Brauduino Shield Assembly

Start off with the PCB, place it with the top facing up (the top has the outline of the relay) get the 1k ohm resistor (brown,black,red) and cut the legs off it so you can use the legs as jumpers. There are 2 jumpers on the PCB on labelled JU1 and the other 12v, (the kit is supplied with a 12v relay if you are purchasing the parts separately there is also a 5v jumper in case you can only get a 5v relay), put the cut off legs into the JU1 position and 12v position and solder in place on the bottom of the PCB.

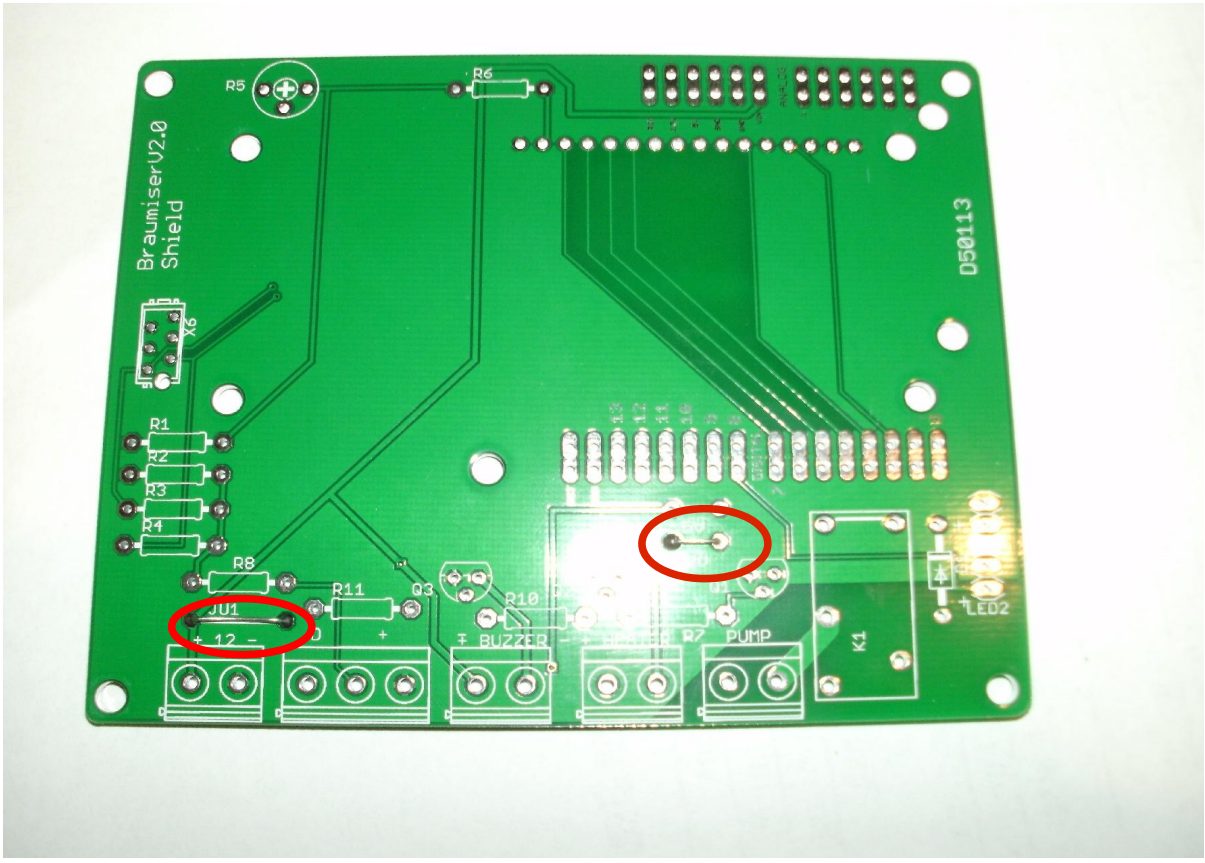


Fig. 1 top of board with jumpers in place

next sort out the resistors
R1 – R4 = 10K (brown,black,orange) or (brown,black,black,red)
R5 = 10K pot
R6 = 120ohm (brown,red,brown)
R7,R10,R11 = 470 ohm (yellow,violet,brown)
R8 = 4.7k (yellow,violet,red)
put them in place and turn over the PCB to solder them on the bottom of the PCB.

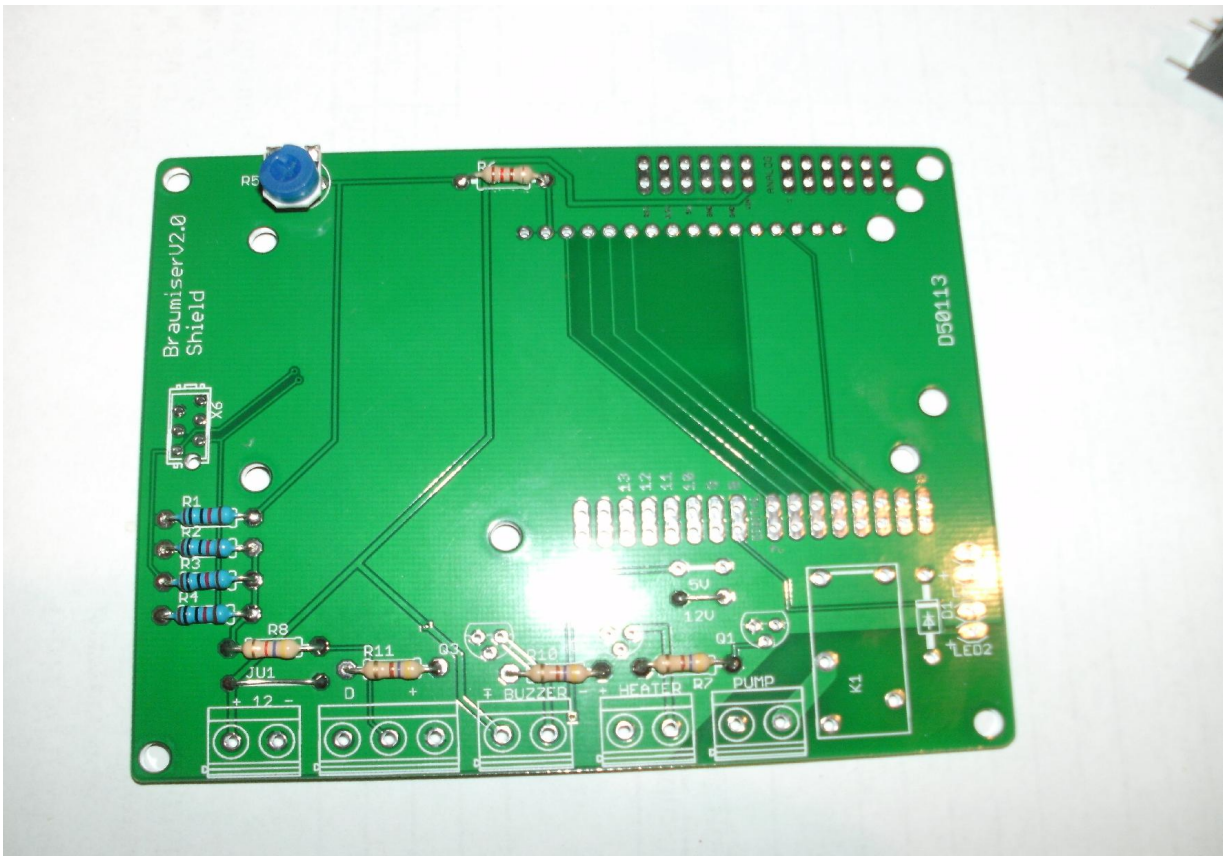


Fig.2 top of board with resistors in place

Next step is to put the transistors and diode in place. Place the 3 2N2222a in the positions labelled Q1, Q2 and Q3 making sure the flat part on the transistor is the same as the outline on the board and solder them on the bottom of the board. Next put the diode in place D1 making sure the white line on the diode is on the same end as the outline's white line.

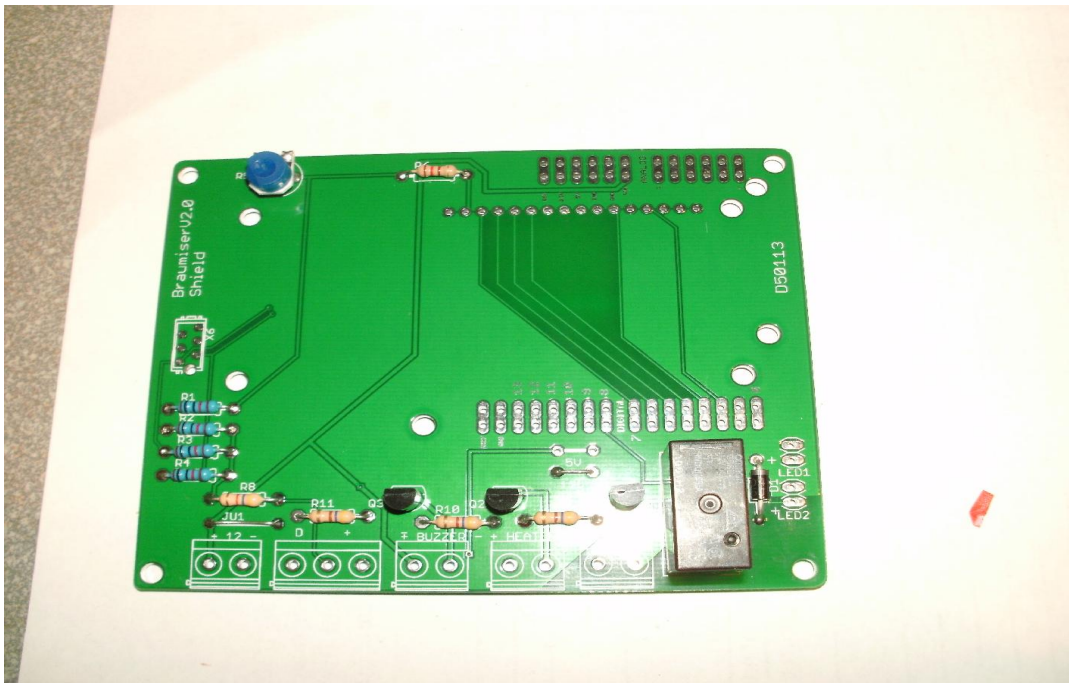
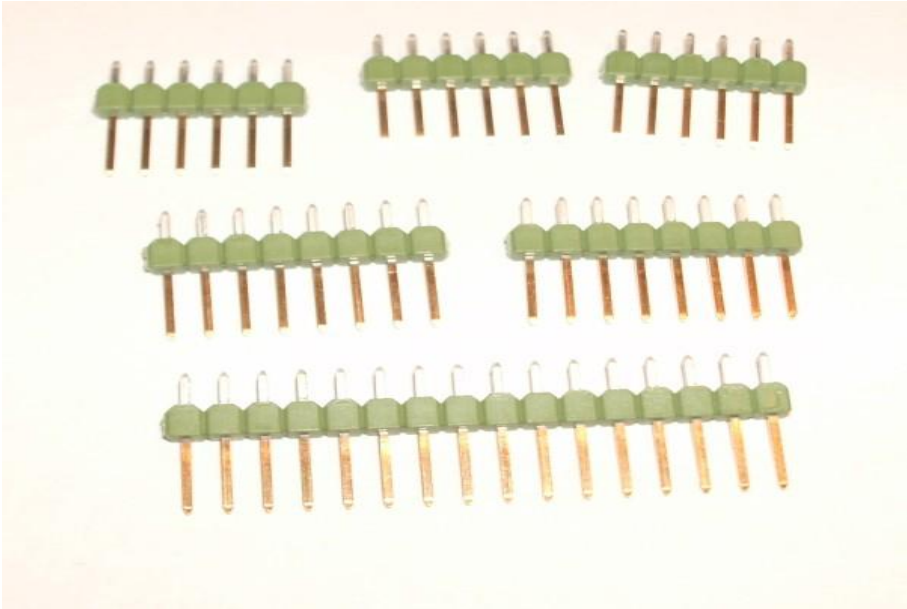


Fig.3 transistors, diode and relay in place

Shown in the picture above is the relay soldered in position I think it would be better to put the relay in last as it is very tall and makes it difficult to solder the connector in place with it in.

next get the 50 x 1 pinheader and break it up into one length of 16, 2 lengths of 8 and 2 lengths of 6 and you will have 6 pins left over



now you are ready to solder the connector to the board, put aside the 16 pinheader as this will be used later for the LCD. Solder the two 6 pin and the two 8 pin to the top of the board in the outer most position (this is where the arduino will be plugged in) the short side goes to the board

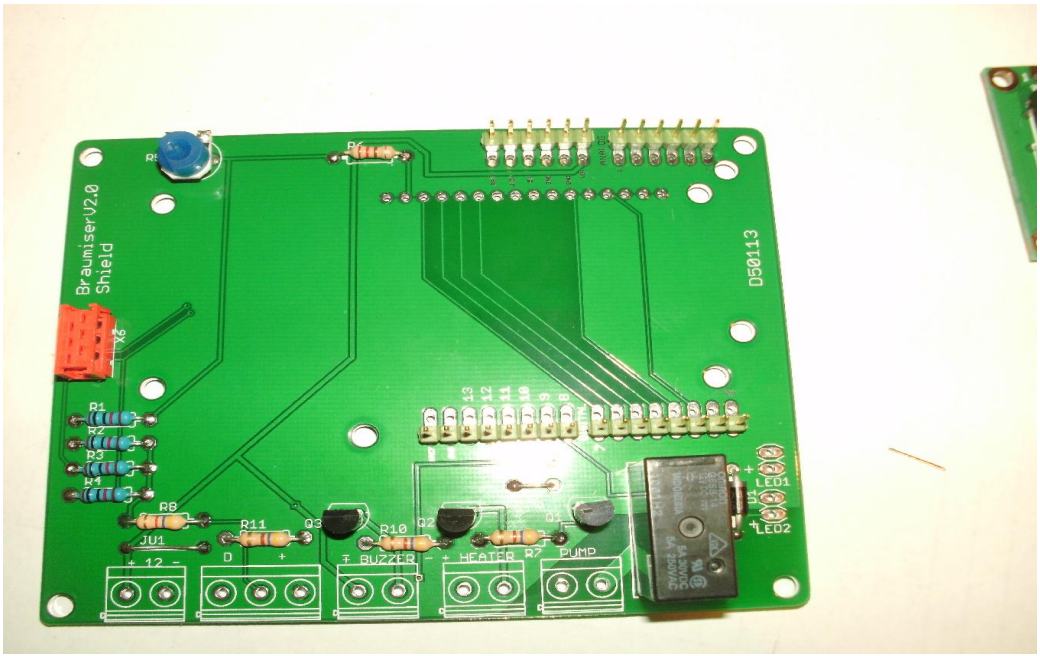


Fig.4 pin headers and micromatch in place

I have found its good to solder one pin to hold the pin header in place and then check it is square to the board before solder the rest of the pins, if it isn't square its just a matter of putting the soldering iron on the soldered pin and straightening it up, remember it is important to keep the part still until the solder has hardened if you don't you will end up with something called a dry joint, a dry joint will look dull and not shiny.
Now you can solder in the MicroMatch connector and the screw connectors

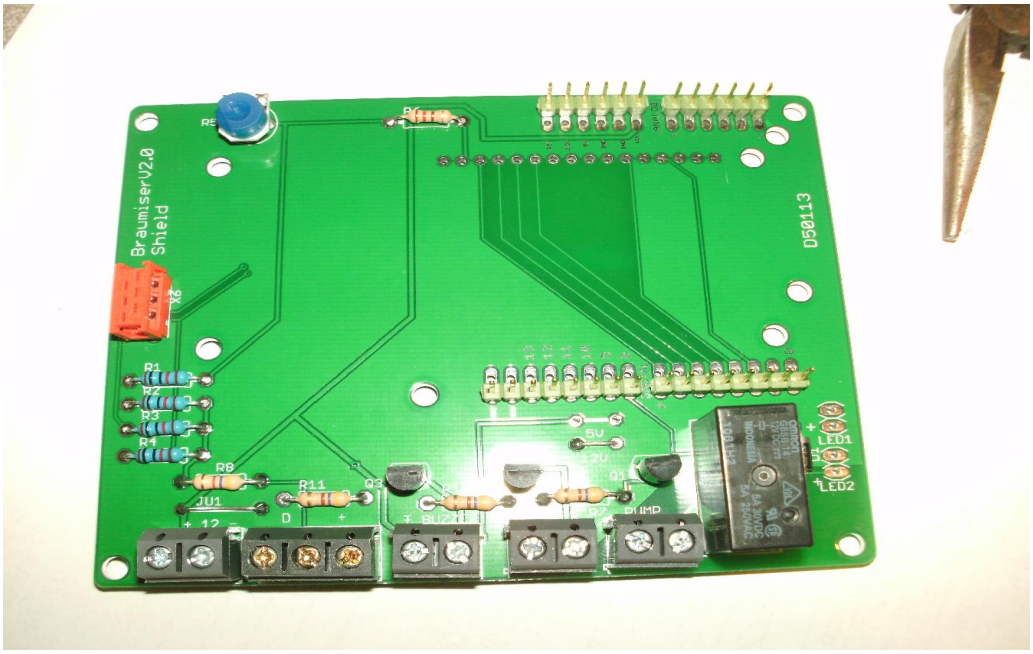
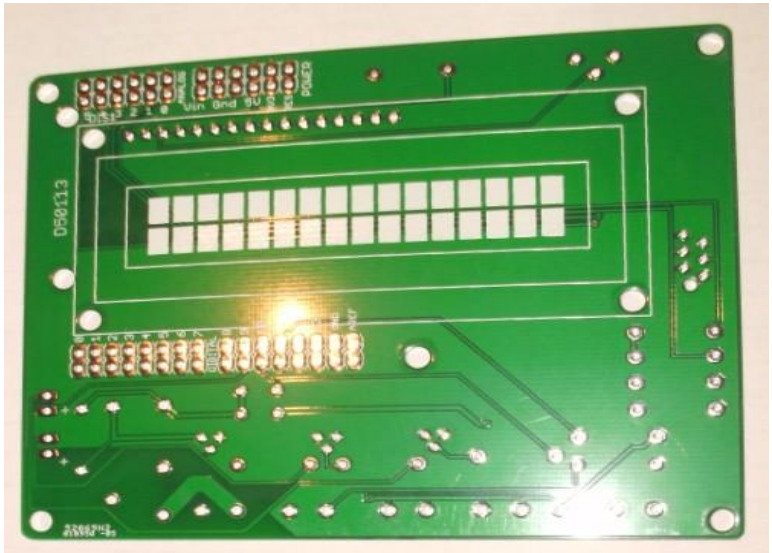


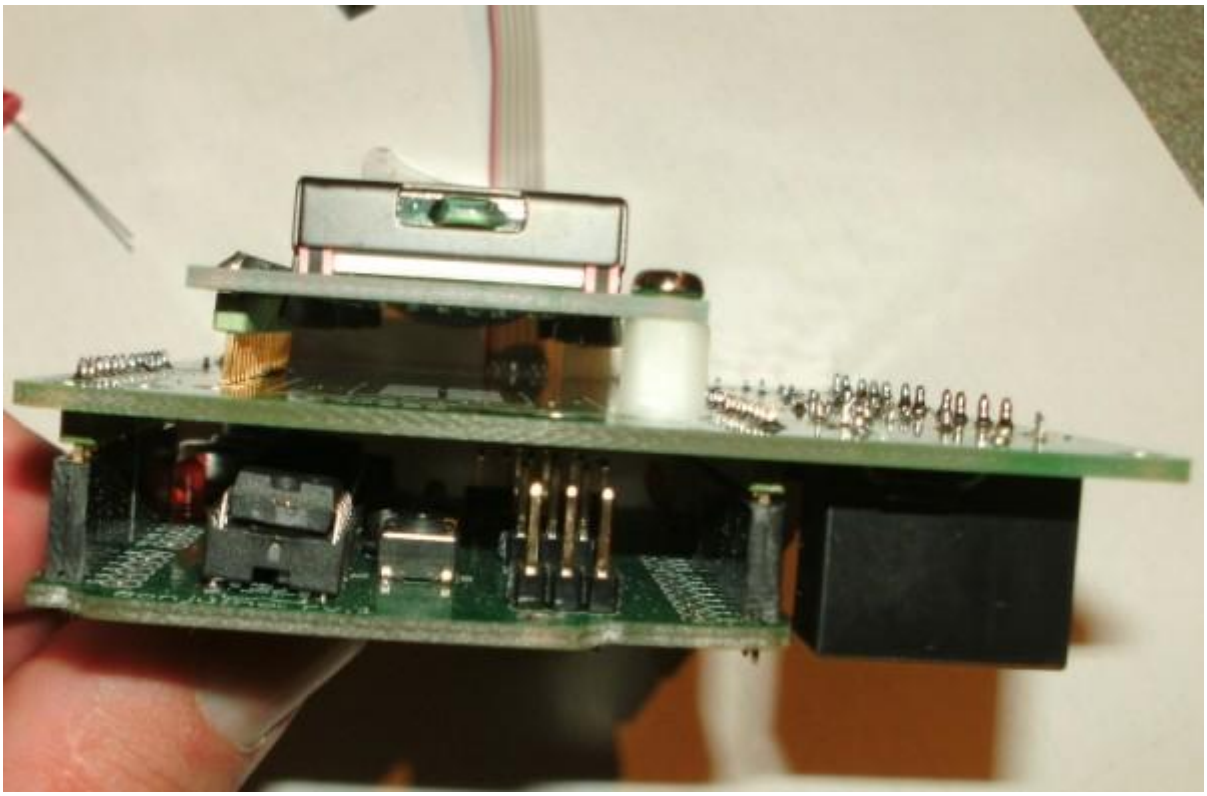
Fig.5 Screw connectors in place

Now solder in the relay and that almost completes the components placed on the top of the PCB

Now take 15mm nylon stand off and cut and file it into two 6mm pieces , these will be used to hold the LCD up off the board. Get the 16 pin pin header that you put aside earlier and place it into the bottom of the LCD module with the long pins pointing down and the short pins poking out the top of the LCD board, solder it into to position making sure its square.
Flip the brauduino board over so that all the components are on the bottom so it looks like this

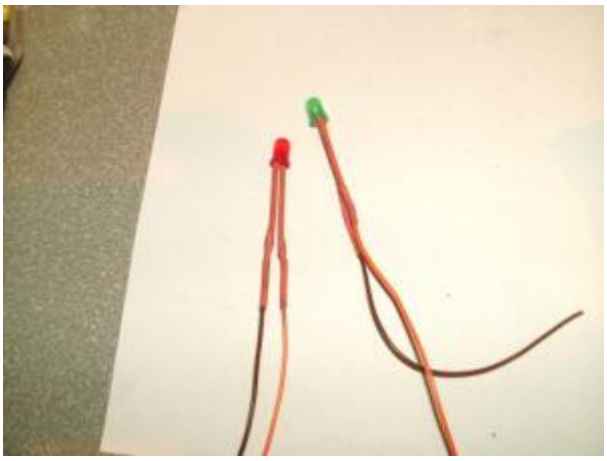


screw the stand off in to the top two mounting holes on the LCD module, this is temperary and just to help hold the LCD up when soldering the pin header to the PCB. Solder one pin on and check that it is square the continue with the rest until all 16 are soldered, unscrew the stand off and place them in the bottom mounting holes to support the LCD module



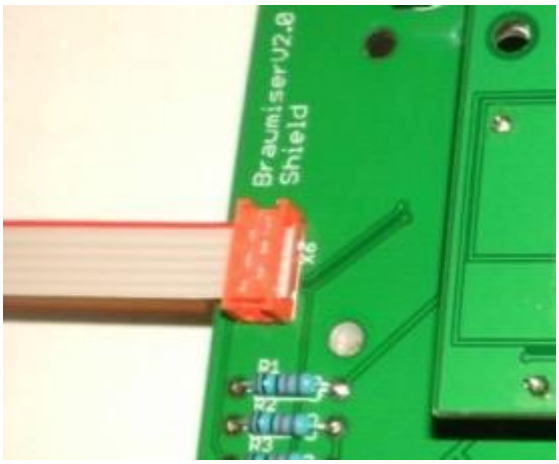
Picture with the bonjuino pluged into the top of the board and the LCD soldered to the bottom (note picture is upside down)

now cut six wires with a length of about 10cm (3 in one colour and 3 in another colour), with a LED the long leg is connected to + , solder the wires to the legs of the LED taking note which colour is connected to the + leg. Cut enough heatshrink to completely cover the legs of the LED

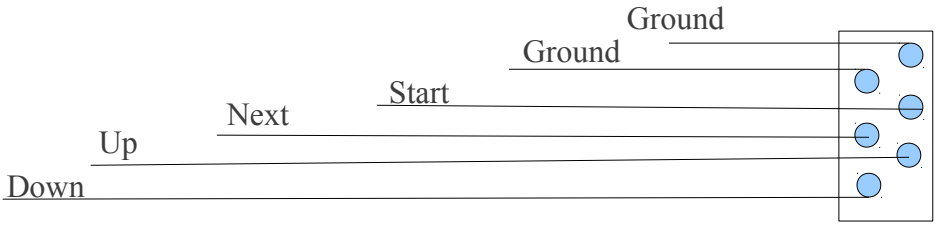


solder the other ends of the wires into the PCB putting the + lead into the hole marked +.
Solder the other 2 wires on to the buzzer, strip the other end of the wires and put them into the buzzer screw connector taking note of the polarity (I.E. + and -).

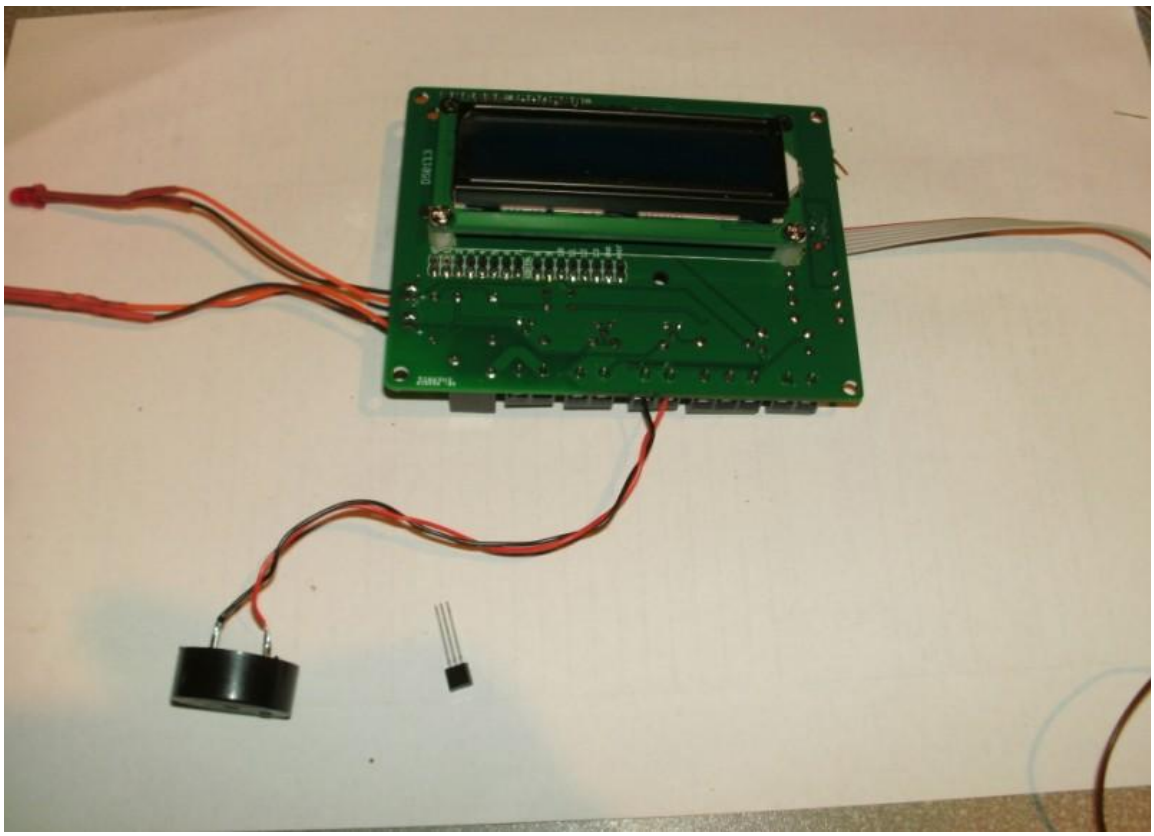
Next place the 6 way ribbon cable into the mircomatch connector making sure it lines up with the ridges in the top part of the micromatch connector, with a pair of pliers carefully push the top of the connector down so that it pierces the wires and locks into the bottom part (it takes a bit of force to do this and make sure that the wire stays square to the connector).



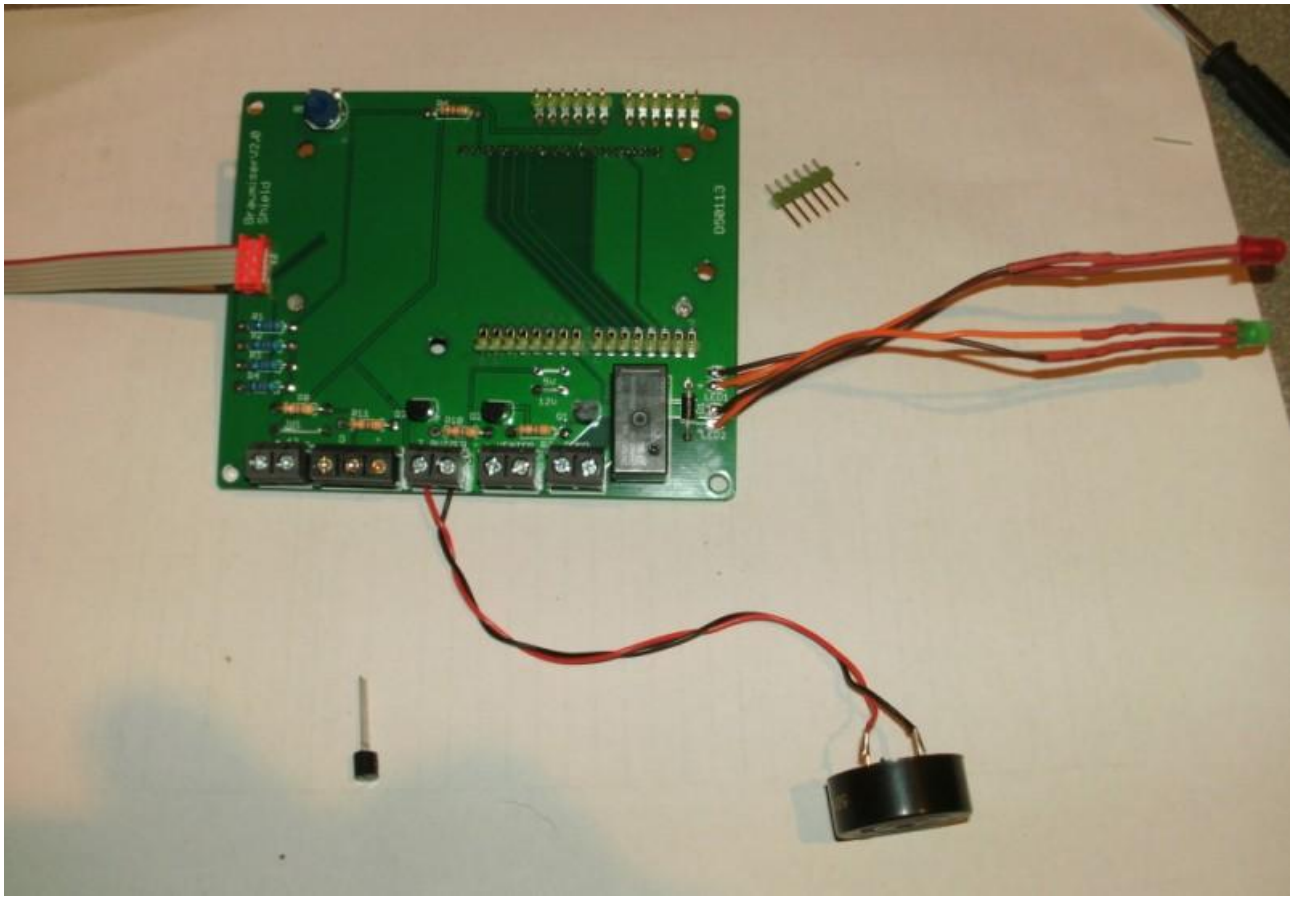
The push buttons are connected to the other side of the 6 way ribbon cable and they are connected like this



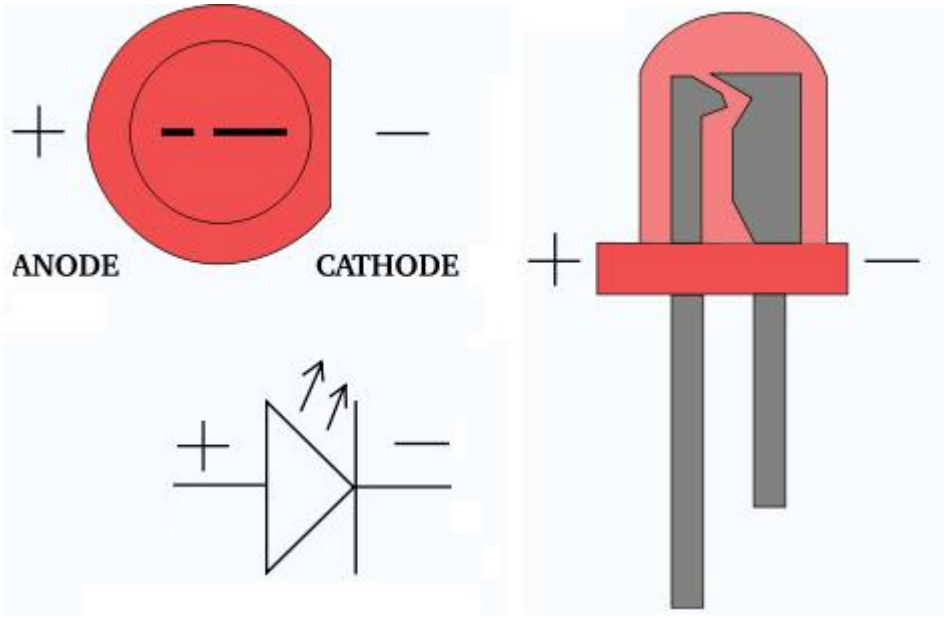
well this completes the PCB build you should end up with something like this

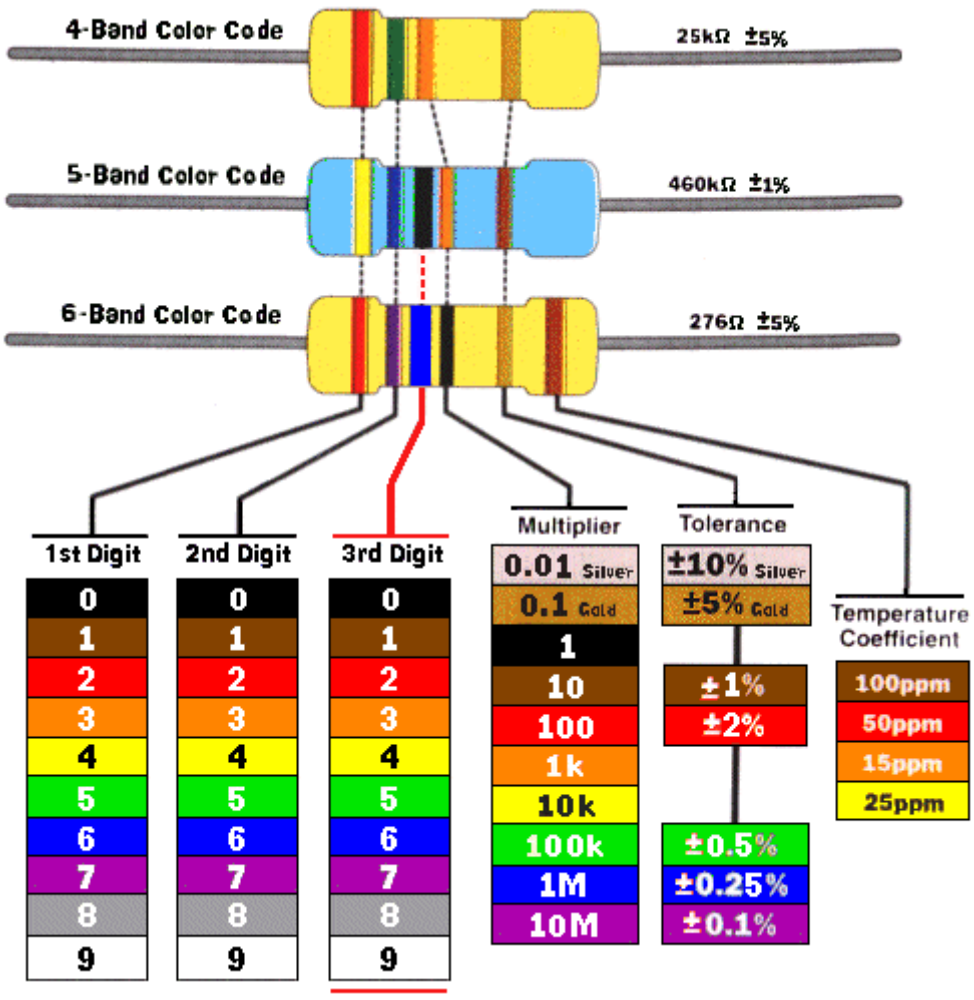


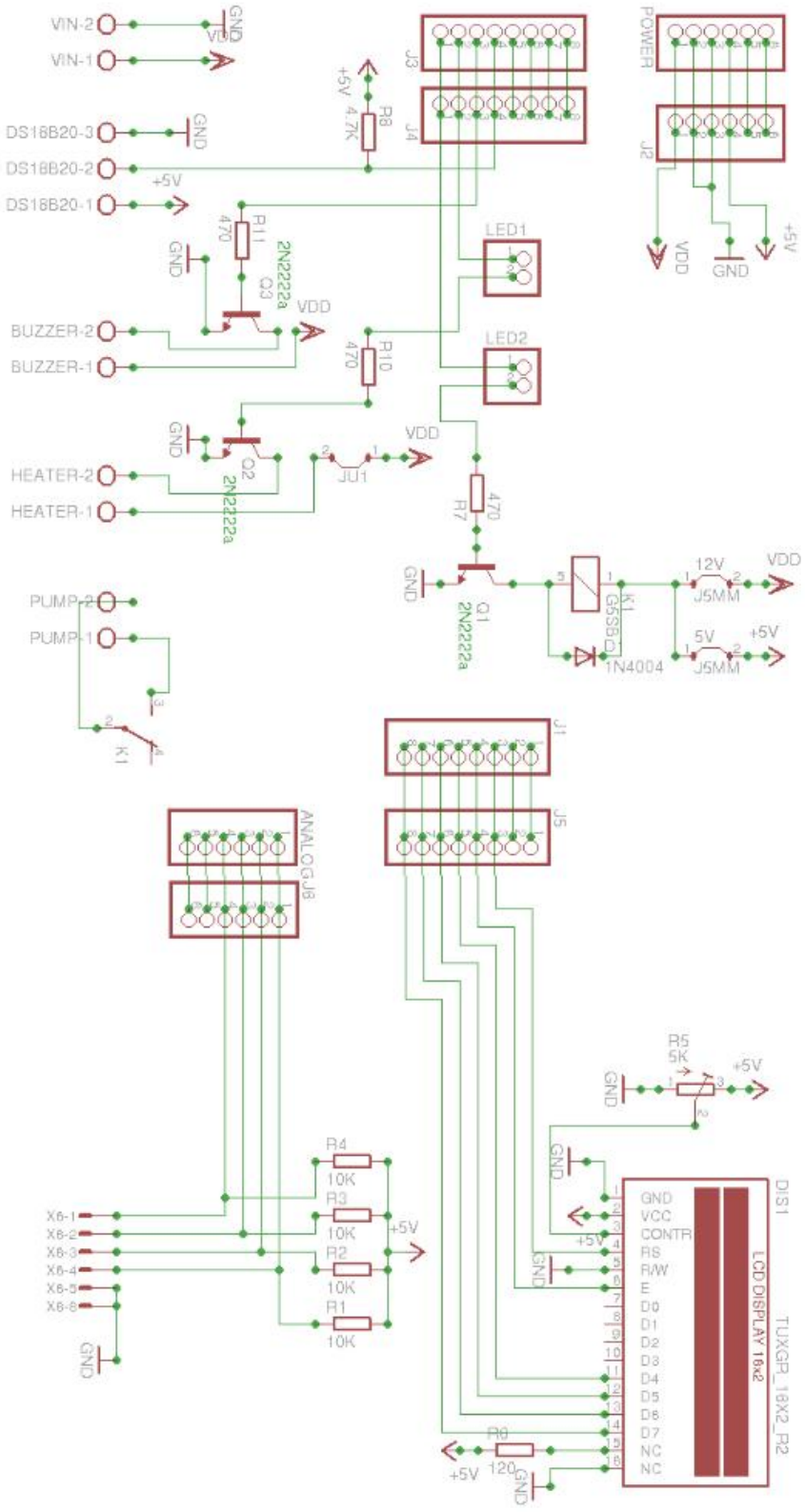
view for the bottom



view for the top


ANODE
CATHODE


4-Band Color Code
25kΩ ±5%
5-Band Color Code
460kΩ ±1%
6-Band Color Code
276Ω ±5%
1st Digit
2nd Digit
3rd Digit
Multiplier
Tolerance
Temperature Coefficient
0
1
2
3
4
5
6
7
8
9
0.01 Silver
0.1 Gold
1
10
100
1k
10k
100k
1M
10M
±10% Silver
±5% Gold
±1%
±2%
±0.5%
±0.25%
±0.1%
100ppm
50ppm
15ppm
25ppm


VIN-2
VIN-1
GND
VIN
DS18B20-3
DS18B20-2
DS18B20-1
+5V
R8
4.7K
J3
J4
POWER
J2
VDD
BUZZER-2
BUZZER-1
R11
470
2N2222a
Q3
R10
LED1
LED2
HEATER-2
HEATER-1
JU1
Q2
R7
Q1
K1
G5SB-1
1N4004
12V
J5MM
5V
PUMP-2
PUMP-1
ANALOG J8
J1
J5
R5
5K
R4
10K
R3
R2
R1
X6-1
X6-2
X6-3
X6-4
X6-5
X6-6
R6
120
DS1
GND
VCC
CONTR
RS
R/W
E
D0
D1
D2
D3
D4
D5
D6
D7
NC
NC
LCD DISPLAY 16x2
TUXGR_16X2_R2