5.1: Making the Main Board

5.1.1:

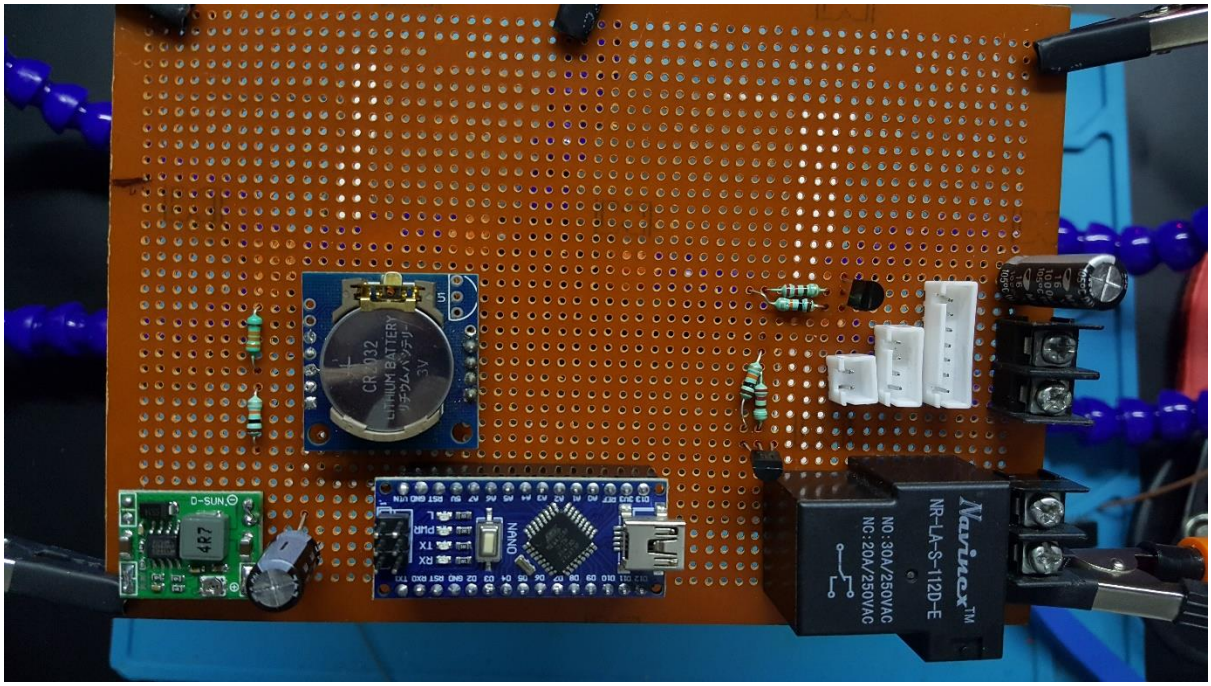
Gather the materials:

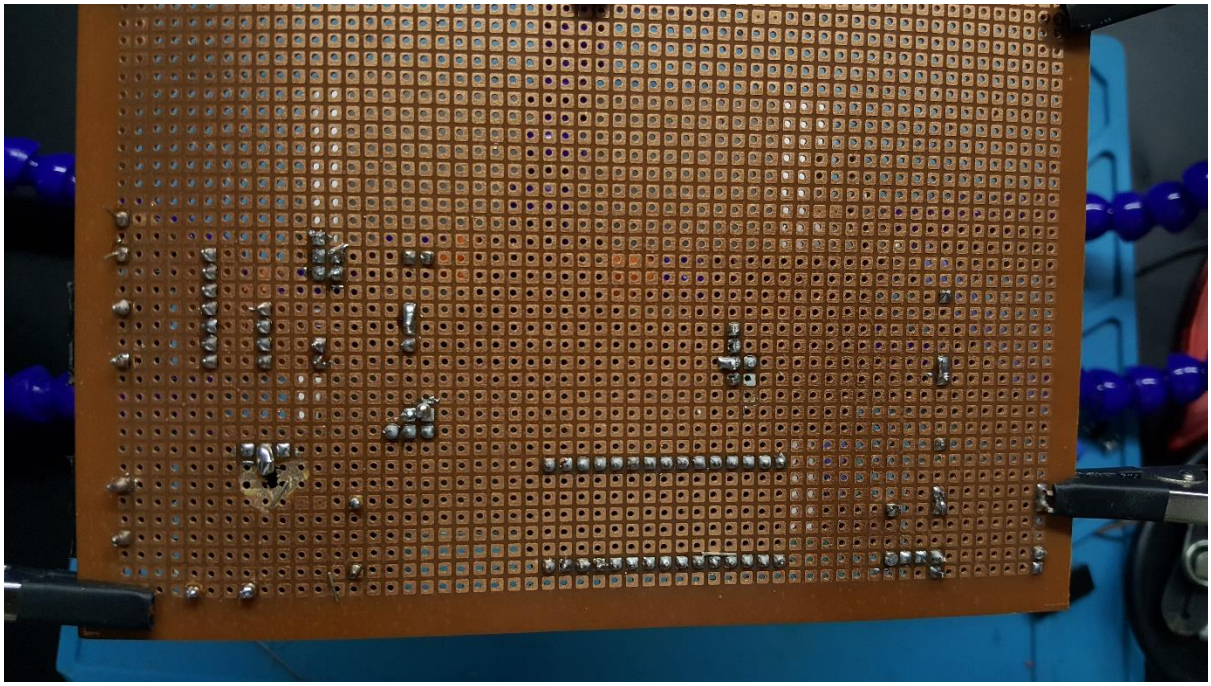
5.1.2:

Solder Male Headers to the buck converter

5.1.3:

Solder all the in-board components

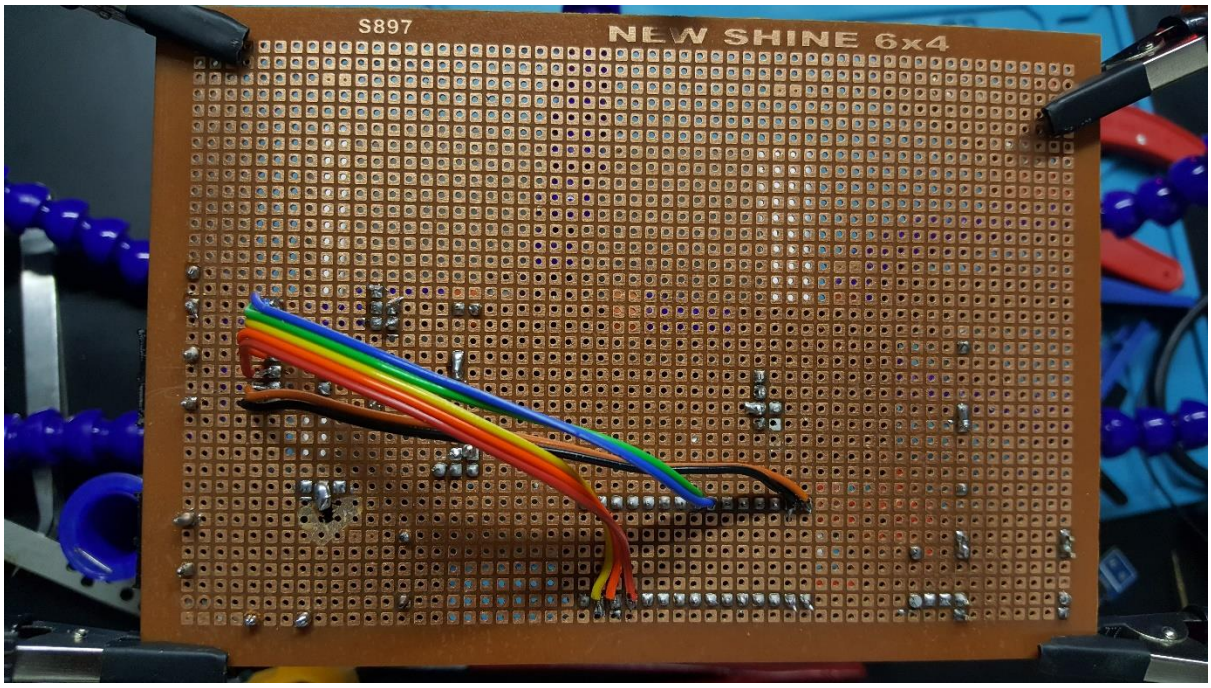




5.1.4:

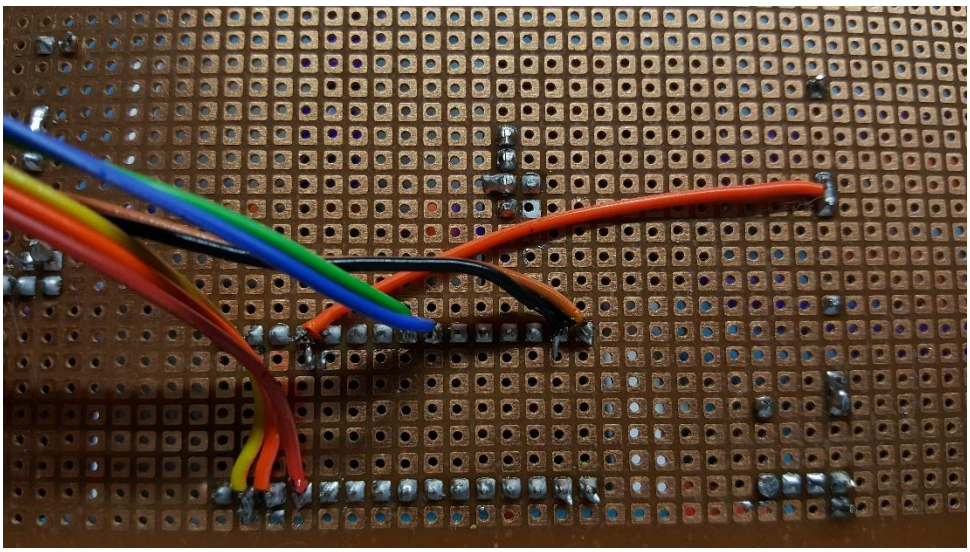
Connect the JST connector to the corresponding Arduino Nano's Header pins

(This is the cable that goes to the Display Unit, Hence, the same colour coding has been used.)



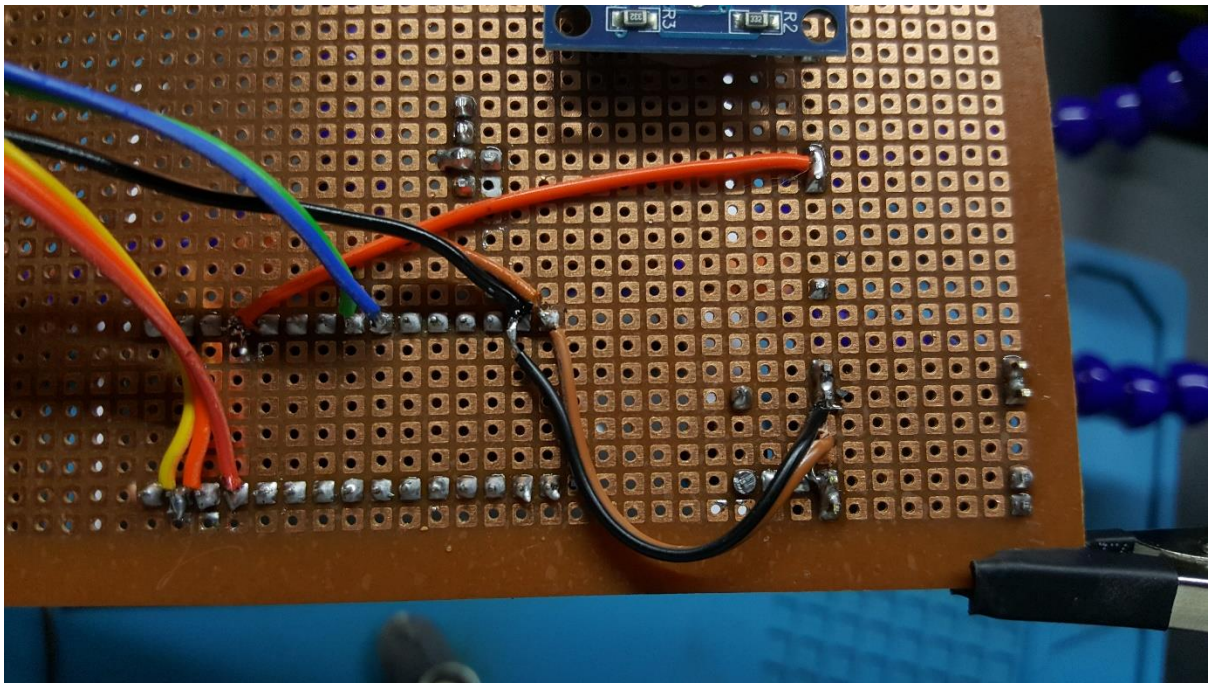
5.1.5:

Connect the Voltage divider's pin to pin A0 of the Arduino Nano's Header.



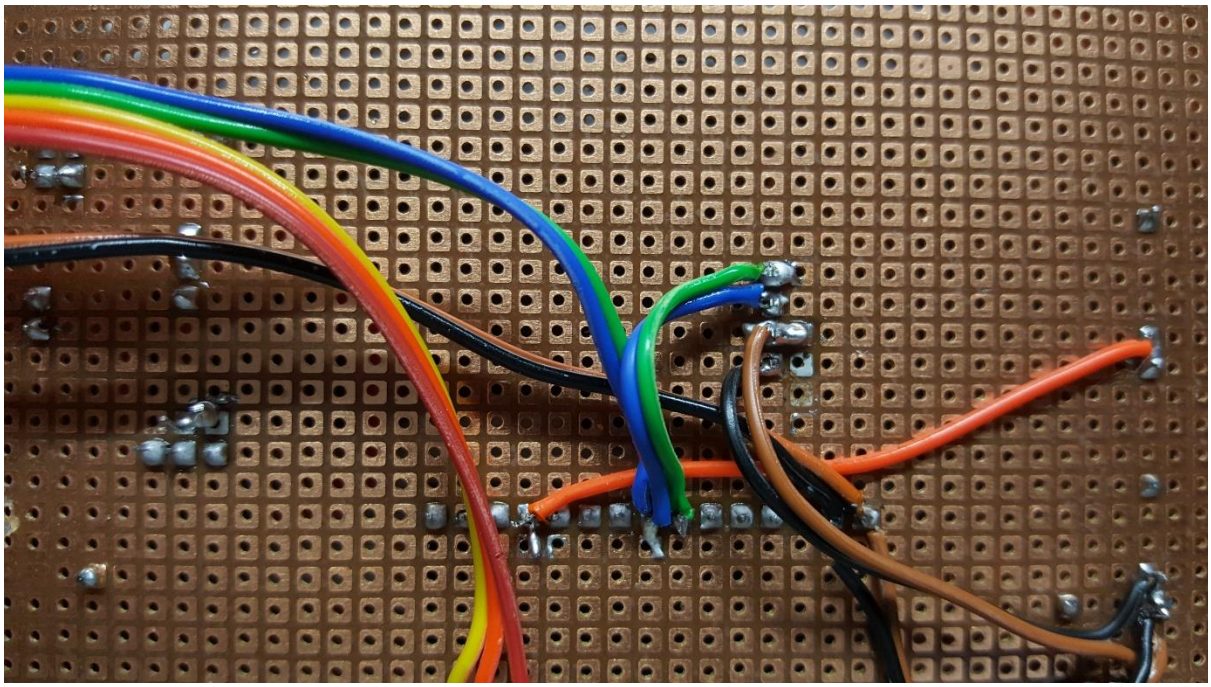
5.1.6:

Connect the power wires from the Buck converter (+ , -) to Arduino Nano (VCC , GND).



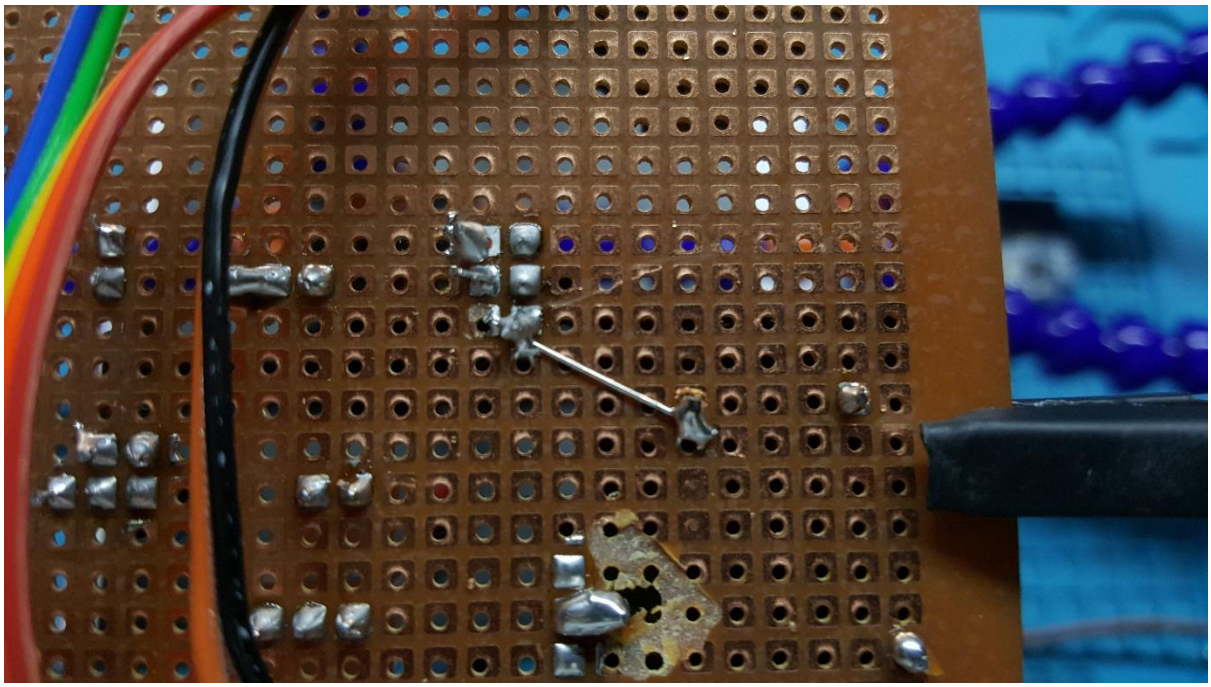
5.1.7:

Connect the RTC's I2C wires (SCK , SDA) to (A5 , A4) respectively.



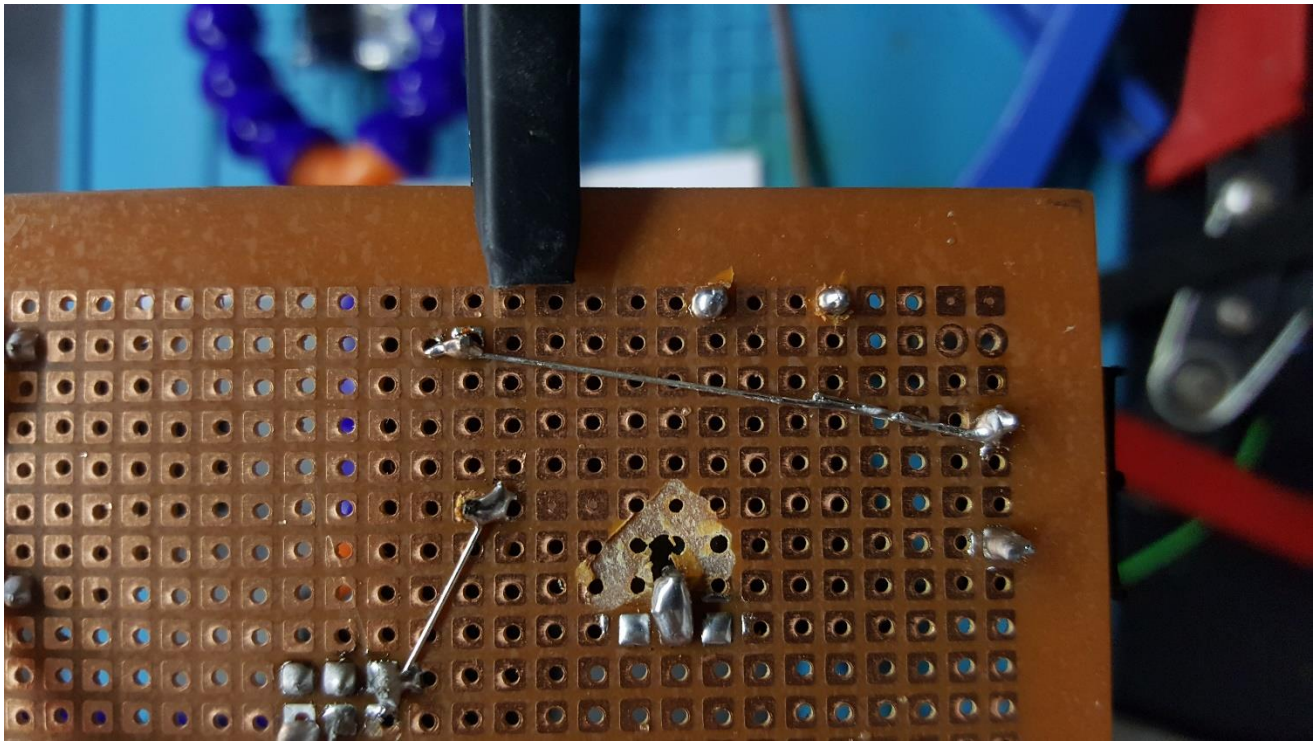
5.1.8:

Connect one of the Relay terminals to the transistor's Collector



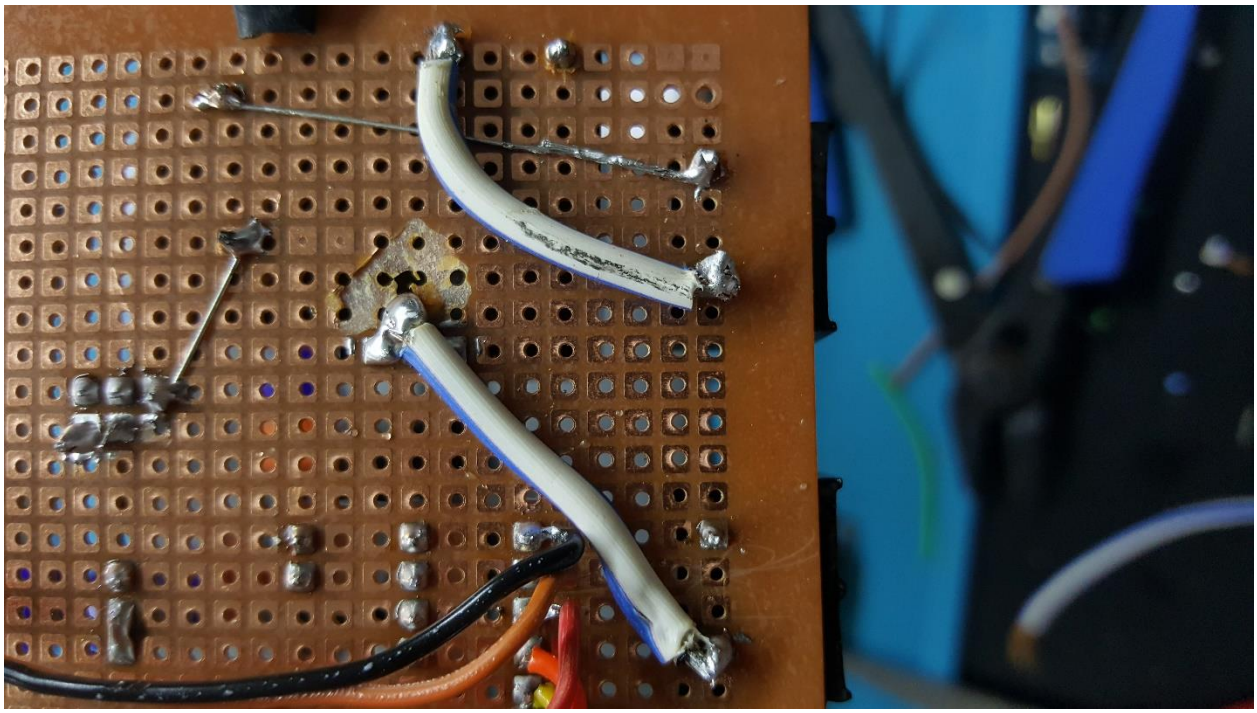
5.1.9:

Connect the other relay terminal to the Positive supply voltage (12V)



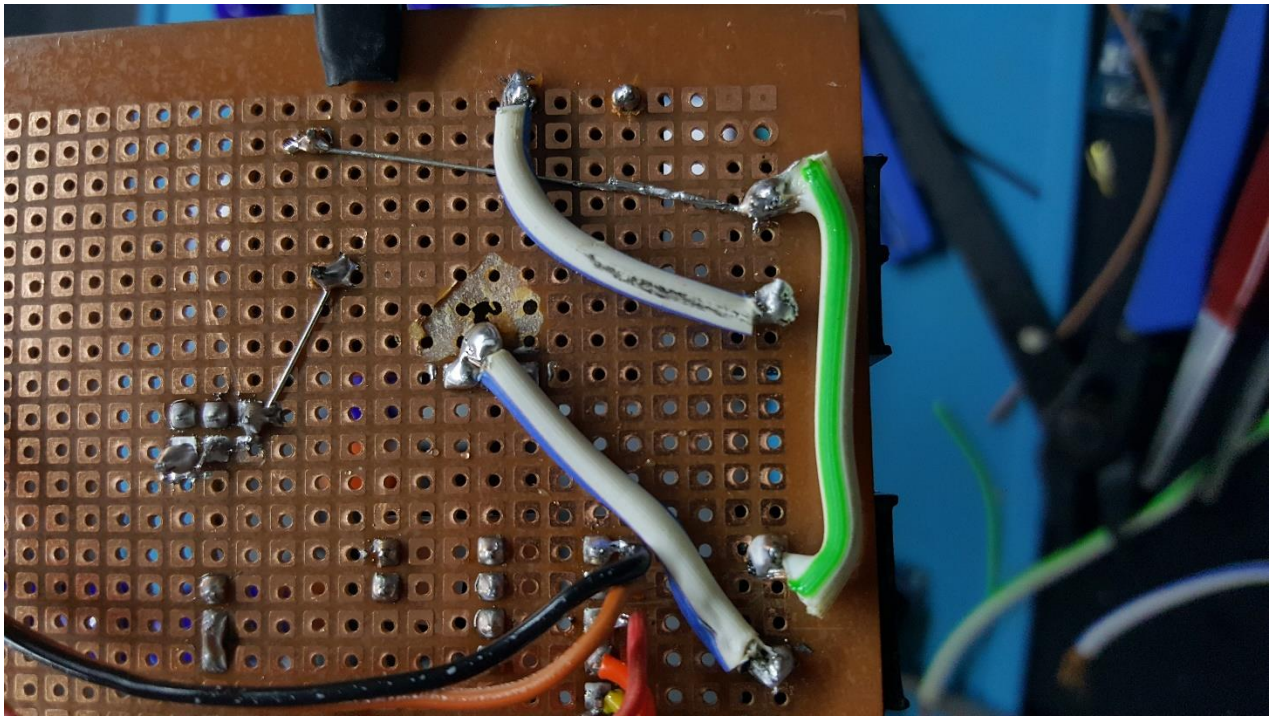
5.1.10:

Connect the Input GND and output GND to the NO (Normally open) pins of the relay.



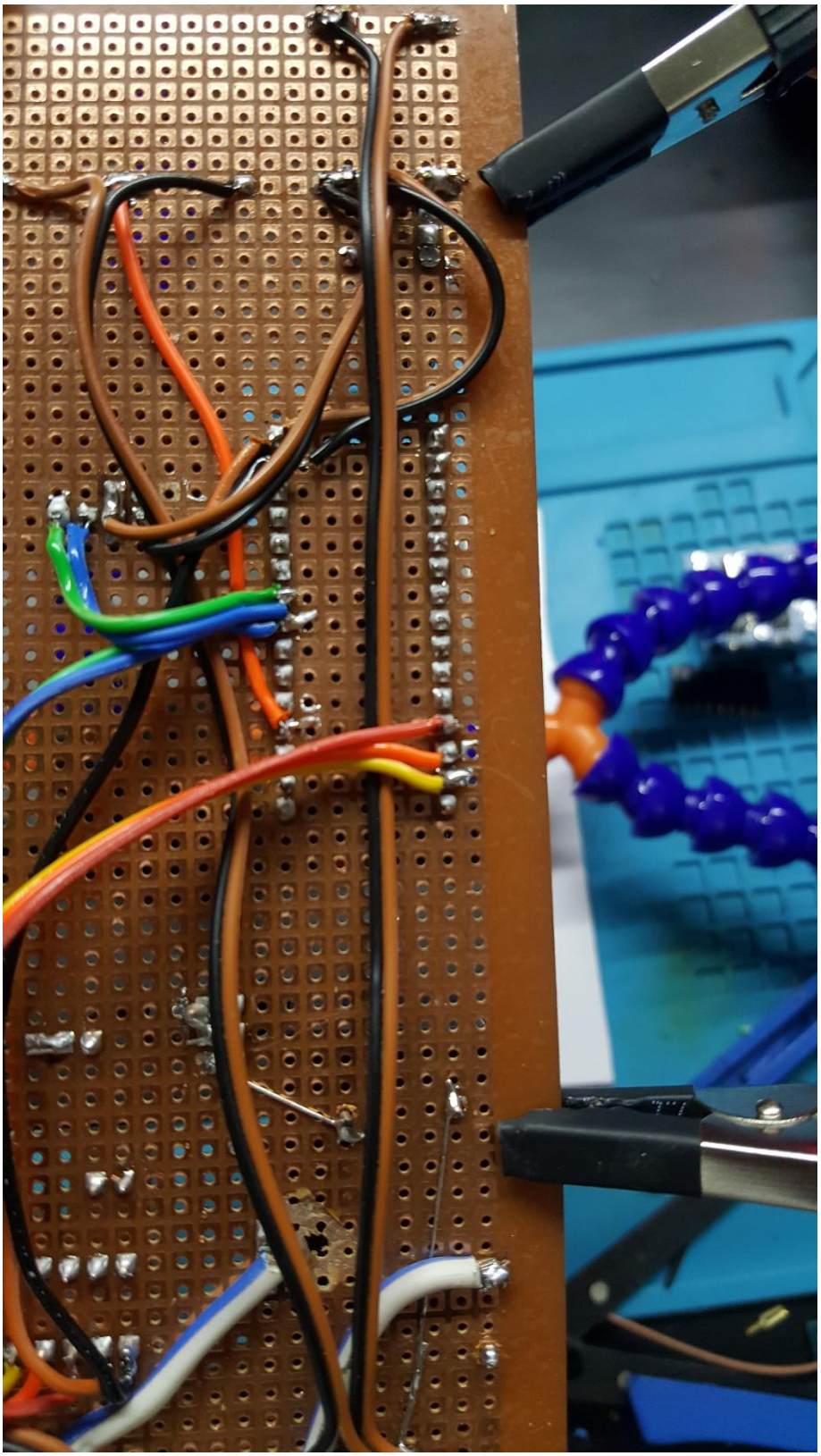
5.1.11:

(Temporary) Connect the Input Positive and output Positive together for now. This will be replaced by the ACS712 module later.



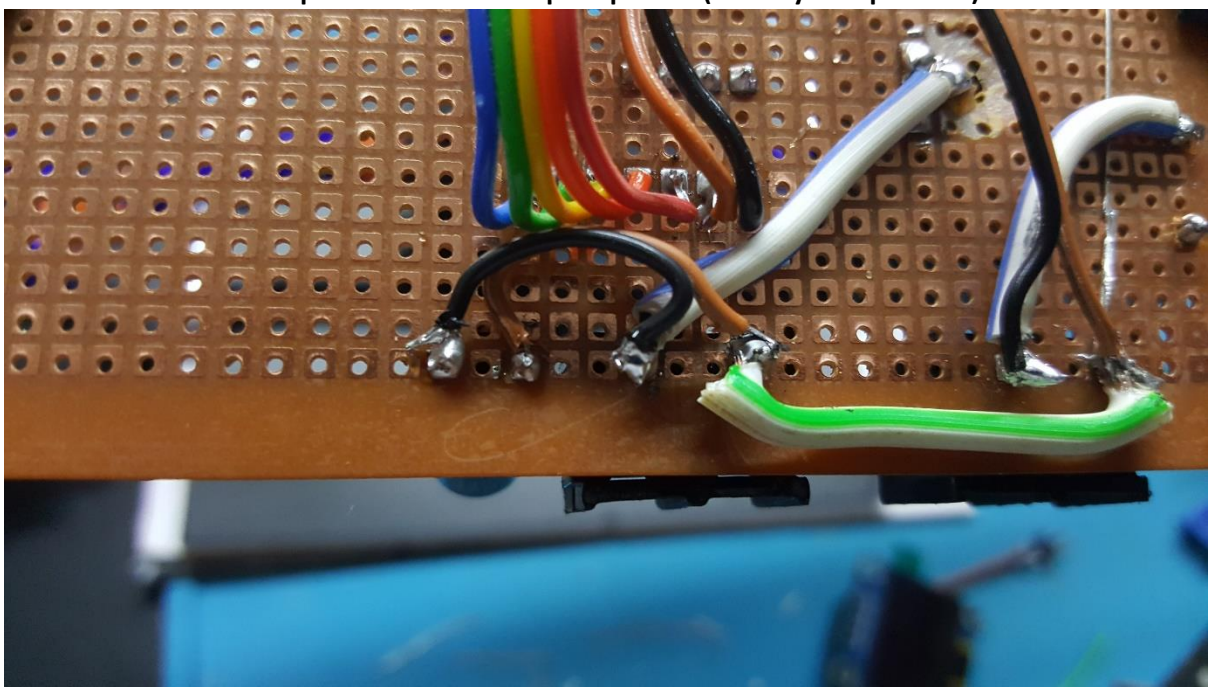
5.1.12:

Connect the GND and VCC of the voltage divider to the Negative and Positive rails of the Input, Connect the Input of the Buck converter to the Input (voltage rails, 12V).



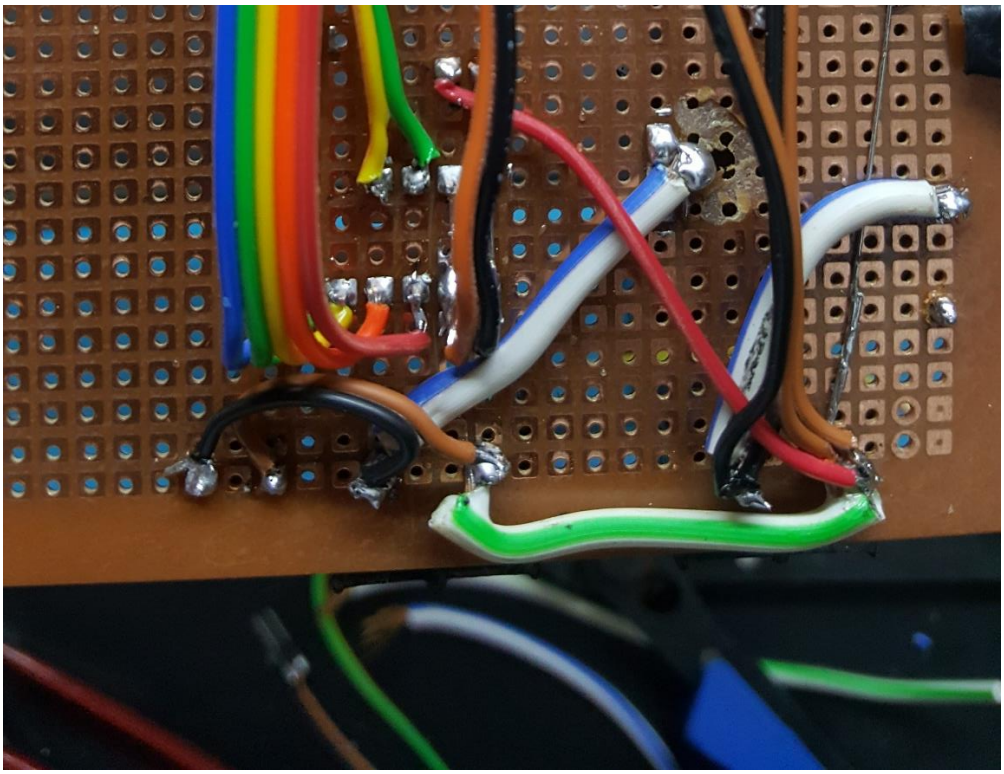
5.1.13:

Connect the Output Side to the 1000µF capacitor (Polarity is important!)



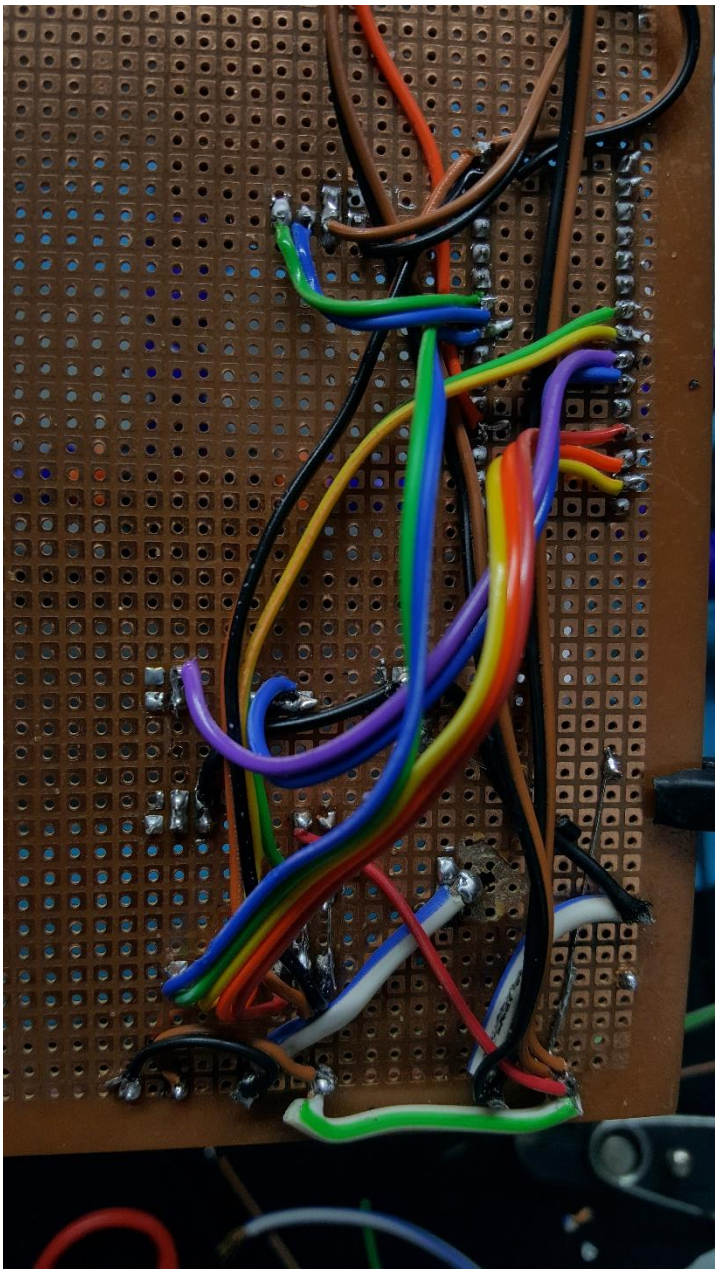
5.1.14:

Connect the 1st pin of the 2pin header to vcc (+12V). [Used in future upgrade – Ceiling Lighting].



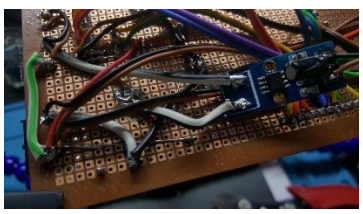
5.1.15:

Connect D7 (to relay's transistor) and D6 (to light's transistor)



5.1.16:

Remove the Green wire (that I mentioned as temporary before) and connect the ACS712 Current sensor



We are done with making the Main Board of the system. The only thing left is to add the button that changes the screens which will be shown in the assembly step of the Instructable.