Julia Advanced 3-D Printer

Quick Operation Guide

May 25, 2022

1 Introduction

The 3-D printer is an effort from the WEL Lab to provide students a means by which they can produce their own models and don't have to compromise for the only available solutions .

2 Setup

The Julia Advanced 3-D printer works with the Fracktory software, Firstly the model created by the students needs to be imported into the Fracktory software and then some parameters are need to be given e.g build material,thickness etc. refer to the user manual for other details, then a final .stl file is generated which is then given to the printer for printing.
The following steps should be followed:-

2.1 Calibration

Calibration is one of the important step in the process of 3D printing. Calibration of the printer should be done once in a week. The process should be done before giving the model for printing, then printer will produce expected results.
For doing calibration of the printer:-

Step1	Click on thee calibrate option from printer menu− > wizard − > Quick calibration − > Next(After this calibration process starts).
Step2	As the nozzle moves at the first point, tighten or loosen screw at the bottom of built-plate until the Red LED light at bottom of built-plate stops blinking and glows constantly.
Step3	Then click on 'Next' on the screen and repeat Step 4 for the next point. Repeat the same until all the three points are finished and then click on 'Done' on the screen.

2.2 Printing Process

Step 1	After setting the print parameters of the model, prepare .gcode file and export it into a USB memory device.
Step 2	Mount the USB memory device to the 3D printer (Julia Advanced) and select the model to be printed.
Step 3	Before printing the model the temperature of nozzle and build-plate need to be rose to a required level.
Step 4	After selecting the model recheck on the screen of printer whether the selected model is correct or not.
Step 5	Click on the print option from printer menu.
Step 6	After the printing process is done let the printer cool down(one can see it on the screen of printer), after that remove the model from the built-plate.
Step 7	Cut out the brim of the model with the help of cutter and the final model will be ready.
Step 8	Once the overall process is done, close the glass window and turn off printer.

3 Precautions

1. Check whether the material (e.g PLA) used in the the printer is same as specified in the Fracktory software.

2. The calibration of the nozzle and the built plate is important otherwise printer will not design the shape correctly.Calibration should be done once in a week and **make sure that the temperature of both nozzle and build-plate are low.**

3. The nozzle and built plate must be clean, dust particles may deteriorate the model.

4. The nozzle and built plate are to be preheated to certain temperature to make the material flow smooth.

5. Initially, run the nozzle for some time to remove some of the material ensuring smooth flow for the design.

6. Before printing, ensure if the model to be printed and the model in the display of the printer monitor are same. Sometimes, it may take hours to print the model.

7. The time for printing and overall time is mentioned on the printer display when model is in process of printing , model should be removed only after the overall time is passed.