

## **Group Name** Hackulus Thriftus

<https://github.com/paigehinkle/hackulus>

## **Group Members**

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## **Project Topic**

Reconstructing a 3D object or scene using Kinect and viewing that mesh in Google Cardboard

## **Objectives and Key Results**

**Objective:** Create a 3D mesh by moving an object and not moving the Kinect

### **Key Results:**

1. Create a mesh of the object using depth data from Kinect
2. Smooth the data using a filter so that the mesh is reduced in size so that we can render it on a phone for Google Cardboard

**Objective:** Create a 3D mesh of a scene using Kinect when the Kinect is moving in a circle

### **Key Results:**

1. Stitch the images received from the moving Kinect to render a single scene
2. Create a 3D mesh of the scene using the depth data from Kinect

**Objective:** View a mesh in Google Cardboard

**Key Results:**

1. Mesh is loaded and viewable in a web application that works with Google cardboard
2. Mesh is able to be rotated or viewed at different angles

## **Meeting Schedule and Objectives**

Progress Report 1: Have OKR 1 done and begin work on OKR 2

Expected Effort: OKR 1 will be the most difficult to achieve. Thus, it may take until Progress Report 2 to be able to have something to show.

**Updated 11/13/14:** Finished OKR 3.

Progress Report 2: Have OKR 2 done and be almost done with OKR 3

Expected Effort: OKR 2 will be an extension of OKR 1, so assuming good progress with it, this will not be as difficult as OKR 1.

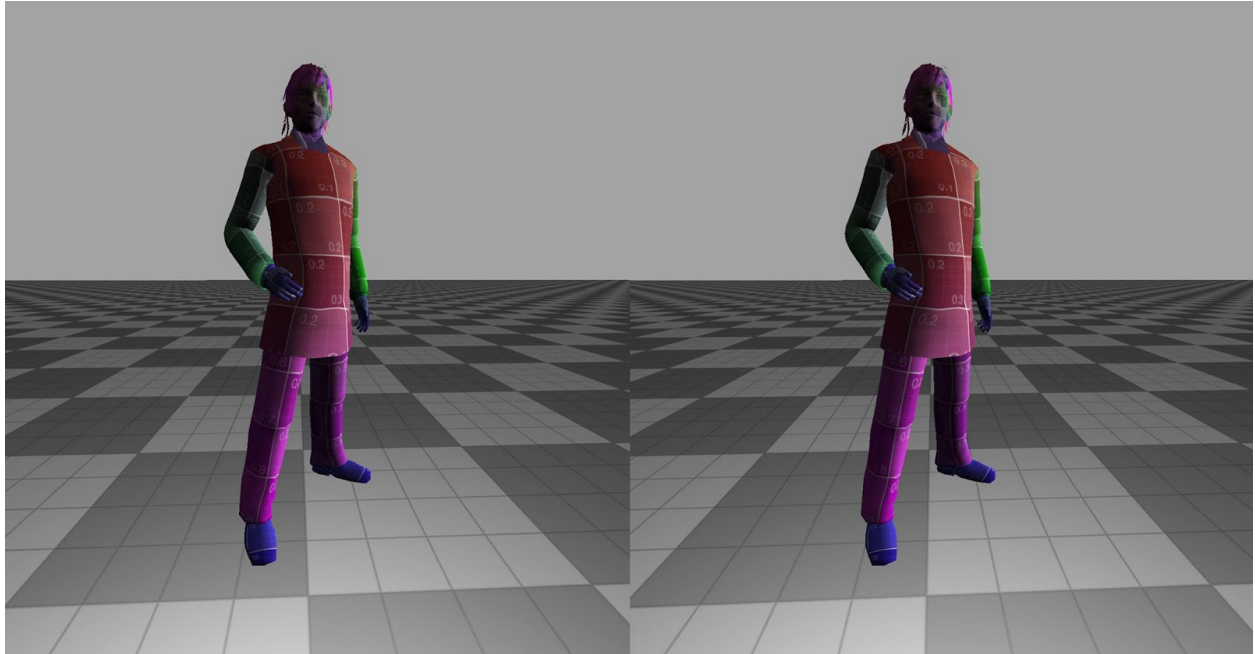
Final Project Due Date: Finishing touches on OKR 3 and possible reach goals

Expected Effort: Depending on the complexity of the files given from OKR 1-2, OKR 3 will be somewhat difficult to render in a VR environment.

## **Progress Report 1**

We chose to use a web app for Cardboard because of the simplicity in setup, since it uses Three.js and WebGL. We were able to complete most of OKR 3, which encompasses getting an .obj file loaded into the web app and projected into 3D space. Using the Cardboard setup, this object is projected automatically into a VR space with two views that are slightly skewed.

We are currently supporting .obj files since as a group, we decided that would be a simple file type to support. However, if we found that another file type worked better, we would be able to support that.



Next, we want to complete either being able to walk around the object or rotating the mesh along an axis so that you can see it from different angles.

Unfortunately, we were unable to make much progress on the Kinect section of our project. The most significant problem we faced is that we were planning on using one of our team members' Kinect, but due to the device being from the newer Xbox Ones, we were unable to get a dongle to connect to our computers for development. As a result, we are more than likely going to request to use Dr. Klingner's Kinect setup instead.

As we noted in our status report above, we were going to finish OKR1 by the first check-in; however, we didn't anticipate having this kind of significant setback once we finished setting up our development environment. Since we had the development environment and setup for OKR3, it was easier to get started, which is why we decided to ahead with the Cardboard portion, since it wasn't an extension of anything else. On the other hand, we were unable to get started with either OKR1 for the reason mentioned above or OKR2 since it's an extension of OKR1. We plan on finishing OKR1 and hopefully being able to integrate our work with the results of OKR3 by progress 2.