Software Engineering

3D Scanner C++ Project

Weekly Report (04/11/2017 - 10/12/2017)

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Assessment of the week

Our goals for the week were achieved which enable us to add up many other goals due to the fact of us being able to get good clarifications from our supervisors. We ran the test of the previous projects using PCL and also we ran the openCV example given by the supervisor. We were able to determine areas to which we want to improve. We met with the supervisors and they gave us good areas to look at in order to be able to attain the necessary requirements needed from us.

During our discussion with the supervisors we where able to identify key ares in which we are going to improve upon.The main idea is to improve upon the results given by the previous projects. Like, looking at ways to develop a good 3D reconstruction of a whole person, being able to put the kinect closer in order to achieve better view of the scan and also ways to smoothing the 3D mesh.

Previous Objectives

1. Be able to run and test the whole project of the group we selected. (DONE)
2. Define key area in which we can look to modify. (DONE)
3. Consult the supervisors on our approach to see if its a good approach. (DONE)
4. Having approval of the supervisors we then start modifying the areas in which we choose.(DONE)
5. Installation of OpenCV + running the supervisor example (DONE)

Running of Projects

Data acquisition using 3D-Korn

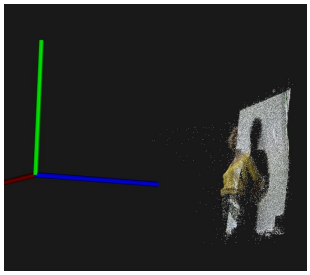

Figure 1: PCL registration

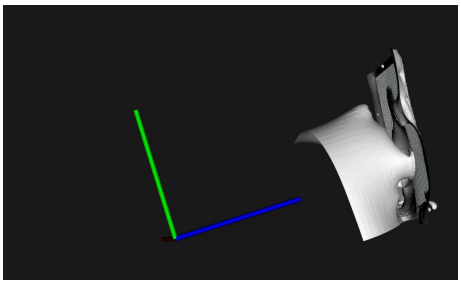

Figure 2: Generated mesh

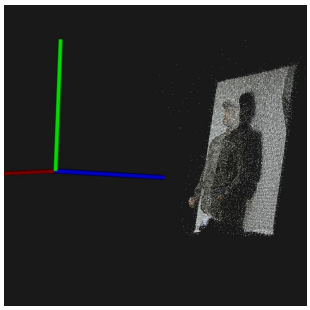

Figure 3: PCL registration

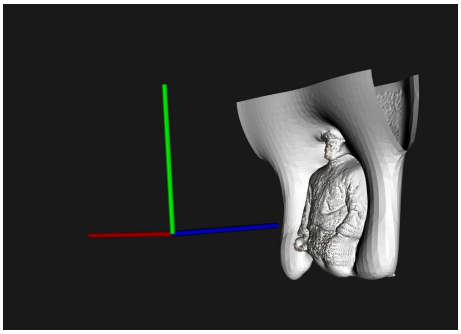

Figure 4: Generated mesh

Observations: After running the 3D-korn project we can see with the first test (figure 1) that the points registration was not orderly mannered. This could be due to the fact of the way the body was moving during the scanning, which gave a badly generated mesh.

We then proceed to do a second test (figure 3 and 4), the body was moving continuously using the same pace of movement, say approximately 30 degrees per rotation (studied in the previous project report). Which gave a better result of the generated mesh (figure 4) compare to the first test (figure 2).

All being equal this brings to the fact that there need to be an improvement in the 3D reconstruction of the whole body which will be able to give a better mesh and also apply filters to enhance the smoothing of the mesh.

This Week Objectives

1. Research on ways to improve the 3D reconstruction of the whole body.
2. Research on ways to improve the mesh generated.
3. Research on ways to smoothing the mesh

Reference

- **Trello Account** https://trello.com/b/MaBdGQ7p/software-engineering
- **GitHub Account** https://github.com/MSCV1-2017/3D-ScannerProject
- **Previous Project** https://github.com/umaatgithub/3D-KORN