**Members**

John Cavalieri and Jessica Lai

**Project description**

In this project, we wanted to explore the process of creating a VR game that extends the reality. We wanted to create something that was cool and deliver an experience that could not be enjoyed in real life.

We originally wanted to start of in augmented reality (AR), anchoring a wormhole in the classroom. Then when we touch it, we would be sucked into a wormhole, experience time warping effects of the environment on the other side and be transported to the environment on the other side of the wormhole, which is a galaxy in virtual reality (VR). From the implementation stand point, it made sense to place the environment to be located physically within the wormhole because the user would be forced to enter it and be immersed in the a wrapping effect reflecting this view. The idea of entering the environment and becoming immersed in VR is very interesting but does not make use of the advantages of Hololens as it should have because it forgoes AR. Because of this, we extended our original plan to enter the galaxy. We made use of the spatial mapping in Hololens and opened up holes in the wall, that we can use to peeks at the other side. We allow the user to choose between the two options: to immerse in the a galaxy and to take a peek and another environment.

**Source code – John**

I’m not sure how you want to organize your source code so I leave it up to you.

Here are the instructions.

Your report must list those parts of the project (source code files, Web pages, other) you have:

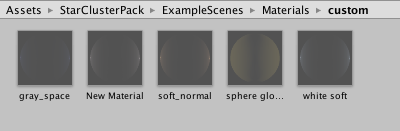
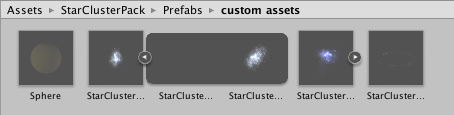
* + 1. developed entirely by yourself;
    2. acquired from people, sites, etc. (provide exact references where from) that were modified by you (specify the nature and extent of modifications you have made); and
    3. acquired and used as-is (again, provide complete references -- make sure you are within legal rights to acquire and use these!).

**Source code for galaxy environment**

Jessica created the galaxy environment. A mix of basic 3D objects in Unity, modified objects using resources from StarCluster Pack 2.0 and prefabricated object from StarCluster Pack 2.0 were used. StarCluster Pack 2.0 was brought from the Unity asset store.

Modified objects using resources from StarCluster Pack 2.0

* Sphere
* StarCluster\_GrayNebulae
* StarCluster\_GraySpace
* StarCluster\_Wire 1



Using existing textures, new materials were created and saved. Existing material from the StarCluster Pack 2.0, new materials, texture, shader, models, and unity 3D objects were used to create new objects in the desired shape, color, and glow. Objects and that maybe reused were saved for reuse.

Prefabricated object from StarCluster Pack 2.0

* StarCluster\_GoldNebulae
* StarCluster\_ViolentSpace
* StarCluster\_SoftStars
* StarCluster\_RegularStars

GoogleVR SDK was used during testing to creating demos of the environment to view on Google cardboard. This is completely open sourced.

**Camera script**

Camera script was developed entirely by Jessica. Unity documentation was used for reference during coding. The documentation is completely open source and avalible for reference.

The documentation can be located below:

<https://docs.unity3d.com/ScriptReference/>

**User manual**

A running version of the executable is on the Hololens.

Please fill out this part John

- Jess