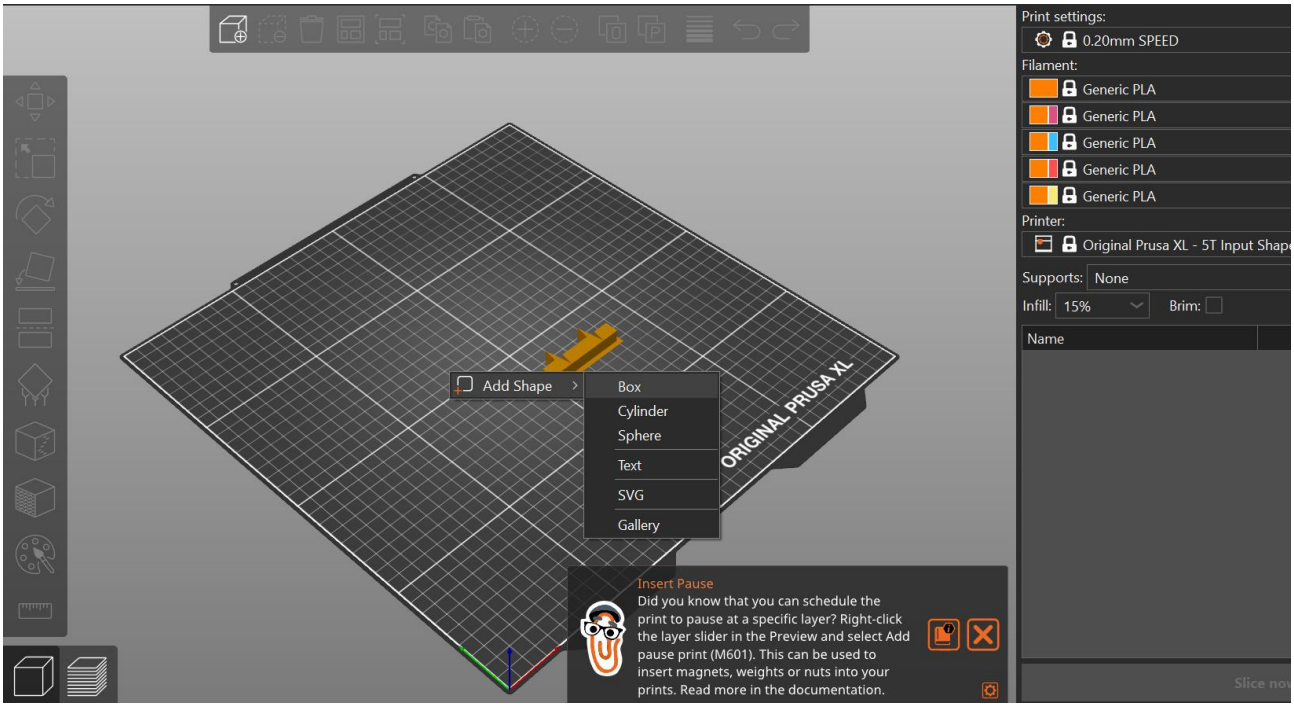
What is needed

Printing can be accomplished in two ways: using Prusa Slicer or my custom Python code. Here's how to use Prusa Slicer: You must have an XL Prusa printer equipped with at least two tool heads. Utilizing the 5-Tool-Head setup allows for many more color variations. In this process, you will print one layer with one tool head and then print the next layer with the second tool head. This method can be adjusted in both software options.

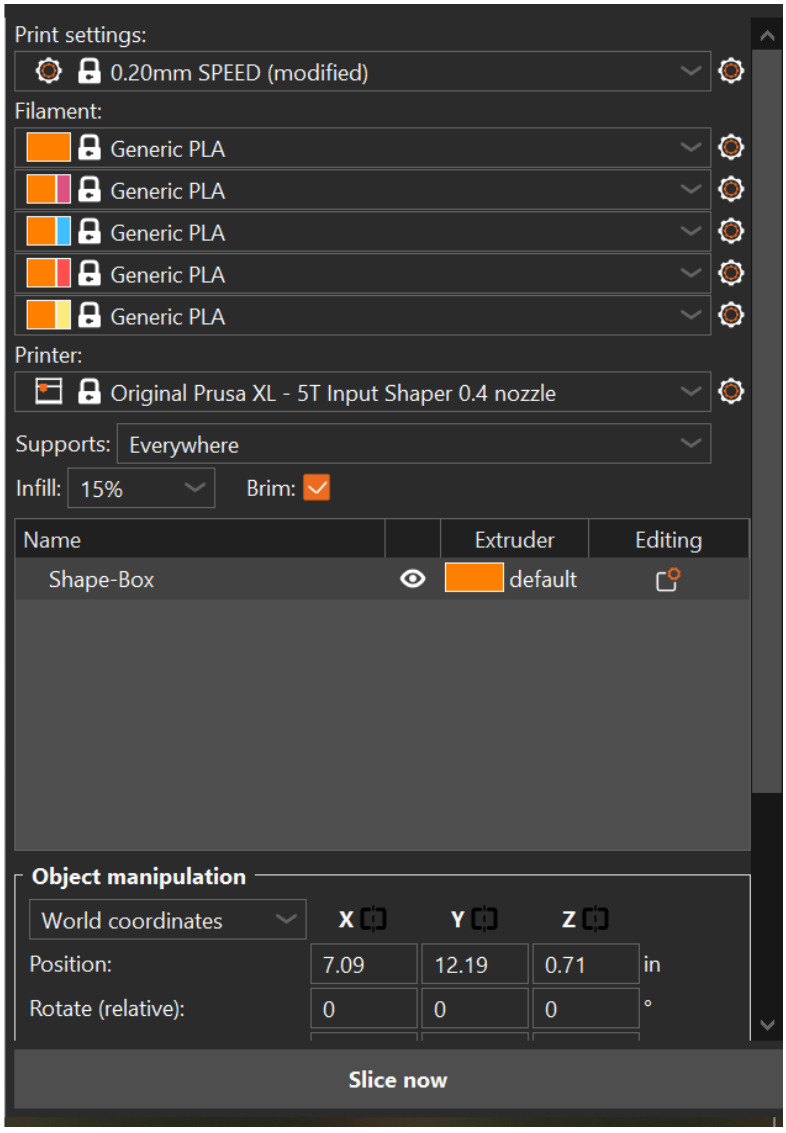
THE COMBINE COLOR LAYER SHOULD BE LESS THAN .3mm

Steps

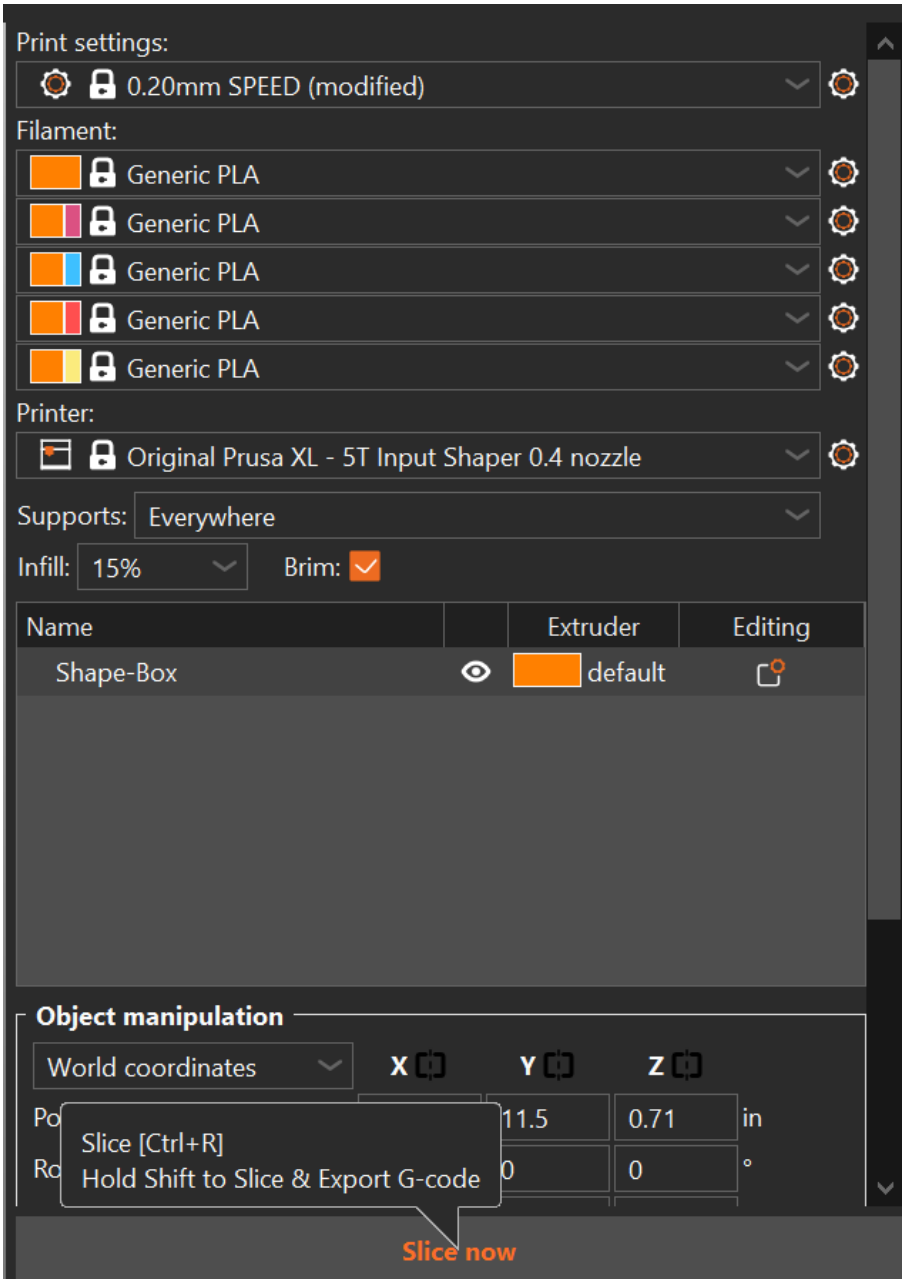
1.Import an object into Prusa, I imported a default box model by right clicking the plate.



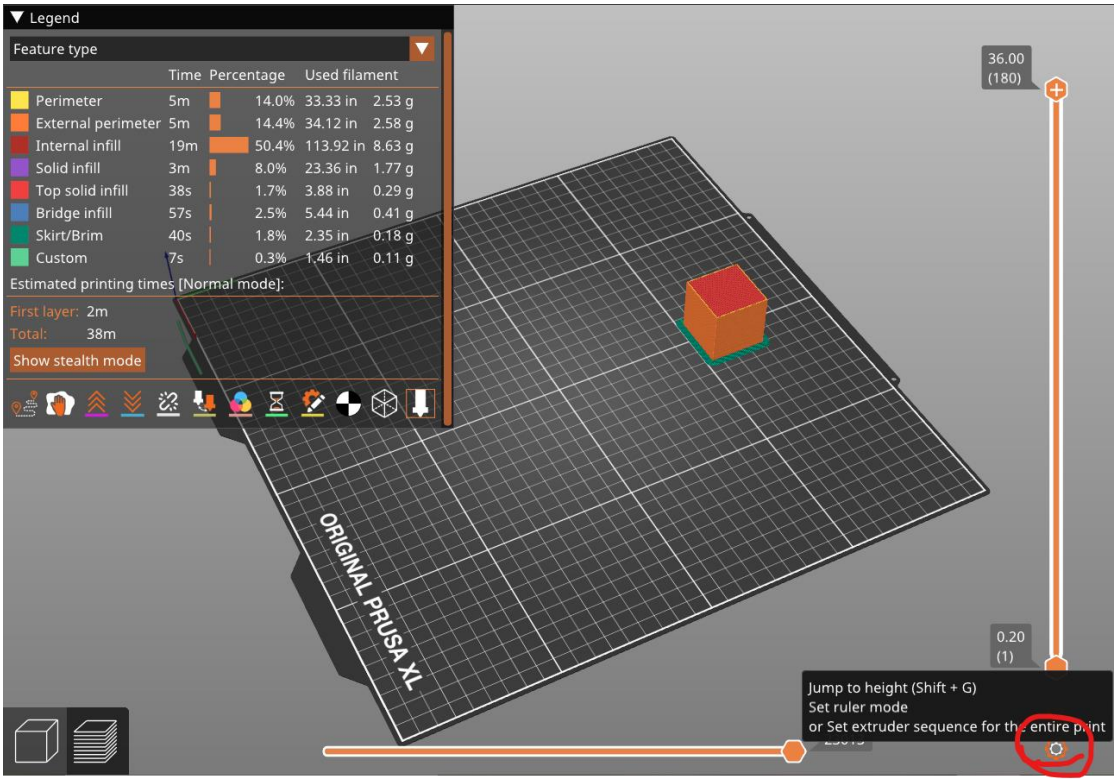
2.Make sure 5T or 2T Prusa XL is chosen


Print settings:
0.20mm SPEED (modified)
Filament:
Generic PLA
Generic PLA
Generic PLA
Generic PLA
Generic PLA
Printer:
Original Prusa XL - 5T Input Shaper 0.4 nozzle
Supports: Everywhere
Infill: 15%
Brim:
Name
Extruder
Editing
Shape-Box
default
Object manipulation
World coordinates
X
Y
Z
Position:
7.09
12.19
0.71
in
Rotate (relative):
0
0
0
°
Slice now

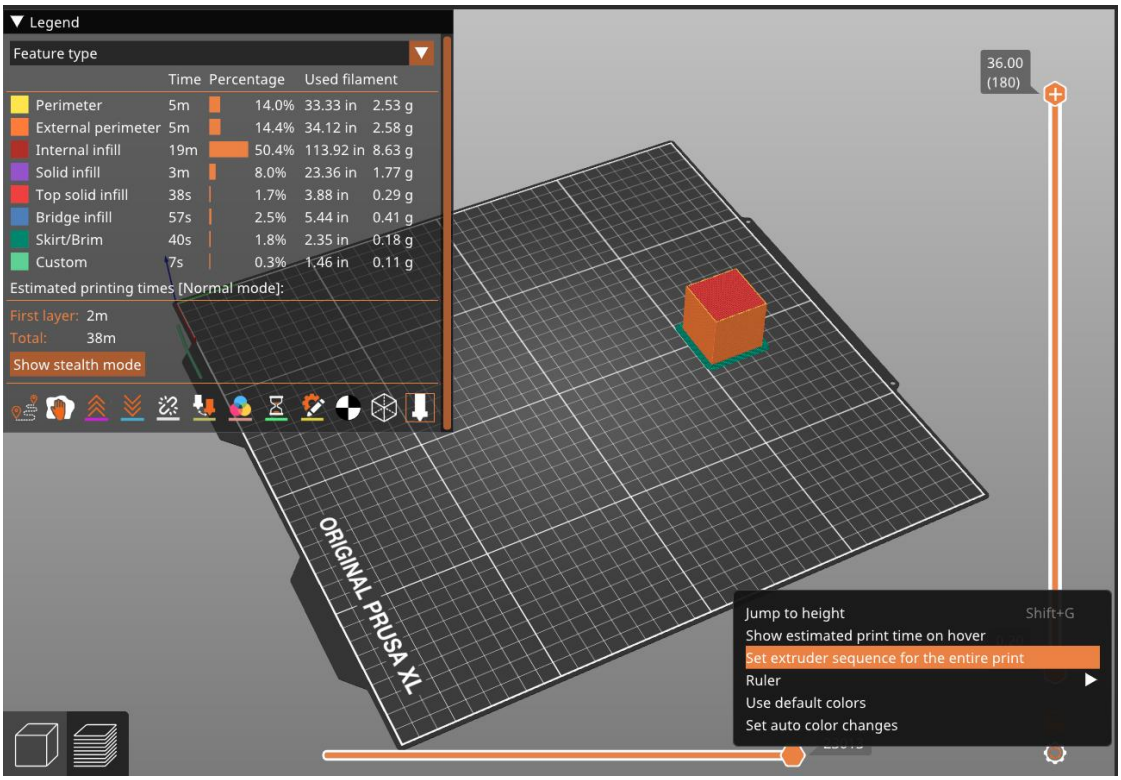
3.Slice the object next



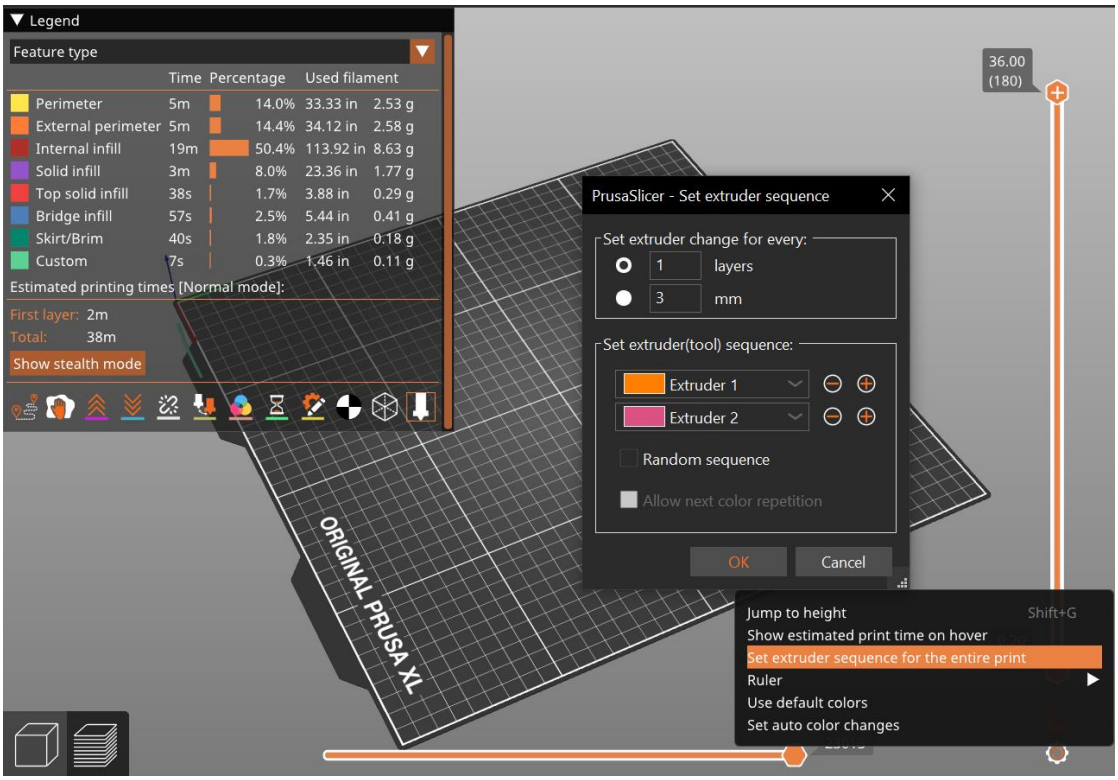
4.Click the setting button the corner



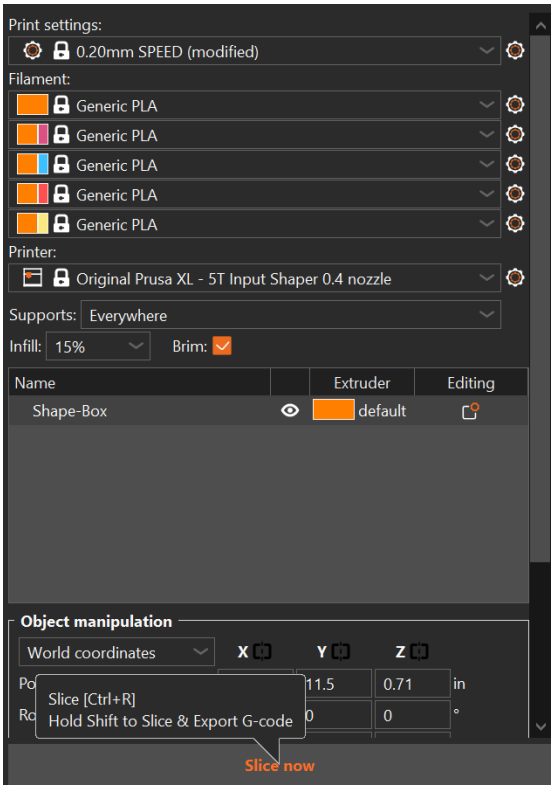
Click “Set extruder sequence for the entire print”



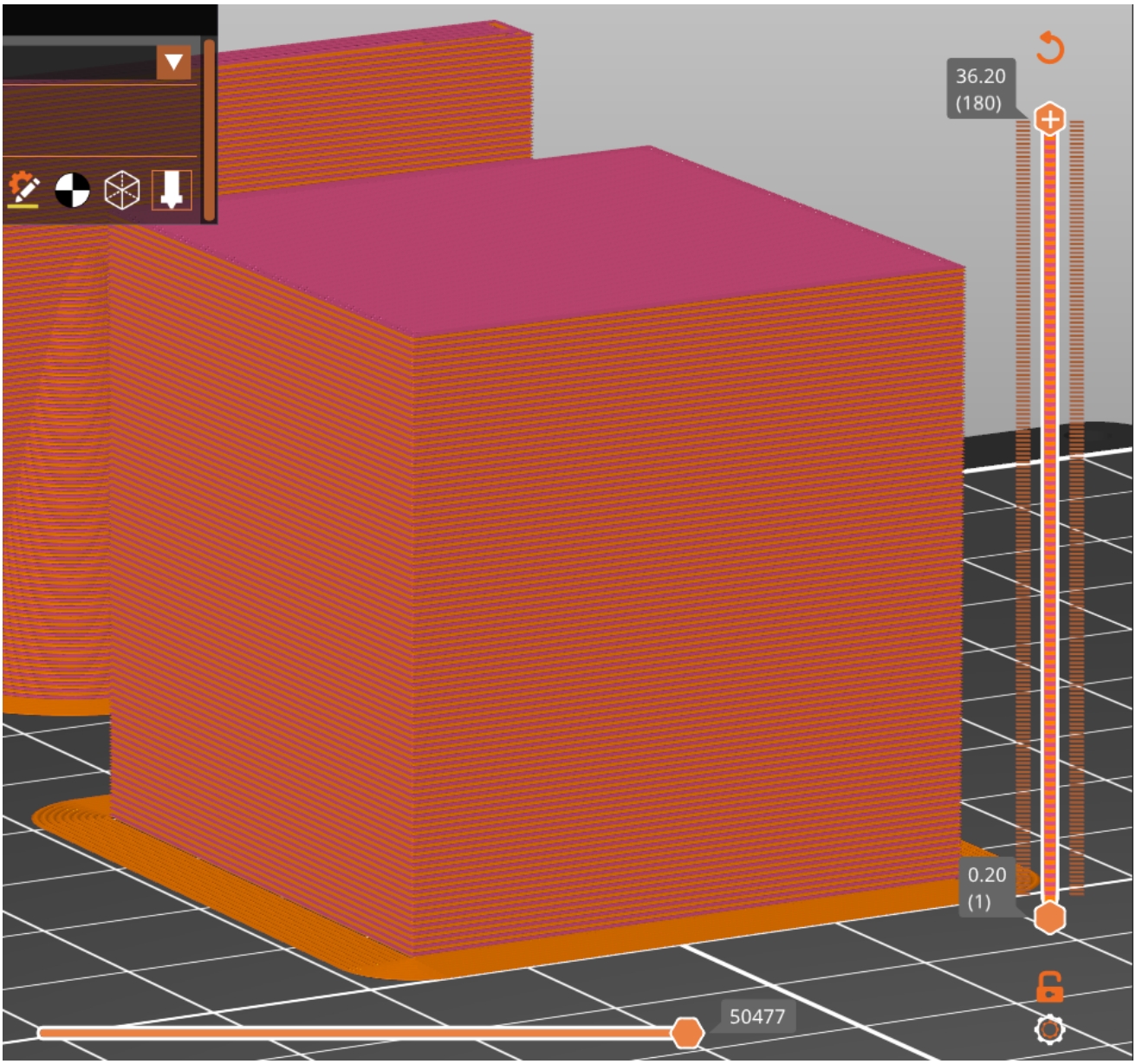
5.Make sure the layer switching is at 1 layer and minus on the extra tool if not using them.



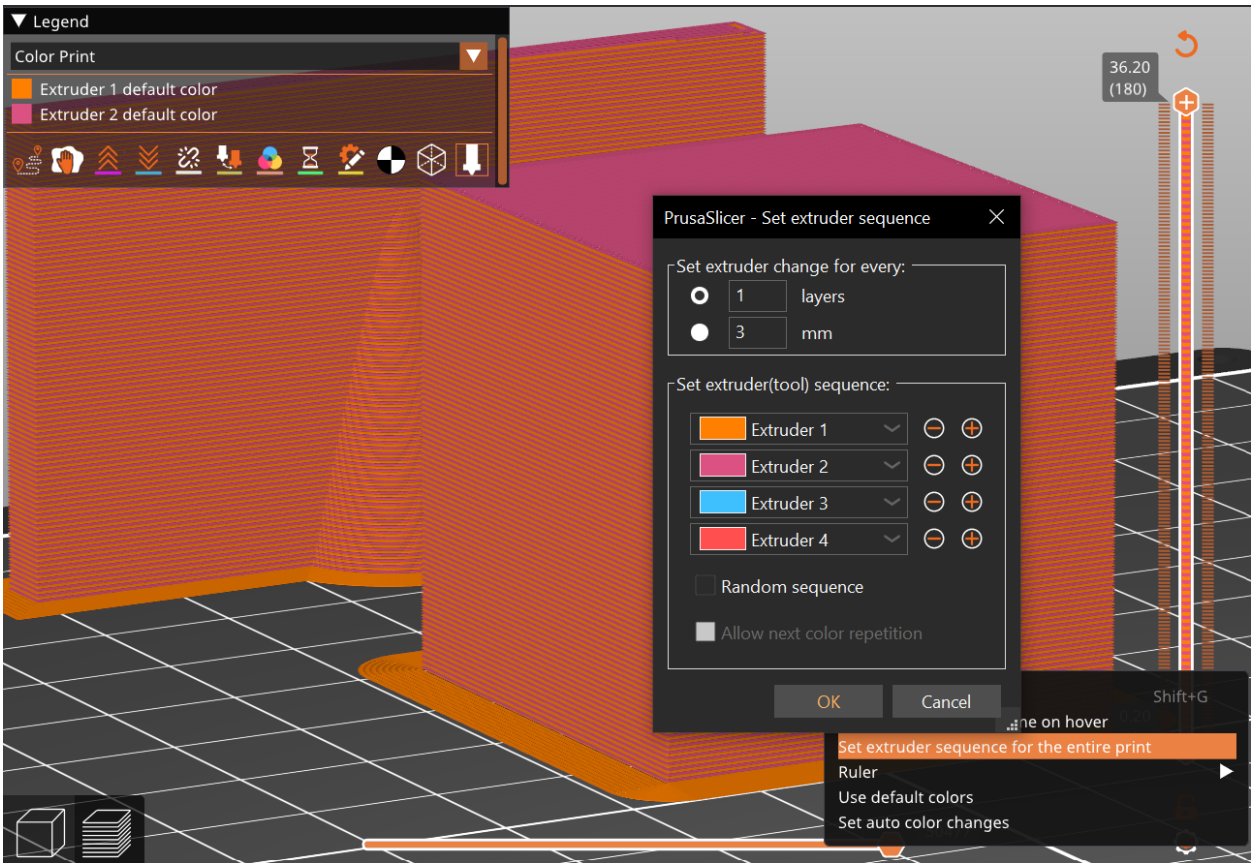
Slice again



6.This is the what the object will look like



7.To use more colors, add more tool heads



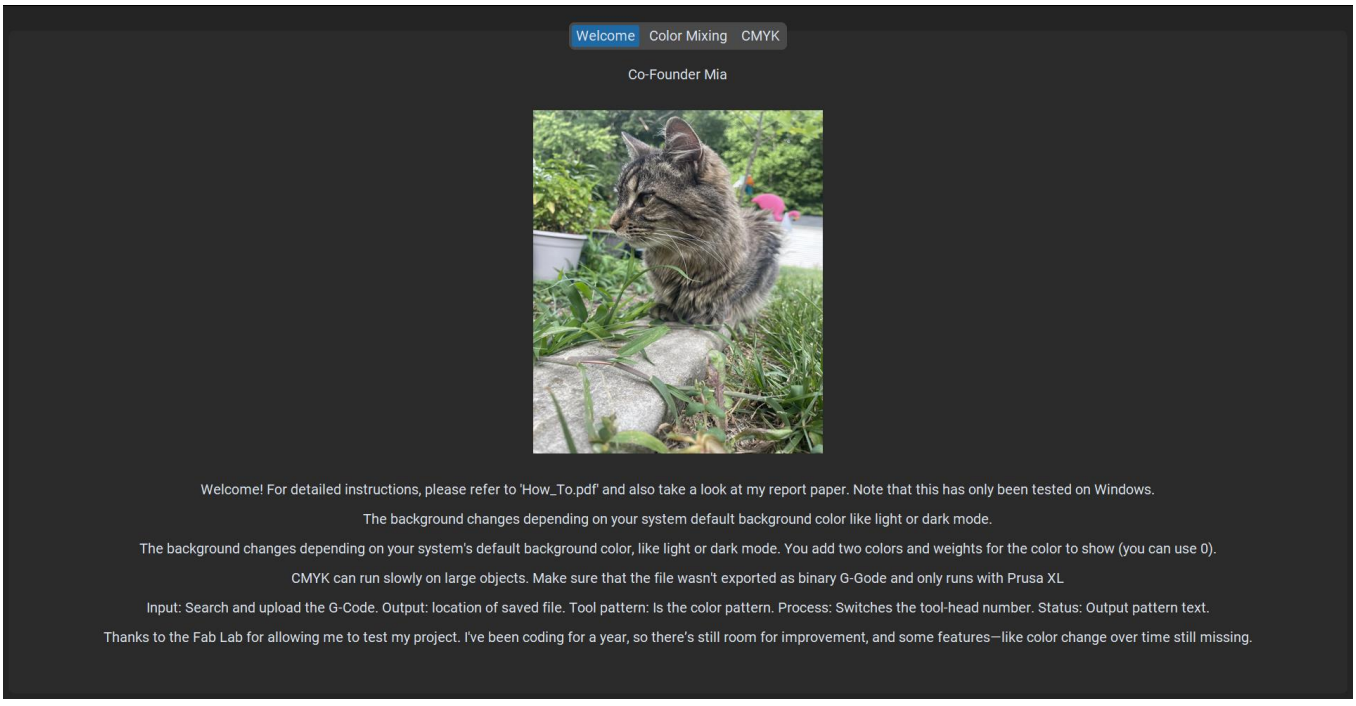
The **layers should always be set to 1**, and you can adjust the layer height of the print to achieve different results. While this doesn't completely merge the colors in the evening, it does create interesting prints that appear to change hues when viewed from various angles. Each side of the print tends to showcase a dominant color. Additionally, larger objects tend to fail more frequently during the printing process.

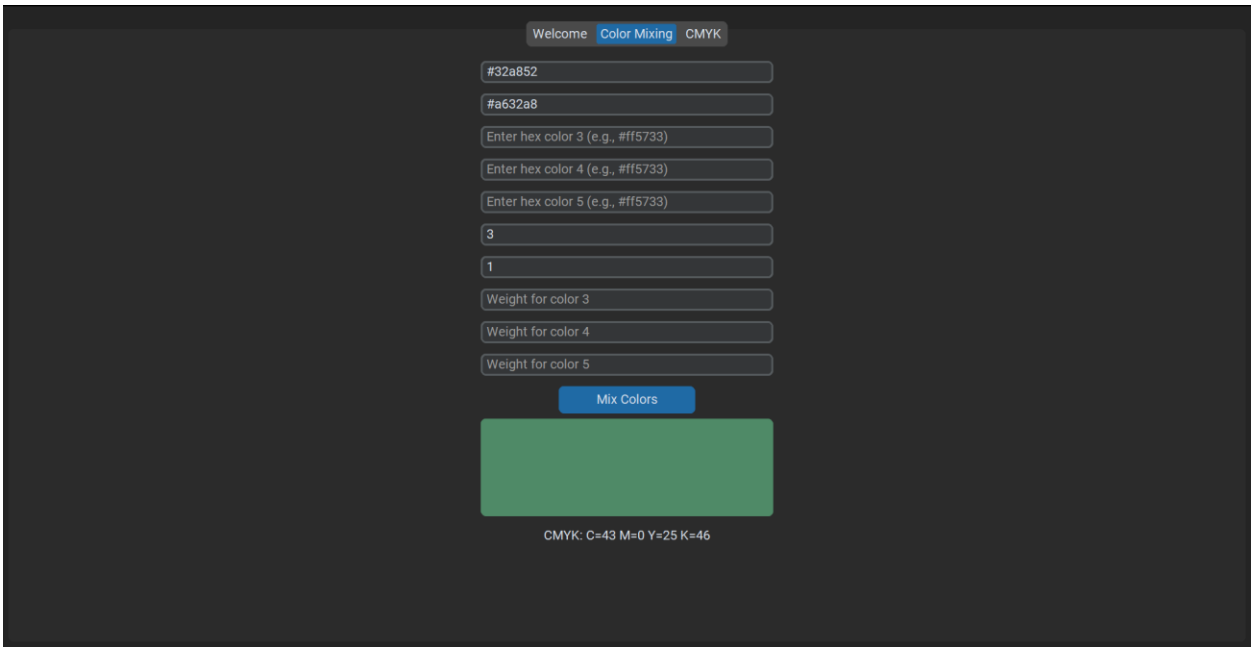
CMYK Method

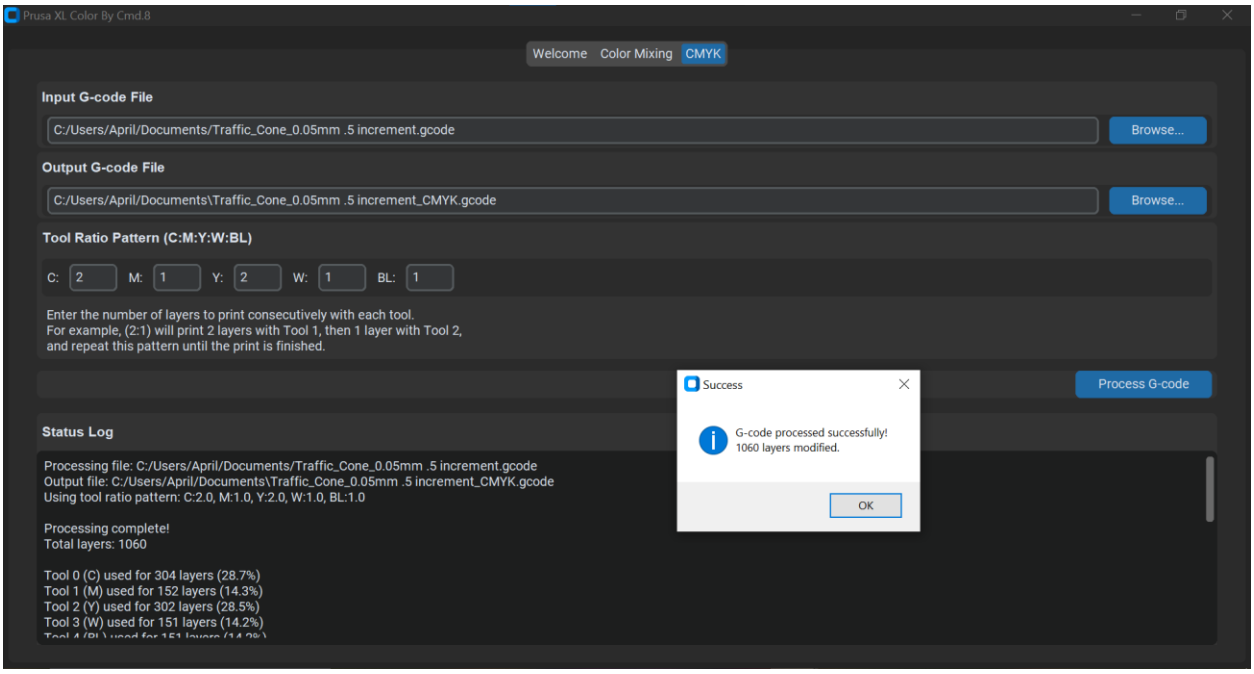
Repeat steps 1-6 (two tool-heads), this gives each layer a toolhead in G-Code. My code will rewrite the tool head numbers and assign them based on your selections. EXPORT AS G-CODE CAN'T BE DONE WITH BINARY G-CODE.

To begin, click on the CMYK tab in the input bar to select your file. The output bar is where the output file will be saved. You can choose which tool head you want with the Tool-Head pattern. Leave a 0 on tool-heads you're not using. After making your selections, click the process button. You will see text appear at the bottom, and a notification will pop up to indicate that you're done. The process might take some time to update the g-code.

The color mixing tab combines hex-color together. You can use this by figuring out the hex for your filament and get an estimate of what your color may turn out like. Use the weight as the layer count for each color. There must be two colors, and weights added to each color for the color box to show.

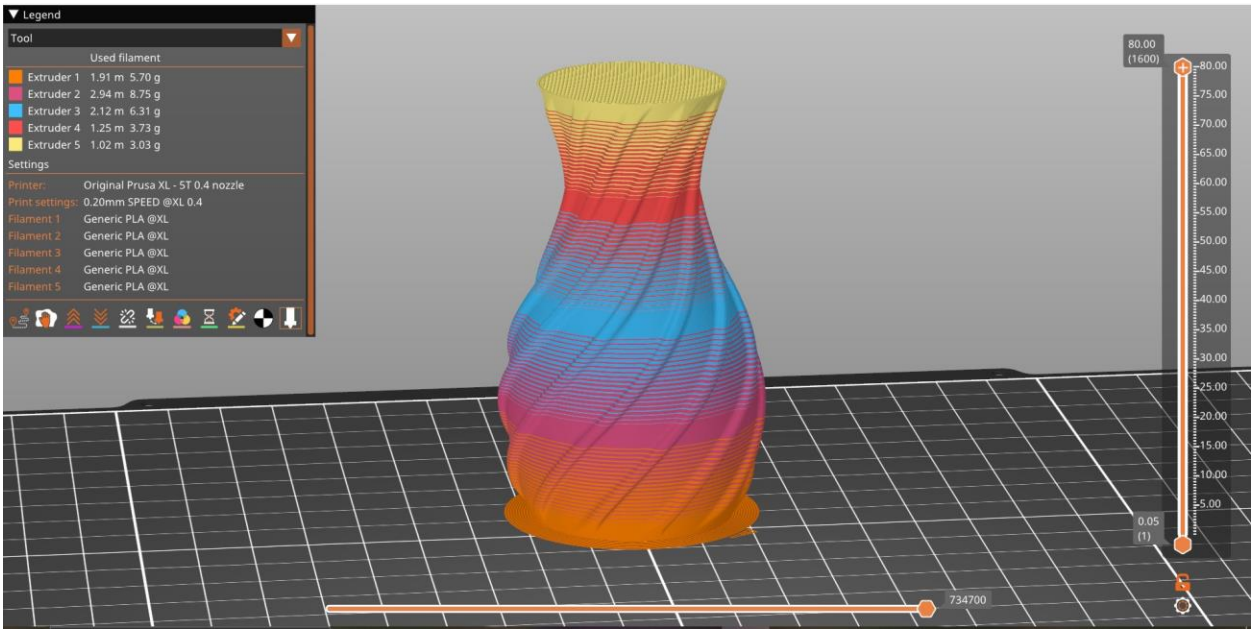


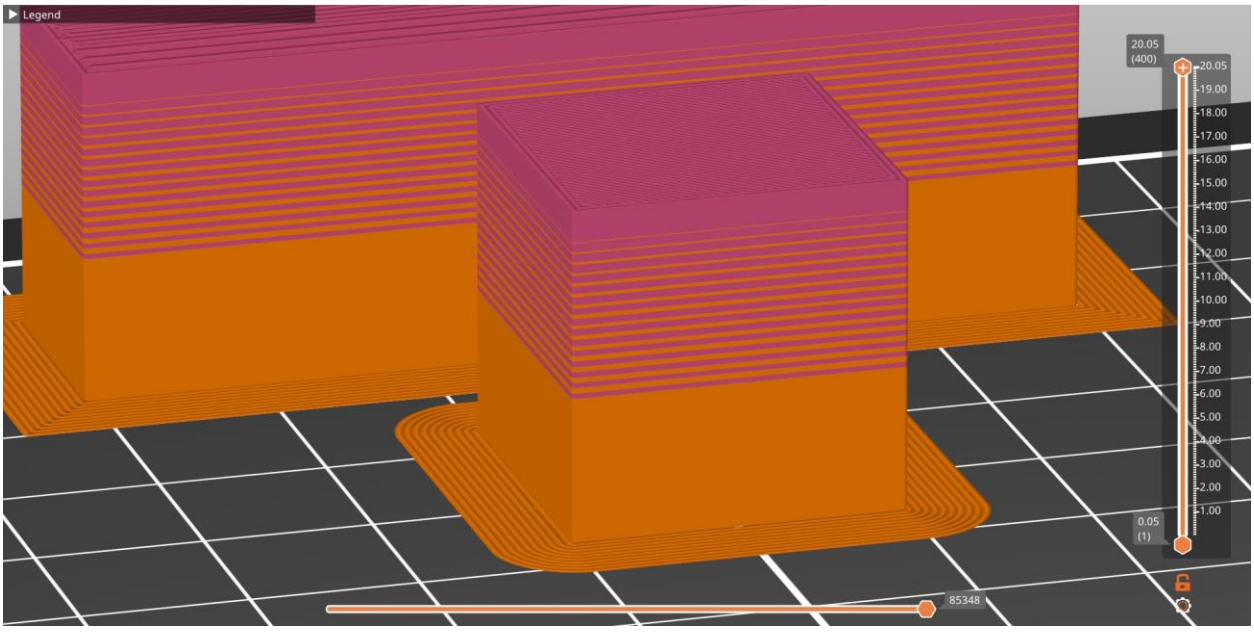

Welcome
Color Mixing
CMYK
#32a852
#a632a8
Enter hex color 3 (e.g., #ff5733)
Enter hex color 4 (e.g., #ff5733)
Enter hex color 5 (e.g., #ff5733)
3
1
Weight for color 3
Weight for color 4
Weight for color 5
Mix Colors
CMYK: C=43 M=0 Y=25 K=46


Prusa XL Color By Cmd.8
Welcome
Color Mixing
CMYK
Input G-code File
C:/Users/April/Documents/Traffic_Cone_0.05mm .5 increment.gcode
Browse...
Output G-code File
C:/Users/April/Documents\Traffic_Cone_0.05mm .5 increment_CMYK.gcode
Browse...
Tool Ratio Pattern (C:M:Y:W:BL)
C: 2 M: 1 Y: 2 W: 1 BL: 1
Enter the number of layers to print consecutively with each tool.
For example, (2:1) will print 2 layers with Tool 1, then 1 layer with Tool 2,
and repeat this pattern until the print is finished.
Process G-code
Status Log
Processing file: C:/Users/April/Documents/Traffic_Cone_0.05mm .5 increment.gcode
Output file: C:/Users/April/Documents\Traffic_Cone_0.05mm .5 increment_CMYK.gcode
Using tool ratio pattern: C:2.0, M:1.0, Y:2.0, W:1.0, BL:1.0
Processing complete!
Total layers: 1060
Tool 0 (C) used for 304 layers (28.7%)
Tool 1 (M) used for 152 layers (14.3%)
Tool 2 (Y) used for 302 layers (28.5%)
Tool 3 (W) used for 151 layers (14.2%)
Success
G-code processed successfully!
1060 layers modified.
OK

Change Over Time

This area remains unresolved; the 3D model viewer appears to successfully read the tool head switches, but the printer continually displays a red screen during the switch or simply pauses.





Improvement

A lot of improvements are needed to enhance blending quality, reduce print time, and provide more customizable software. These enhancements can be achieved by the maker space