

EE/CprE/SE 492 - sdmay 20-30

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

BI-WEEKLY 5 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 official driver
- Finish the test for MP-285 on Labview
- Write Bi-weekly report 4
- Successfully slicing the several models

Pending Issues:

- Reprogramming the driver for DLP4500 on Labview.
- DLP4500 driver license issue.
- The time to print a single layer pattern.
- Find more and more 3D STL files.
- Solve the transferring issues.

Individual Contributions:

Name: Tong Di

Contributions: Making tests on DLP4500 by using Labview, and we get a license issue with authorization. We can use the official driver with account signed in. But it doesn't work on the Labview, 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: 105

Name: Di Meng

Contributions: Have successfully cut the model to slices vertically and horizontally. We tested 7 models like cars, boxes and tires, we were able to create the models as STL files through creation workshop. However, we are currently struggling how to transfer the slices of the model to our 3D printer. Since the requirement of the slices for the printer is different than what we cut in creation shop, for example, the slice thickness now we cut is about 0.05 mm, we still need to check with hardware DLP4500 to make sure it is suitable to print out layers and layers. In addition, the layers now we cut is 15 layers, since the DLP4500 was used by other teammates in past weeks, we will test the layer thickness and bottom layers next week.

Weekly Hours: 14

Cumulative Hours 104

Name: Yu Cheng

Contributions: Have successfully cut the model to slices vertically and horizontally. We tested 7 models like cars, boxes and tires, we were able to create the models as STL files through creation workshop. However, we are currently struggling how to transfer the slices of the model to our 3D printer. Since the requirement of the slices for the printer is different than what we cut in creation shop, for example, the slice thickness now we cut is about 0.05 mm, we still need to check with hardware DLP4500 to make sure it is suitable to print out layers and layers. In addition, the layers now we cut is 15 layers, since the DLP4500 was used by other teammates in past weeks, we will test the layer thickness and bottom layers next week.

Weekly Hours: 10

Cumulative Hours: 100

MenName: Shengpu Zou

Calculate the depth of resin expose to the UV light. Design the resin fill platform for further improvement. Still working on the optical platform to improve the alignment. Working on design the building head.

Weekly Hours:14

Cumulative Hours:104

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: 103

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. Find a way to transfer slices of models from creation workshop to hardware.

Di Meng - Learning more skills in the creation workshop, solving the pending issues in the creation workshop. Find a way to transfer slices of models from creation workshop to hardware.

Shengpu Zou - Working on resin test and design the building head and resin fill platform .

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.