Oregon State University Capstone Team 11

Innovate 3D scanning of large spaces to create virtual walkthroughs and distance learning

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Vision

The goal of our Capstone project is to make a photogrammetry software that could possibly compete with the Matterport camera. We want the end product to input images taken with an Intel RealSense Camera, and produce a mesh that can be used for virtual walkthroughs and classrooms.

Use of DotProduct

We intend to use DotProduct to generate point clouds and meshes from the images taken from our Intel RealSense camera by creating a User interface that can interact with Dotproduct, and visualizing the meshes generated using Unreal Engine.

We will use Qt and QML to make the user interface. This interface will ask the user to upload a folder of the images they used and ask additional settings questions, such as meshing the point cloud or needing to select a certain area of a scan. That info will be sent to the DotProduct Framework to Generate the Point cloud. Depending on the settings requested, the user can directly send the cloud to the unreal engine, or mesh it in DotProduct.

Unreal Engine 4 will be where the final scan will be viewed. We are currently experimenting with different methods to export the scan directly into Unreal. We will use the pointcloudplugin tool to export the mesh into Unreal if the user requests it before scanning. For direct meshes into unreal, We are currently working with converting the obj of the scan into fbx format using either MeshLab or Blender.

Questions

1. Do you have any tips for exporting scanned meshes into Unreal Engine / fbx file format?

2. Instead of creating a shell over DotProduct, is there a DotProduct library or API that we can use to develop?
3. How do we install the firmware for the D455 camera onto our android devices?
4. Would it be possible to have an extension of our DotProduct license until June?