

How to use Hacklab CNC for fabricating PCB

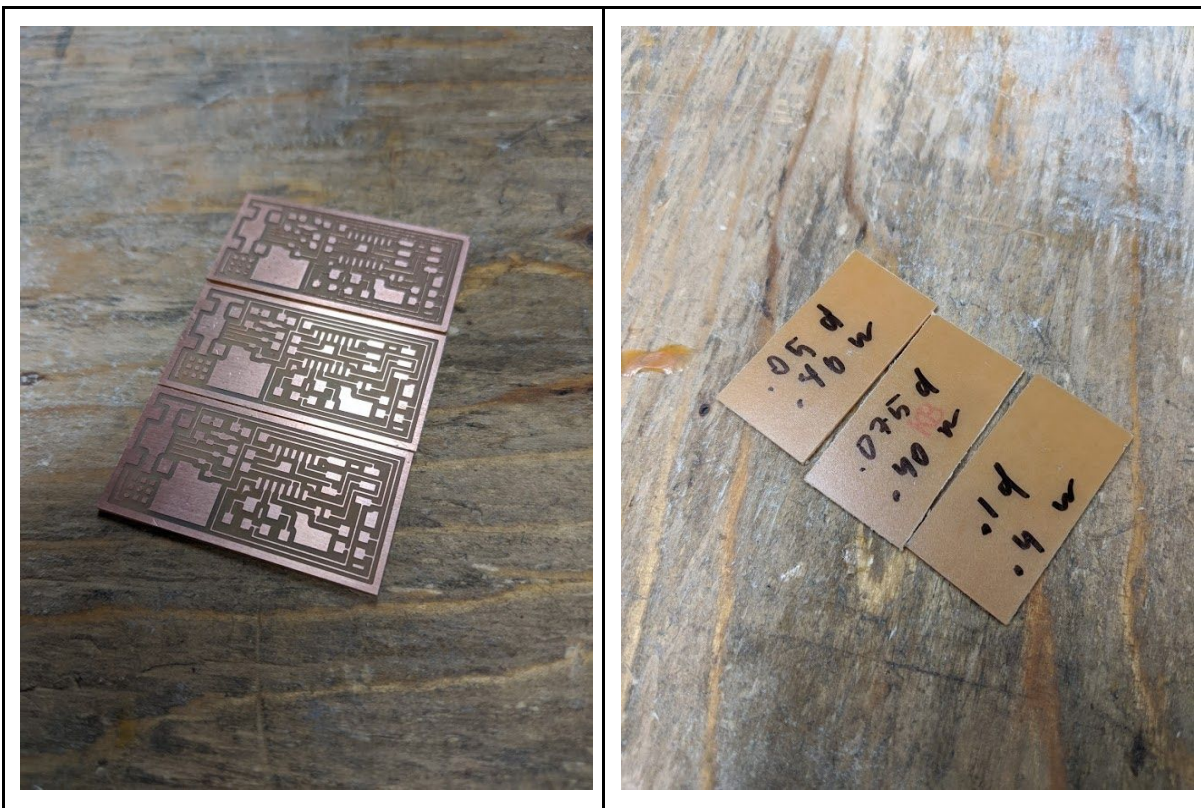
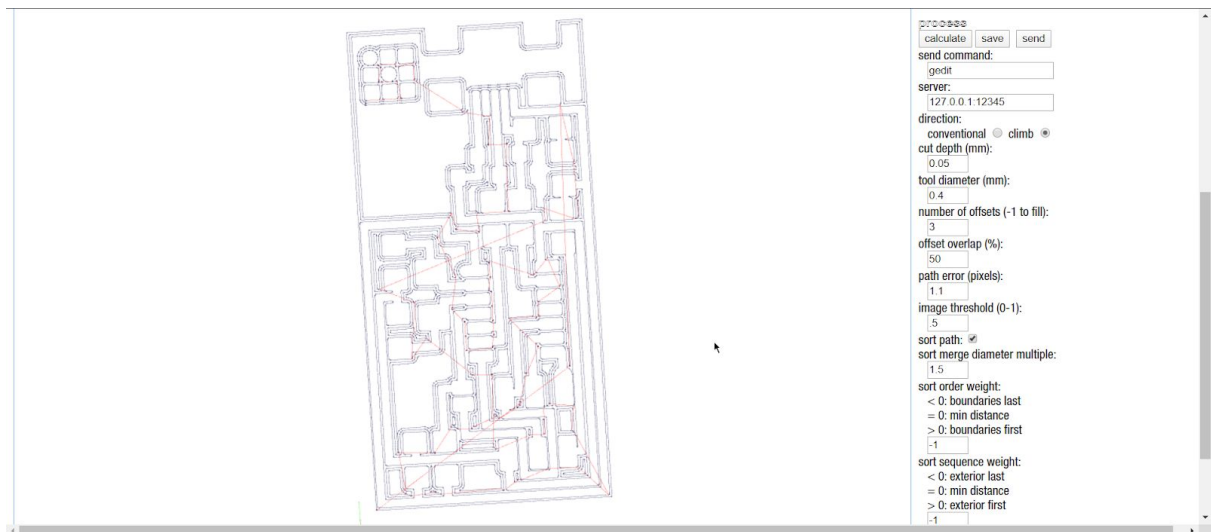
PCB file setting

- [Flatcam](#)

Main PCB - Full Geo	PCB Outline	PCB drill hole																											
<p>Geometry Object</p> <p>Plot Options:</p> <p>Name: <input type="text" value="copper_top.gbr_iso"/></p> <p>Tools Table</p> <table border="1"> <thead> <tr> <th>#</th> <th>Dia</th> <th>Offset</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.35</td> <td>Path</td> </tr> </tbody> </table> <p>Tool Dia: <input type="text"/></p> <p>Add Copy</p> <p>Tool Data</p> <p>Cut Z: <input type="text" value="-0.1000"/></p> <p><input type="checkbox"/> Multi-Depth: <input type="text" value="0.0020"/></p> <p>Travel Z: <input type="text" value="3.0000"/></p> <p><input type="checkbox"/> Tool change</p> <p>Tool change Z: <input type="text" value="1.0000"/></p> <p>End move Z: <input type="text" value="3.0000"/></p> <p>Feed Rate X-Y: <input type="text" value="700.000"/></p> <p>Feed Rate Z (Plunge): <input type="text" value="500.000"/></p> <p>Feed Rate Rapids: <input type="text" value="700.000"/></p> <p><input type="checkbox"/> Cut over 1st pt</p> <p>Spindle speed: <input type="text" value="24000"/></p> <p><input type="checkbox"/> Dwell: <input type="text" value="1"/></p> <p>PostProcessor: <input type="text" value="default"/></p> <p>Add at least one tool in the tool table. Click the header to select all, or click the tool to select individual tools for custom selection of tools.</p> <p>Generate</p>	#	Dia	Offset	1	0.35	Path	<p>Geometry Object</p> <p>Plot Options:</p> <p>Name: <input type="text" value="profile.gbr_ext_iso"/></p> <p>Tools Table</p> <table border="1"> <thead> <tr> <th>#</th> <th>Dia</th> <th>Offset</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3.17</td> <td>Path</td> </tr> </tbody> </table> <p>Tool Dia: <input type="text"/></p> <p>Add Copy</p> <p>Tool Data</p> <p>Cut Z: <input type="text" value="-1.7000"/></p> <p><input checked="" type="checkbox"/> Multi-Depth: <input type="text" value="0.5000"/></p> <p>Travel Z: <input type="text" value="3.0000"/></p> <p><input type="checkbox"/> Tool change</p> <p>Tool change Z: <input type="text" value="1.0000"/></p> <p>End move Z: <input type="text" value="3.0000"/></p> <p>Feed Rate X-Y: <input type="text" value="500.000"/></p> <p>Feed Rate Z (Plunge): <input type="text" value="160.000"/></p> <p>Feed Rate Rapids: <input type="text" value="10000.000"/></p> <p><input type="checkbox"/> Cut over 1st pt</p> <p>Spindle speed: <input type="text" value="10000"/></p> <p><input type="checkbox"/> Dwell: <input type="text" value="1"/></p> <p>PostProcessor: <input type="text" value="default"/></p> <p>Add at least one tool in the tool table. Click the header to select all, or click the tool to select individual tools for custom selection of tools.</p> <p>Generate</p>	#	Dia	Offset	1	3.17	Path	<p>Excellon Object</p> <p>Plot Options:</p> <p>Name: <input type="text" value="drill_1_16.xln"/></p> <p>Tools Table</p> <table border="1"> <thead> <tr> <th>#</th> <th>Diameter</th> <th>Drills</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1.00</td> <td>2</td> </tr> <tr> <td>1</td> <td>1.02</td> <td>24</td> </tr> <tr> <td colspan="2">Total Drills</td> <td>26</td> </tr> <tr> <td colspan="2">Total Slots</td> <td></td> </tr> </tbody> </table> <p>Create CNC Job</p> <p>Cut Z: <input type="text" value="-2.0000"/></p> <p>Travel Z: <input type="text" value="3.0000"/></p> <p><input type="checkbox"/> Tool change</p> <p>Tool change Z: <input type="text" value="1.0000"/></p> <p>Start move Z: <input type="text" value="15.0000"/></p> <p>End move Z: <input type="text" value="15.0000"/></p> <p>Feedrate (Plunge): <input type="text" value="60.0000"/></p> <p>Feedrate Rapids: <input type="text" value="10000.000"/></p> <p>Spindle speed: <input type="text" value="10000"/></p> <p><input type="checkbox"/> Dwell: <input type="text" value="1"/></p> <p>Postprocessor: <input type="text" value="default"/></p> <p>Select from the Tools Table and click the tools you want to include.</p> <p>Create GCode</p>	#	Diameter	Drills	2	1.00	2	1	1.02	24	Total Drills		26	Total Slots		
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How to use Hacklab CNC for PCB

- [Fabmodule](#)



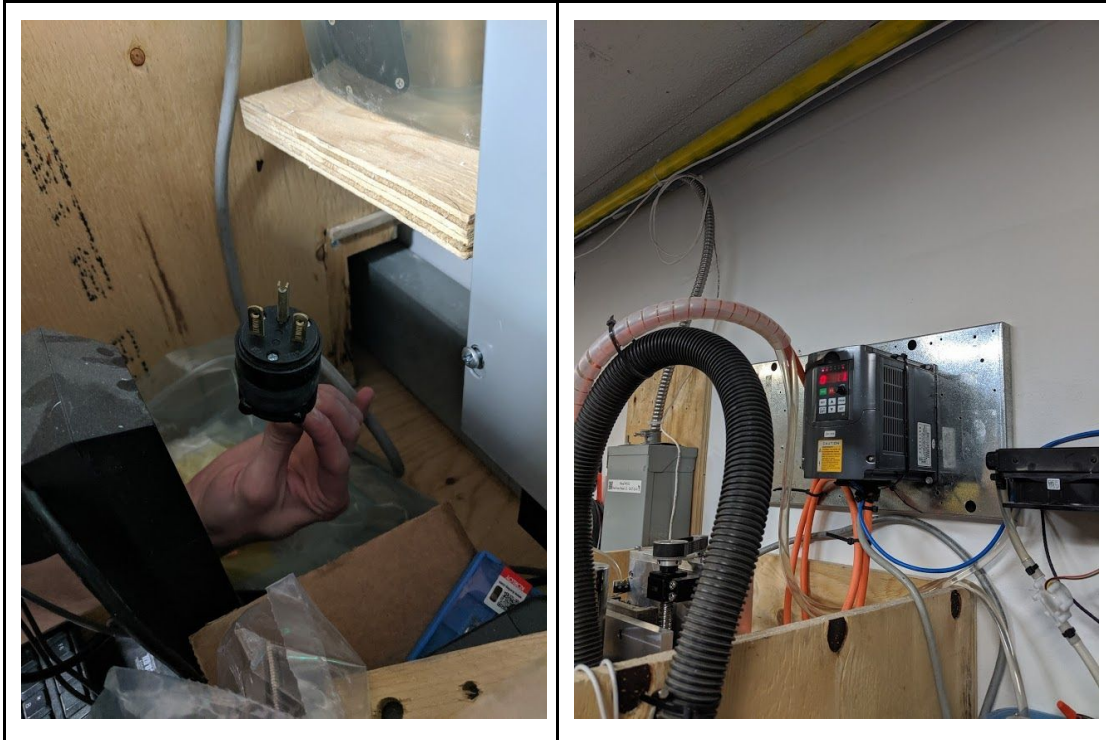
How to use Hacklab CNC for PCB

1. Power on



How to use Hacklab CNC for PCB

2. Plug in and power the water cooler on and see the interface if it's ready (turn the CNC program first) Home all at the CNC program

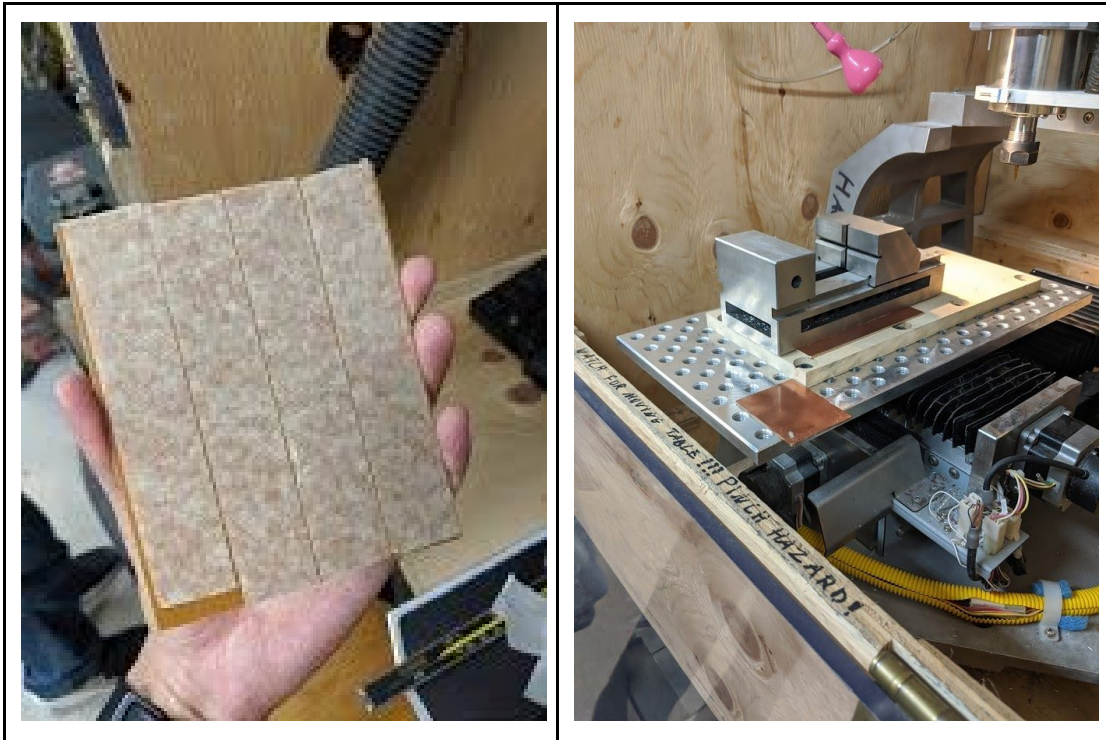


3. Make sure it's connected to the vacuum / change the HEPA Filter in the vacuum

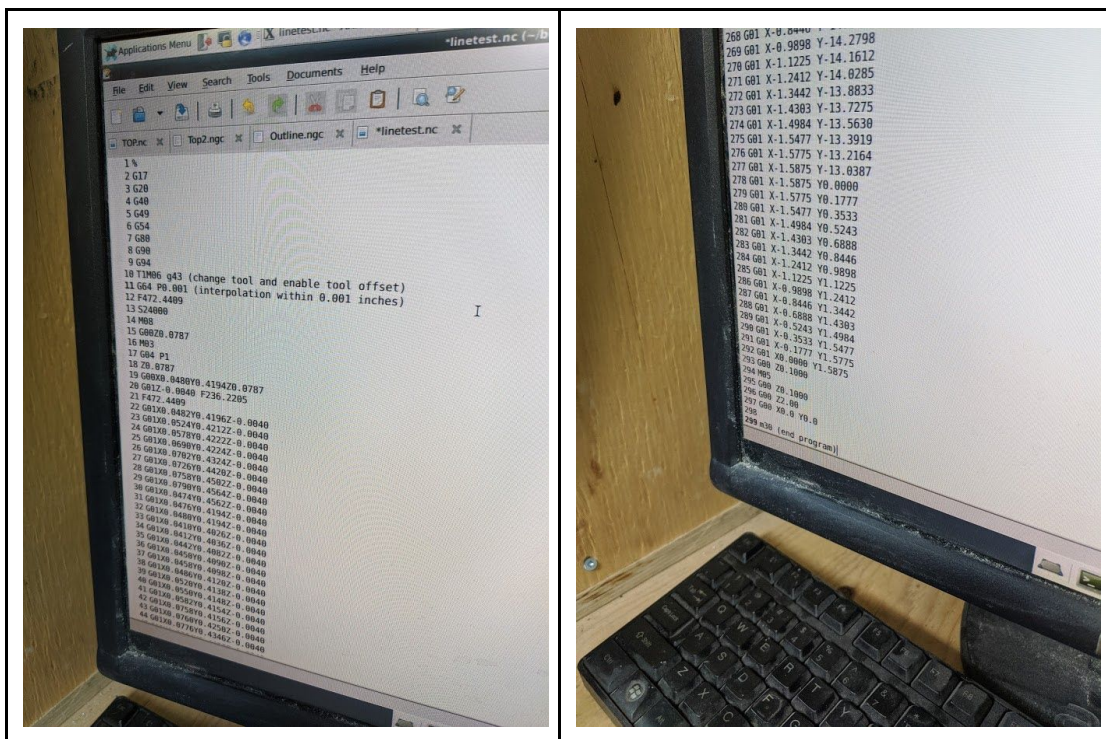


HEPA Filter For 18.9 L (5 Gal.) & Larger Wet Dry Vacuums

4. Have your PCB ready and put it on the machine with the screws and wood (If there is none)

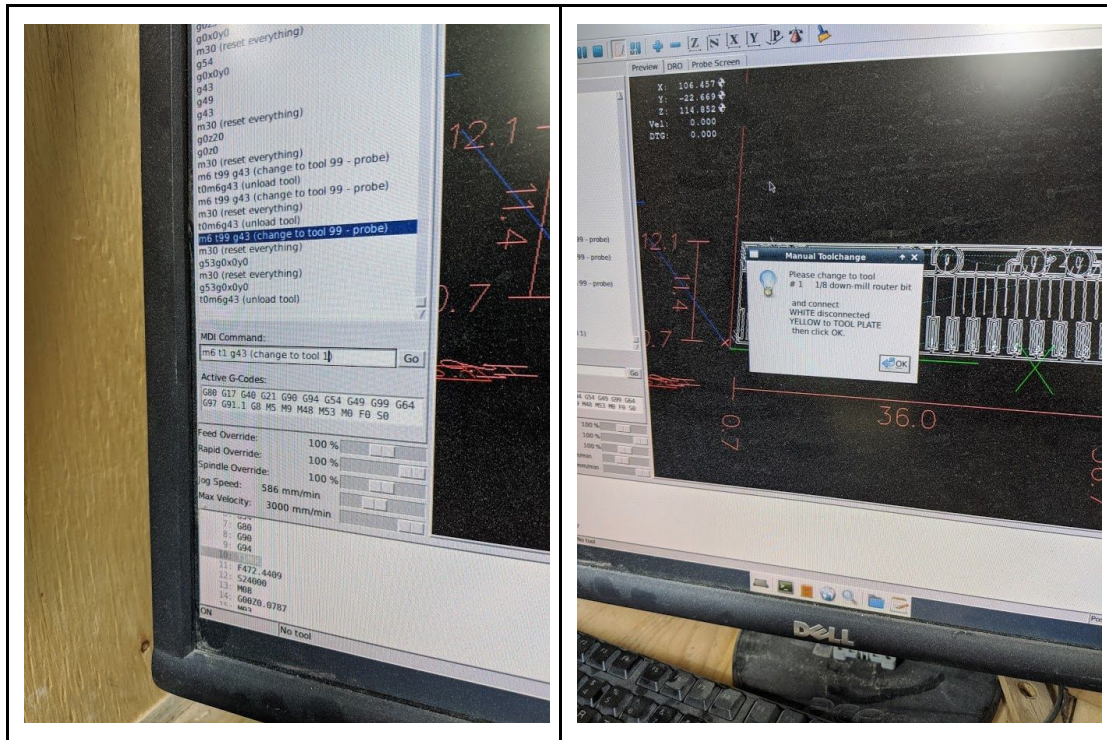


5. Open the file - open edit and type M6 M1 g43 to change the tool and G 61 for no interpolation. If the file is made with Flatcam, type m30 to finish up the machine at the end.

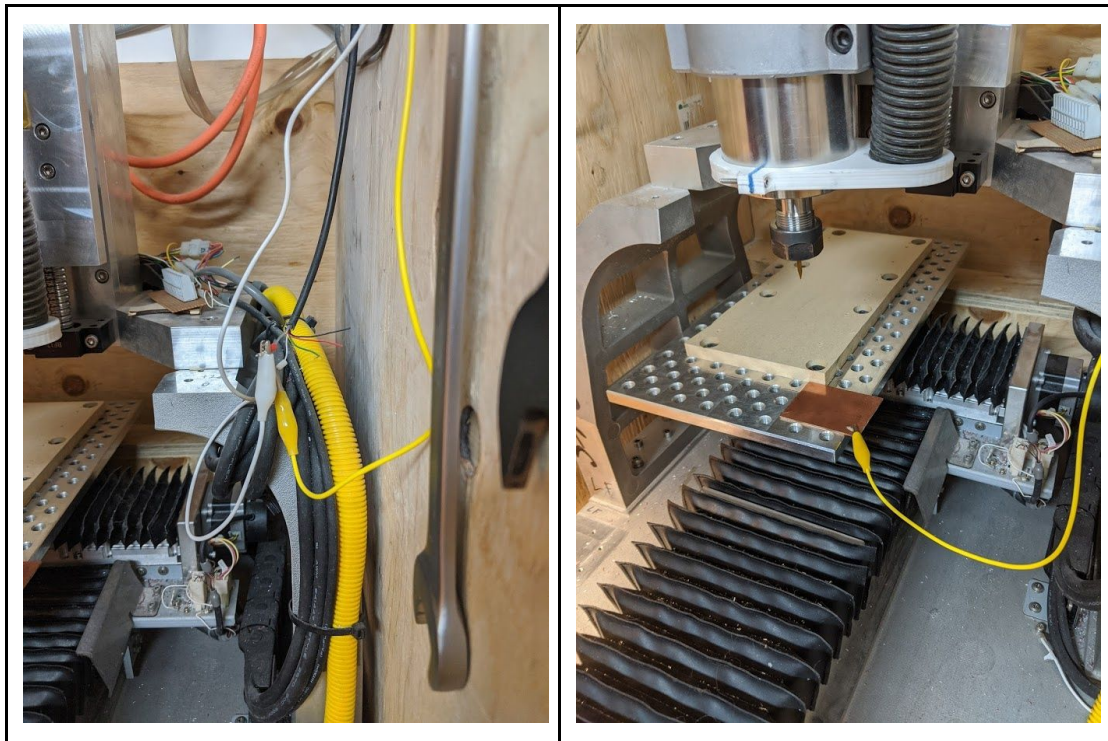


How to use Hacklab CNC for PCB

6. GO MDI mode -> M6 T1 G43 -> the interface will pop up -> Read carefully

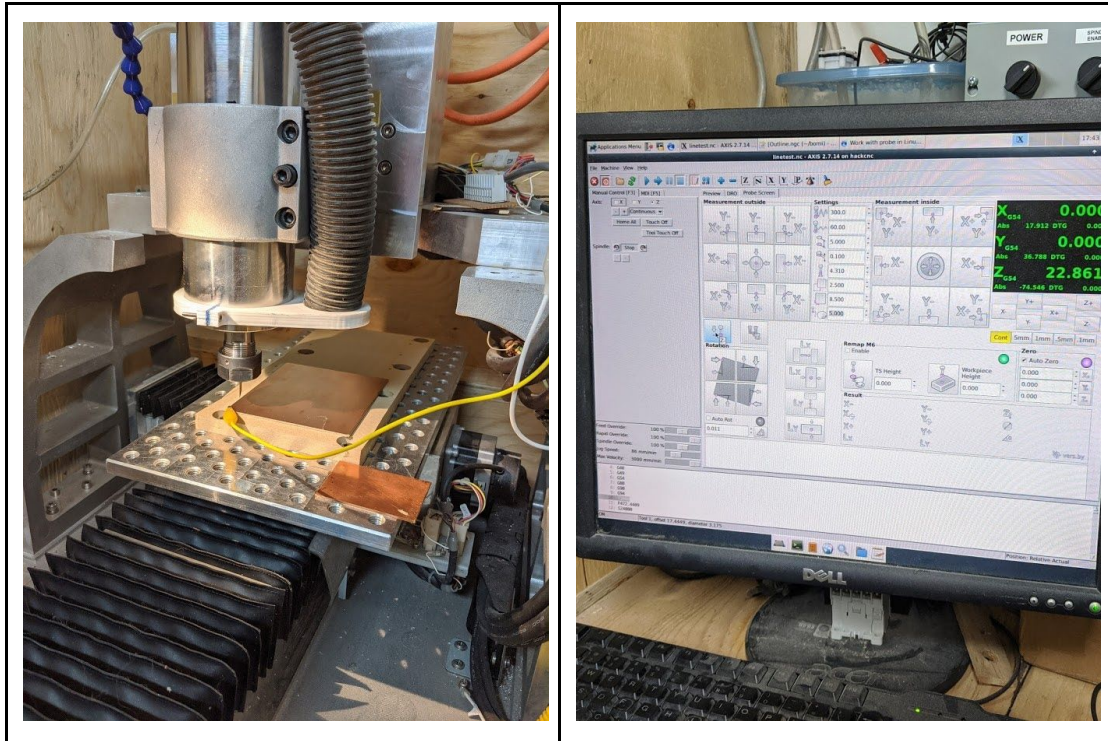


7. Connect yellow alligator on the PCB and click Okay

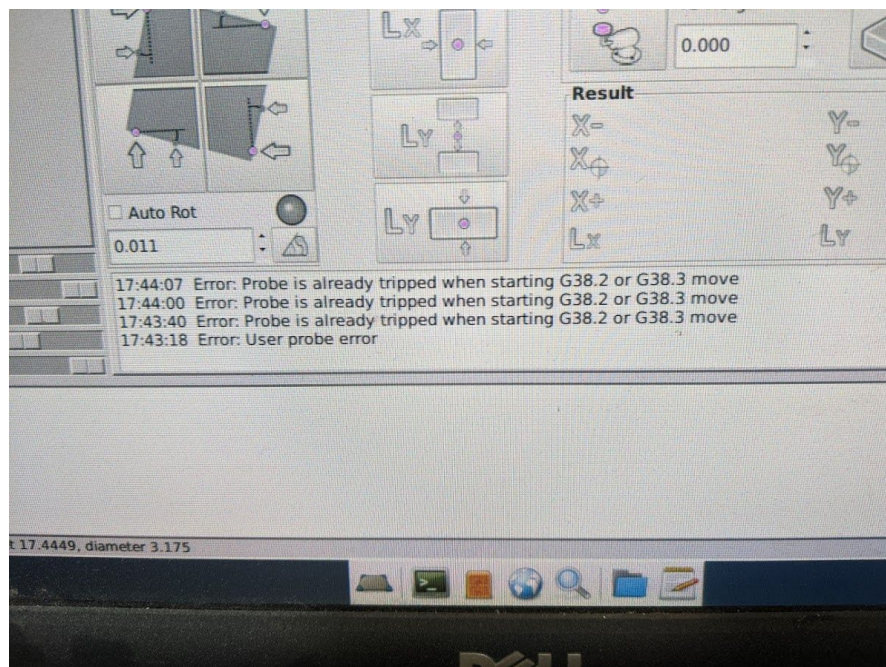


How to use Hacklab CNC for PCB

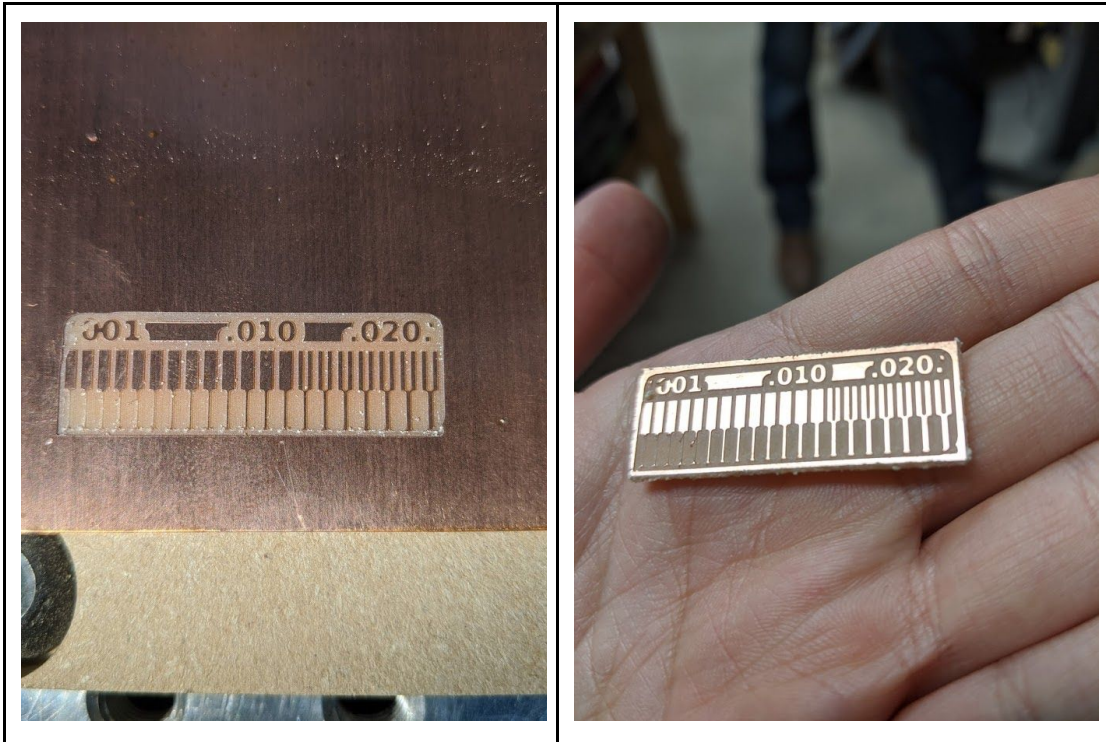
8. Connect yellow alligator clip on PCB and go to probe screen and click Z, Then come back to MDI, type M30 to reset everything, and place where you want to start the job X Y Z off.



! If there is problem, try to close all the programs besides the Linux CNC



9. Run the job



10. When you change the tool for outline. Go to edit and type M6 T2 G43, then redo number 7 process. (Don't need to do number 8 again this time because it automatically calculate the Z)

- ENJOY -