Swarm 2 build

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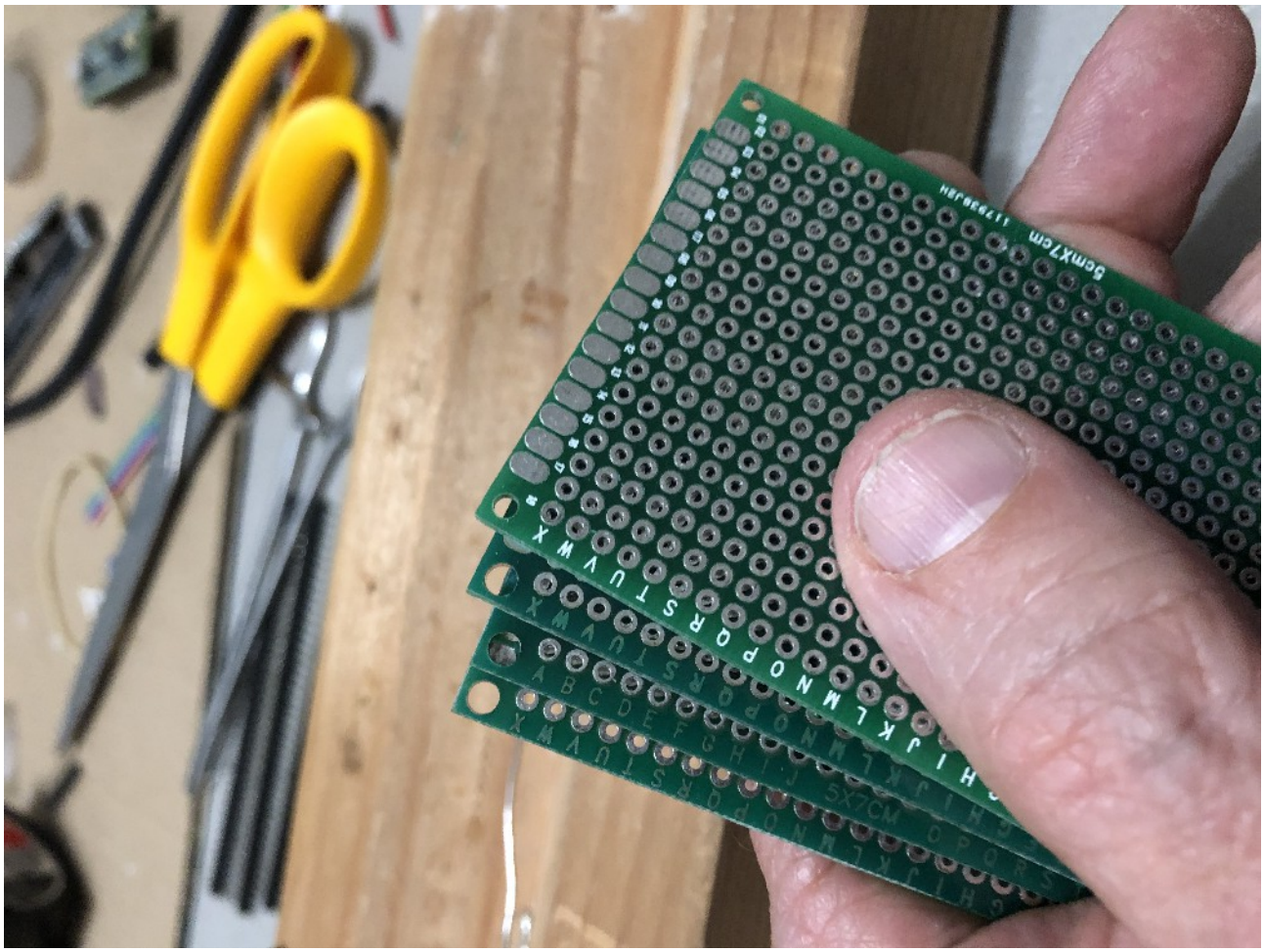
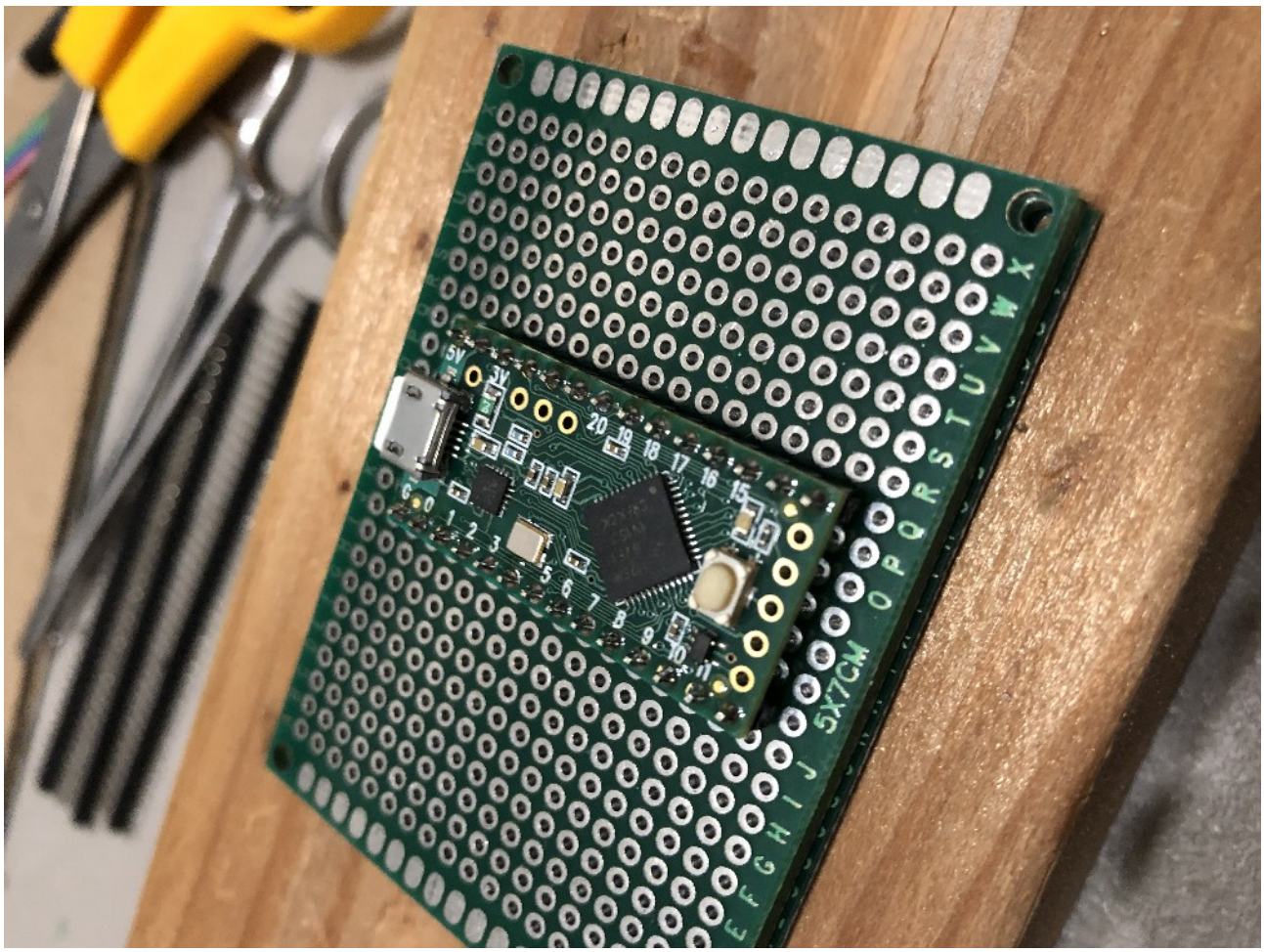
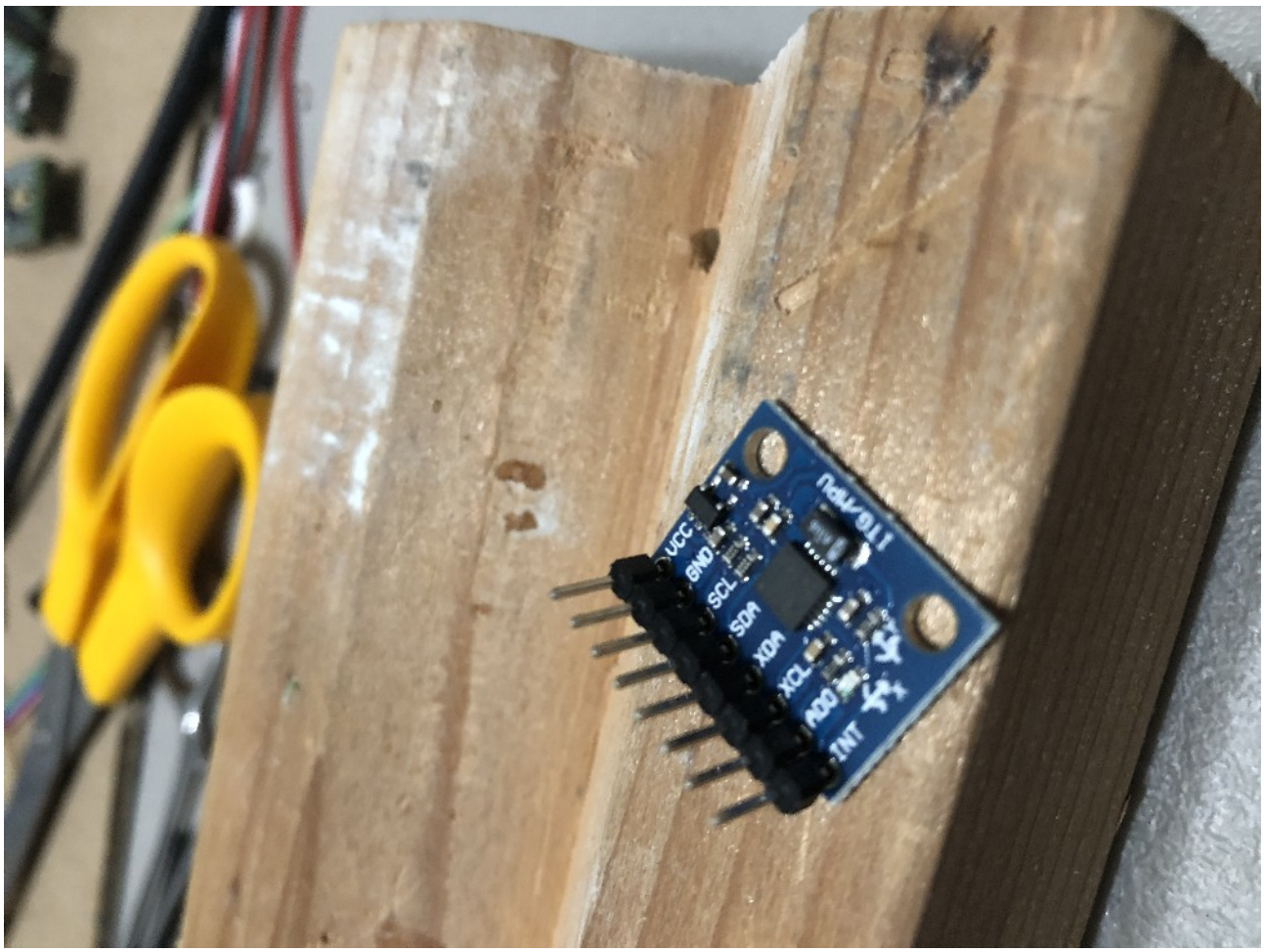


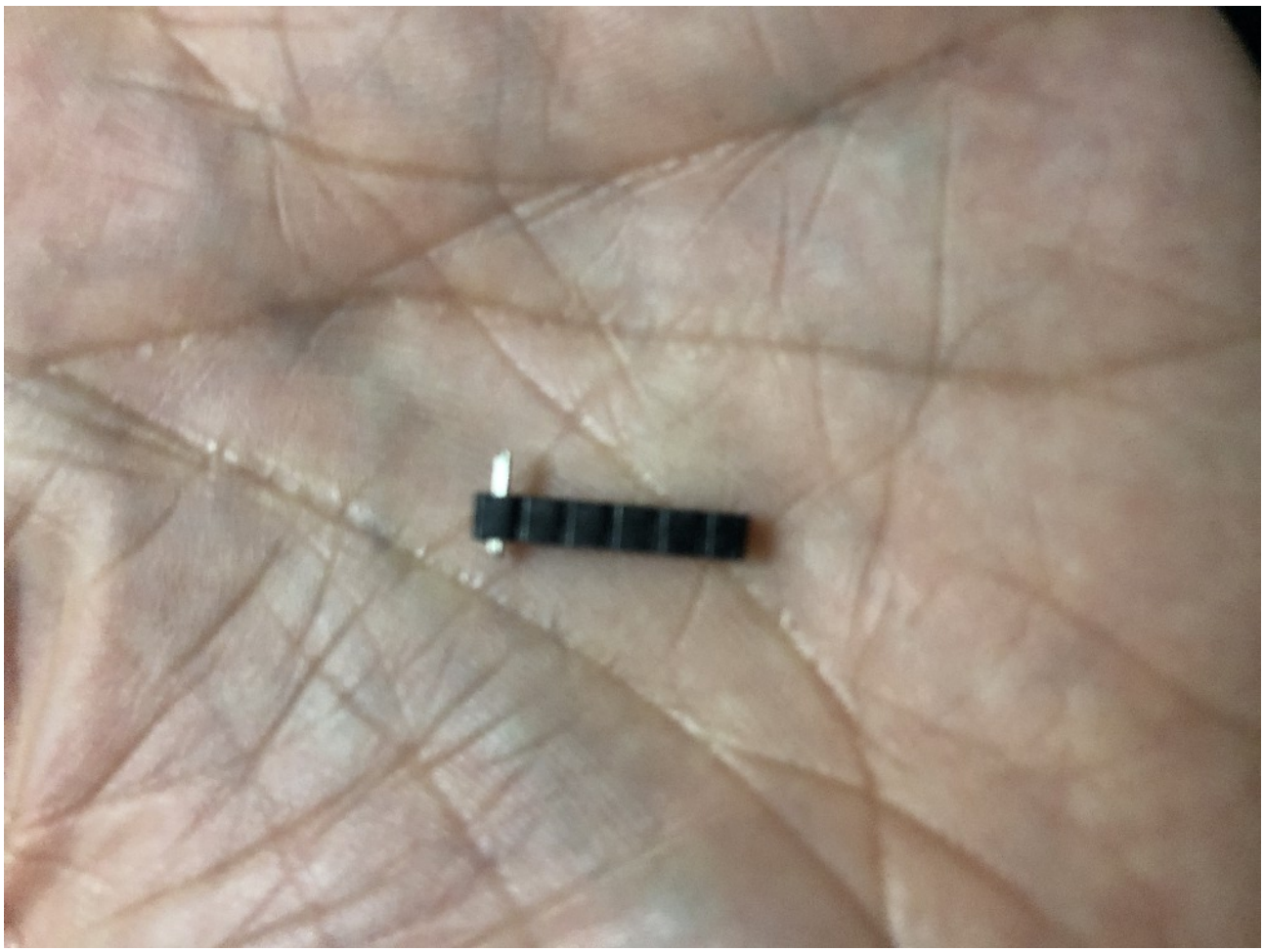
I use prototyping boards to help align pins when soldering



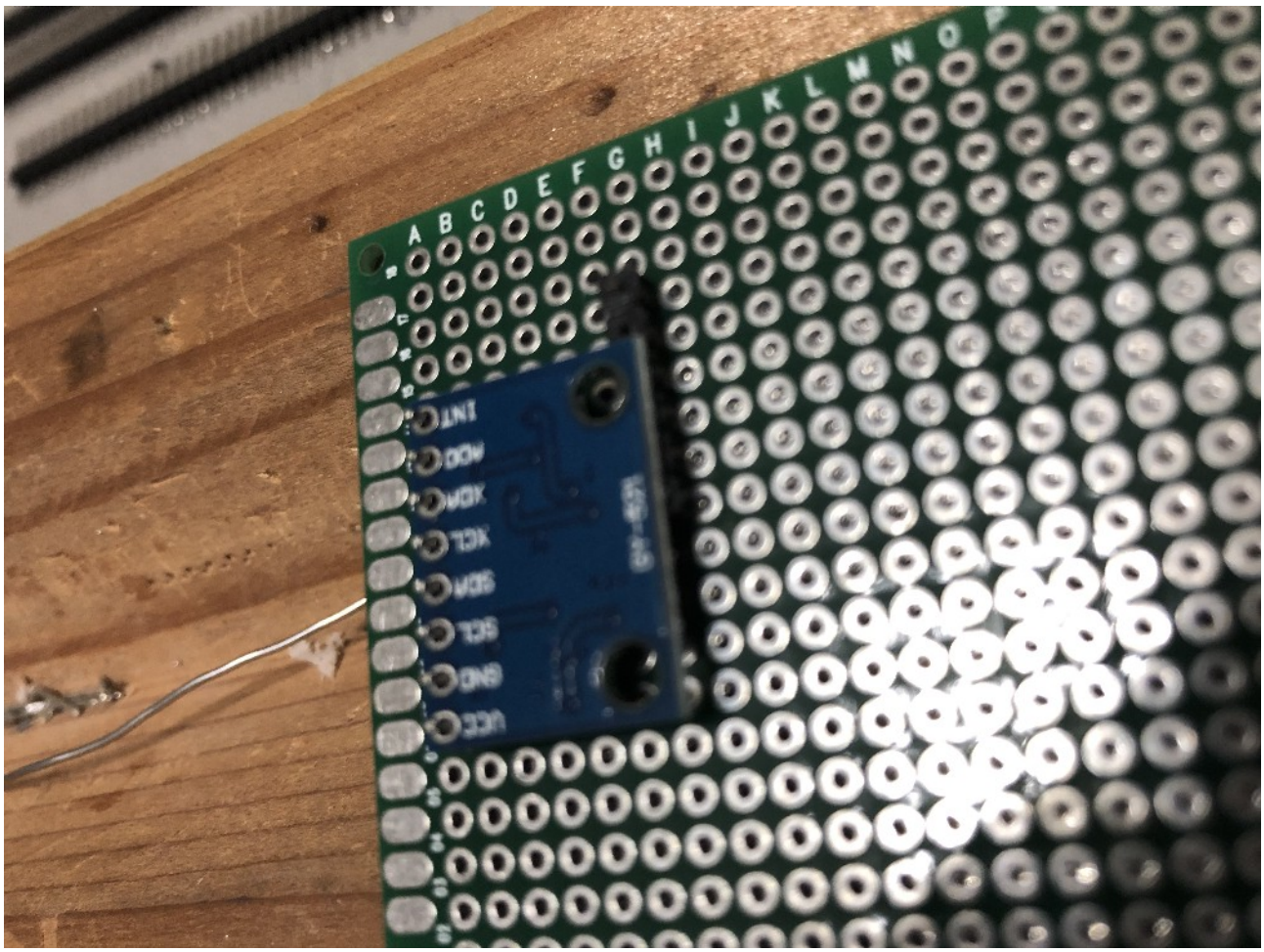
Put the pins into a stack of proto boards and then put the Teensy LC board on top, and solder. This helps align the pins.



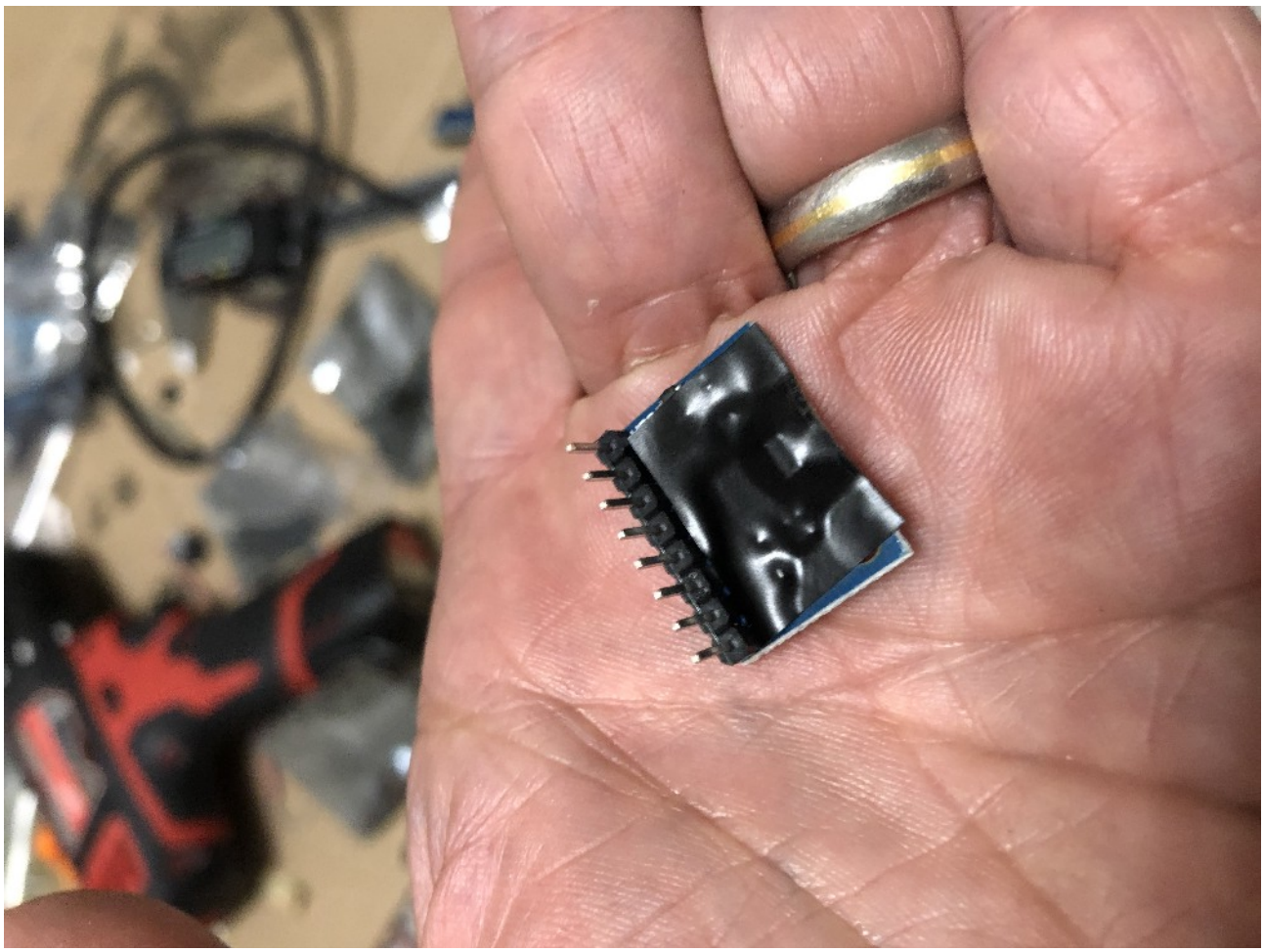
The pins for the Accelerometer board are soldered to go up instead of down.



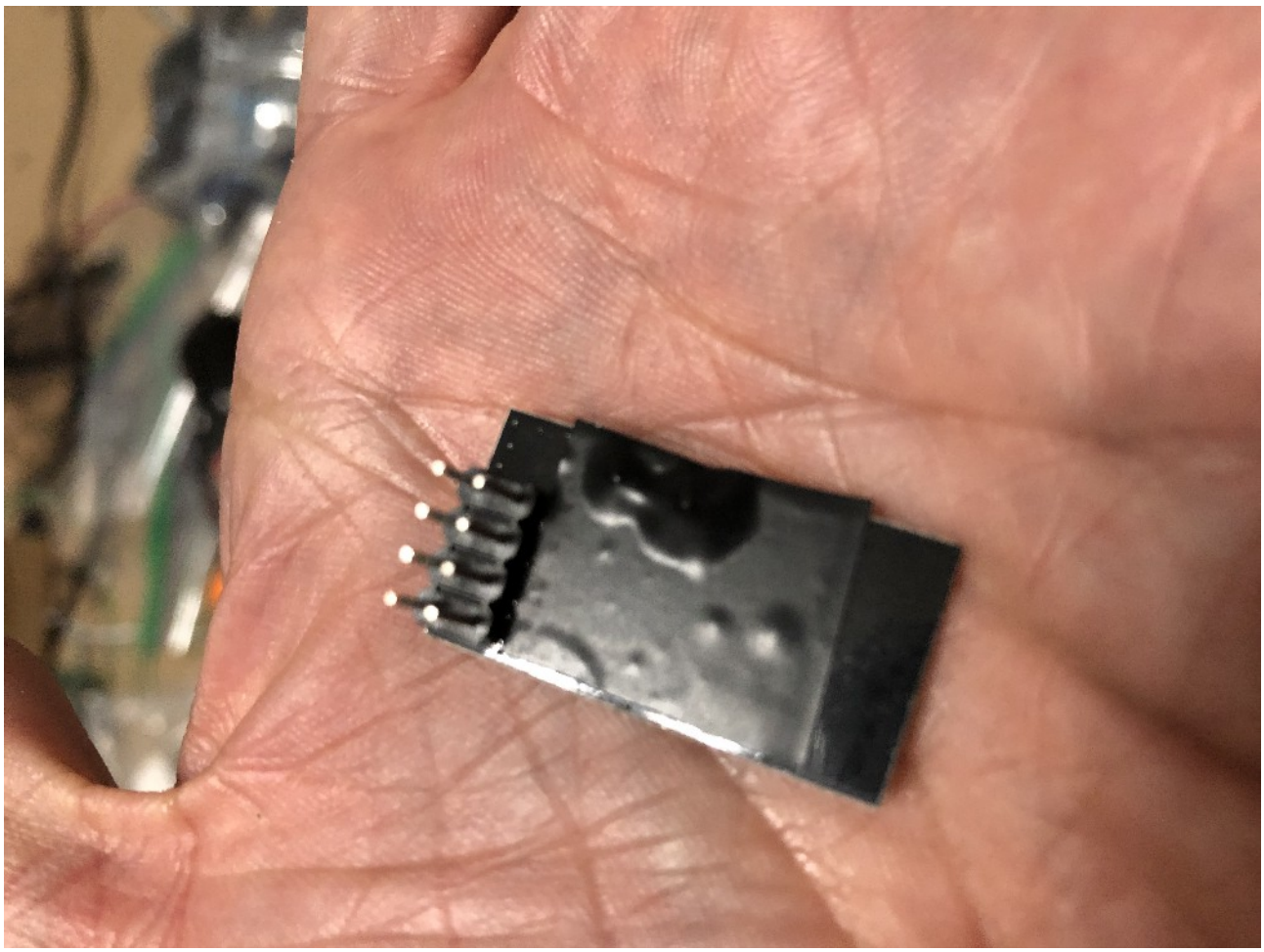
I modified a pin connector that can be used to wedge between boards to keep the spacing even when soldering boards together.



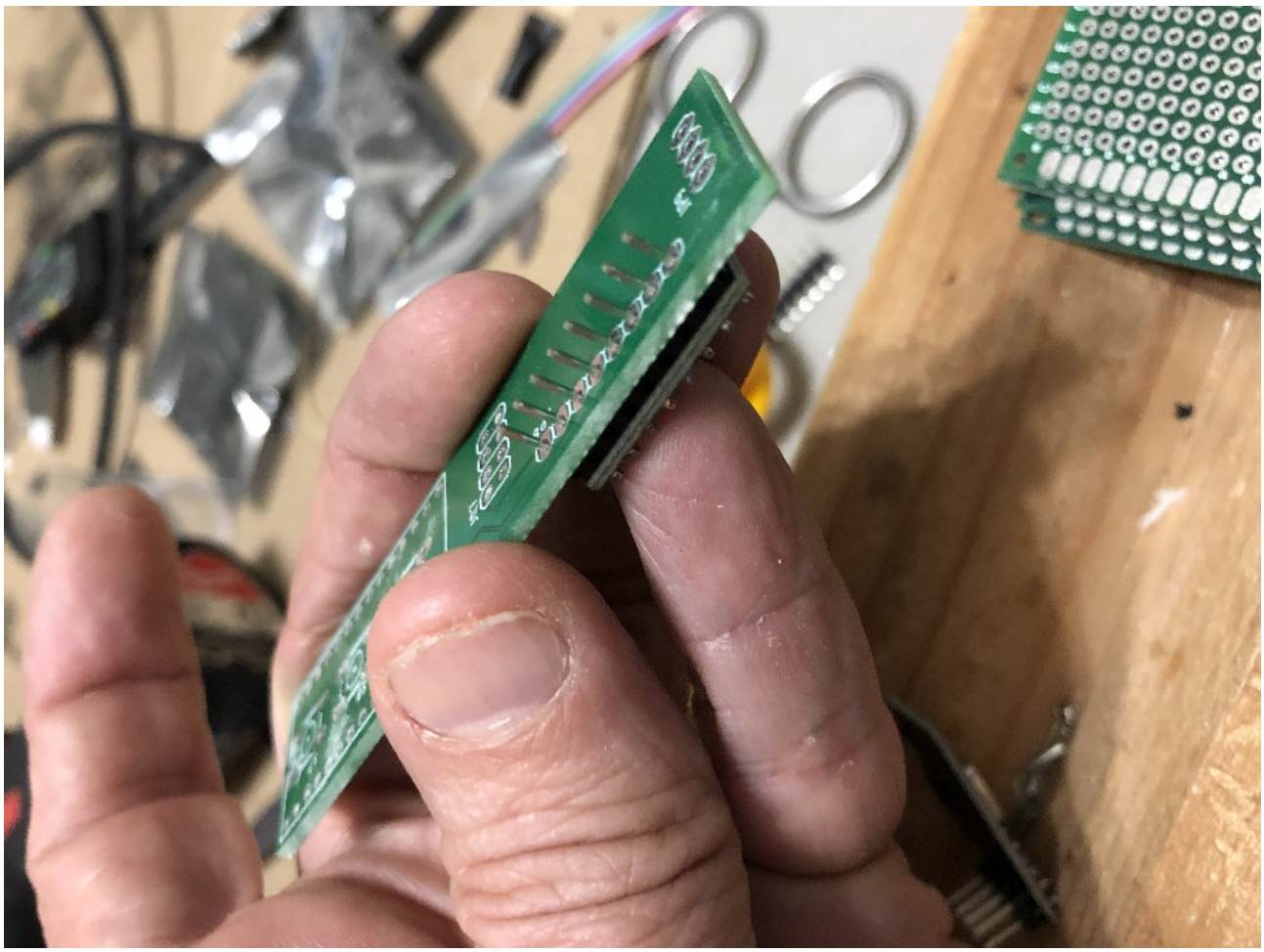
Here, the little wedge is used to prop up the side of the board across from the pins, so the pins will solder on at a good 90 degree angle.



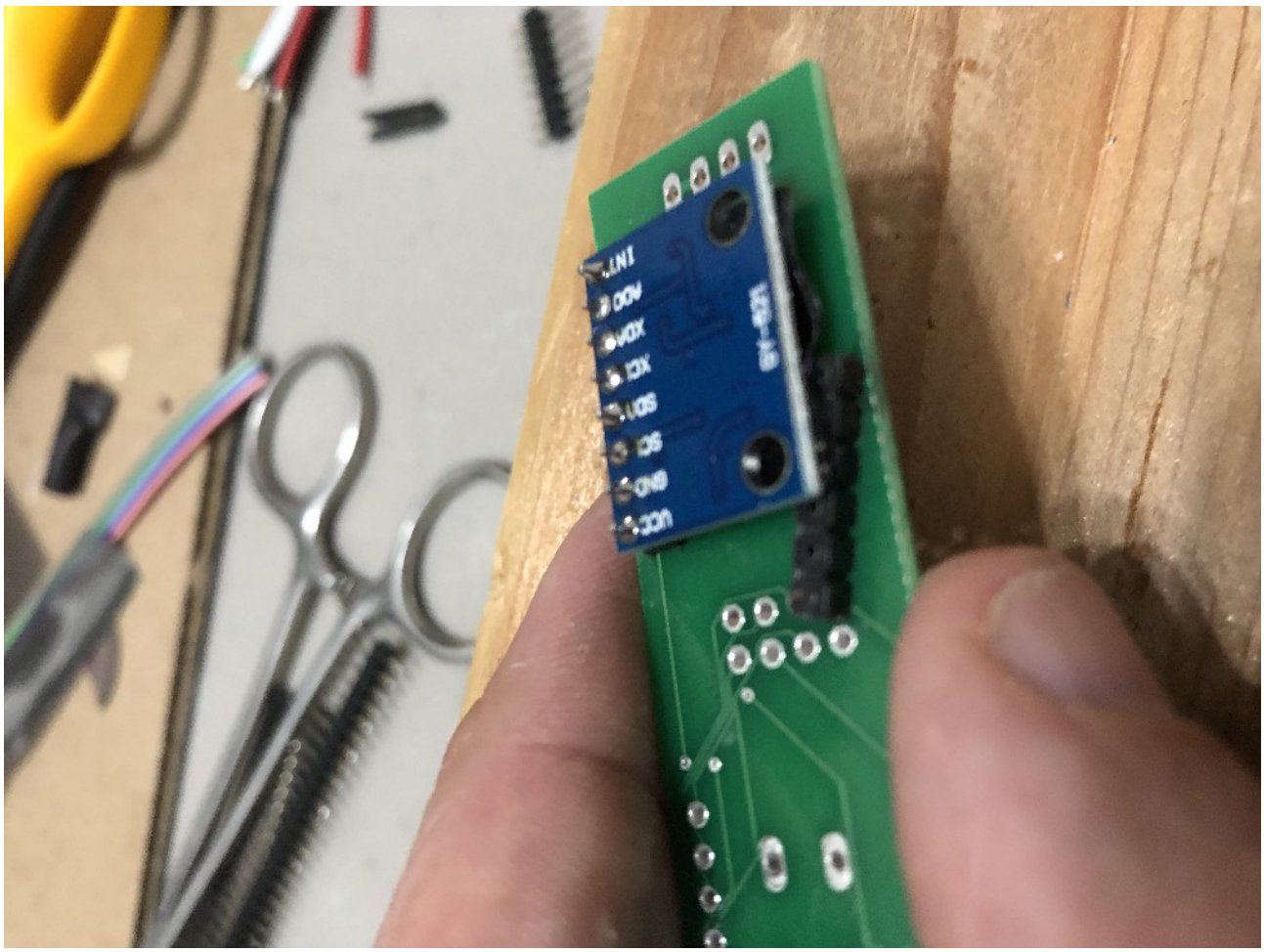
Put some electrical tape on top of the board, to assure when its soldered to the bottom of the swarm board, its insulated.



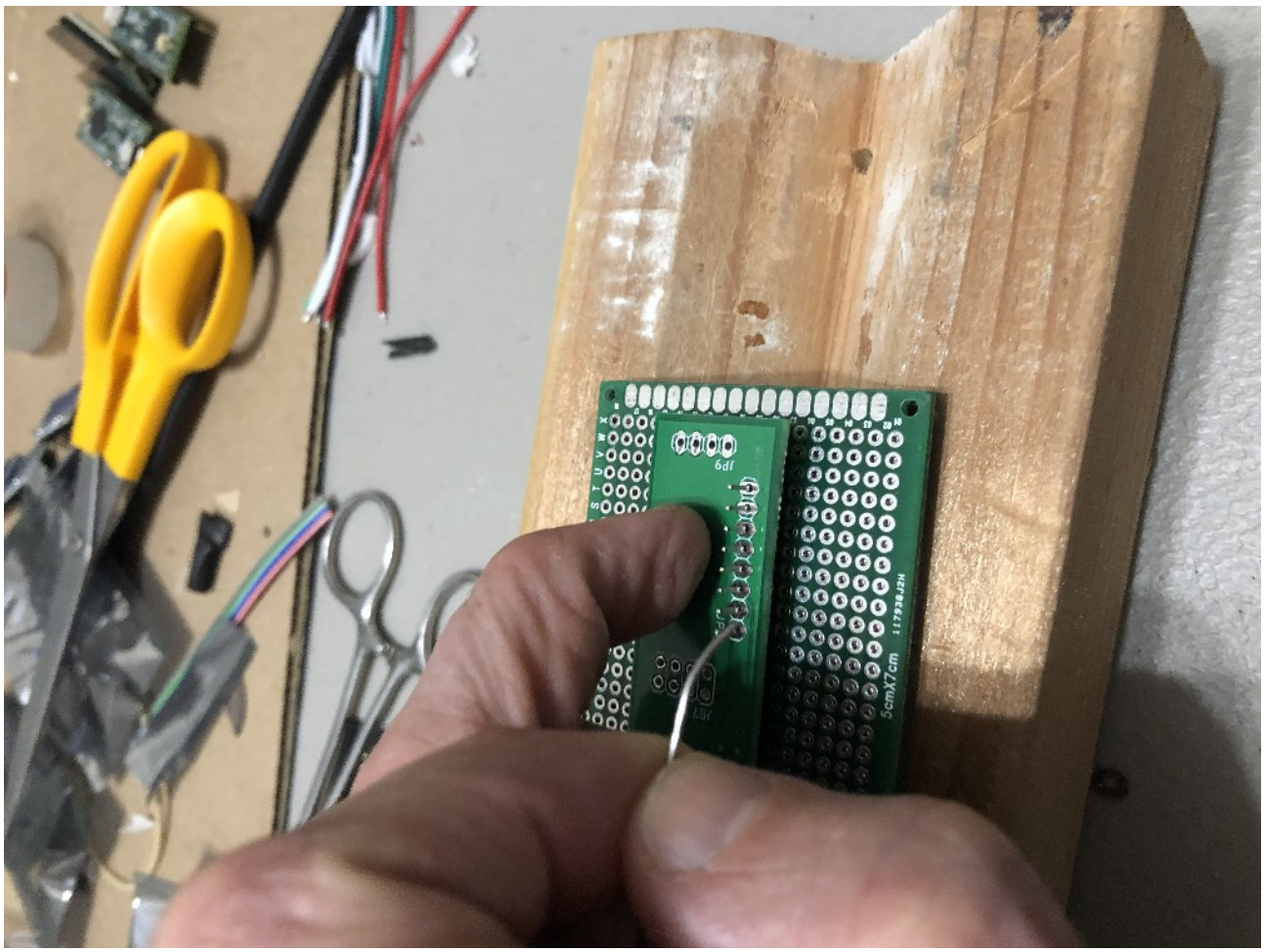
Do the same with the bottom of the NFR24L01 radio module.



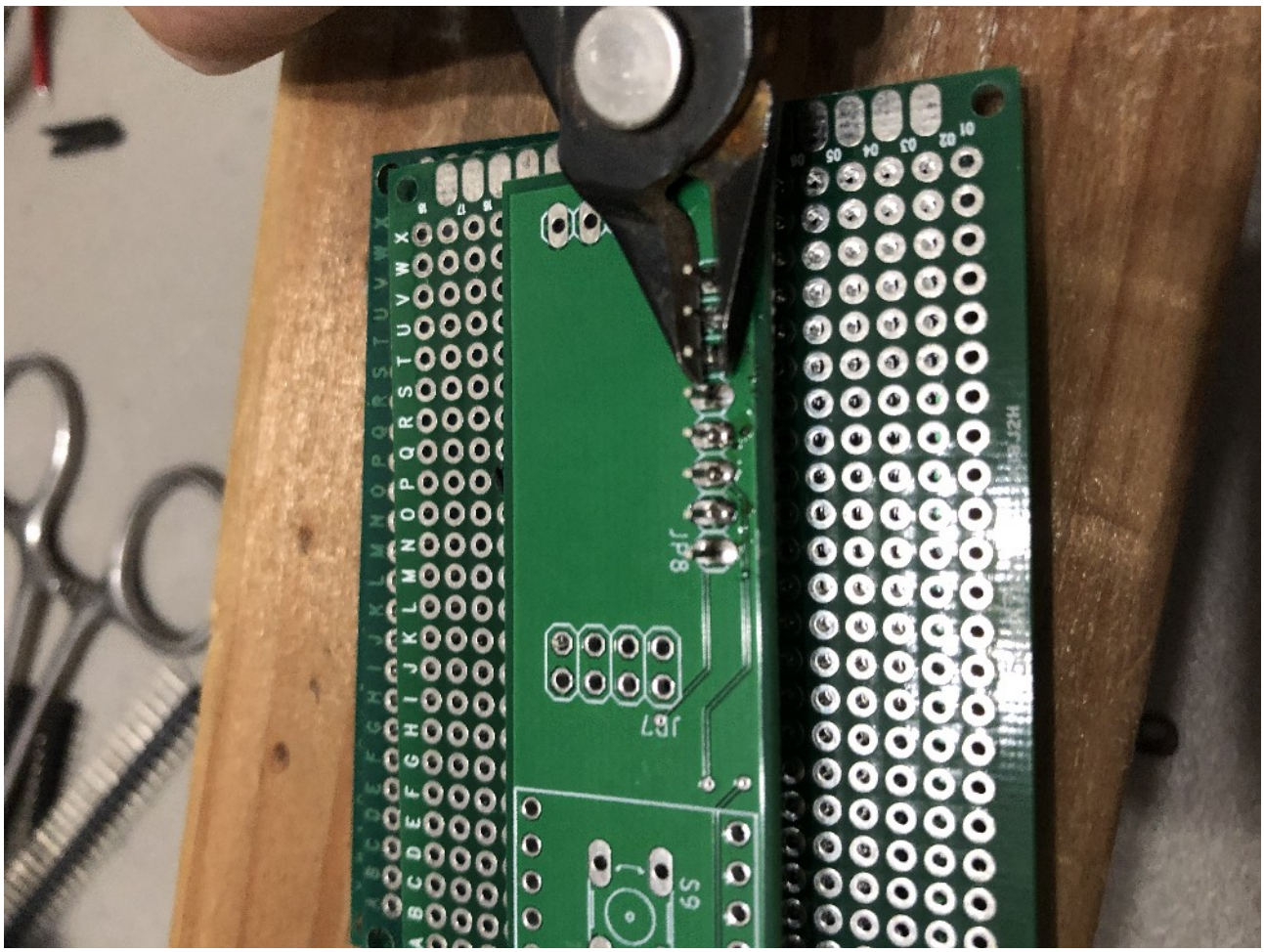
Solder the accelerometer board to the bottom of the swarm board.



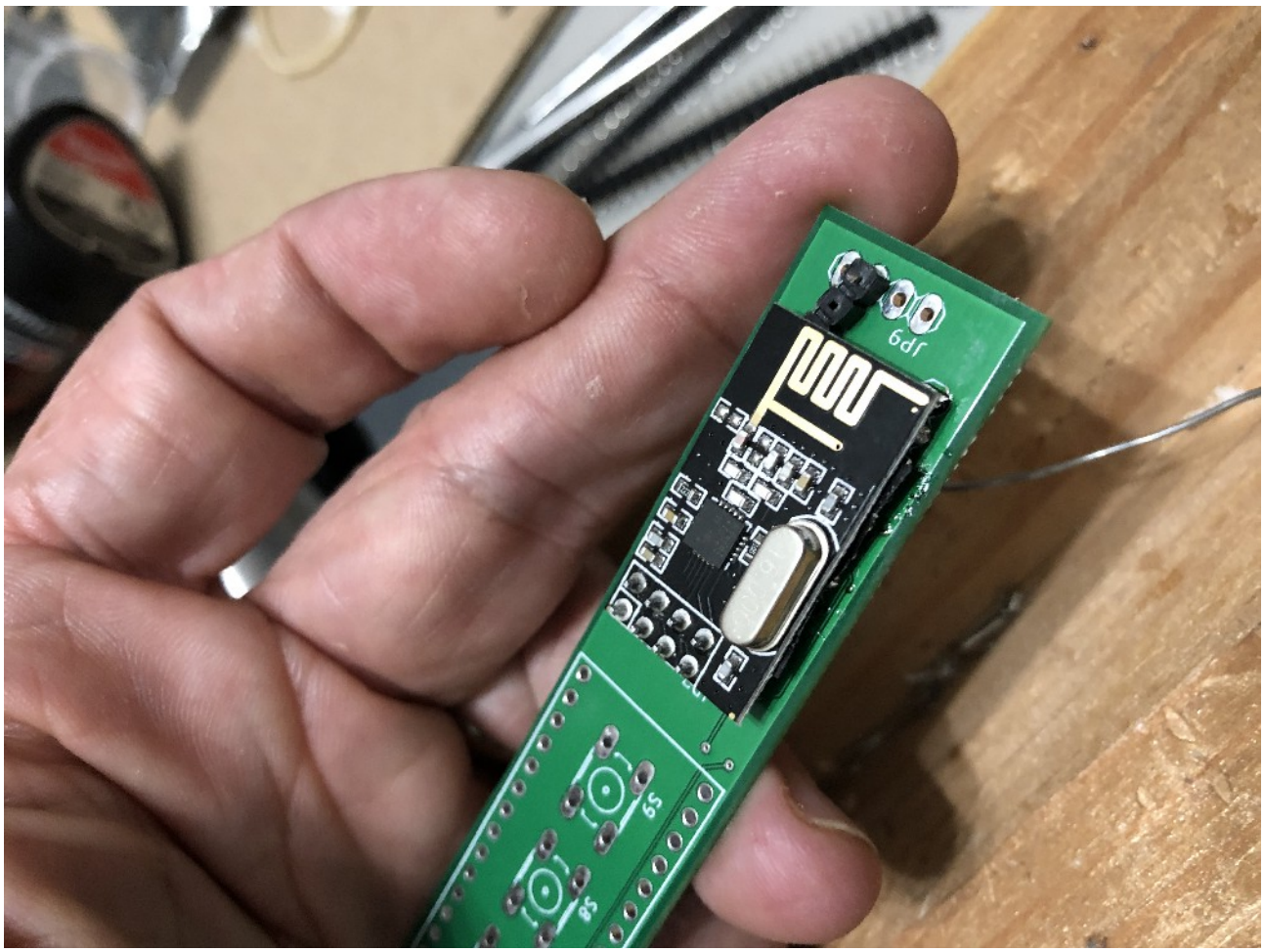
Use the little wedge to get the alignment



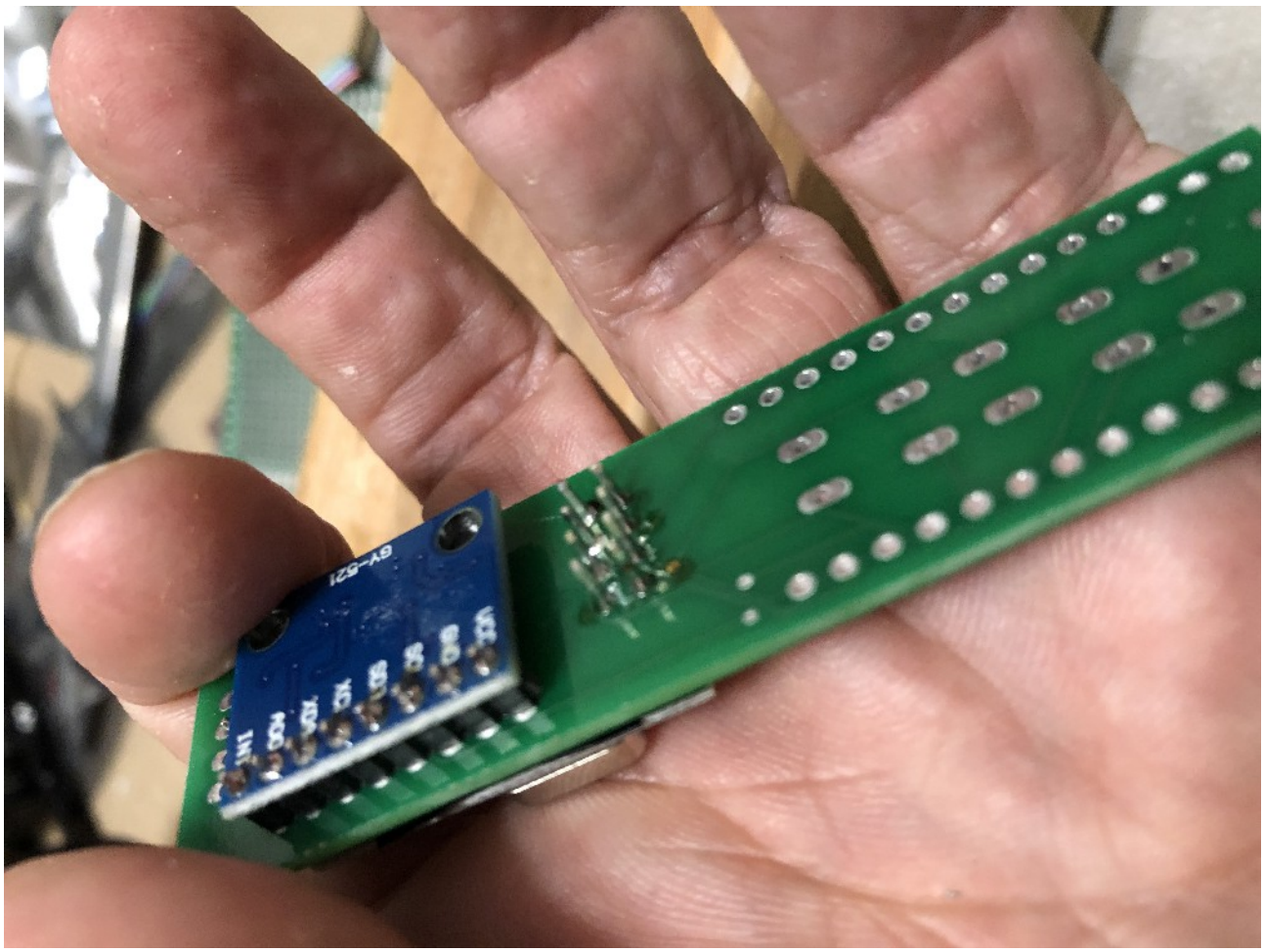
Soldering the accelerometer board to the bottom.



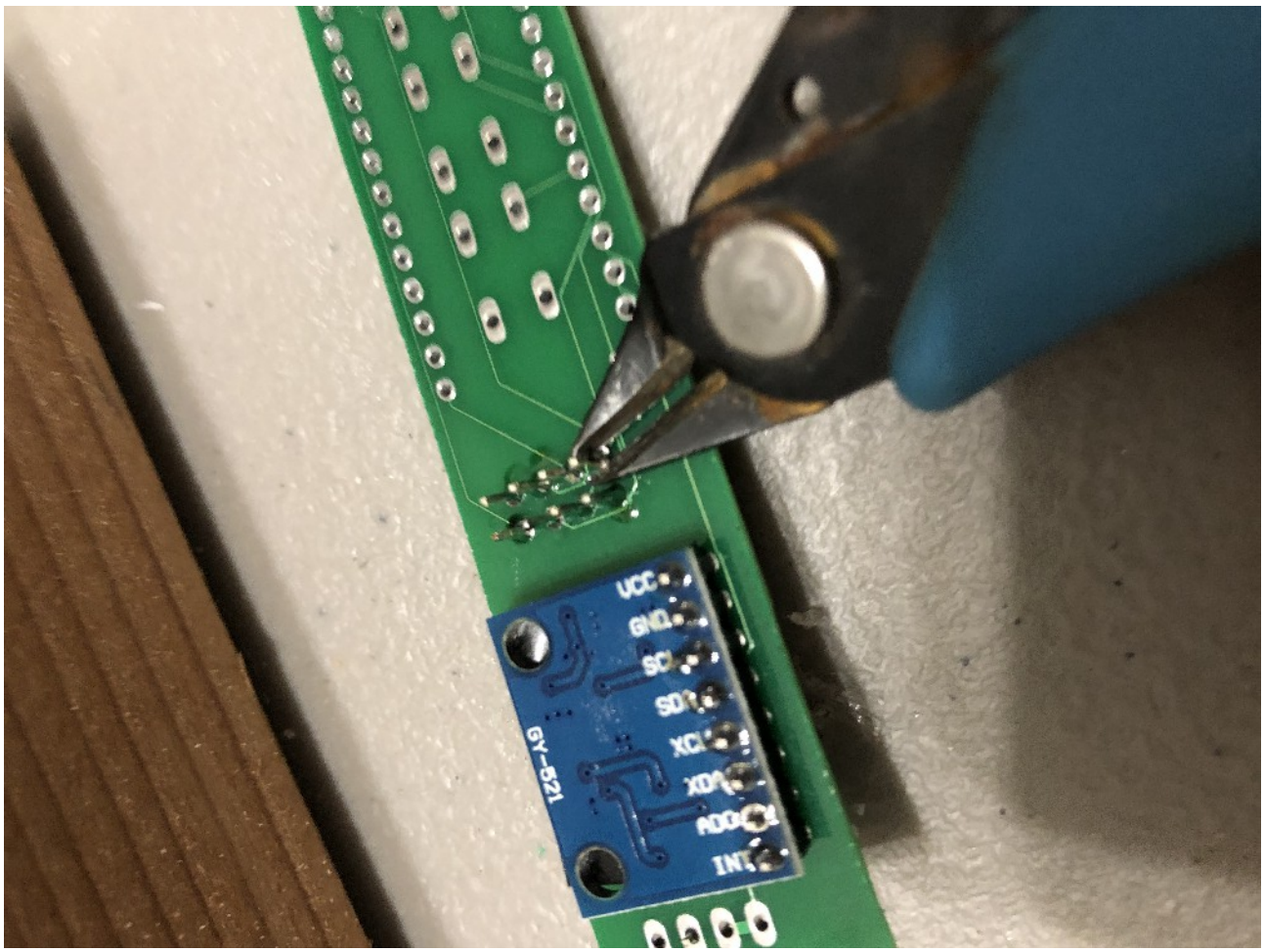
Trim these pins as close as you can, because the radio module is going to get really close above it.



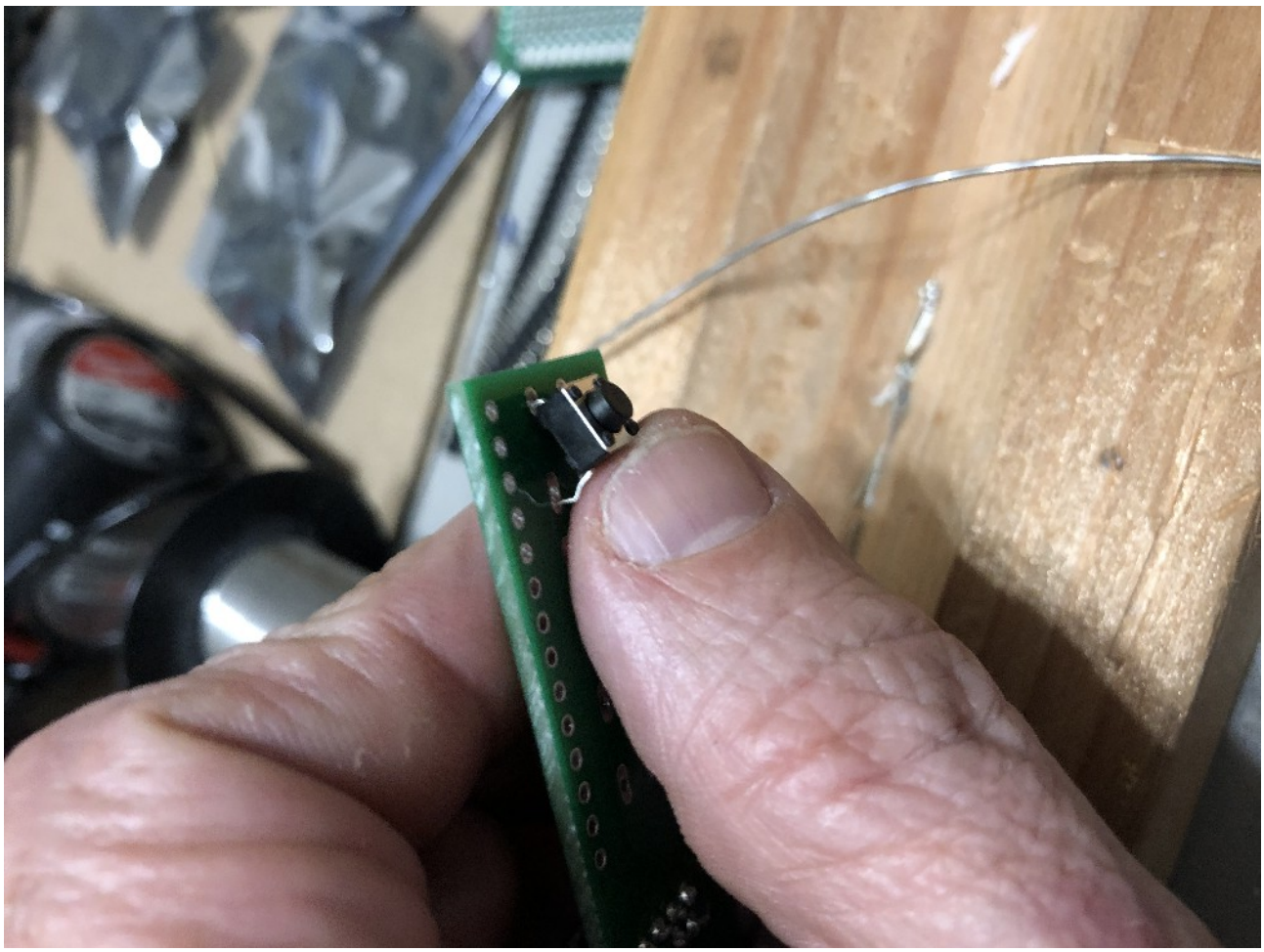
Here is the radio module with the wedge again for alignment.



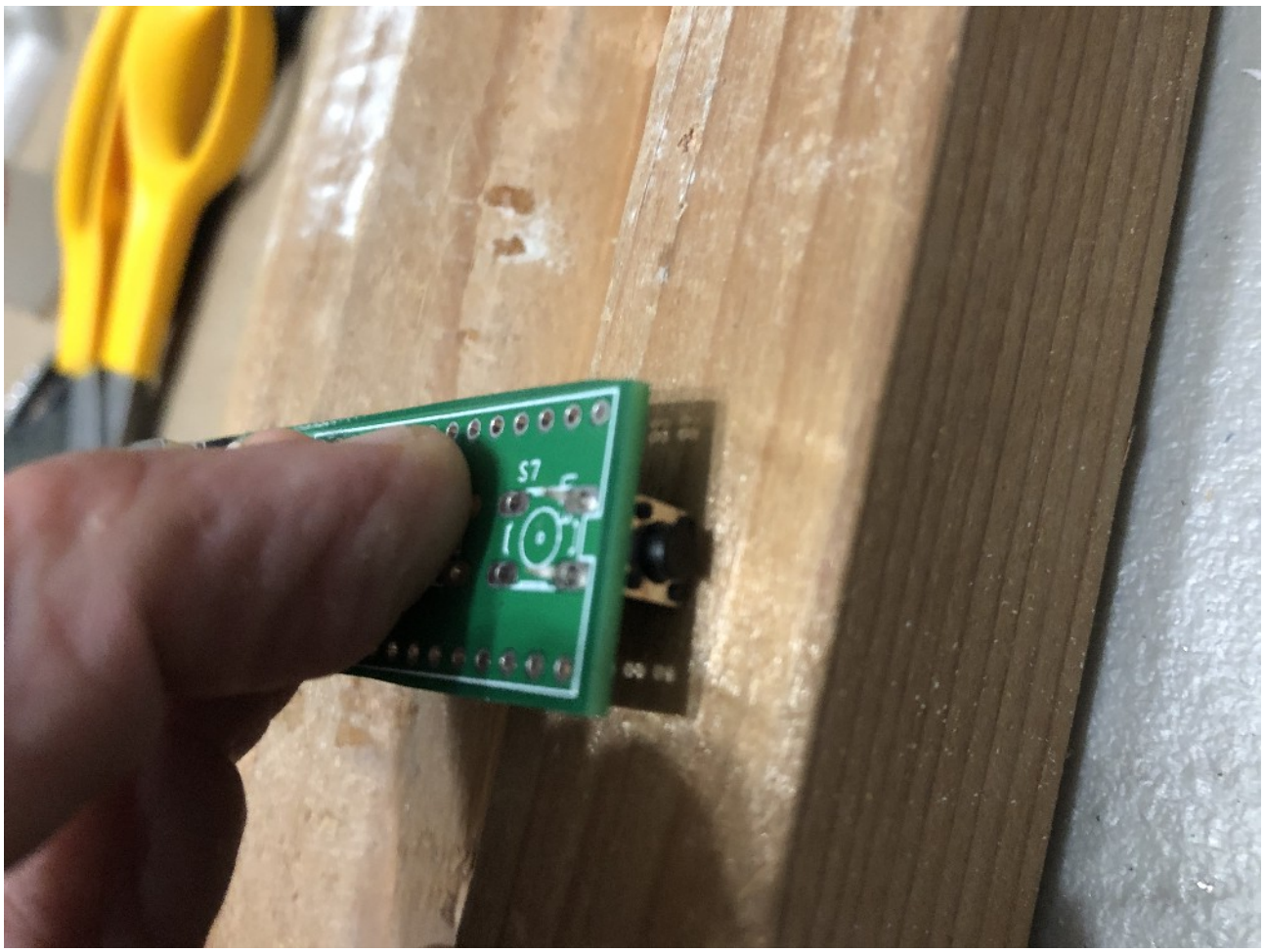
Both boards soldered on.



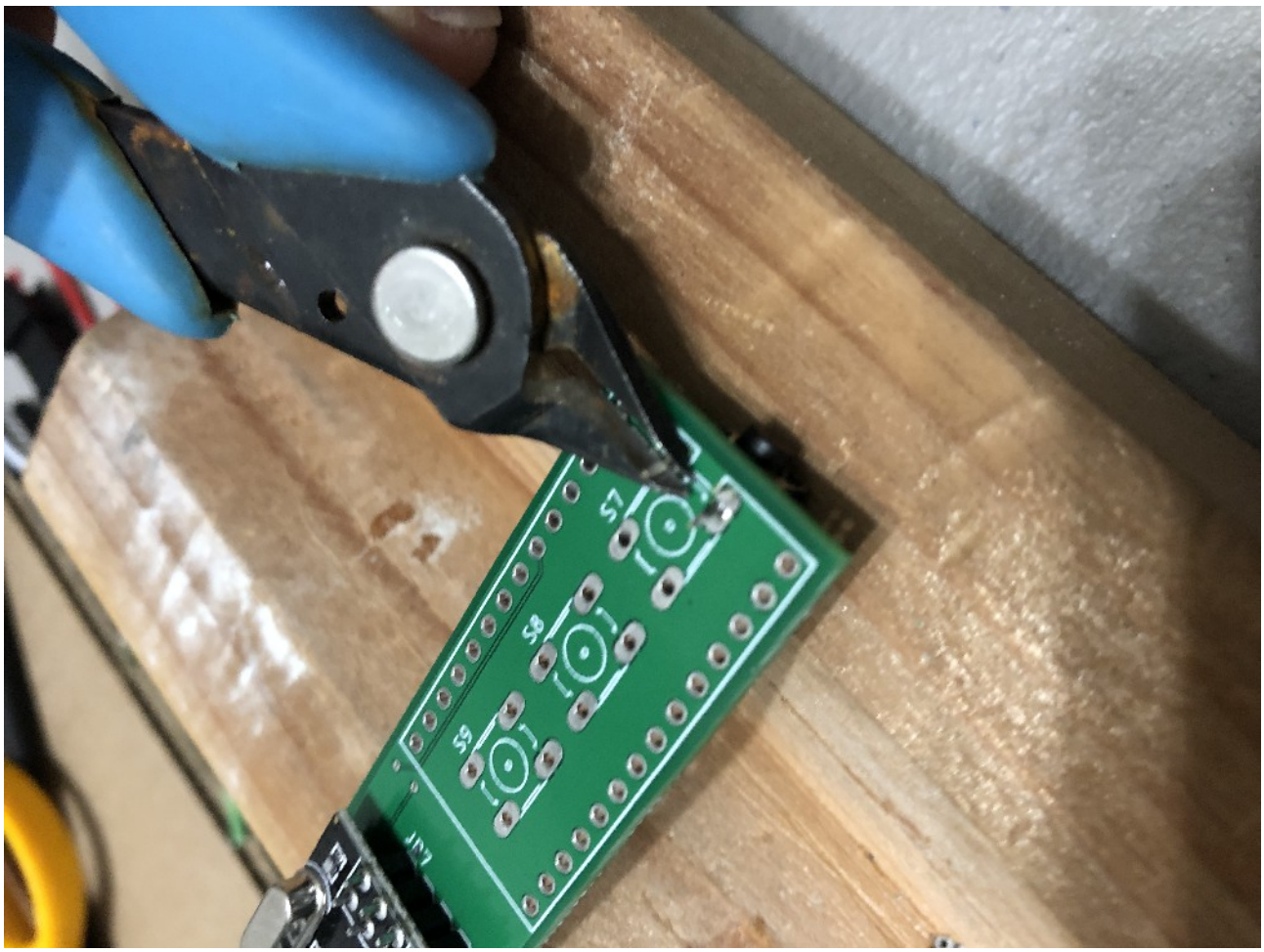
I trim the radio pins, but you really dont need to.



The push button only attaches with two pins, because its going to face out at 90 degrees

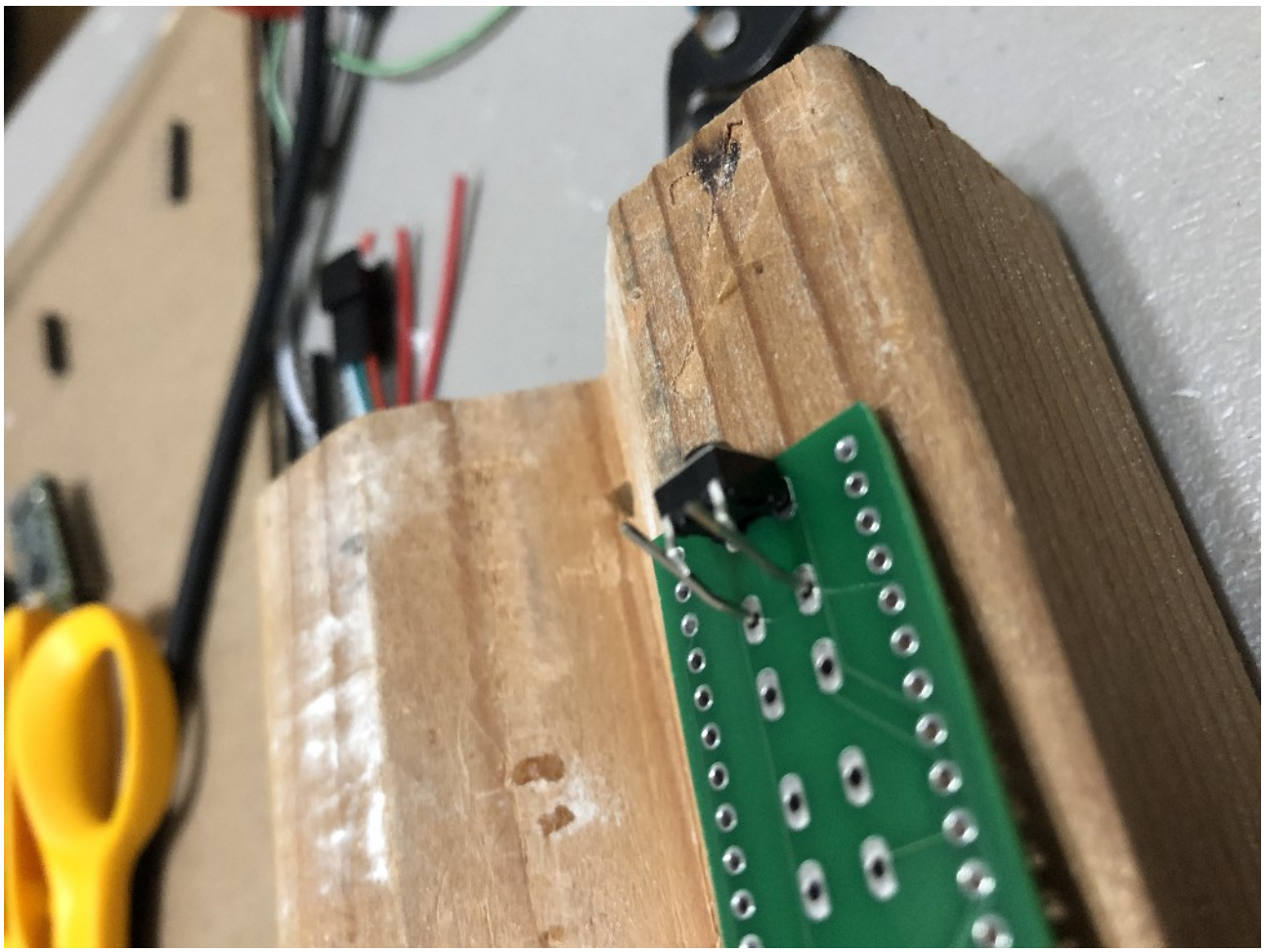


A good way to align before soldering

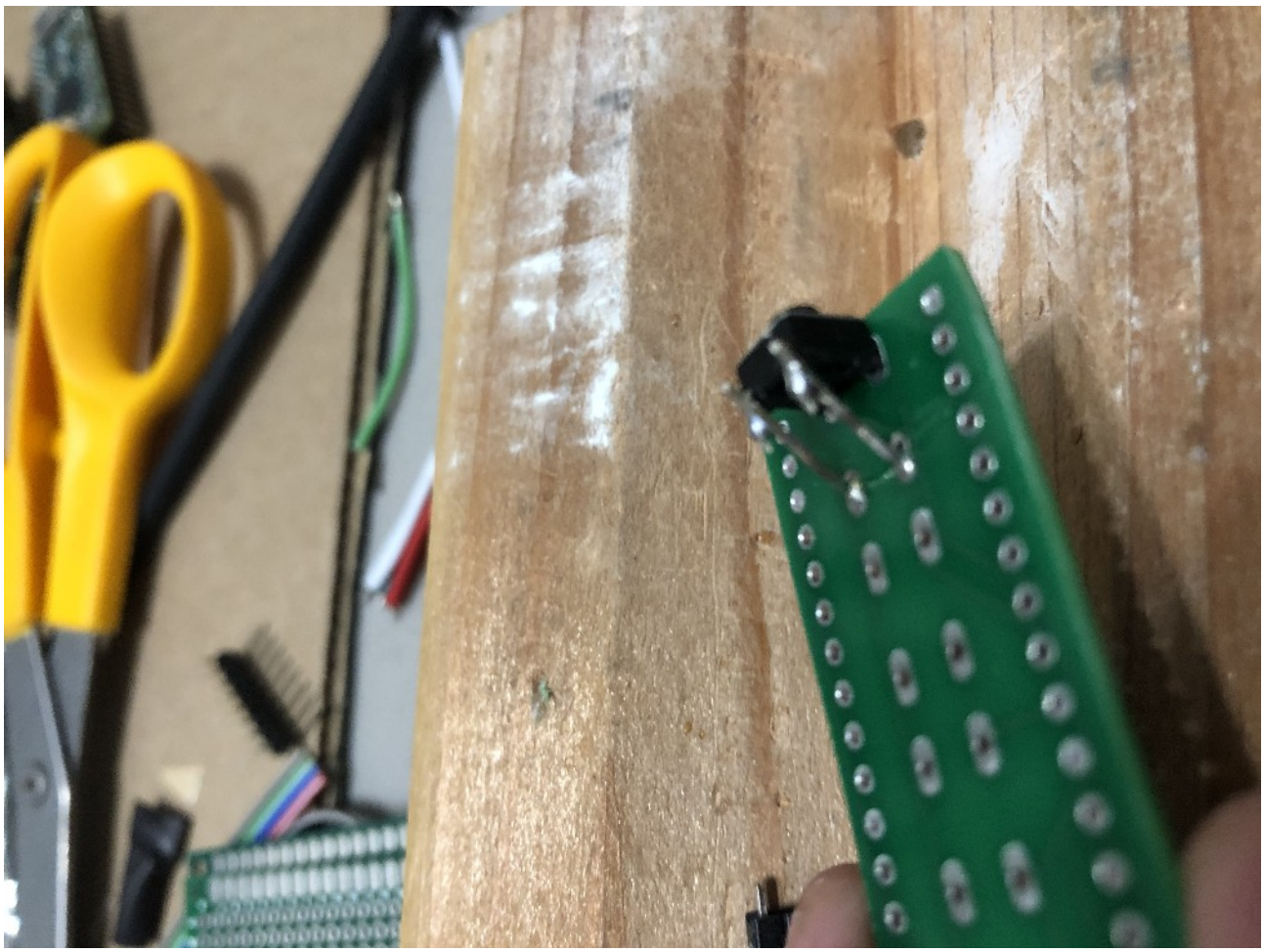


trim these, because the teensy board is going to get close.

There are left over pins from the accelerometer. I use pins from here for the next step.

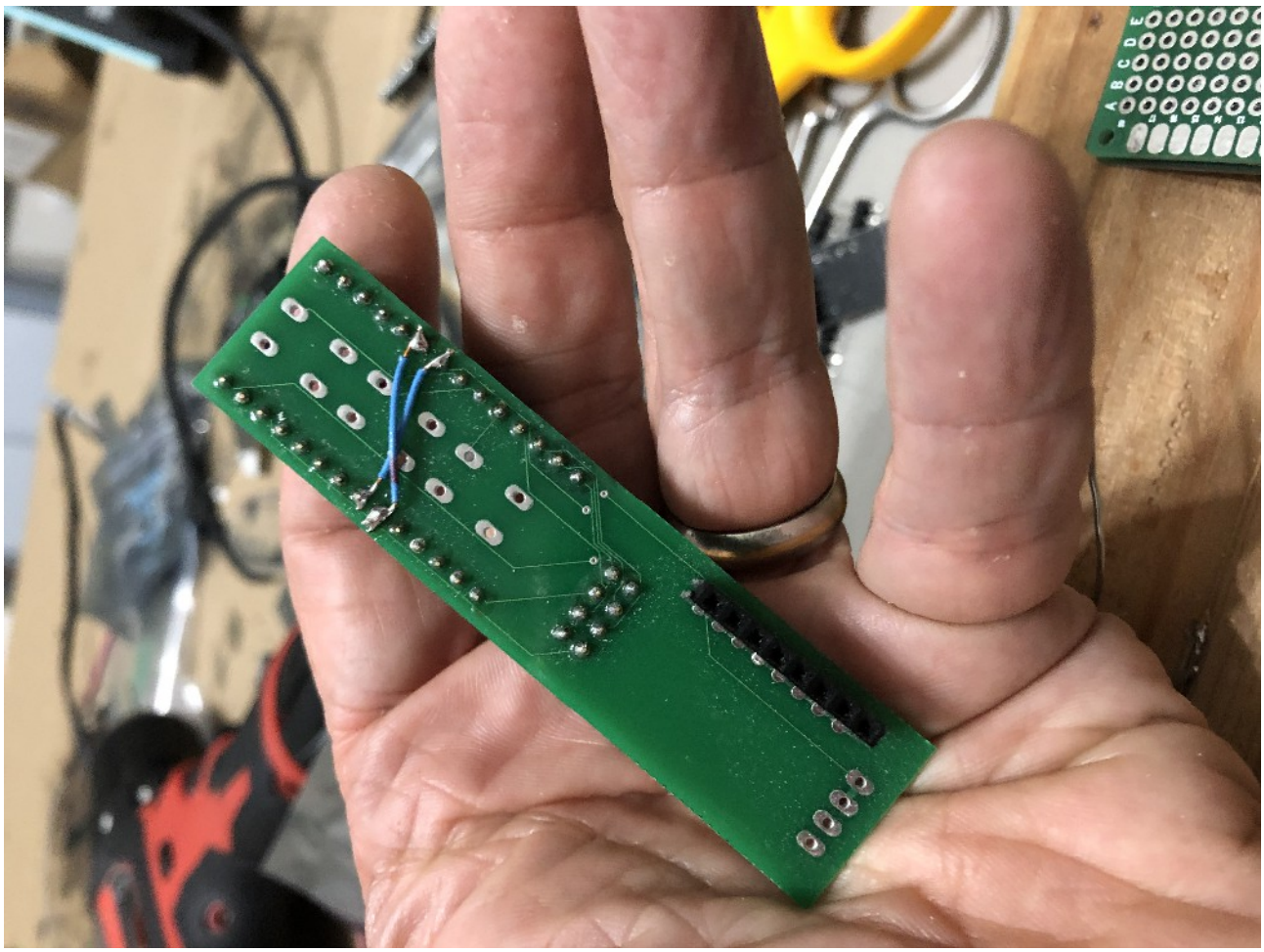


We need to build up support on the back side of the button for strength.



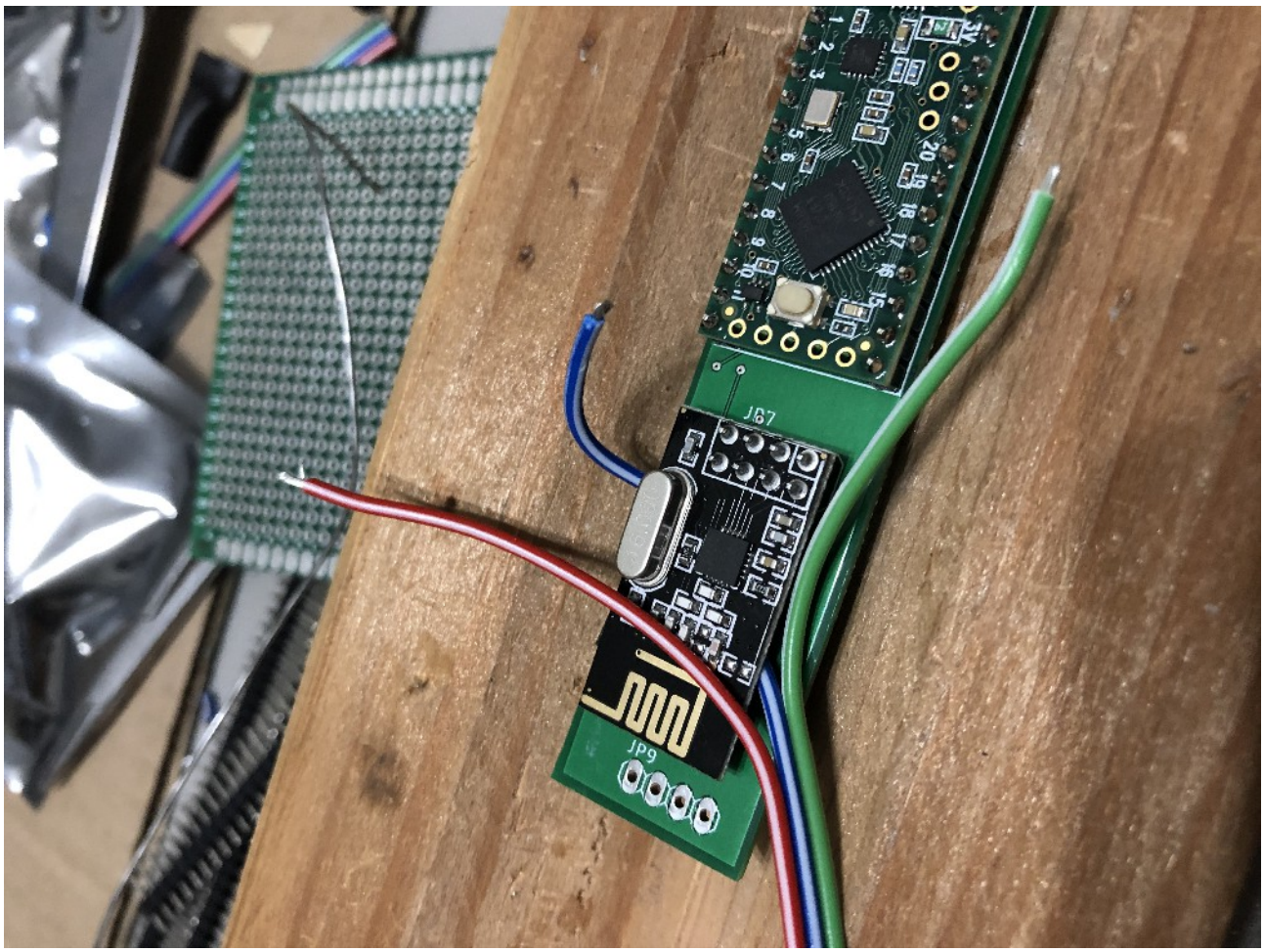
These two diagonal pins are structural only. The PC board holes are not connected to any CPU pins.

Time to add the teensy LC board. After you solder these together, bend the pins inward to help the finished assembly slide into the tube.

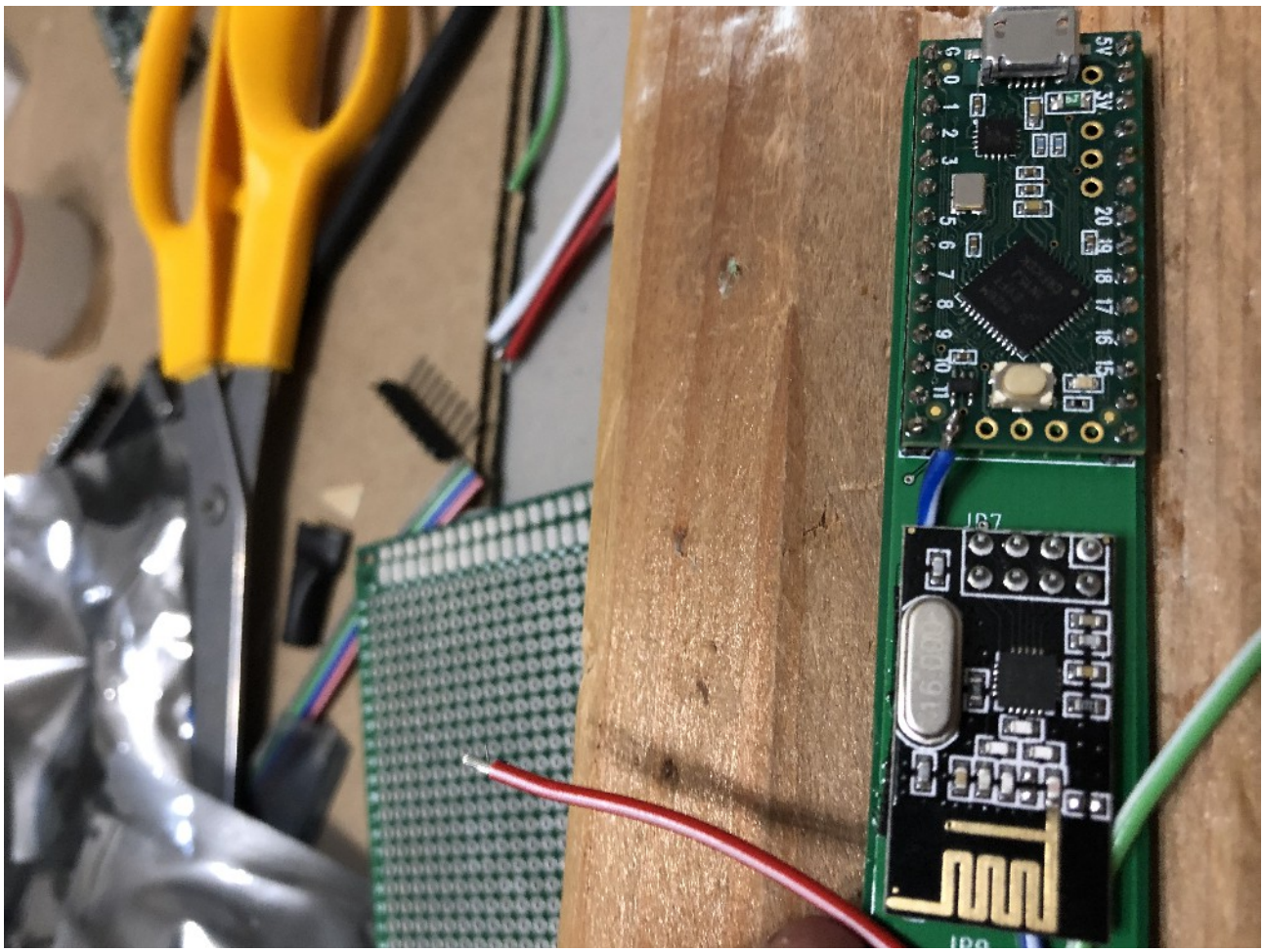


This picture is from a different build, but it is very important This is the back side of the first rev of the Swarm II board. This is the same side as the button and the acceleometer, although they are not in this picture. You must solder these two jumper wires on, or the radio wont work. This is because of a flaw in the board design. I hooked the radio up to the analog pins instead of the digital pins.

You will need about 1 foot for 3 conductor wire for the LED output.



Run the data wire under the radio.



The data line solders to this hole on the end of the teensy LC board. This is a special level shifted output that provides a 5V digital output, especially for driving LED strips.

The end of the swarm board has 4 holes. 2 for power and 2 for ground. The inner 2 will go to the LED strip. In this case, the red is power, green is ground, and blue is data. The two outside pins are also power and ground, and will eventually go to the power supply.