Learning Module #5
3D printing with a Xbox 360 kinect
Reilyn D and Ryan D

FInal Write up

For Learning module #5, Reilyn and Ryan D decided to work together and to try out a project that another group had done a few years ago. Reilyn and Ryan chose to 3D scan and print someone in their class. They decided to use the 360 Xbox kinect to scan Mr. Detrick and Ryan C. They also used a software called Scannect to load the scan. Once they took the scan they cleaned it up and uploaded it onto the software called Cura where they would edit the print settings. Throughout the 12 days, Ryan and Reilyn had a lot of issues and a lot of success.

Some big issues that Reilyn and Ryan encountered included, adhesion wasn't working, PLA wasn't good enough, they couldn't figure out how to level the bed for a while, the printing bed wasn't heating up, the prints continued to fail or not be as good as they wanted and holes in the print. Reilyn and Ryan tested out a few different things to fix the adhesion like glueing the bed, and cleaning it with different things like alcohol pads, damp paper towels and nail polish remover. Reilyn finally found a video on leveling the bed so she figured out how to level it in the settings and with the spacer card. Once Reilyn leveled the bed they were able to get the print to work. They still had a lot of issues with the print afterwards. Reilyn and Ryan tried out a white PLA provided by Mr. Detrick which stopped printing halfway through. Reilyn analyzed the PLA and realized it was brittle and broken due to the age of the PLA. Reilyn was also able to figure out why the bed wasn't heating up when they started the print; In the print settings the bed only heated up to 25 degrees so Reilyn changed it to 65. Ryan went through their print settings on the models and made some adjustments including print flow, infill density, patterns, etc.

During the module, there weren't initially roles but Reilyn mostly worked with the printer errors and the printer in general. Ryan mostly worked with the software and the model setting on scannect and Cura. Throughout the module, Ryan was able to learn what settings do what when you are saving the model to the printer flash drive like, the preview setting, infill density and pattern, print speed, print flow, supports, gradual infill, and what patterns they would prefer. Reilyn was able to learn a lot about the CraftBot including, leveling the bed, why the prints weren't sticking, heating up the bed, looking though settings, adjusting the settings once the print is started, and why certain PLA materials didn't work.

The first few days of the learning module were a little slow because Ryan and Reilyn were trying to figure out how to use scannect and then cura. Once they were able to save the models to the flashdrive, Reilyn and Ryan had trouble figuring out the initial steps to a 3D printer. After the first couple days of the basic steps for a 3D scan and printer, they spent the rest of the model trying to make their prints better then the first ones they had.

For anyone else who attempts to try out this learning module, Ryan and Reilyn both suggest that you make sure to use youtube tutorials most importantly and that you do extra research. They also suggest that you find videos for the exact printer you are using. The main key to this learning module is patients, exploring and research.

Daily Log

Day 1 - *11/02/2021*
9:12 - 9:54
For Day 1, Reilyn and Ryan D worked on downloading the two softwares that were needed for this module. They had to download Skanect for the 3D scanning and they also had to download Windows SDK 1.8 so they can use the Kinect on the computer. Reilyn had some issues downloading on her computer but they were able to download the two softwares on Ryans computer. Then they were set to start using the scanner and the softwares for day 2.

Day 2 - *11/03/2021*
9:12 - 9:54
For Day 2, Reilyn and Ryan D decided to get started with the scanner. Reilyn watched the 9 minute video the previous night about how to create a 3D scan with a kinect on skanect so they had a good idea of how to get the scan. When they tried opening up skanect the computer was giving them errors and they needed the domain log in but the two teachers that had the password were absent. Ryan D went down to technology with the computer and got the log in. They needed the log on again to download the Kinect SDK so while Ryan D went back to technology for the log in to download, Reilyn watched another youtube video which was on connecting the kinect to the PC.

Day 3 - *11/08/2021*
9:12 - 9:54
For Day 3, Reilyn and Ryan put a backpack on top of two bins and got their first 3D scan. Ryan and Reilyn both scanned the bag by passing the kinect over to get the full 360. Ryan got the scan to load onto the computer and then Reilyn cleaned up the scan and they ended up with an almost perfect scan for the first try.

Day 4 - *11/09/2021*
9:12 - 9:54
For Day 4, Reilyn and Ryan downloaded Cura Software so they can slice the scan and upload it onto the 3D printer. Cura was taking a long time to open which wasted a little time. Once Cura loaded, they had a hard time finding their file and uploading it. It took a couple tries but they got the file to load and they messed with the infill settings. After they finished working on the settings they uploaded the file onto a flashdrive for the 3D printer. They couldn't find their file on the 3D printer so they planned to figure that problem out during the next class.

Day 5 - *11/10/2021*
9:12 - 9:54
For Day 5, Reilyn and Ryan worked on the file to make sure it was saved as a STL gcode file. Once they adjusted the file and got it to save how they needed it, the file showed up on the printer. They were able to get the printer to start printing which would take 7 hours.

Day 6 - *11/11/2021*
9:12 - 9:54
On day 6, the 3D printer had an error and didn't print the backpack. The printer gave an error in Gcode and that there was an unsupported command. Reilyn and Ryan went back into the file on Cura and adjusted and resliced the file. They changed the type of printer on the file and made a few adjustments hoping it would work properly with the print. They attempted to print the new file and it didn't give any errors but the PLA material on the printer wouldn't stick to the base. Reilyn and Ryan made an observation that there would be a bump and the 3D printer would mess itself up. They attempted a few times but kept getting the same issue. They cleaned the base of the printer and put down a glue base and hoped that their print would work.

Day 7 - *11/15/2021*
9:12 - 9:54
On day 7, Reilyn and Ryan messed around with the 3D printer and tried figuring out why the base of the printer wasn't sticking. They watched a few videos and tested some prints and couldn't get it to stick. Since class ended Reilyn and Ryan planned on watching videos at home so they can fix their issue on day 8.

Day 8 - *11/16/2021*
9:12 - 9:54
On day 8, Reilyn and Ryan D tried 2 more prints which continued to fail so they decided to watch a few videos at home and figure it out for day 9. Instead of working on the printer, they went ahead and scanned Mr. Detrick. They sat him in a chair with wheels and Reilyn held up the scanner while Ryan watched the software and they had him spin slowly while Ryan recorded the scan.

Day 9 - *11/18/2021*
9:12 - 9:54
On day 9, Reilyn and Ryan adjusted the settings on the scan using cura software. After adjusting the settings on the scan, Reilyn levels the base of the 3D printer so they can hopefully have a better adhesion. After adjusting the bed level Ryan started the scan and the print finally stuck. Their 3D print came out decent but had a couple flaws including holes, and uneven structure.

Day 10 - *11/22/2021*
9:12 - 9:54
On day 10, After having a decent print of Ryan, Ryan and Reilyn wanted to test a new color to see the detail better. They adjusted some settings and ran another print of Mr. Detrick and the print failed again.

Day 11 -
9:12 - 9:54

On day 11, Reilyn took a look at the printer to figure out why the print failed and she figured out that the White PLA that they used was too old and brittle. They switched the PLA to a purple one and ran it again over the break. The print said it finished again but it didn't fully print the model.

Day 12 - *11/29/2021*
9:12 - 9:54
On day 12, Reilyn and Ryan worked on Cura Software and adjusted the Detrick model some more. Ryan changed the settings from normal to extra fine. Reilyn adjusted the bed again and cleaned off the surface. They also think a reason their print failed was because the PLA spool was too big so Reilyn changed it back to the original yellow PLA.

Work @ home (2 hours)
Reilyn

- https://youtu.be/6N7wcF-MQVI
- https://youtu.be/86DA0Zt6VDM
- https://youtu.be/PhoxDOTkWZg
- https://youtu.be/c_rrcXm8PDg
- https://youtu.be/9nLuXFDdZ_Q

Ryan

- https://youtu.be/u1AzY4OxzQM
- https://youtu.be/86DA0Zt6VDM
- https://youtu.be/ShFaJ027pFs

Resources:

https://youtu.be/6N7wcF-MQVI
https://youtu.be/u1AzY4OxzQM
https://youtu.be/86DA0Zt6VDM
https://youtu.be/-kmcWhAaBQ8
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