FREECAD DESIGNING & 3D PRINTING

User Guide

भारतीय सांकेतिक विज्ञान संस्थ हैदराबाद्
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad
Tihan-IIT Hyderabad
NextGen Autonomous Navigation

Table of Contents

1. FREECAD.....3

1.1.Designing a Sapre Part.....3

1.2.Designing Chassis.....5

2. CURA.....7

3. 3D Printing.....7

1.FREECAD

1.1 Designing a Spare Part:

● In FreeCAD software select Part Design Workbench, click on create new sketch and choose XY plane to sketch the 2D figure of the required 3D model.

Fig: Drawing Tools

Fig: Constraint Tools

● Choose line tool from drawing tools and draw the required 'T' shape 2D diagram.

● Now set the required constraints of the figure using constraint tools.

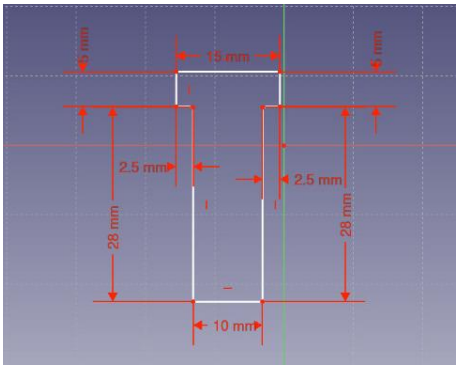


Fig: Sketch View

● Update the sketch and select the sketch and pad it for 3D Sketch.

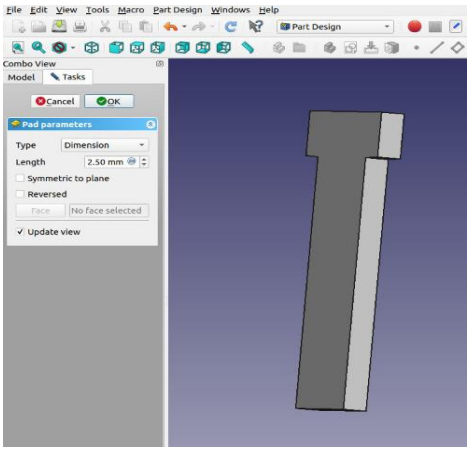
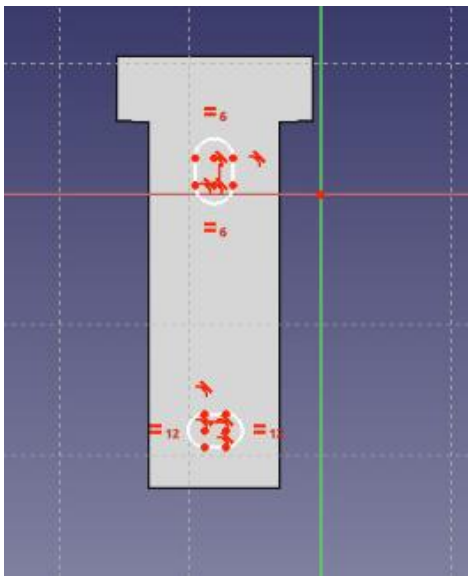


Fig: 3D View

● Select the top face of padded sketch and click on create sketch.
● On selected face draw the required sketch and do the pocketing.



>>>>>>

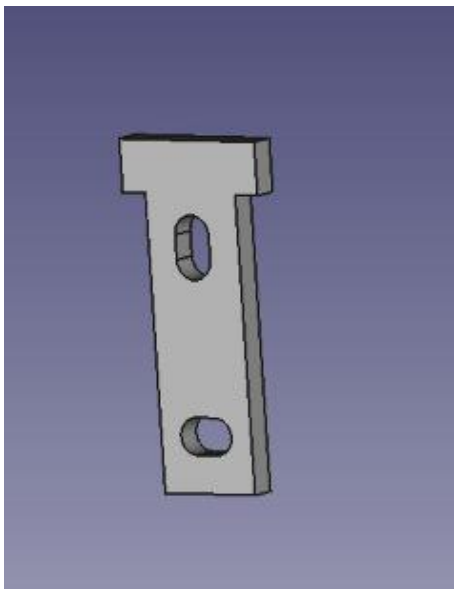
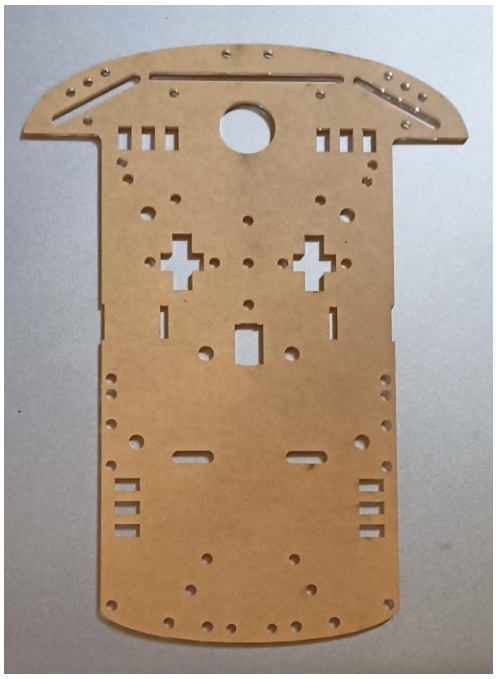


Fig: Pocketed sketch

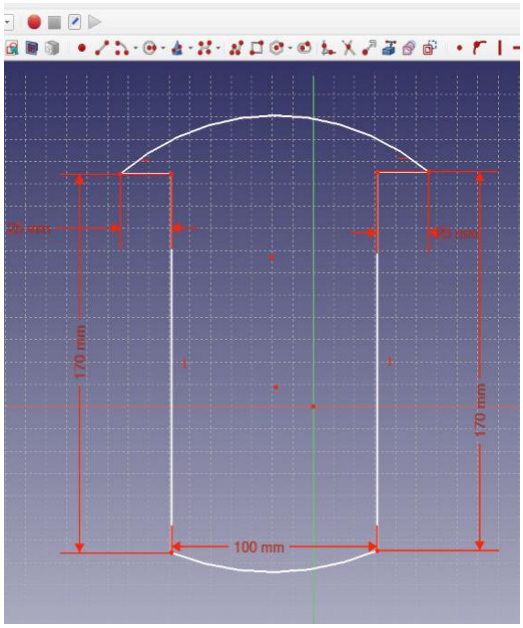
● After updating it, select the body of sketch and from File menu Export it to ".stl" file and save it.

1.2. Designing Chassis:



- While designing we only sketch required things only.
- Repeat the steps:

- Step 1: Drawing required sketch and Padding it.



>>>>>>>>

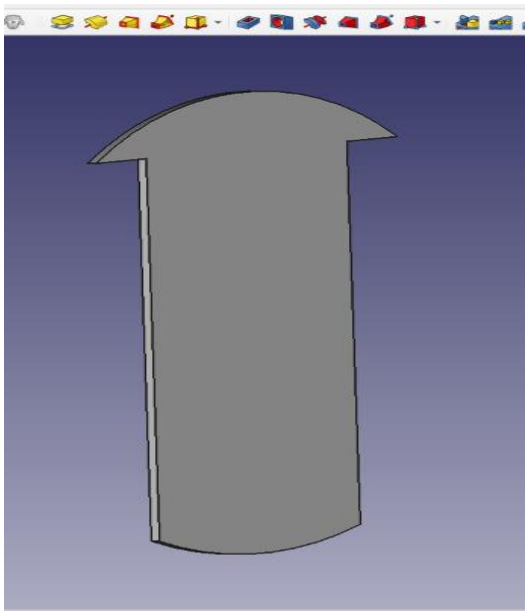
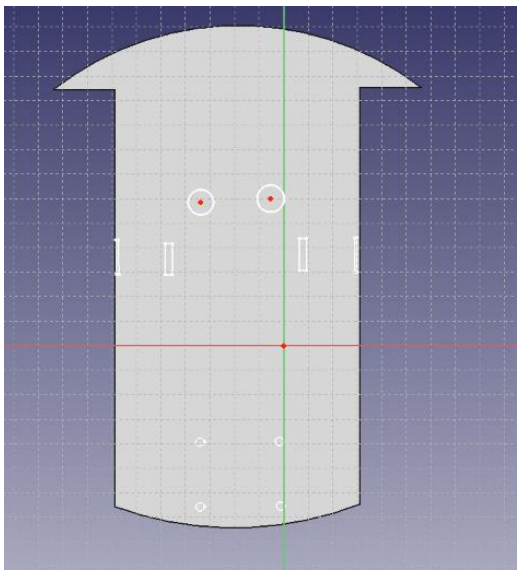


Fig: Sketch View

Fig: 3D View

• Step 2: Selecting the top face of Padded sketch and drawing required sketches for pocketing.



>>>>>>>>

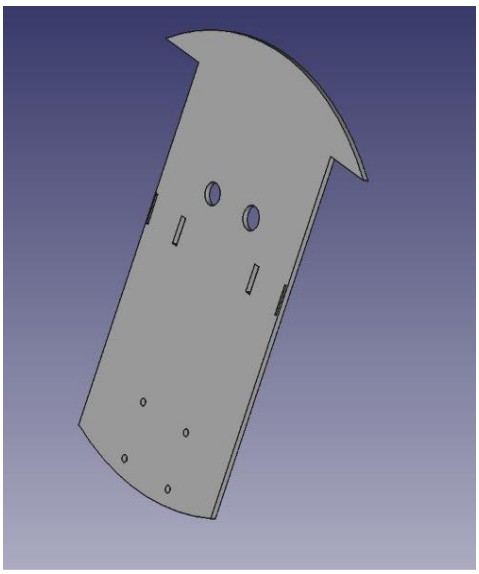


Fig: Pocketed sketch

• After updating it, select the body of sketch and from File menu Export it to ".stl" file and save it.

2. CURA

• Open Cura Software and open ".stl" file in it, then set infill to 50.
• Slice and generate the G-code and save it as ".gcode" file, which is used to print.

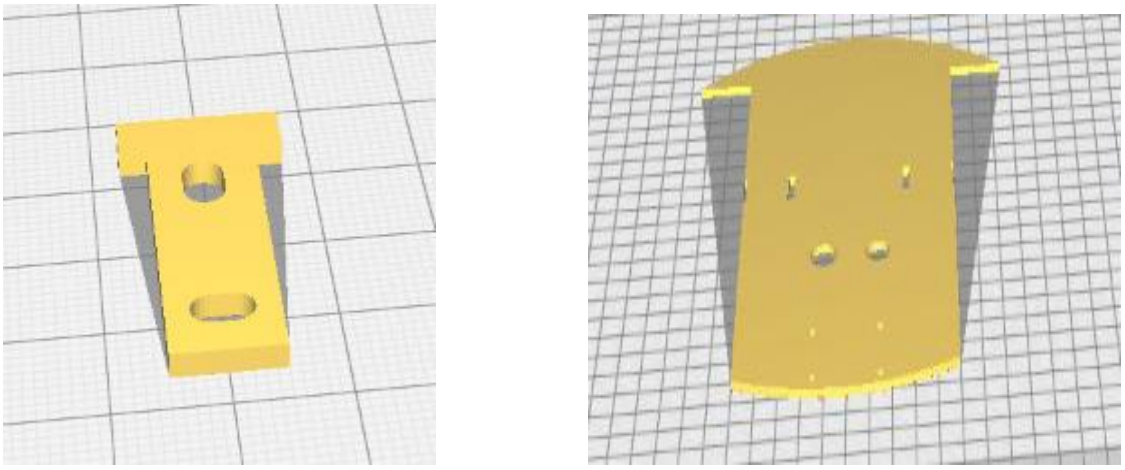


Fig: Preview

3.3D Printing

● Select the ".gcode" file in printer and click on print.

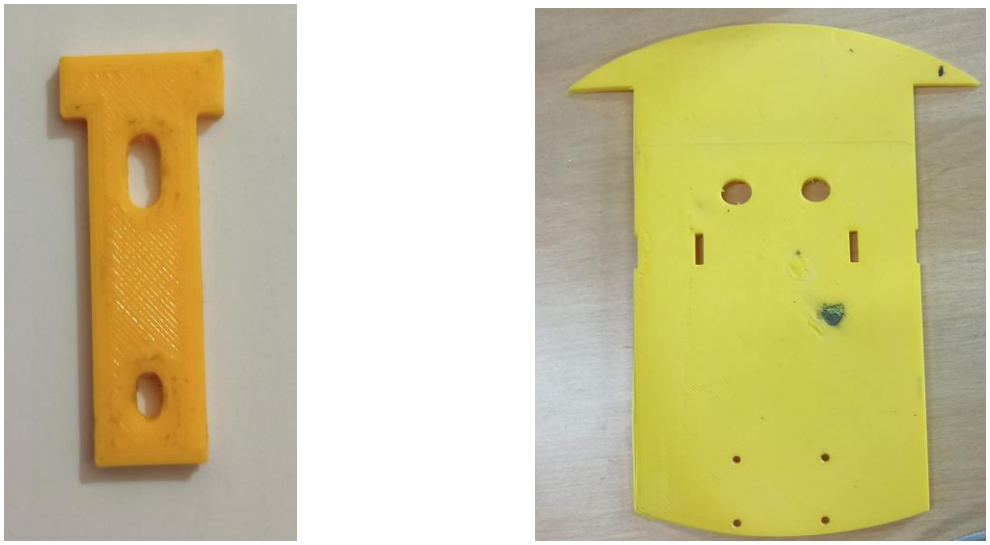


Fig: output print.