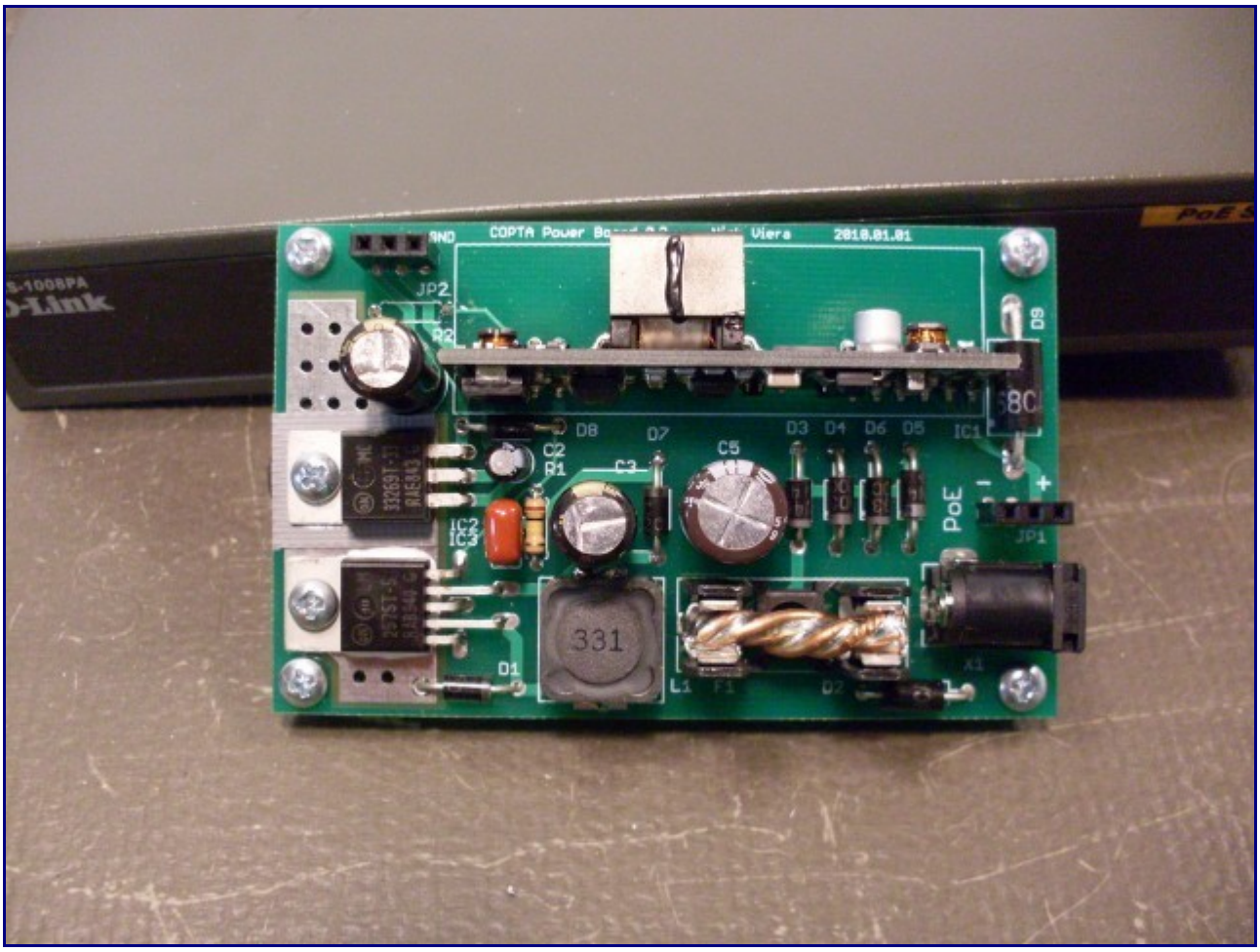
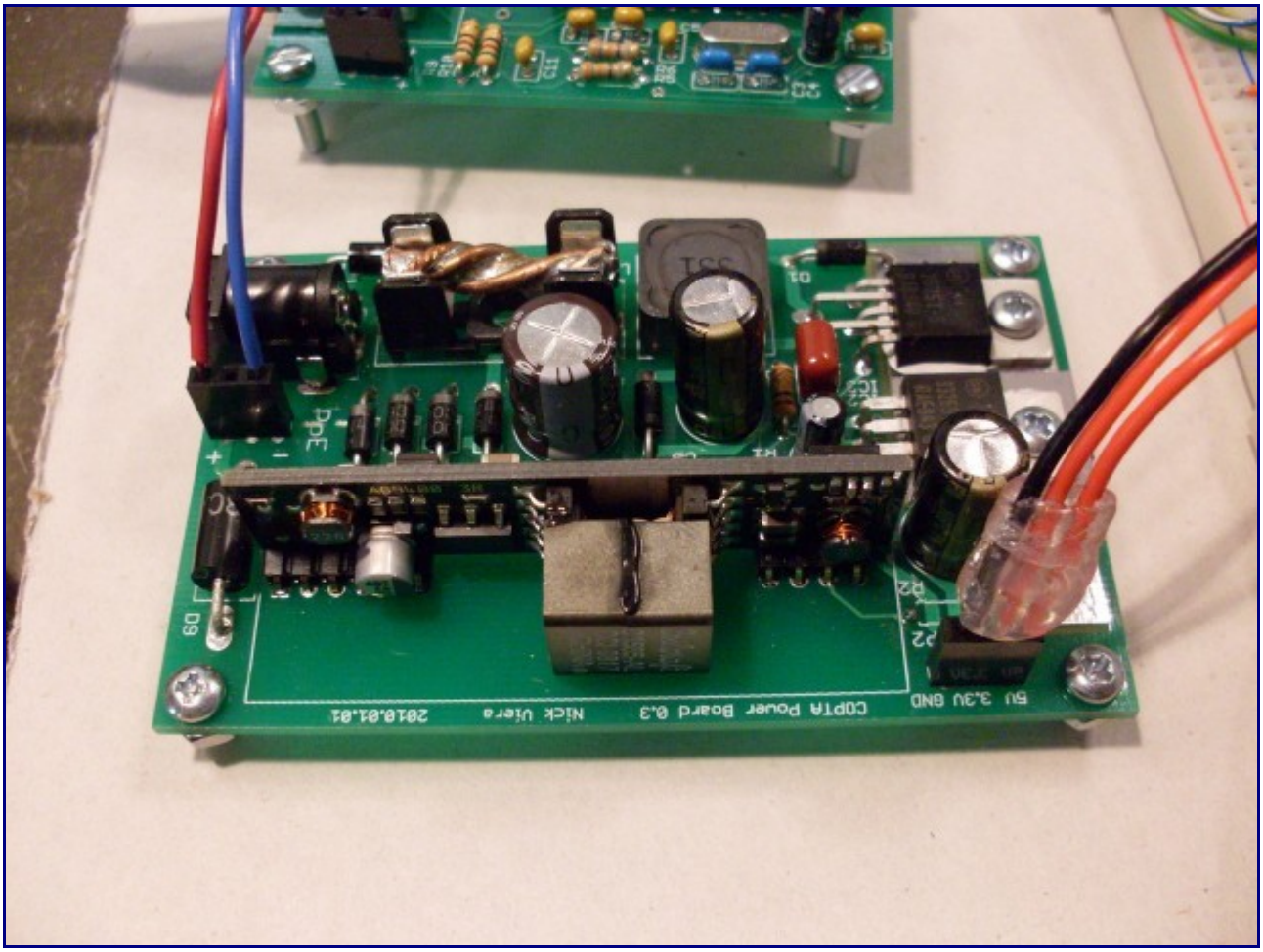
Power Supply with PoE Testing

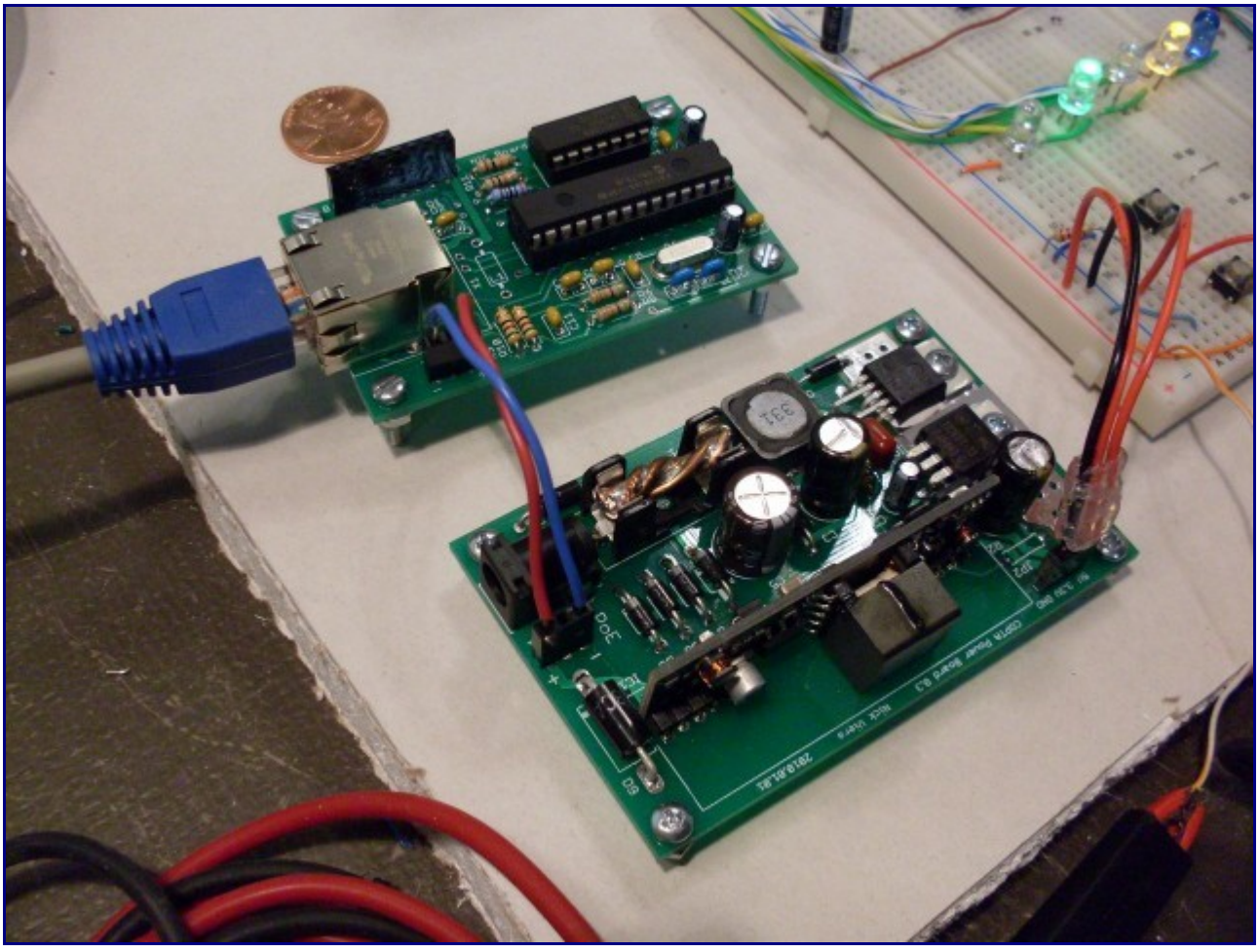
2010-04-07 23:04:40 by Nick

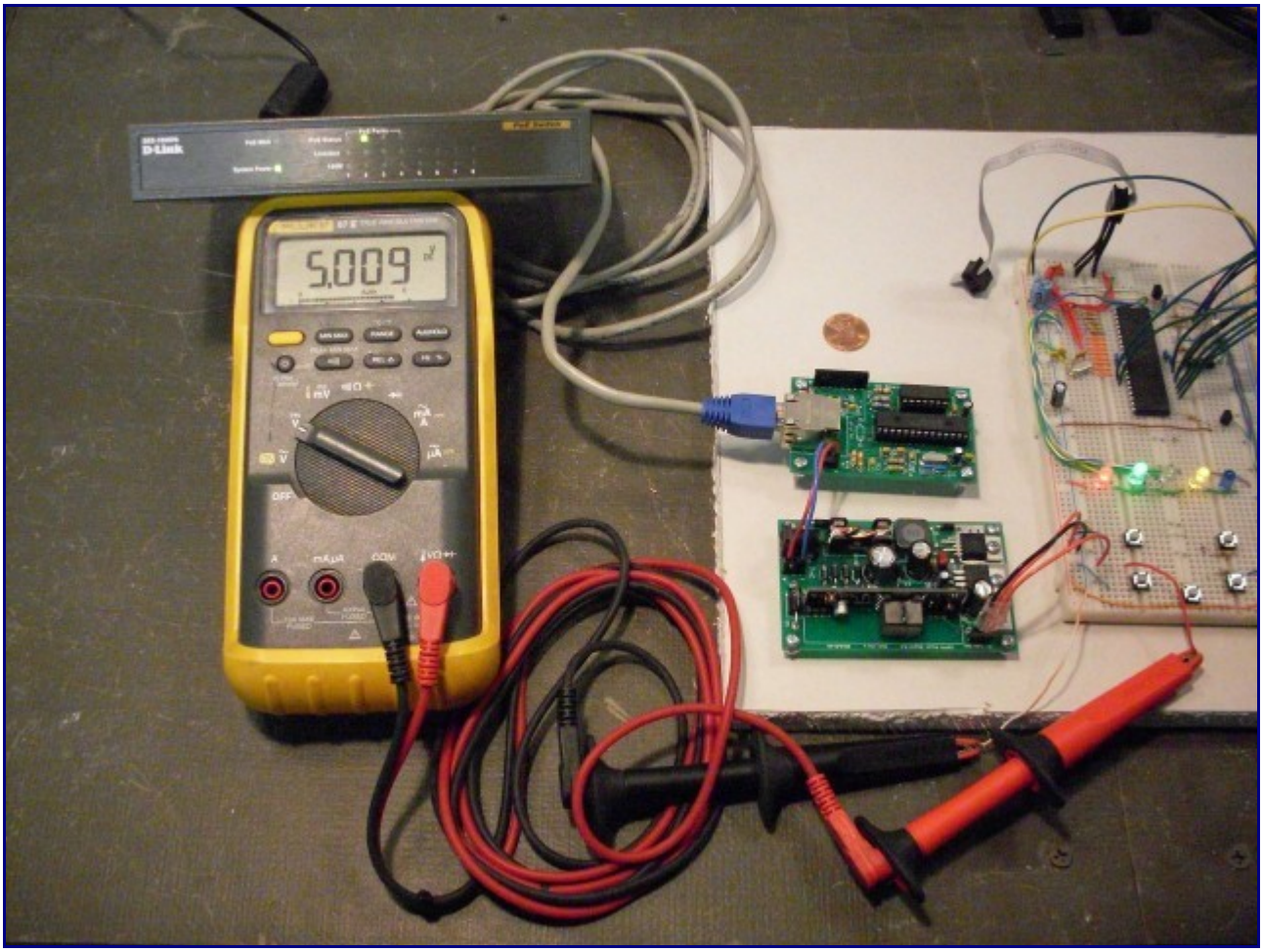
Recently, the Silver Ag9405 Power over Ethernet (PoE) modules I ordered arrived. I populated a PoE module into version 0.3 of my Power Supply board.

For testing I connected the input PoE header of the power supply board to the output PoE header on the Ethernet Interface board. I then connected an ethernet cable from my Ethernet Interface board to a D-Link PoE network switch. Using a Fluke 87 multimeter, I checked for 5 Volts at the power supply output. Photos are shown below.




COPTA Power Board 0.3
Nick Viera
2018.01.01
5V 3.3V GND





I noticed during the initial power up that the output from the PoE module was not only not 5 volts, it was much lower, being about 4.2 Volts DC. After reviewing the PoE module's datasheet as well as my schematic and PCB layout, I discovered my mistake.

Resistor R2 (100k ohm) in the schematic is used to pull the output of the PoE module up from 5.0 to about 5.3 Volts DC. This is done so that when the output is passed through the diode D8 (whose voltage drop is about 0.3 Volts), it is still a true 5 Volt output.

In order to increase the output voltage of the PoE module, R2 is supposed to be tied between the ADJ pin and VCC (5 Volts). However, I accidently tied R2 between ADJ and Ground when I created my PCB design.

Thus, I was actually **reducing** the output voltage instead of **increasing** it. I de-soldered R2 from its pads on the PCB and instead soldered it from ADJ to VCC. The output voltage then showed up to be almost exactly 5 Volts when I subsequently powered up the module.
