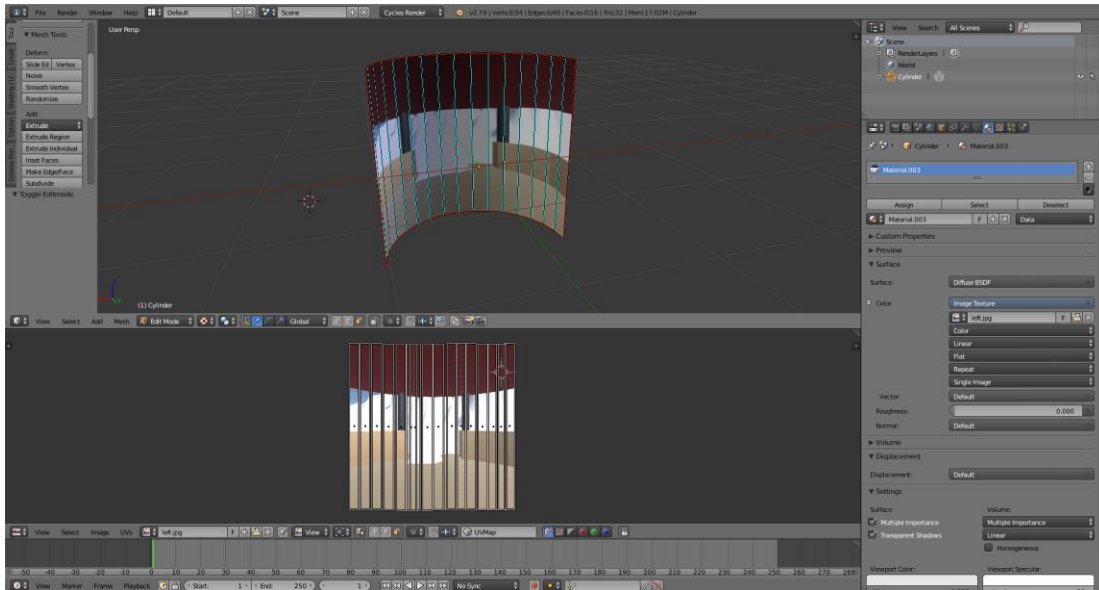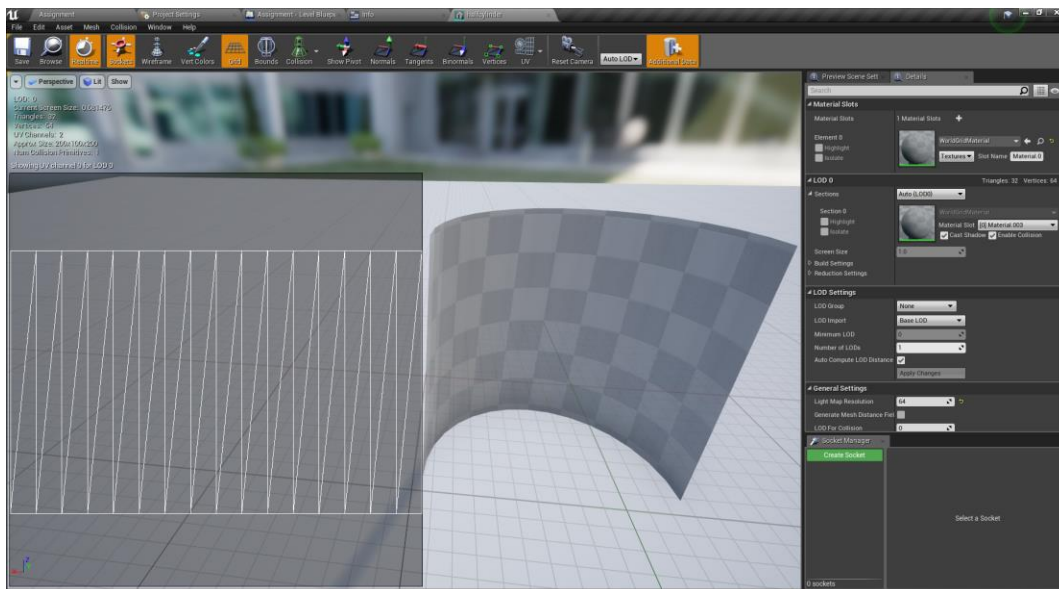# VR Assignment Documentation

- Game engines require 3d data to be imported from external 3d application.
- Hence I used blender to model the cylinder.
- The UVs of the created 3d model were mapped to fit the texture
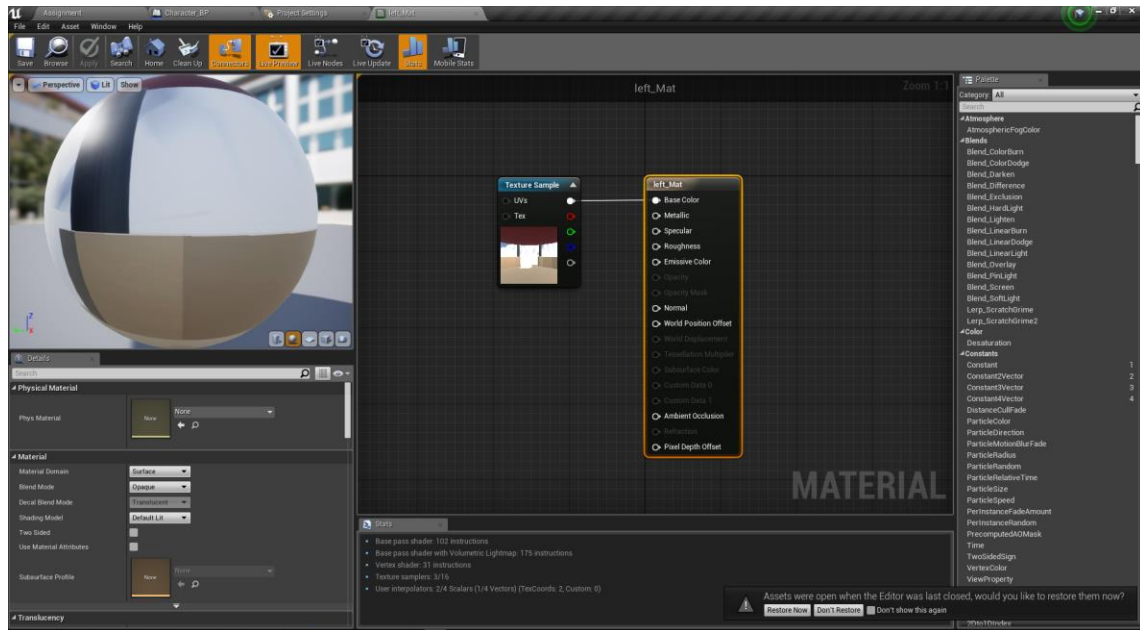- The model along with its uvs was imported in Unreal engine 4.18.3


Model with UVs in blender

Imported model with UVs in unreal engine 4.18.3

- The images provided were imported to Unreal Engine. Unreal Engine converts the images to .uasset
- Materials were created for these images

Materials created from input images

- Character scene graph contains a camera with provided FOV, frustum bounds.
- A scene graph with the imported and textured cylinder and a plane with the same texture showing input images
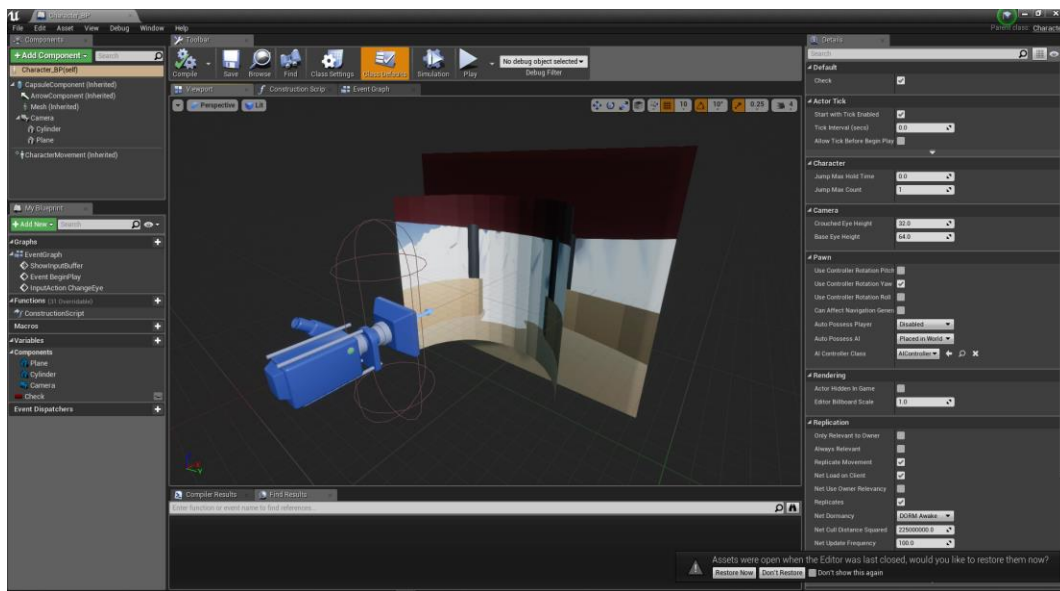

Character scene graph contains a camera with provided FOV, frustum bounds and. A scene graph with the imported and textured cylinder and a plane with the same texture showing input images

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[/Script/Engine.InputSettings]
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bEnableFOVScaling=True
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bShowConsoleOnFourFingerTap=True
DefaultTouchInterface=/Engine/MobileResources/HUD/DefaultVirtualJoysticks.DefaultVirtualJoysticks
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-ConsoleKeys=Tilde
+ConsoleKeys=Tilde
```

Snapshot of DefaultInput.ini file. This file is necessary for input bindings. It contains some default bindings and other user
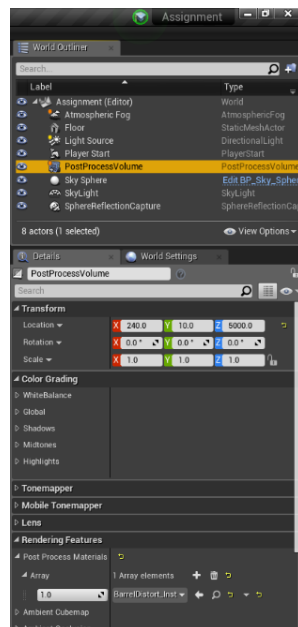
Scene Graph of the Map containing post process volume having barrel distortion shader
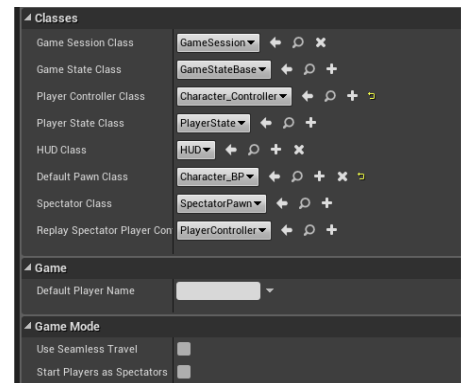

Game Mode Class

- We are using Post processing volume to create the barrel distortion. The post processing volume has a shader which defines barrel distortion
-

- Shader to define barrel distortion
- The texture coordinates are measured from top corner(0,0) to bottom right corner as (1,1)
- Hence I had to first center the texture coordinates and then later uncenter them
-

- The shader used is a post processing one

- A material instance with exposed parametes is created from the Barrel Distort material
- The values of k0, k1, k4 can be changed
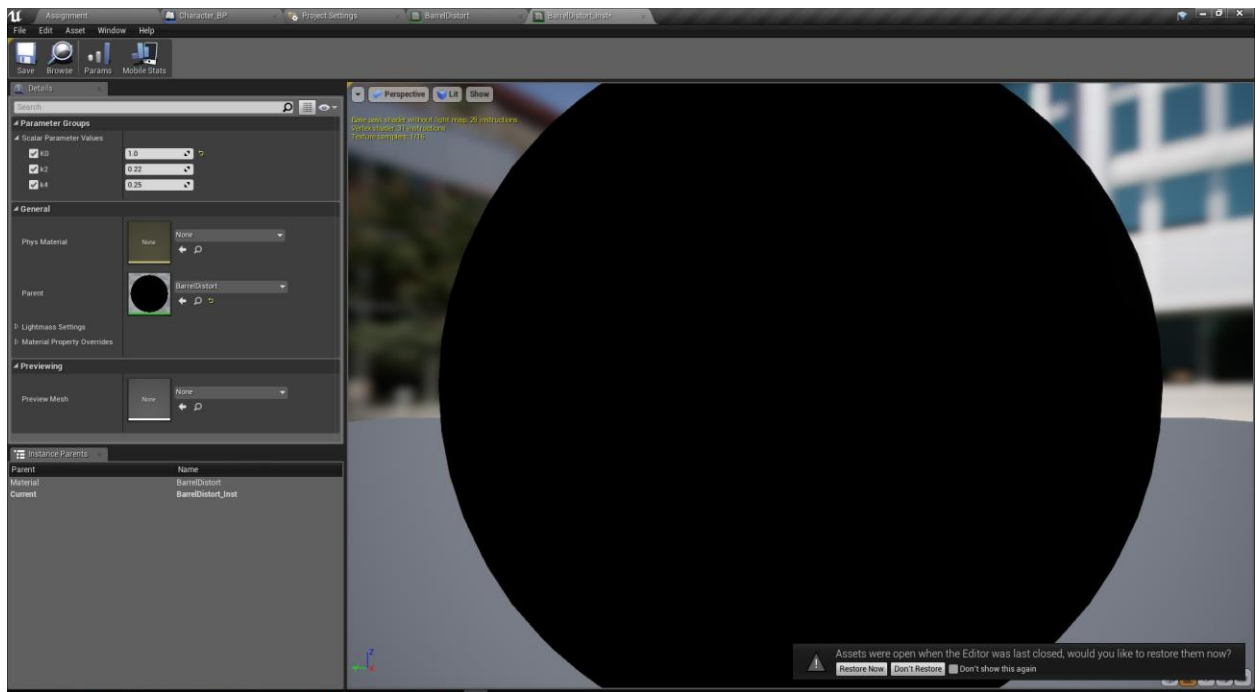
- The level blueprint (node based editor of unreal engine) implements the input mapping to show/hide input buffer. And calls the method in the character to hide the cylindrical projection and show the planar version. Also, it disables/enables the distortion shader in order to show the input images.
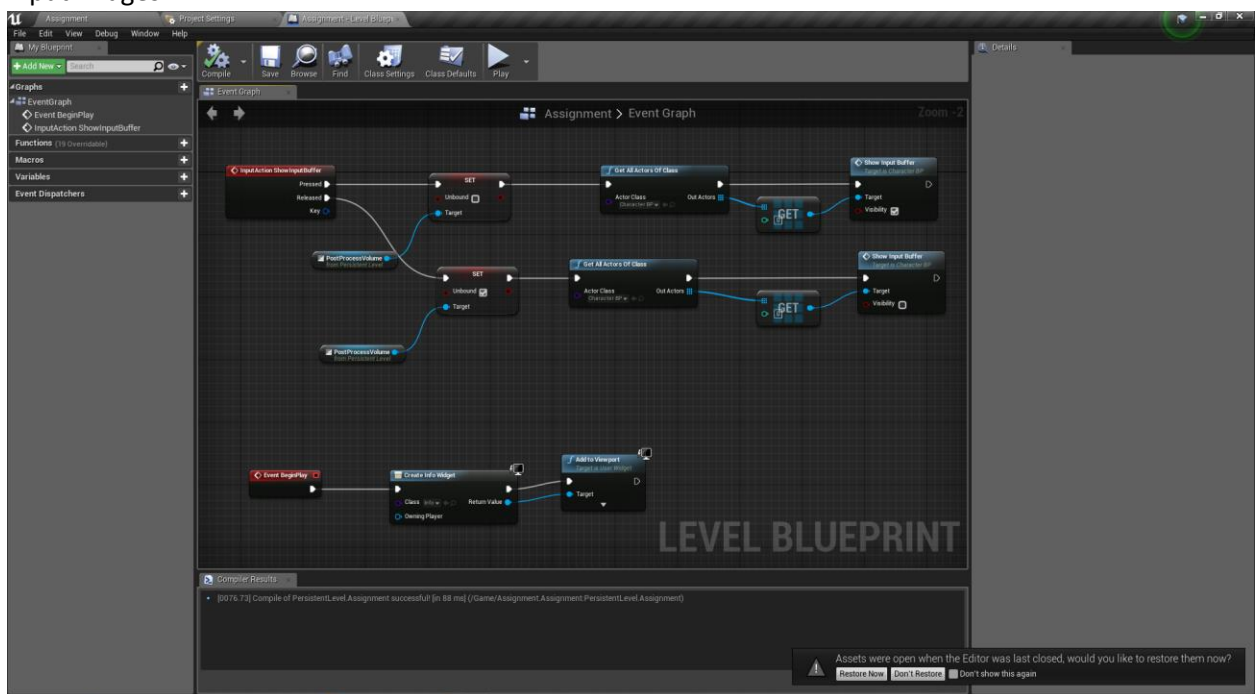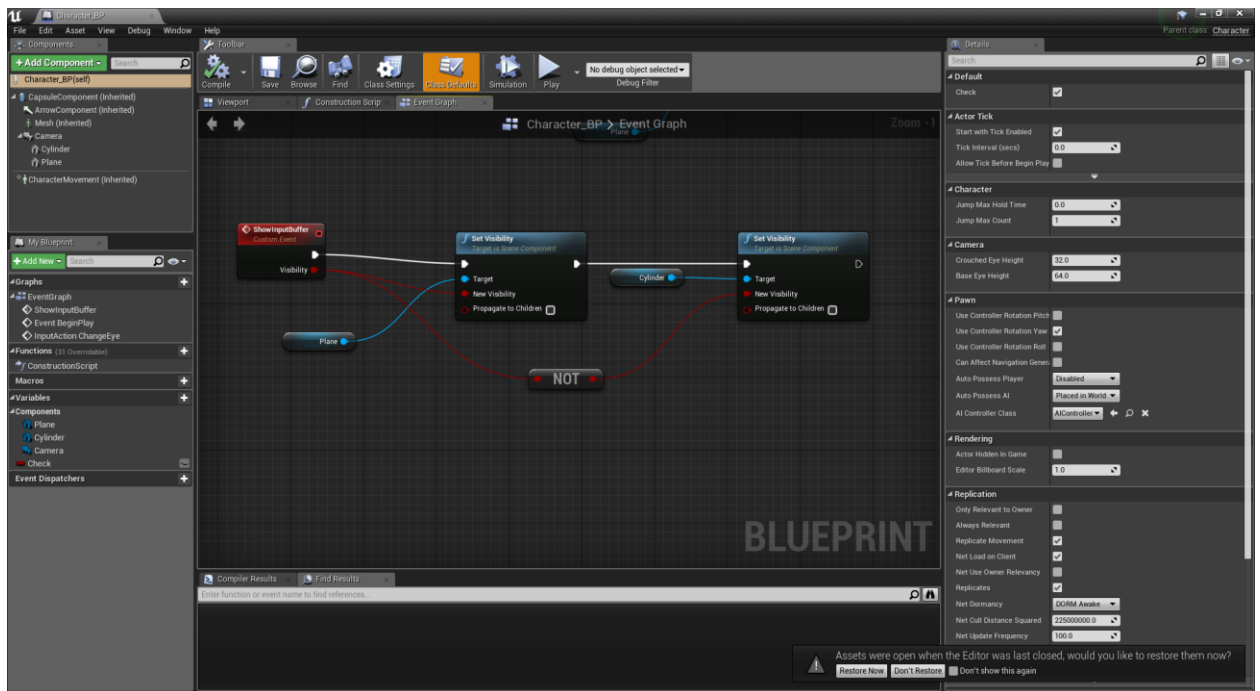
Show input buffer event in the character class

- Change eye input mapping changes the texture projected upon the cylinder. Pressing space bar lets the user toggle the eye
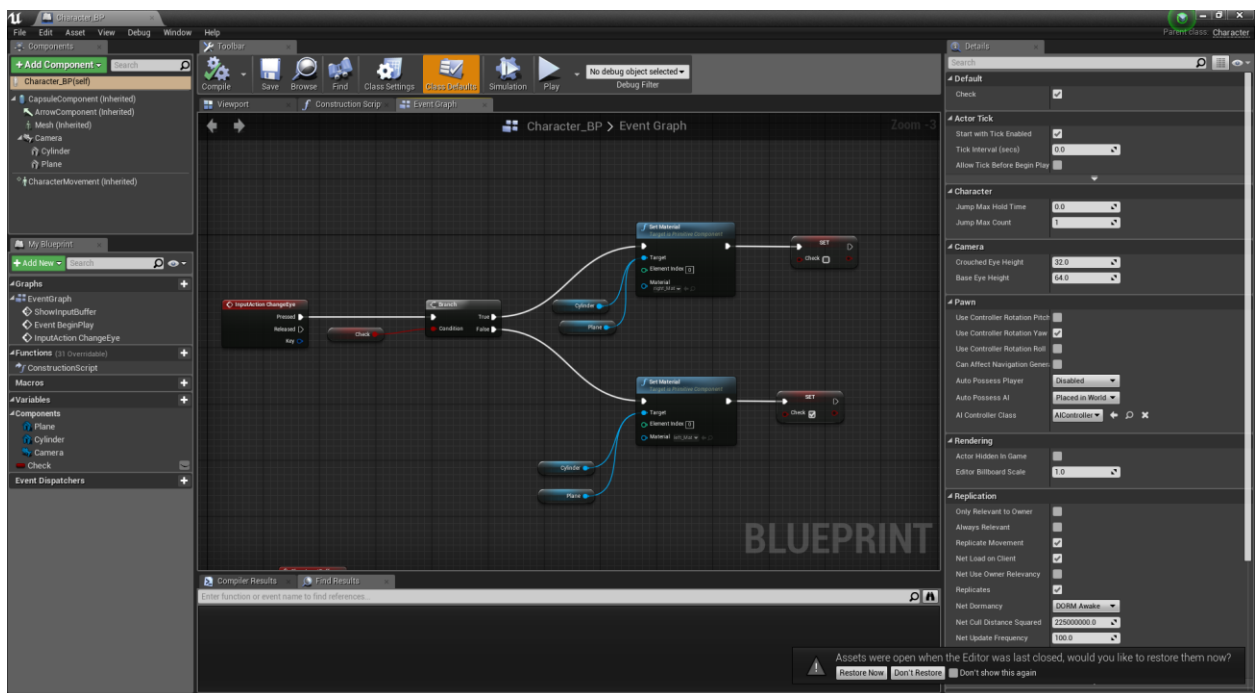
Change eye input mapping implemented