sdmay18-02: Augmented Reality Mechanical Design Solution
Report 4
October 1 – October 8

Team Members
Bhimesh S. Chauhan — *Client Coordinator, Project Manager, Backend and Pipelining Team*
Vaibhav Malhotra — *Backend Developer*
Cole Chapin — *UI Design Engineer*
Ryan Luck — *UX Engineer*
Cal-Vert Wong — *Pipelining*

Summary of Progress this Report
We have following issues addressed this week:

1. Our team broke down into 2 main groups; rendering items in 3D space based off of points from a .stl file and parsing a .stl file for individual points that can be passed into OpenGL to render.
2. We researched libraries and different ways to parse .stl files using python.
3. We started on the graphic rendering of objects on a 2D VR simulator using OpenGL.
4. We have created a few basic .stl files that we can use to test our parsing.

Pending Issues
We have following pending issues for the next week:

1. We want to work and test on the headset to see how items are rendered using OpenVR. OpenVR is a common library for allowing a program to be displayed on multiple different VR devices.
2. We are able to parse the .stl file data but are unsure how to extract the triangles to form an object.

Plans for Upcoming Reporting Period
We have following upcoming reporting period:

1. Complete the .stl file parsing and transfer an inputted .stl file into our rendering software.
2. Test our rendering software on the VR emulator to see if we can create an object based on triangles.
3. Acquire the HTC Vive and test the rendering software to see the difference from the simulator.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Bhimesh S. Chauhan	• Worked on rendering the texture and lighting configurations for a sphere in OpenGL using C++ with Vaibhav.	7	31
Vaibhav Malhotra	• Rendered a sphere in OpenGL using C++ with Bhimesh. • Researched about OpenVR as our next step into displaying the render in VR.	6	27
Cole Chapin	• Practiced rendering basic objects in OpenGL	4	23
Ryan Luckinbill	• Created and pushed basic .stl files that we can use in our testing. • Started our repository and explored and started to use multiple libraries we can use to parse stl files with Cal.	7	27
Cal-Vert Wong	• Used example java and python .stl parsing code to start decoding a file with Ryan.	5	27

Summary of weekly advisor meeting (if applicable/optional)

We discussed the following topics with our advisor:

1. We confirmed a way to aquire a HTC Vive.
2. We discussed deep ways to achieve our first goal of taking a .stl file and rendering that in VR space.
3. We discussed why we chose to proceed without Unity and use Python to parse a .stl file and then feed that into OpenGL to be rendered.