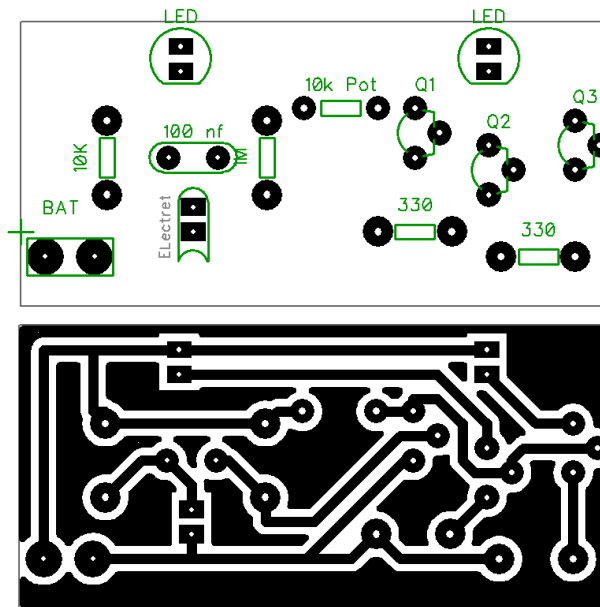


Exploratory 9 – Sound Sensing LED Display

Printed Circuit Board (PCB) Assembly

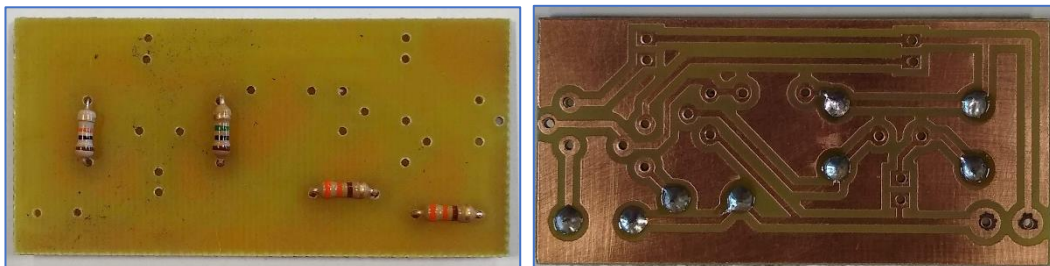
Important – The ability to make GOOD solder connections (think Mt. Fuji) is critical to the successful outcome of your project. You MUST complete the soldering practice board BEFORE attempting the actual project PCB and have reasonable confidence that you can make solder connections that will work!

Use the following diagrams of the PCB for reference when soldering in components:



Note: The order in which the components are soldered in is not critical. The steps that follow are but one of many possible options.

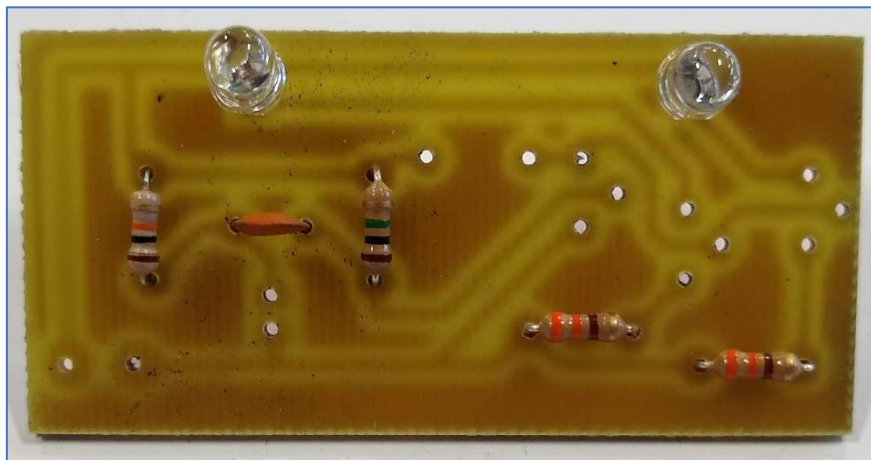
Step 1 – solder in all resistors (Pro Tip - keep banding direction consistent so the board can be easily read)



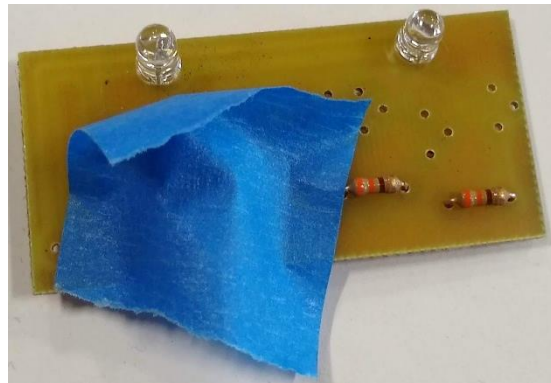
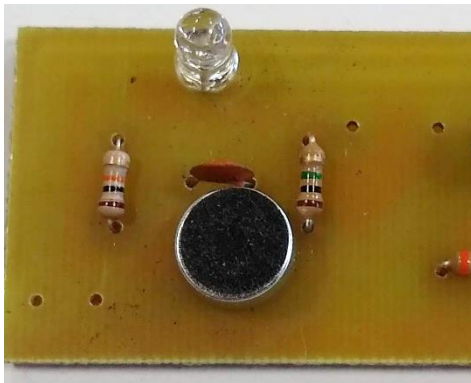
Step 2 – Solder in the ceramic disc capacitor. Make sure it has the number 104 printed on it. This type of capacitor has no polarity, so direction doesn't matter.



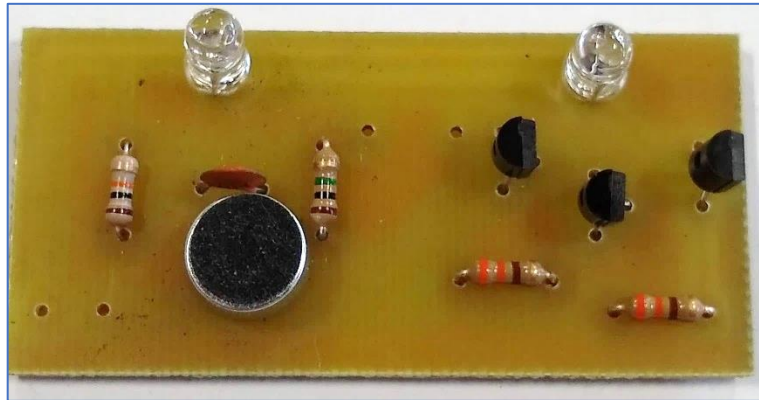
Step 3 – Solder in the two LEDs. Remember, these DO have POLARITY and need to be installed in the correct direction. Consult the diagram at the beginning of this document to determine this.



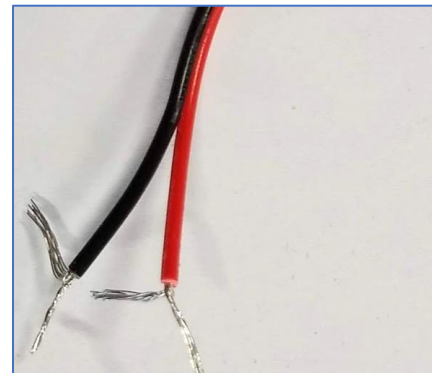
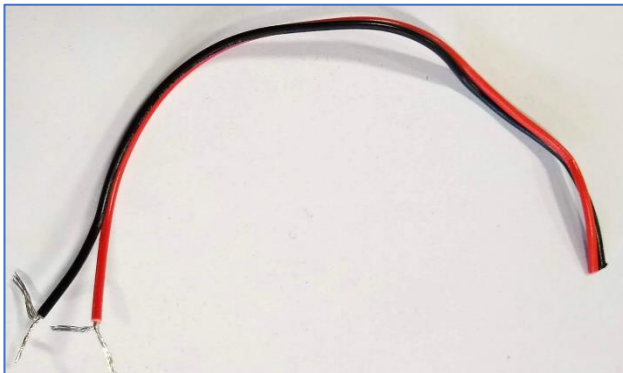
Step 4 – Solder in the Electret Microphone. Trouble keeping it in place? Use a piece of masking tape.



Step 5 – Solder in the three transistors. Note the flat face and its direction. Consult the diagram at the beginning of this document for further reference.



Step 6 – Obtain a length of wire for the power connection. Strip and carefully separate out enough strands to allow it to be inserted into the circuit board. Carefully trim off the unneeded strands. Be sure to keep as many strands as possible or you will weaken the wire and it will break.



Step 7 – Neatly twist the strands of the wire, then ‘Tin’ the wire by applying a small amount of solder. Be sure to not increase the size of the wire as this might make it difficult to insert into the PCB.

Step 8 – Solder the power wire to the PCB. Take care to connect the red wire to the hole nearest to the short edge of the board.

Step 9 - Obtain a wire for the potentiometer. Strip one end (both wires) and tin them. Tin two terminals of the potentiometer.

Using needle nose pliers to hold the wire and a ‘third hand’ to hold the potentiometer, bring the wire and the terminal in contact with each other. Use the soldering iron to ‘Re-flow’ the tinned connections. They should melt together.



Step 10 – Repeat Step 6 &7 with the other end of the potentiometer’s wire, then solder it into the board. It does not matter which wire goes in which hole.

Step 11 – Strip a small amount of insulation off the loose end of the power wires.

Step 12 – Test operation. Set the bench top power supply to 5 volts and connect your project. BE CAREFUL TO RESPECT POLARITY, red to red and black to black. Talk to your project. Yes, talk to it! Adjust the potentiometer to achieve the sensitivity required and observe the pretty lights 😊

