



8.8 DIY Laser Module

snapmaker by Snapmaker

Designer:

- Snapmaker

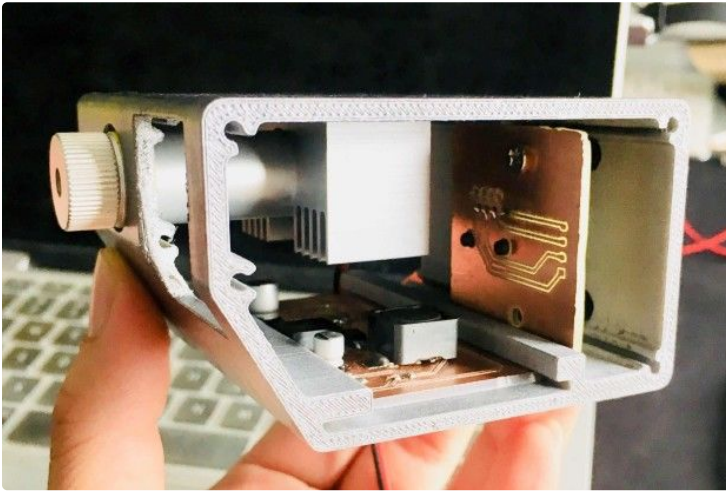
Summary:

- There are lots of makers want to customize a Snapmaker Laser Module. And Snapmaker could do that, since Snapmaker can make 3D prints and mill PCB.
- In this tutorial, I will be making a demonstration -- How to make a custom Snapmaker Laser Module?

Score : 8.8

- Time: 6
- Difficulty to Gain Materials: 10
- Complexity: 10
- Post-processing: 8
- Knowledge Required: 10





Step 1: Prepare

Required Materials:

- Copper Clad Board
- Tamiya Spray Paint
- MR.HOBBY.Inc Mr.SURFACER 1200 blocking print
- 350mW Laser tube
- BOM
- Flat-head inner hexagon screws M3 x 6
- Abrasive paper: 400 Cw, 800 Cw, 1600 Cw

Required Equipments:

- Electric soldering iron
- Drilling machine

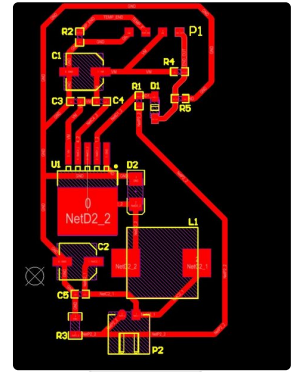
Required Software:

- Snapmaker3D
- SnapmakerJS

Required Files:

- <https://www.thingiverse.com/thing:2894529>

Comment	Description	Designator	Footprint	LibRef	Quantity
100uF/35V	Polarized Capacitor (Surfac	C1	SCAP(6.3X 7.7)	Cap Pol	1
47uF/35V	Polarized Capacitor (Surfac	C2	SCAP(6.3X 5.4)	Cap Pol	1
1uF		C3, C4, C5	0603_R	C_0603	3
1N4148		D1	SOD-123	1N4148	1
SS26	Schottky Rectifier	D2	SMB	SS26	1
100uH	Inductor	L1	SMDRH[12X12X7]	Inductor_12*12*7	1
Header 4	Header, 4-Pin	P1	PCBComponent_1	Header 4	1
Header 2	Header, 2-Pin	P2	XH-2.54-2AW	Header 2	1
2K	Resistor	R1	0603_R	R_0603	1
150R	Resistor	R2	0603_R	R_0603	1
0.6R1%	Resistor	R3	1206_R	R_1206	1
10K	Resistor	R4, R5	0603_R	R_0603	2
XL3005		U1	LC-TO-263-5	LC-TO-263-5	1



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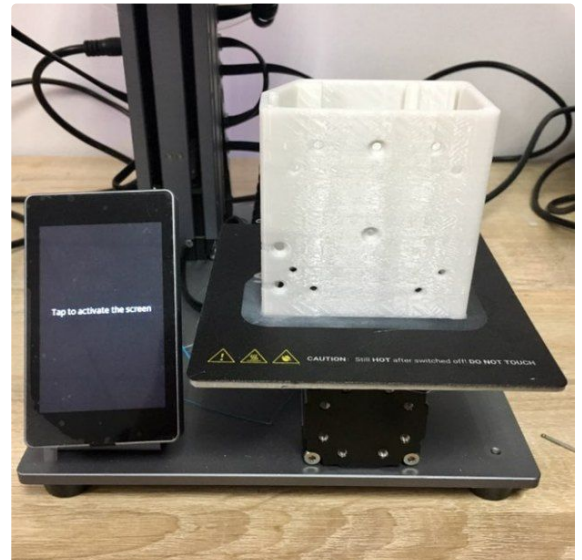
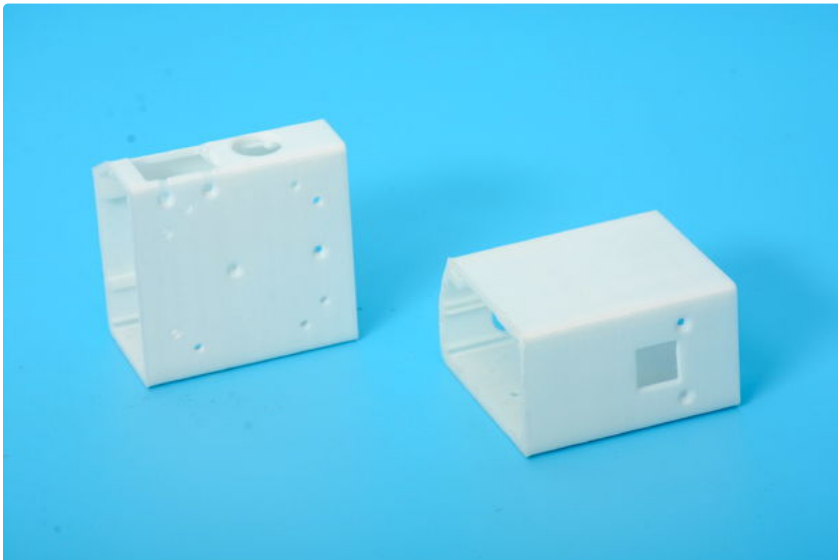
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Step 2: Print the Shell

I used Snapmaker to print the shell. In the parameter section I chose "High quality" and have not added support. Since this model can be printed out even without support. If we add the support, the side attach with the support will be rough. Of course if we do not

add support some part of the model are rough. Thus, it is much more saving in PLA material and have no use for post-processing (demolish the support) by comparison that we don't add support.



Step 3: Post-processing 1

Here I post-processed 3D prints using MR.HOBBY.Inc -- Mr.SURFACER 1200 blocking Paint and Tamiya Spray Paint TS-42. It will make the 3D prints look better.

First of all I used 320 Cw abrasive paper polish the surface of 3D prints. And Spray the 1200 blocking paint. Then I used 400 Cw abrasive paper polish it again. And Spray the 1200 blocking paint. Used 800

Cw, 1600 Cw abrasive paper repeat the processes. Until the 3D prints feels smooth. In the end I applied 3D prints Light Gun Metal with Tamiya TS-42 SprayPaint.

Tips: For each thin layer, spray 3-4 times until the color is uniform and the spray paint thickness is moderate.



Step 4: Mill PCB

Here I used CNC Carving Module of Snapmaker to mill PCB. SnapmakerJS software is powerful. There are lots of setting options allowing me to generate Gcode files easily.

I used the V-Bit tools to mill PCB. Here is my parameter setting:

Mill Layout :

- Cutting Diameter: 3.175
- Point Angle: 30
- Jog Speed: 800
- Work Speed: 250
- Plunge Speed: 500
- Carve Path: Outline
- Resolution: 256 x 256
- Size(mm): 40 x 40 & 33.5 x 59.7
- Target Depth: 0.08
- Step Down: 0.08
- Jog Height: 3
- Stop Height: 10

Cut the layout from the copper clad board

- Cutting Diameter: 3.175
- Point Angle: 30
- Jog Speed: 800
- Work Speed: 250
- Plunge Speed: 500
- Carve Path: Outline
- Resolution: 256 x 256
- Size(mm): 40 x 40 & 33.5 x 59.7
- Target Depth: 1.5 (According the thickness of your copper clad board; mm)
- Step Down: 0.2
- Jog Height: 3
- Stop Height: 10

We need to adjust the Size option above. Because the Size set in the software is the Size of the SVG file. There are blank Space in the SVG file, but what we really want is the Size of the pattern. So we need to set a value first, and then Preview after generating the Gcode to see if it's the size we want.

Tips we could generate the Gcode of layout and Gcode of cutting together. And then upload them to the disk. Open Gcode of layout. When snapmaker finished, open Gcode of cutting.

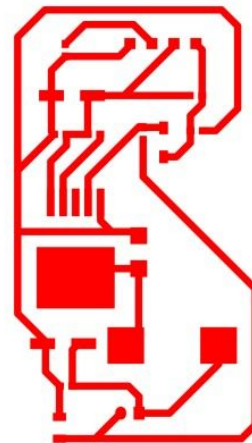
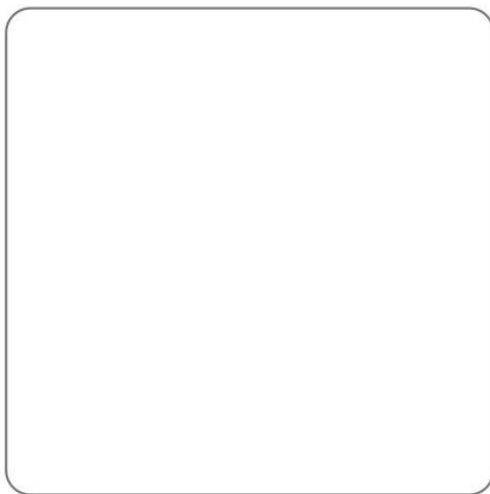
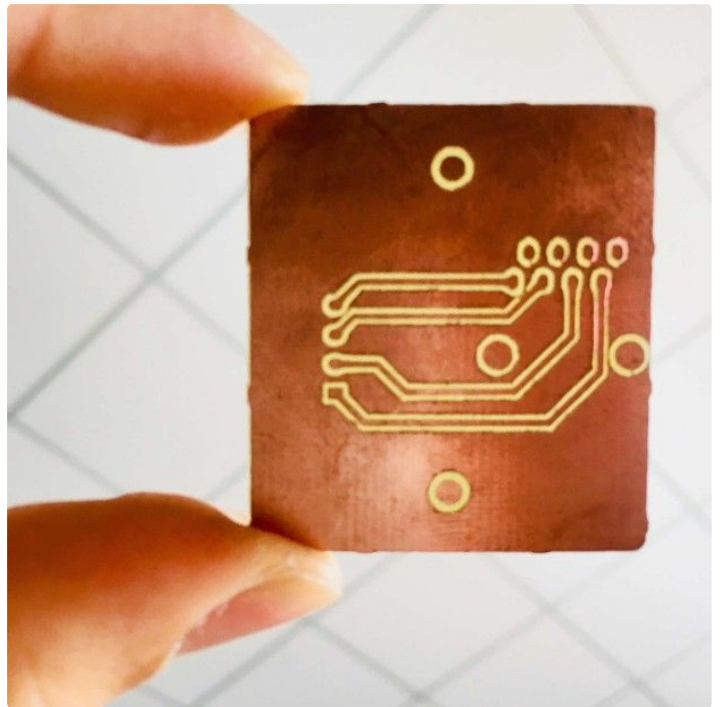
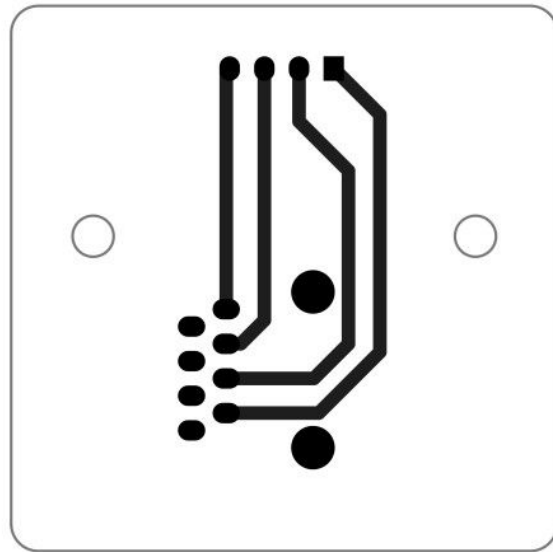
☰ G-code

Axis	Min	Max	Dimension
X	0.000 mm	39.081 mm	39.081 mm
Y	0.000 mm	38.944 mm	38.944 mm
Z	-2.200 mm	10.000 mm	12.200 mm

Sent 0 / 11463 Received 0 / 11463

Start Time - Elapsed Time -

Finish Time - Remaining Time -

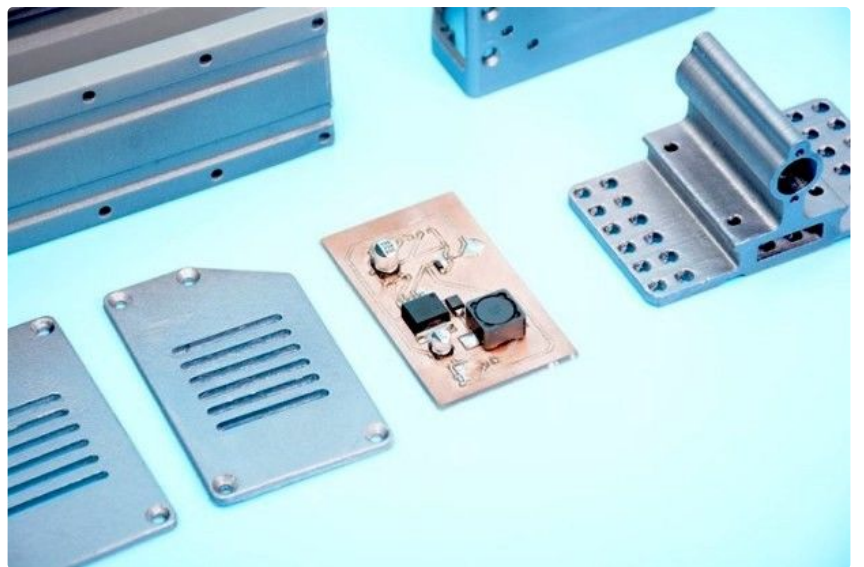
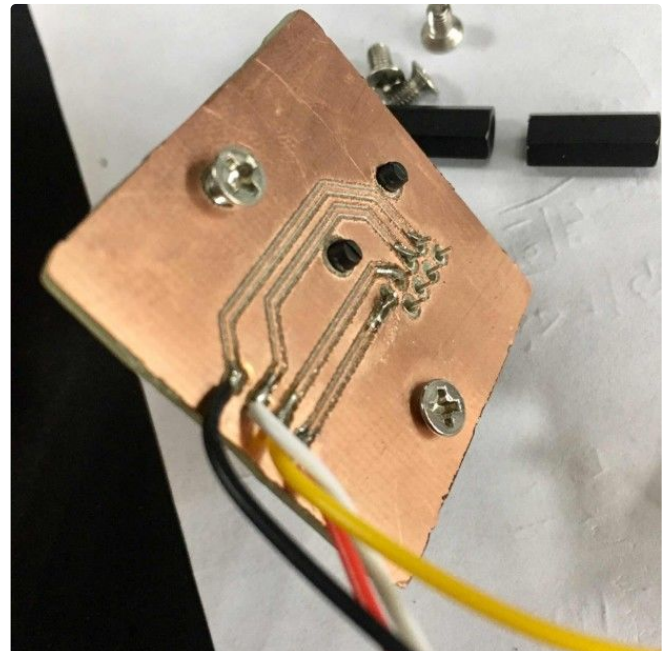
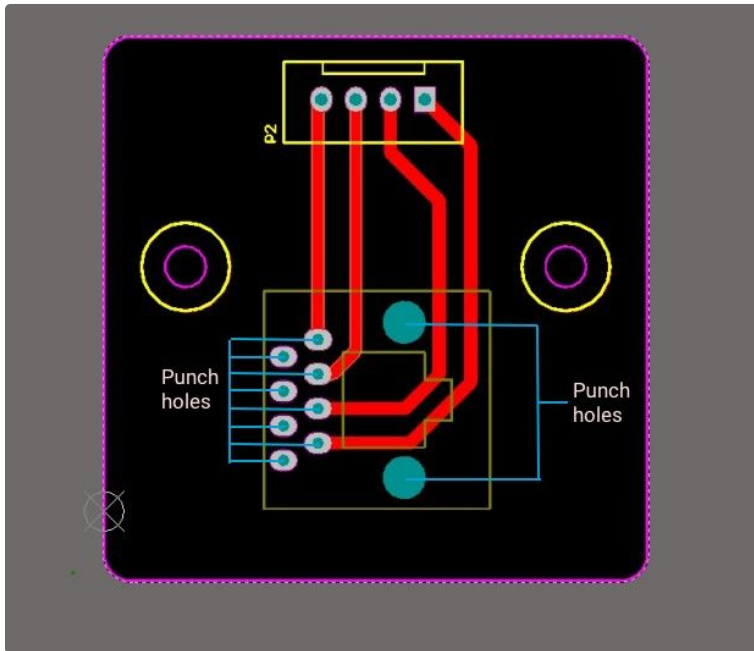


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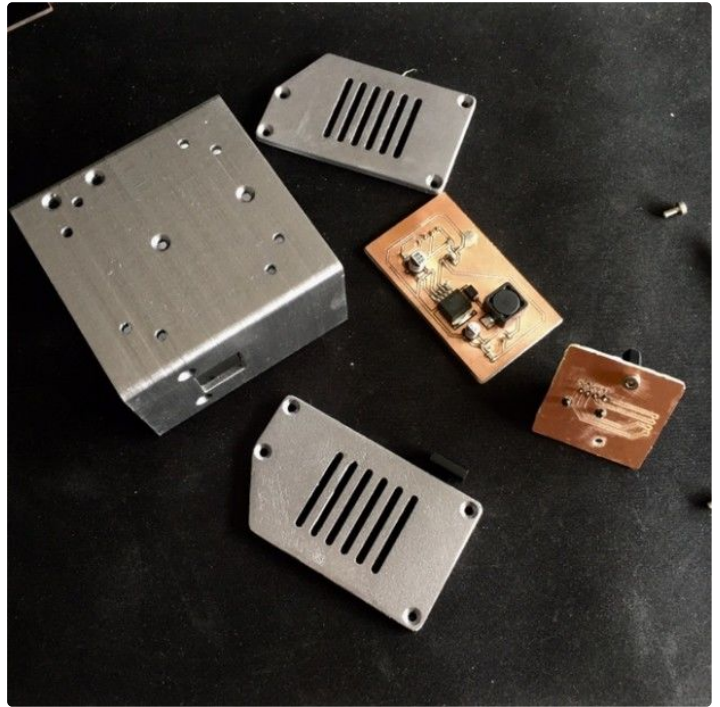
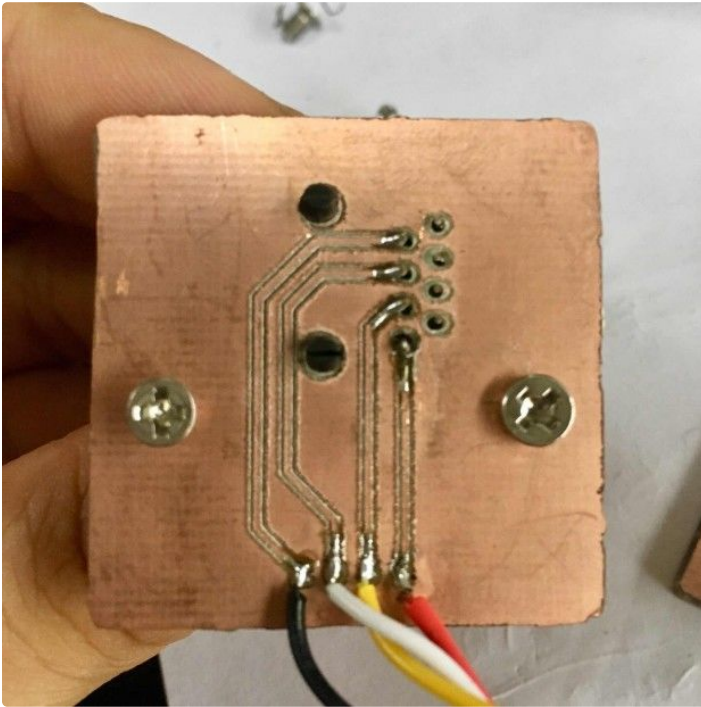
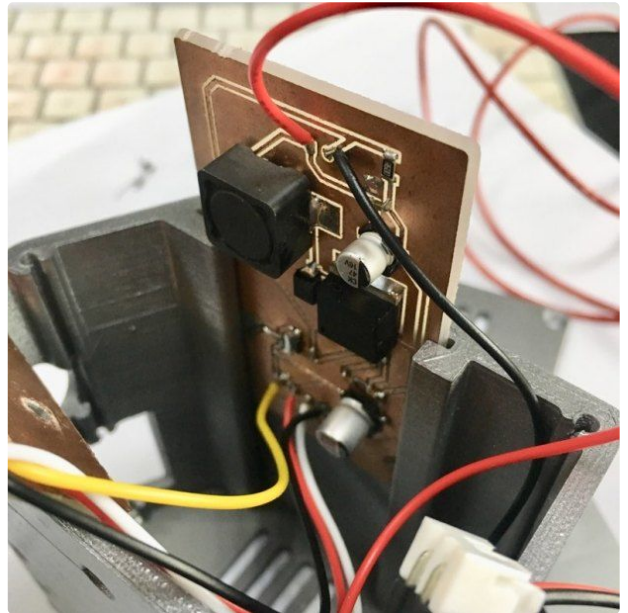
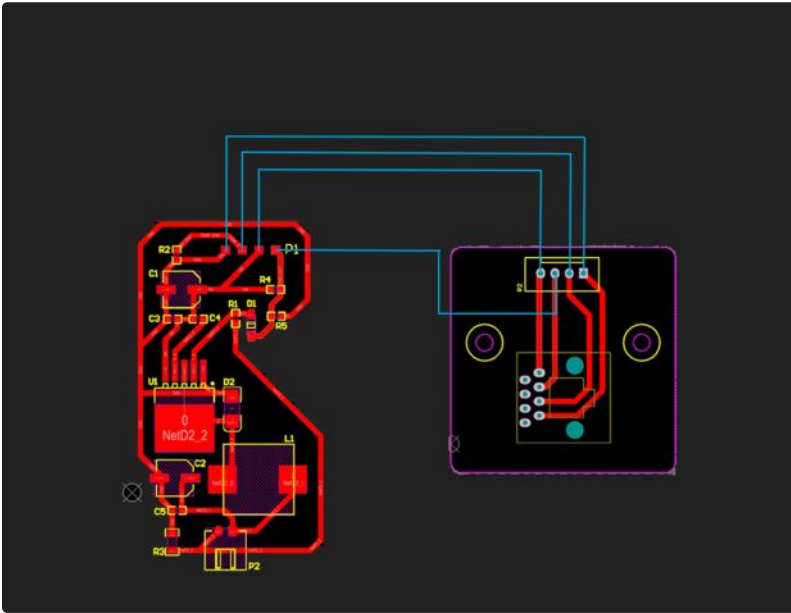
Step 5: Post-processing 2

Punch some holes and solder the RJ45-VERTICAL.



Step 6: Assemble Them

To assemble it, we need connect the circuit board with electric wire.



Cool. Lasers make every project better.

snapmaker

Yeah, laser engraving module allows makers to create a project with a pretty outlook. Makers can also use it to make some delicate gifts. DIY a high-powered laser module is cool, such module allows makers to cut the plywood. Assemble the wood pieces to a beautiful creation.

