

## 3 x 3 x 3 LED Cube Project

### Constructing the resistor plate

#### 1. 3D print a resistor plate

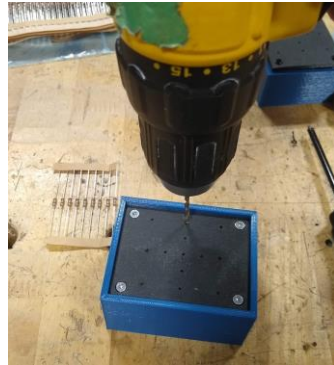
- Download the '.stl' file from the class [website](#)
- Import the fil into the Tinkerine Suite slicer program
- Check that the settings are correct
- Slice the model, then save to an SD card
- Print the plate



Commented [JT1]:

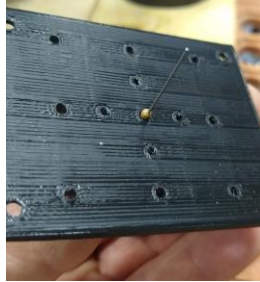
#### 2. Prepare the resistor plate

- Drill the nine holes that align with the anodes of the LED Array using a 3/32" drill bit
- Plate shown is mounted in base, but this isn't necessary. If not in base, make sure that a scrap piece of wood is used beneath the plate to protect the work surface



### 3. Install the resistors

- Holding the resistor in position from the top side of the resistor plate, hot glue the other end of the resistor to the plate.
- Take care not to keep the hot glue close to the plate as glue on the resistor lead itself will need to be removed to allow for soldering


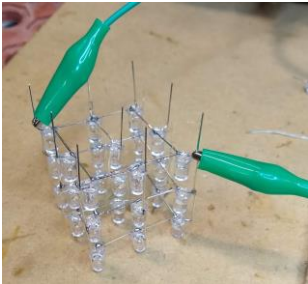


### 4. Trim each resistor lead

- Using side cutting pliers, trim the resistor leads on the top side of the plate leaving enough lead to allow for soldering to the LED array
- Then, trim the resistor on the bottom side of the plate leaving enough lead to allow for soldering to the wires that will connect to the PCB





<p><b>5. Test 1<sup>st</sup> layer</b></p> <ul style="list-style-type: none"> <li>• Set a power supply to 5V</li> <li>• Clip a 220 ohm (or near) resistor to the positive power supply lead</li> <li>• Clip the negative power supply lead to the soldered connections</li> <li>• One by one touch the free end of the resistor to the positive lead of each LED</li> <li>• Correct any issues</li> </ul>	
<p><b>6. Repeat the process in steps 2 through 5</b></p>	
<p><b>7. Connecting the layers</b></p> <ul style="list-style-type: none"> <li>• Use alligator clips to temporarily hold layers together</li> <li>• Carefully position leads to be connected to on another focusing on, and soldering, one at a time.</li> <li>• Take care to use an appropriate amount of solder to keep things looking tidy.</li> </ul>	
<p><b>8. Testing</b></p> <ul style="list-style-type: none"> <li>• Set the power supply to 5 volts</li> <li>• Attach the negative lead to the negative path for one layer</li> <li>• Using a 220 resistor attached to the positive lead of the power supply, test each led by touching the anode (positive lead) from the base of the array.</li> <li>• Move the negative lead to the next layer and repeat the test, again touching the resistor (positive) to the</li> </ul>	