EE/CprE/SE 492 - sdmay 20-30

Building a 3D Micro-Manufacturing System using Digital Micromirror Device

BI-WEEKLY 4 REPORT

August 2019 – May 2020

Client &/Advisor: **Meng Lu**

Team members:

Tong Di - Software

Di Meng - Hardware

Yu Cheng – Hardware

Shengpu Zou – Hardware

Haolun Ping- Software

Past Week Summary

Past Week Accomplishments:

• Finish the test for DLP4500 on Labview

• Finish the test for MP-285 on Labview

• Write Bi-weekly report 4

• Adjust the parameter of the 3D wrapping box stereotype

Pending Issues:

• Reprogramming the driver for DLP4500 on Labview.

• DLP4500 and MP-285 work together on Labview.

• The time to print a single layer pattern.

• Find more and more 3D STL files.

• Calculate the volume borders while slicing the 3D model.

Individual Contributions:

Name: Tong Di

Contributions: Making tests on MP285 by using Labview(move right, move left, move up, move down), and all the tests passed. Another thing is to control DLP4500 by using Labview, we can upload one pattern at one time by hand. But we are making a 3D printer, there are many patterns we need to upload to the DLP4500, so we are working on reprogramming the driver of DLP4500 on Labview. There is a problem we need to solve when reprogramming, it's the time interval between two patterns uploaded to the DLP4500, we need to have a talk with teammates who work on hardware. And we are still working on letting DLP4500 and MP285 work together, once there is a pattern uploaded to DLP4500, the MP284 will adjust the position. And we also need programming to deliver messages between two parts.

Weekly Hours: 13

Cumulative Hours: 92

Name: Di Meng

Contributions: Have been working on learning the slicing software for our 3D DLP UV printer during the past weeks. The software we used is creation workshop beta 13, we could open the STL file which is downloaded from a public resource successfully in creation workshop. In our test, we used the STL file of a thingiverse as the 3D model, the thingiverse was shown in the 3D viewing window where we could rotate around and view every angle of the model. After that, we are trying to slice our model by the button in the top left. For now, we had a couple of tests to slice a 3D model, but we still have some problems while testing in the creation workshop. For example, we still need to solve how we could calculate the volume borders, how to find more and more 3D STL files in the public resource, and so on.

Weekly Hours: 14

Cumulative Hours 90

Name: Yu Cheng

Contributions: Have been working on learning the slicing software for our 3D DLP UV printer during the past weeks. The software we used is creation workshop beta 13, we could open the STL file which is downloaded from a public resource successfully in creation workshop. In our test, we used the STL file of a thingiverse as the 3D model, the thingiverse was shown in the 3D viewing window where we could rotate around and view every angle of the model. After that, we are trying to slice our model by the button in the top left. For now, we had a couple of tests to slice a 3D model, but we still have some problems while testing in the creation workshop. For

example, we still need to solve how we could calculate the volume borders, how to find more and more 3D STL files in the public resource, and so on.

Weekly Hours: 14

Cumulative Hours: 90

MenName: Shengpu Zou

Contributions: Making adjustments of optical lens of dlp4500. After optical lens, pattern was warp. Also, test resin's cure position, and cure time. Design the building head base on our MP285.

Weekly Hours:14

Cumulative Hours:90

Name: Haolun Ping

Contributions: Making tests on MP285 by using Labview(move right, move left, move up, move down), and all the tests passed. Another thing is to control DLP4500 by using Labview, we can upload one pattern at one time by hand. But we are making a 3D printer, there are many patterns we need to upload to the DLP4500, so we are working on reprogramming the driver of DLP4500 on Labview. There is a problem we need to solve when reprogramming, it's the time interval between two patterns uploaded to the DLP4500, we need to have a talk with teammates who work on hardware. And we are still working on letting DLP4500 and MP285 work together, once there is a pattern uploaded to DLP4500, the MP284 will adjust the position. And we also need programming to deliver messages between two parts.

Weekly Hours: 13

Cumulative Hours: 90

Plans for the upcoming week:

Tong Di - Working on reprogramming the driver of DLP4500, making it upload patterns automatically. And also working let DLP4500 and MP285 work together in the Labview.

Yu Cheng - Learning more skills in the creation workshop, solving the pending issues in the creation workshop. Keeping eyes on printing out the 3D wrapping box stereotype by contacting ETG.

Di Meng - Learning more skills in the creation workshop, solving the pending issues in the creation workshop. Keeping eyes on printing out the 3D wrapping box stereotype by contacting ETG.

Shengpu Zou - Working on resin test and help software teammate to reprogram DLP 4500 and MP285.

Haolun Ping - Working on reprogramming the driver of DLP4500, making it upload patterns automatically. And also working let DLP4500 and MP285 work together in the Labview.