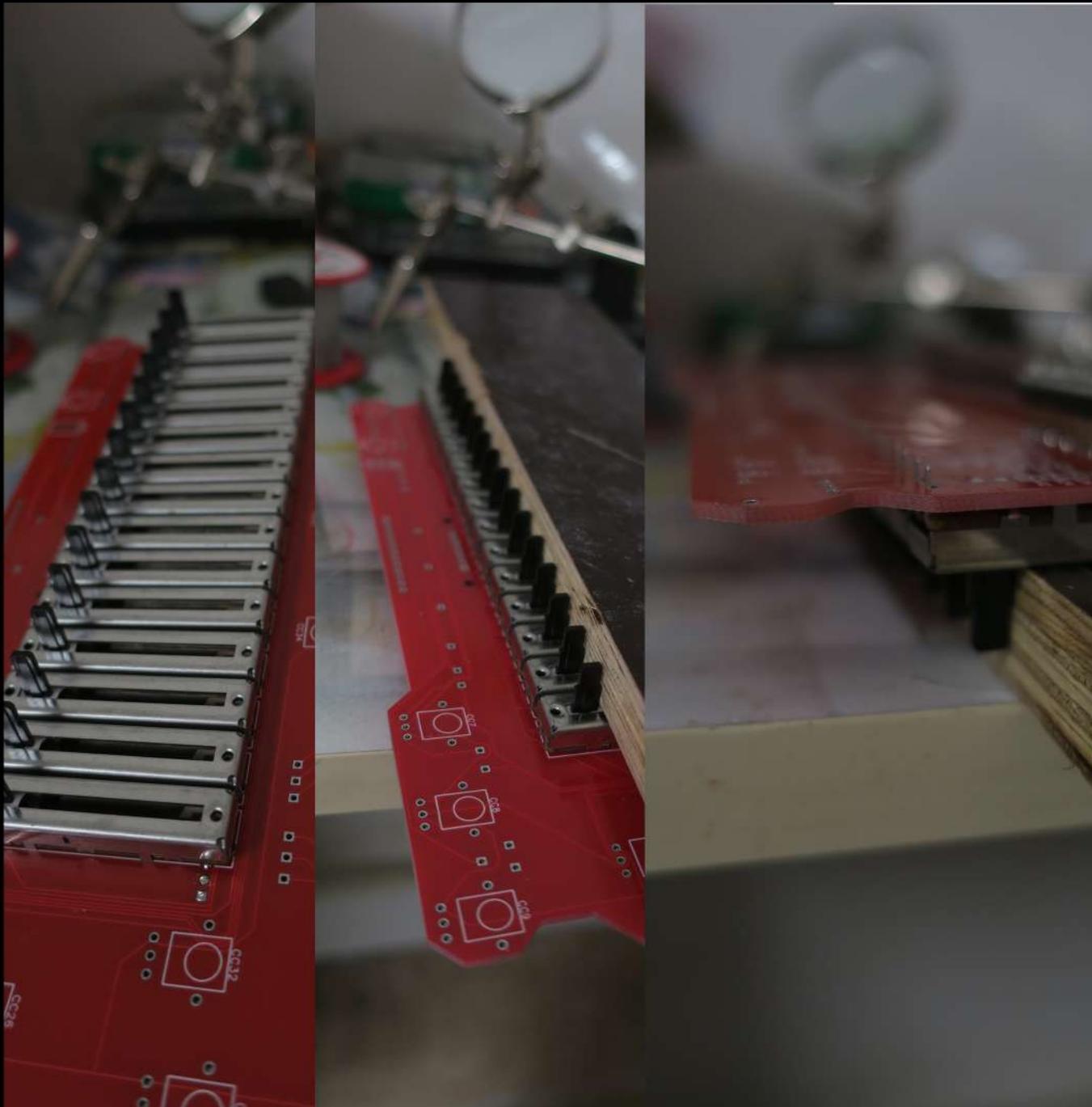
#### STEP 4 :

Solder the Teensy header to the PCB.  
As you can see, it should be Soldered just on the surface as I did for the Axoloti header.

What I recommend is to place the PCB on a flat table and let the Teensy header lay on that table trough the holes.

Then you can solder only one leg on this side to maintain the Teensy on place, and solder all the other legs from the other side.



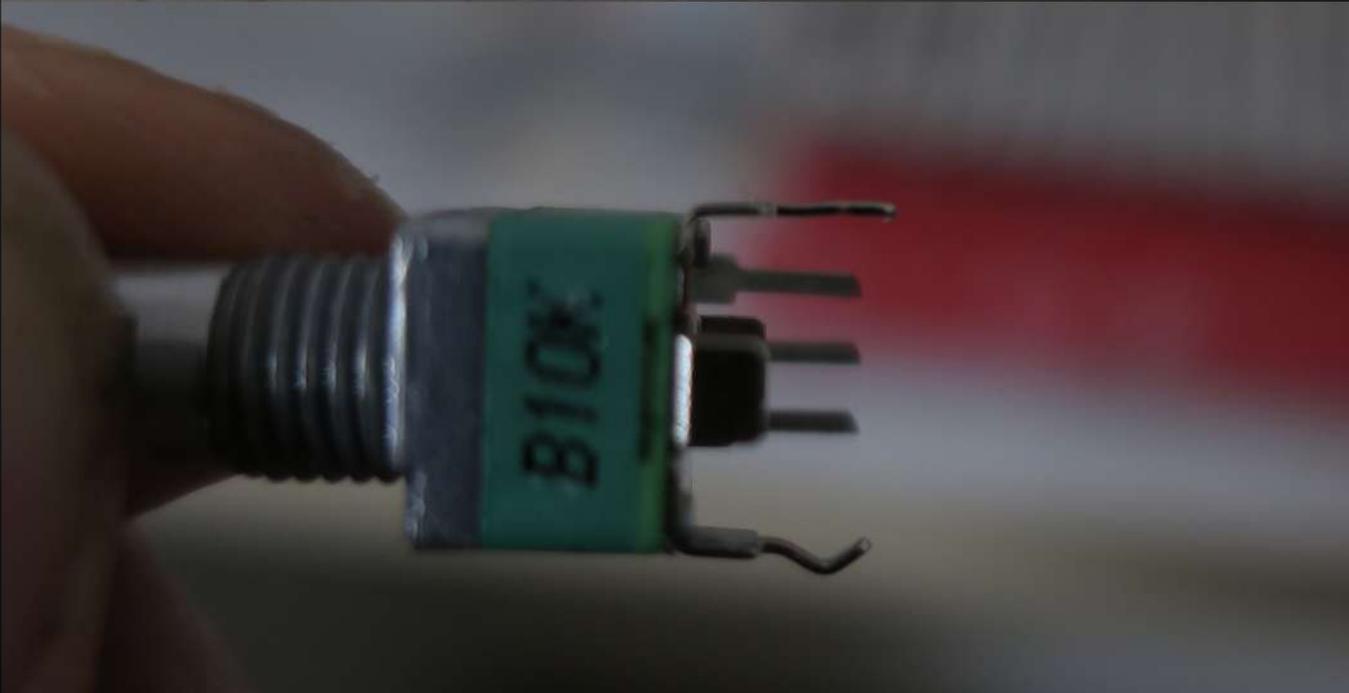
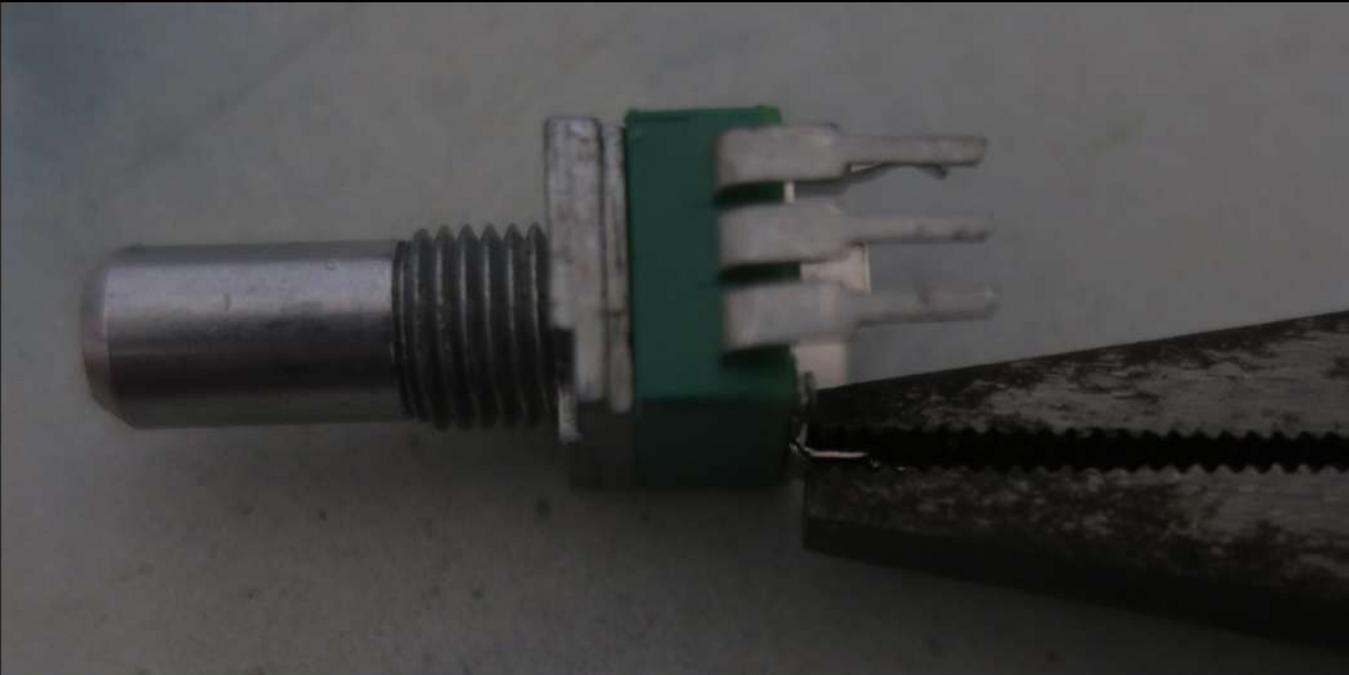


**STEP 5 :**

Solder the sliders.

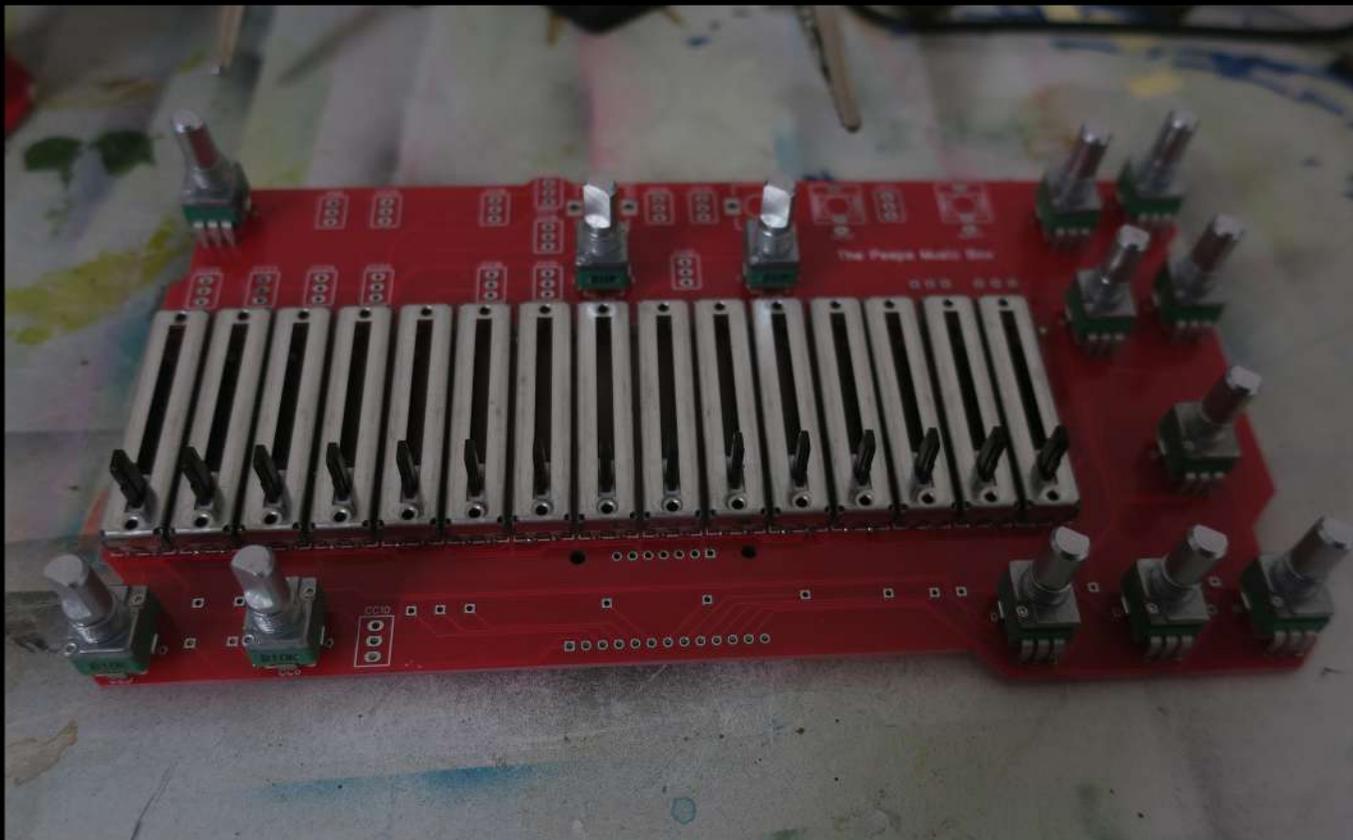
To place them correctly I'm using a piece of plywood thicker than the sliders, apply a small pressure on it to just turn upside down the whole thing, and then I can solder all sliders in the right position.

STEP 6 :



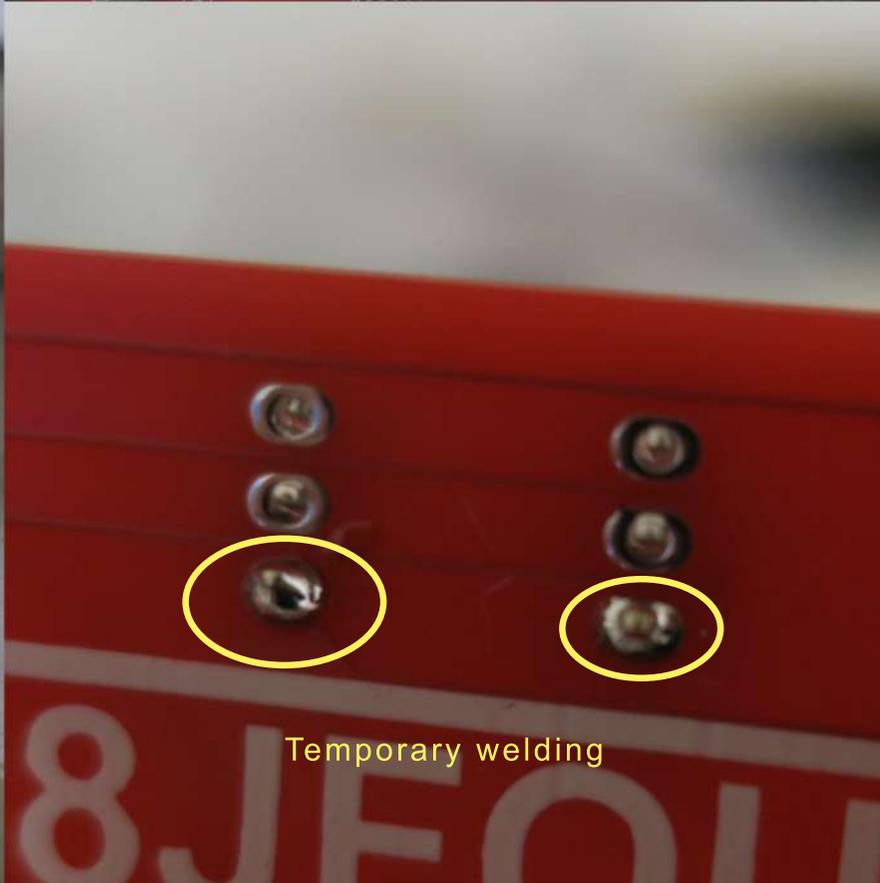
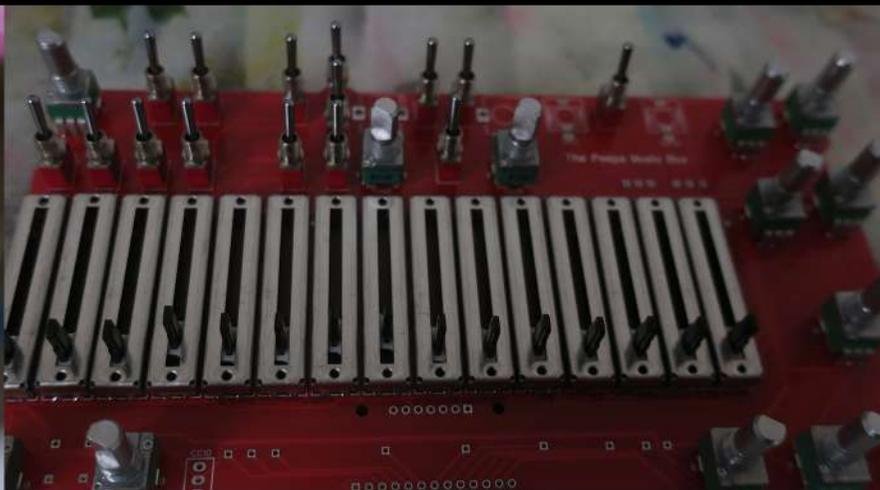
I made a mistake when I designed the PCB. The holes for the potentiometers are too small for clipping them. So you'll need to flat the legs with a small plier, and then they'll fit well !

**STEP 7 :**



Solder the potentiometers.





Temporary welding

## STEP 8 :

Solder the switches.

This is the trickiest part !

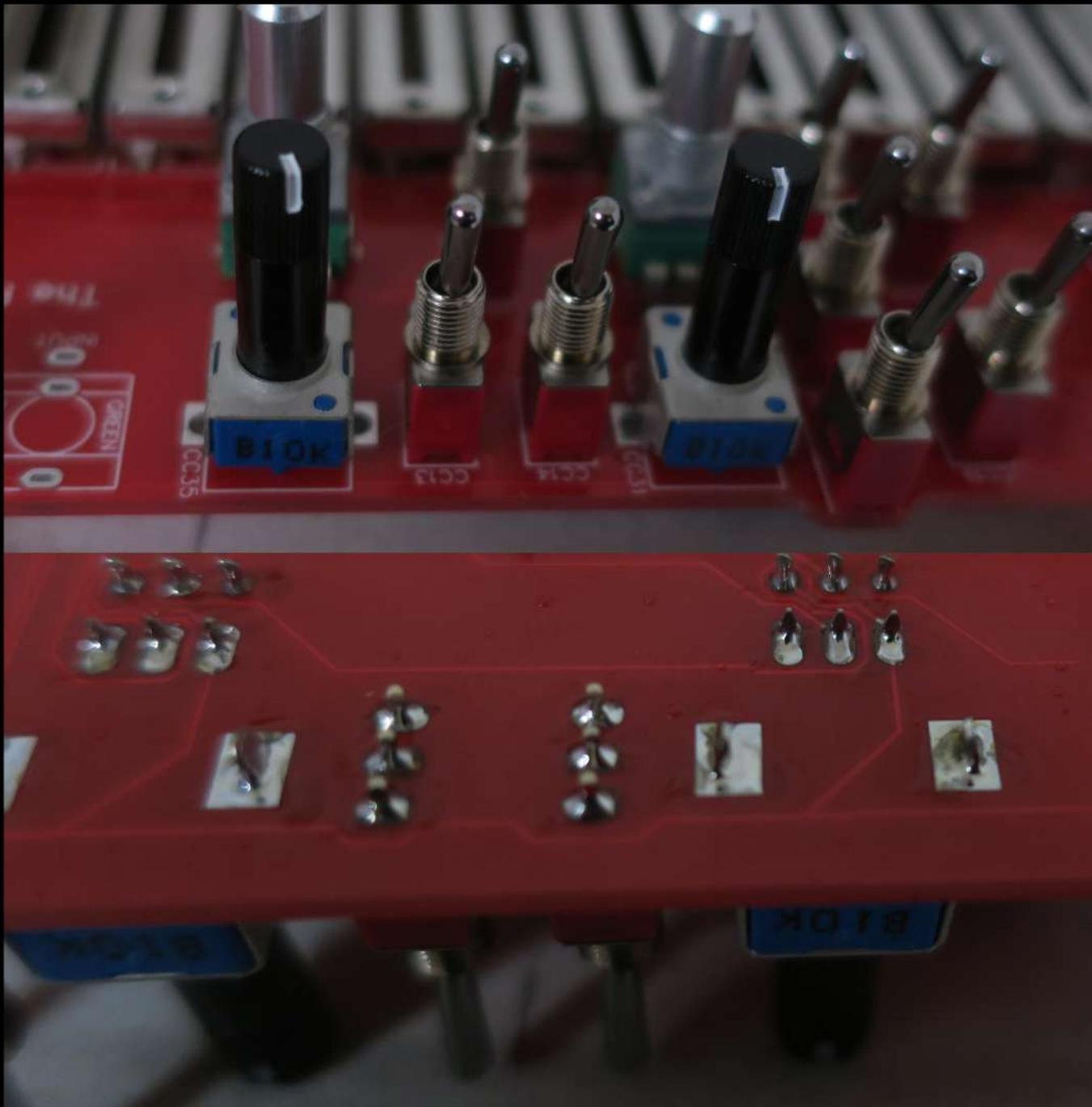
The best solution I've found is to clamp the PCB to the table from the bottom left pot, and smoothly put in place the switches.

Then from the other side, I make a **temporary welding** to the bottom leg, and then I'm able to move the PCB with all switches attached to it.

I finish to place them in the right position by hand, I simply apply a pressure on it with my finger and re-solder the bottom leg. The switch will come in the right position and the solder will maintain them like this.

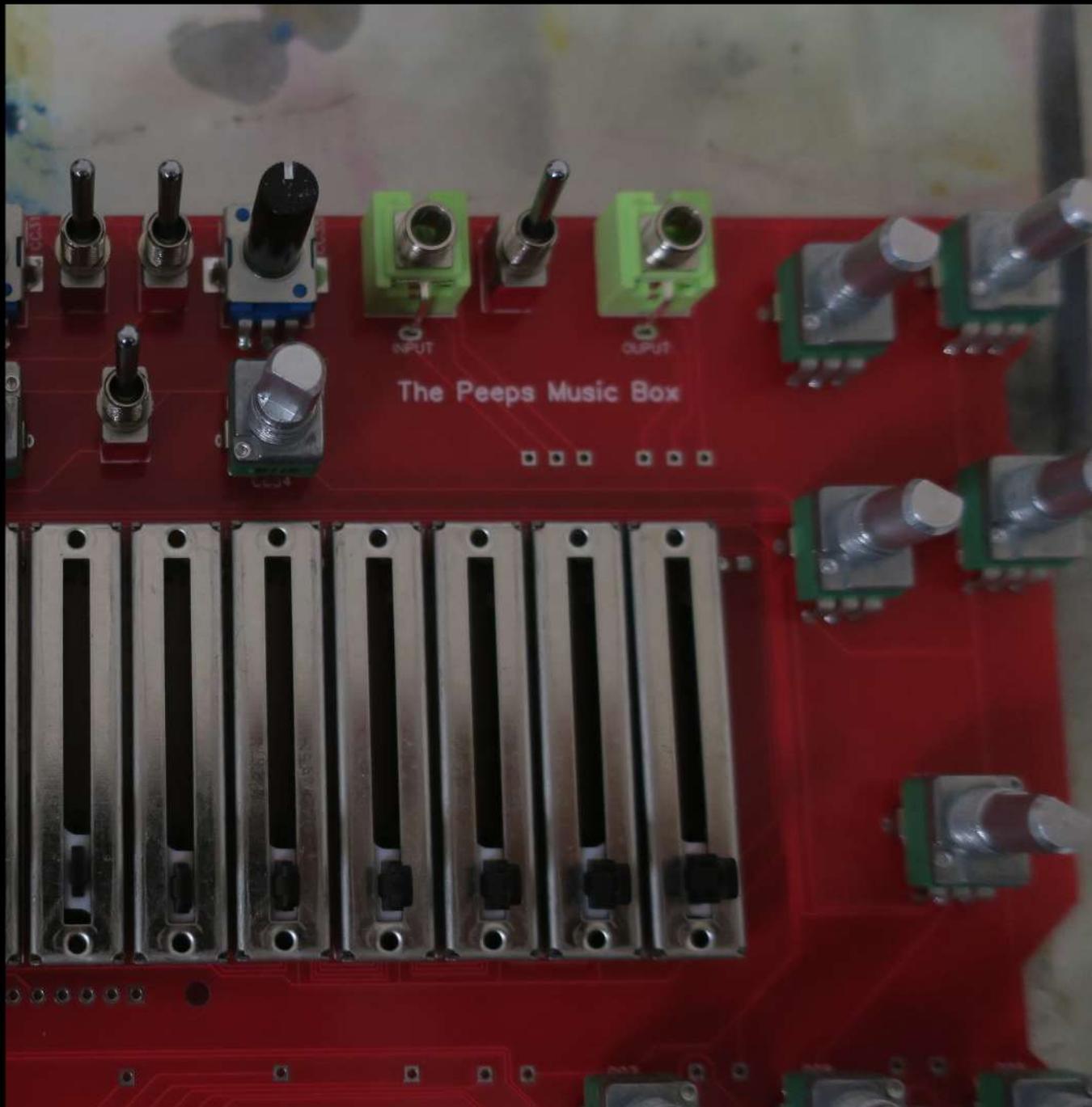
Finish by soldering the two other legs of each switch and you're done !

STEP 9 :

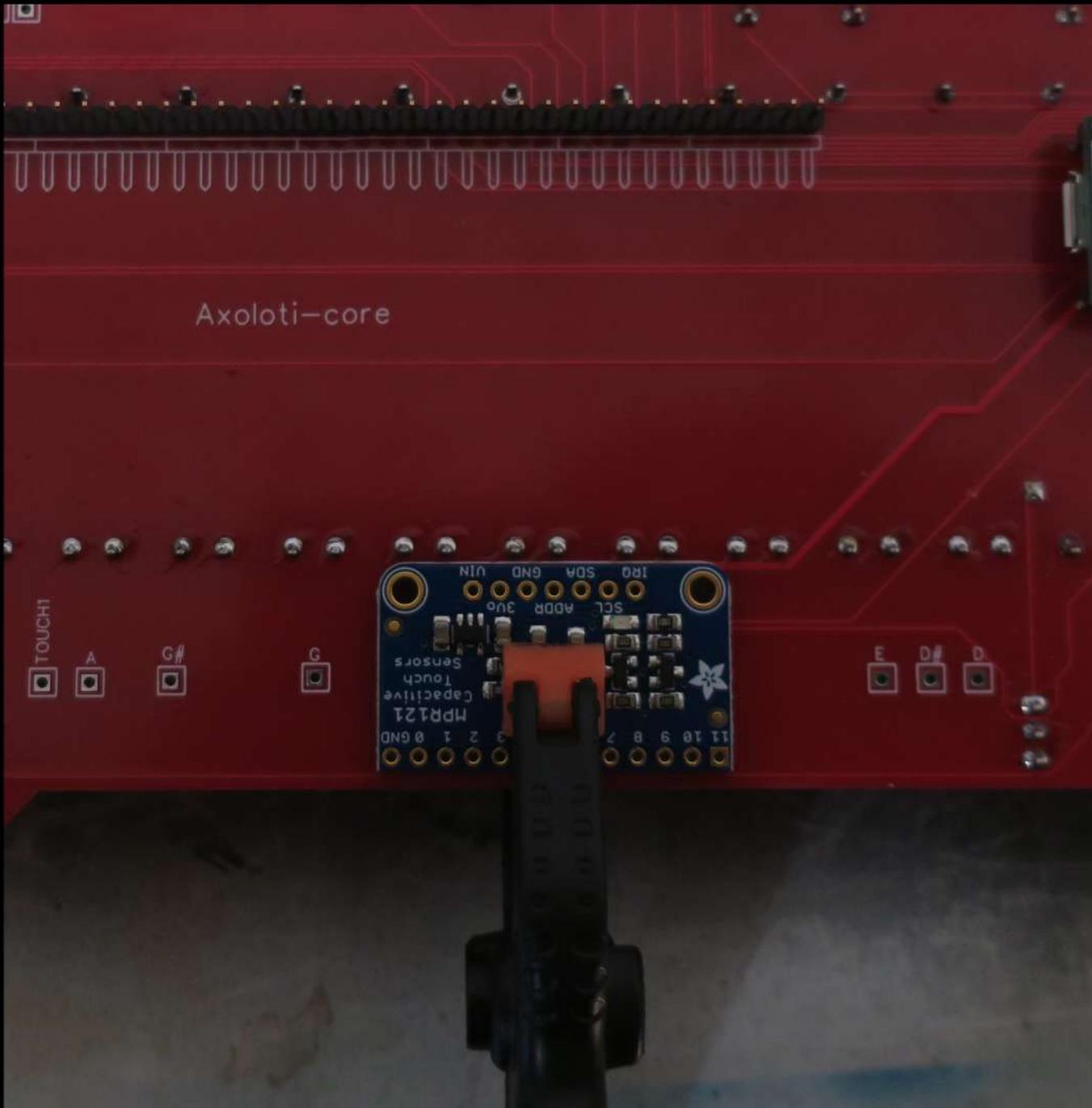


Solder the Trimmer potentiometers.

STEP 10 :



Solder the jack sockets.



**STEP 11 :**

Solder the MPR121.

Don't use header. Just put it right in face of the PCB, and fill the hole of tin.

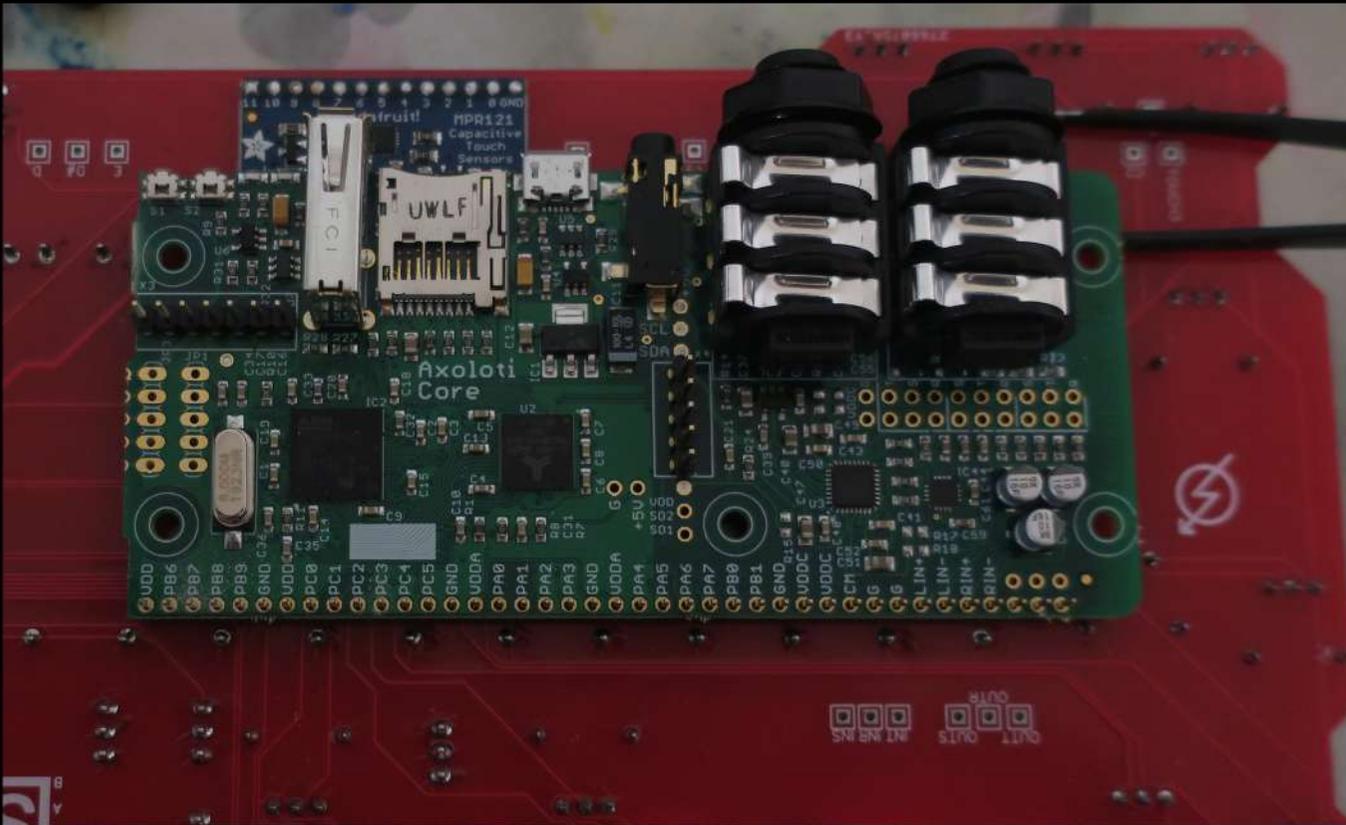
You need to know that I also made an error here, the touch plates are inverted. It means when you'll solder your metal keyboard to the mpr121, the first C will be the pin 11 on the mpr121.

STEP 12 :



Cut the Axoloti in two part.  
Don't worry, Axoloti is made for that,  
you can clearly see where to cut.  
we need to use the midi input  
outside of the PCB, to have access  
to them from the outside of the box.

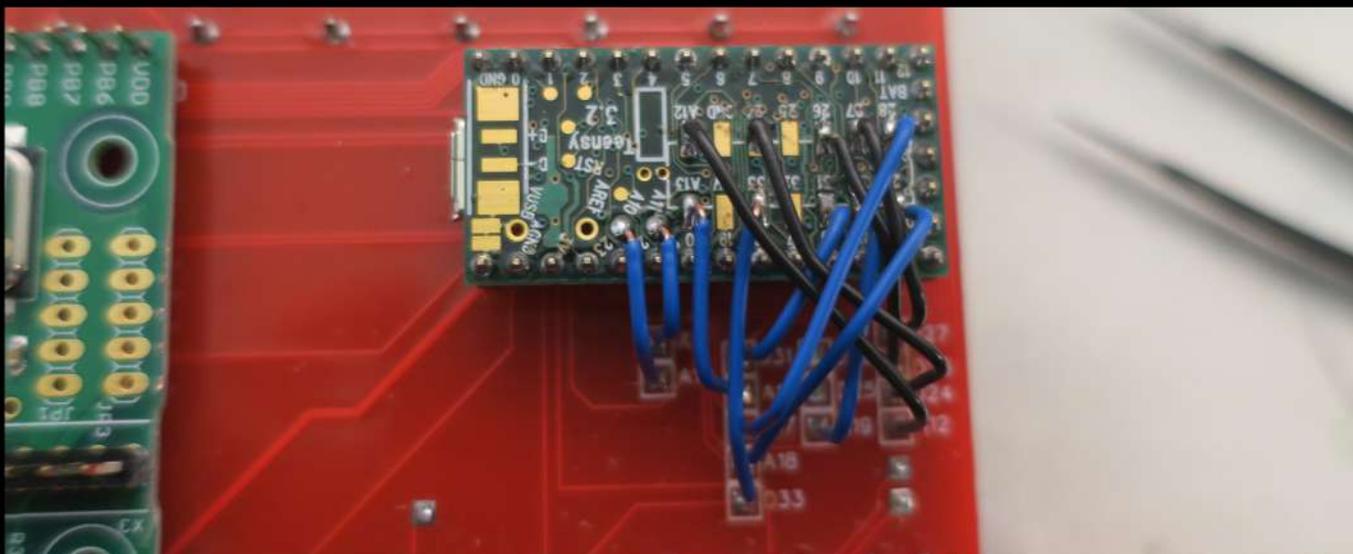
**STEP 13 :**



Solder the Axoloti to the header.

I'm using my tweezers to get the right balance between the PCB and the Axoloti.





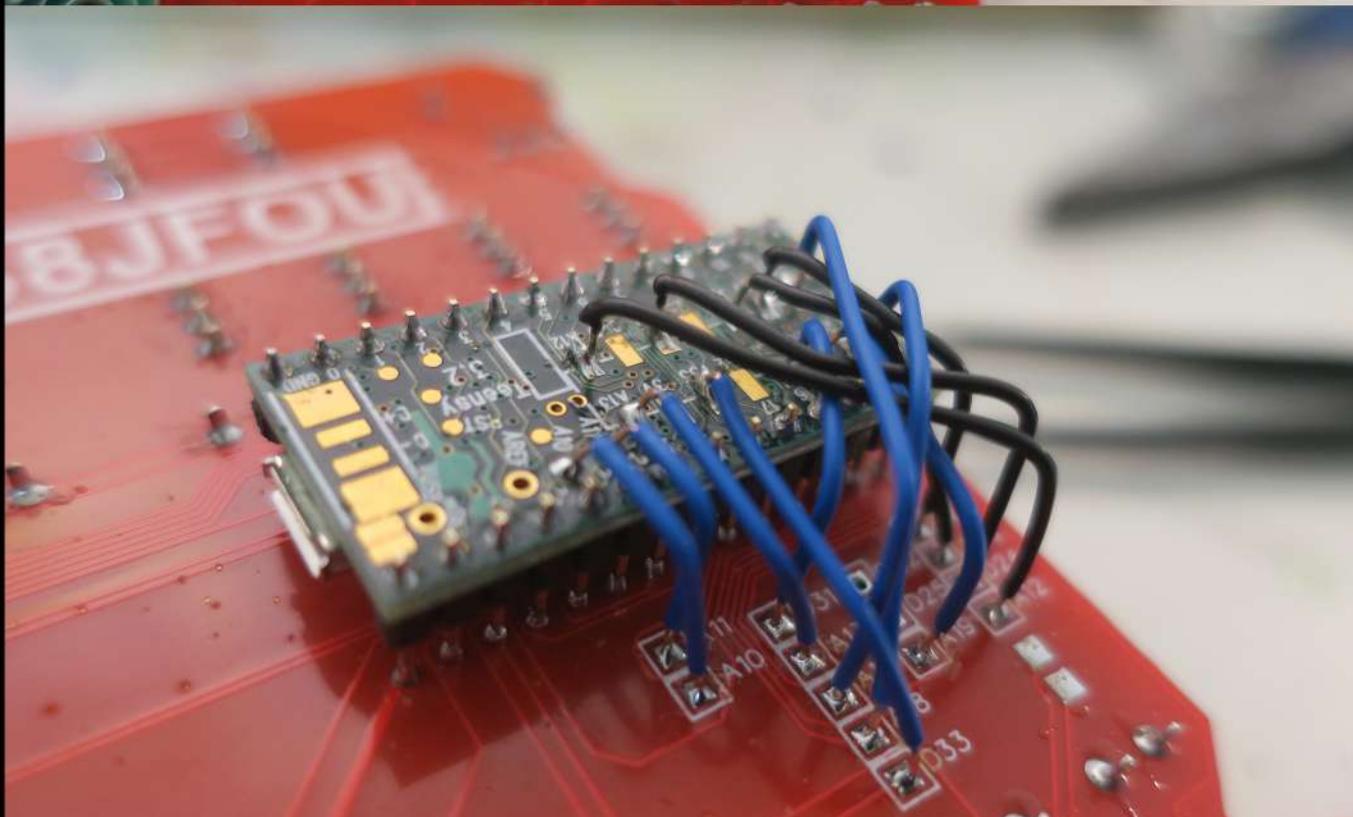
## STEP 14 :

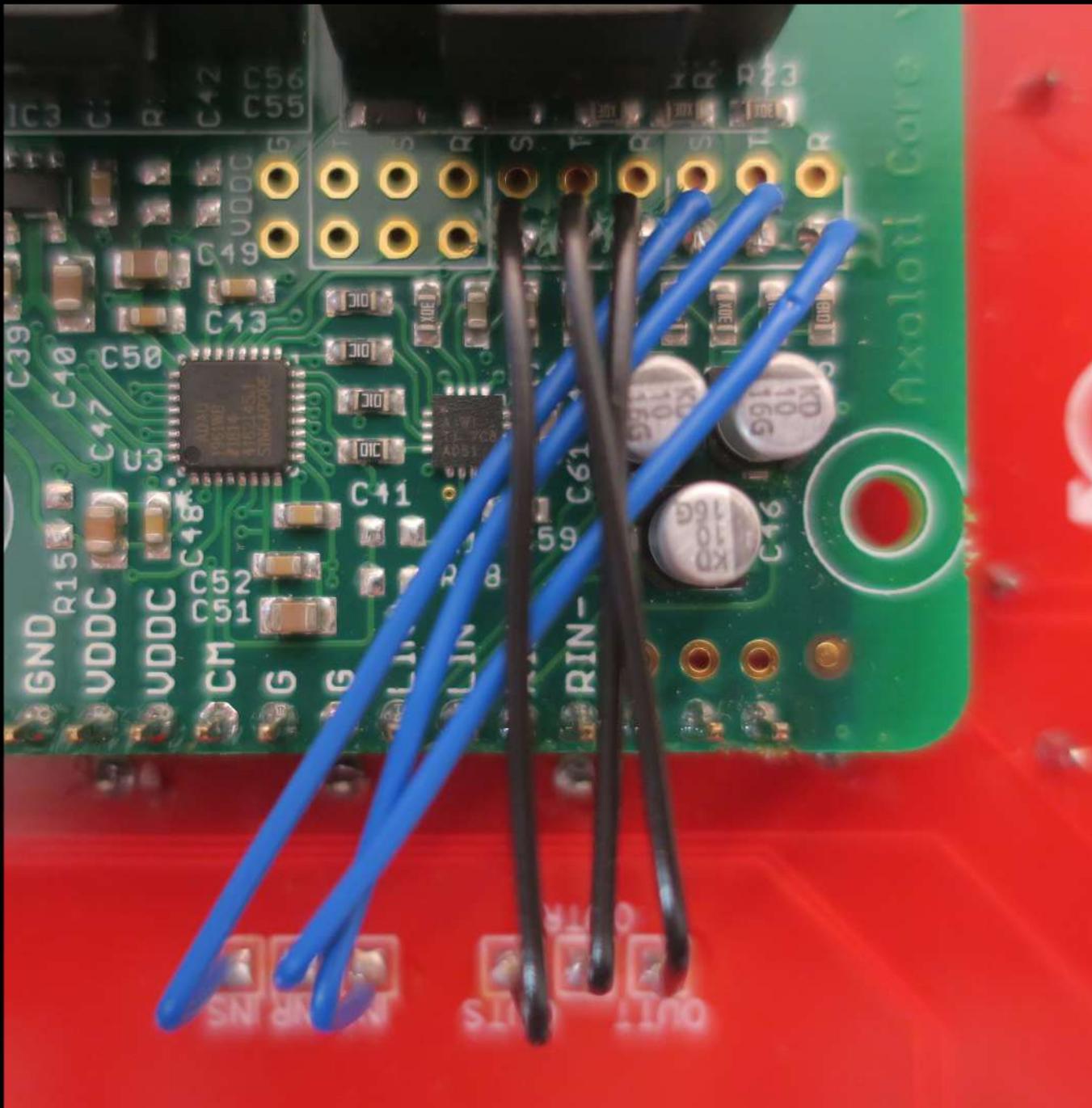
Now it's time to become mad.

solder every pin to the right hole. You'll need to cut little wires to do this part.

If you want to be sure where are the numbers in the Teensy, help you with the paper comes with the Teensy when you bought it. You can also find this document online.

This is what I hated the most when I did 30 units of this synth...

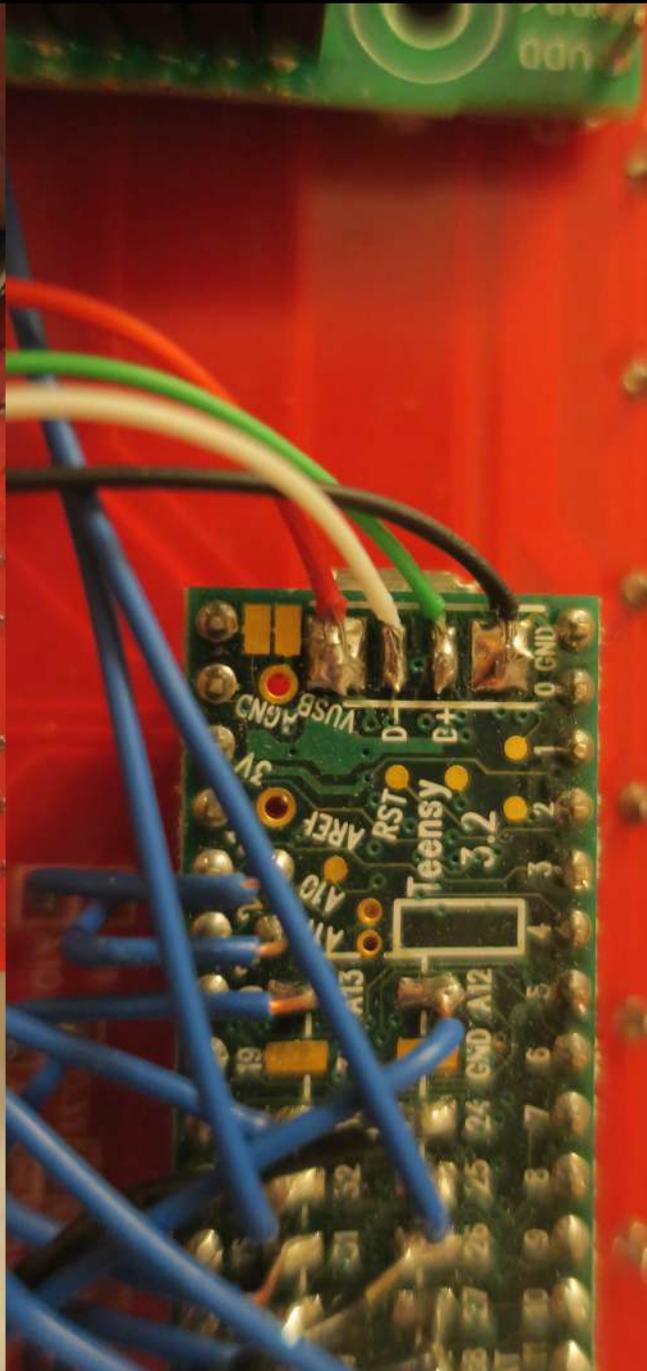
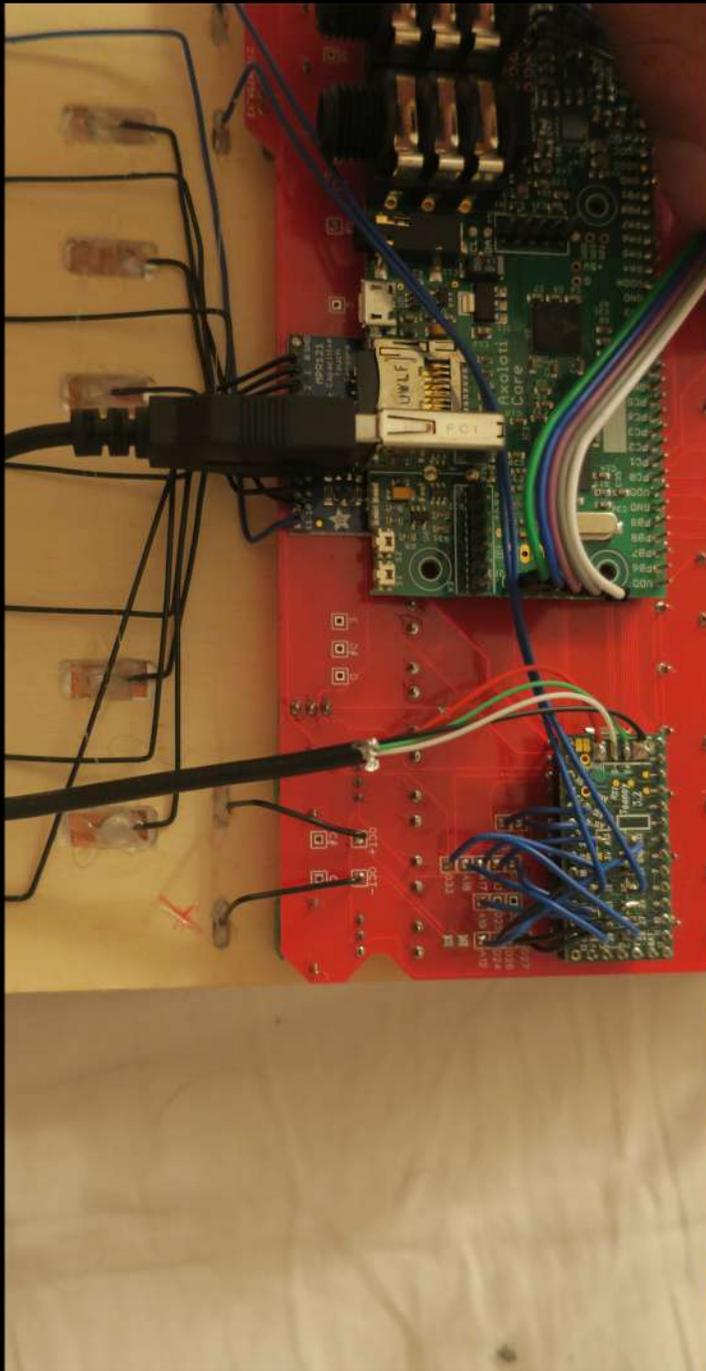




**STEP 15 :**

Solder the TRS pin from Axoloti  
To the TRS pin of the PCB.

Again, my bad, my designing  
skills was not so good and you'll  
need to cross the wire to put  
them in the right hole.



**STEP 16 :**

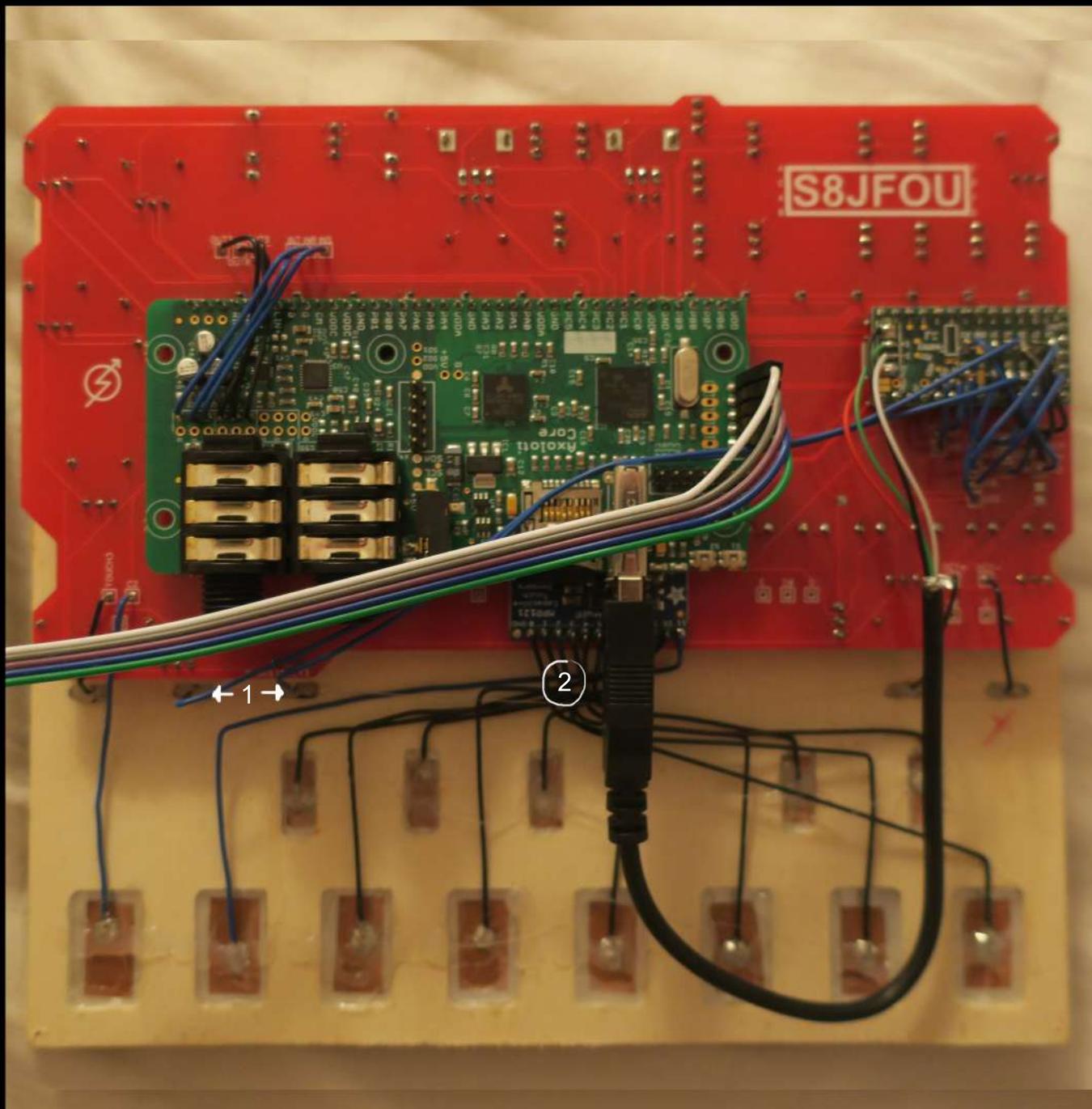
Solder the USB cable to the Teensy.

Cut a usb cable, separate the wire by color, and solder them to the Teensy as I did here.

Then plug the USB to the Axoloti.

The Teensy and the Axoloti can now communicate !





### My mistakes :

1 : the pin D25 & D32 on my PCB was too long to get the right amount of touch conductivity. You'll need to wire these two ones from the Teensy. (on this picture, D32 is on the left and D25 is on the right)

2 : As I mentioned before, I inverted all my wiring for the mpr121, I recommend to not use the notes that are directly written on PCB but wiring directly from the mpr121.

Don't forget that the synth is powered from the Axolotl microUSB. If you want to power it, you can do it from any USB power bank, or from a Micro USB cable and a 5v USB adaptor. Think about the on the design of your case ! :)



Well done !

The PCB is completed.

Now you need to design a case  
and a front panel with  
touch plates.