

Using the View Master with Unity

EE267 Virtual Reality 2020

Unity will not be supported by the course staff in office hours or on Piazza. However, for students who wish to use Unity for their final course projects this lab provides a good “getting started” guide.

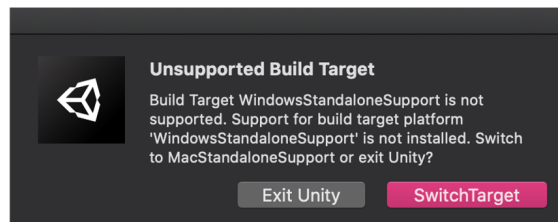
Unity for VR Development

Unity is a cross-platform game engine that can be used to create VR content. Personal licenses are free and [available online](#) for both Windows and Mac. The graphical interface and high level of [documentation](#) available online, including many great [tutorials](#), will help you develop complicated scenes quickly. If you want to get familiar with Unity first, try the [roll-a-ball tutorial](#).

We have put together a [demo project](#) which takes care of the stereo rendering and reading orientation data from your VRduino. This is a great starting point for your final project! Below are instructions for how to setup this project on your computer.

Set-up Instructions

1. Download Unity version 2018.4.20 LTS. While this is definitely not the latest version released, a lot more bugs have been found and fixed.
2. When Unity prompts you to open a project, select the unzipped `ee267_unitystarter` folder. If it prompts you to approve a build target change (as below), select `SwitchTarget`.



3. Connect the View Master display and VRduino to your computer. Run `vrduino.ino` in the `vrduino` folder included in the starter project. This is the solution script for *Homework 5* with our intended default values.
4. Open the `ReadUSB` script and change the `portName = "COM4"` to the port name corresponding to your VRduino. Usually the easiest way to check this is through the Arduino IDE interface by going into Tools -> Port.
5. Open the `CardboardProfile.cs` script (located in `ee267_unitystarter/Assets/Cardboard/Scripts`) and check the parameters for the `EE267ViewMaster` to match your display. There is some variation between our displays.
6. Double check that the "API Compatibility Level" is set to .NET 4.0. This can be found under Edit -> Project Settings -> Player Settings -> Settings for PC, Mac & Linux -> Other Settings.

Press the play button and you should see the scene moving with your VRduino in the Play Window. Now you're

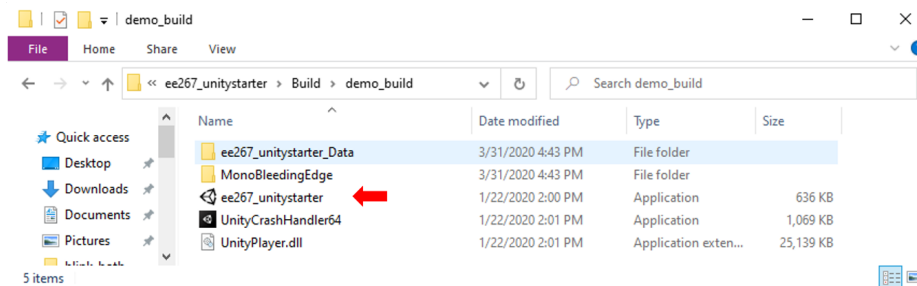
```
public static readonly Screen EE267ViewMaster = new Screen
{
    width = 0.1325f,
    height = 0.0745f,
    border = 0.004f
};
```

ready to create something cool!

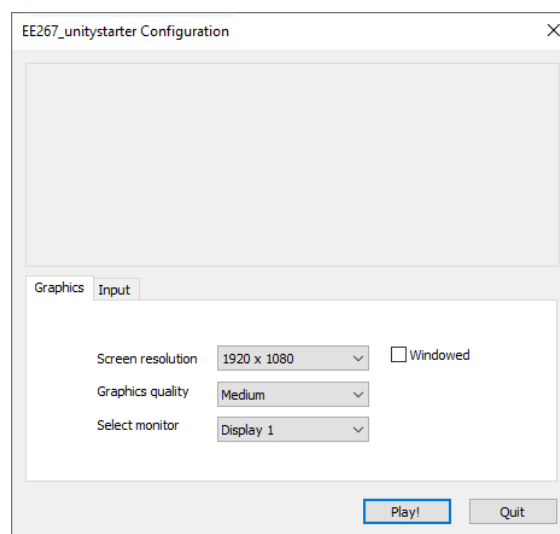
Build Instructions

To view your project properly from within your View Master you will have to build it. To do this:

1. Save your project and then go to File -> Build Settings -> Build. It will prompt you to select a location, create a new folder in the "Build" folder. Try to avoid overwriting a build as this can cause errors. Instead just delete old builds once you are done with them.
2. To run your project, navigate to your designated build location and open the "ee267_unitystarter" application (or other if you figured out how to rename it).



3. A popup will appear. Set the screen resolution to that of your display (in the View Master) and try medium/high graphics quality, depending on your computer specs. Then press Play! Confirm that you can see what you did in the Unity editor, but now fullscreen.



Note for anti-aliasing

Unity has a built-in functionality for performing [anti-aliasing](#). The default [anti aliasing quality](#) in our starter project is set to `2x Multi Sampling` to run our starter project smoothly on a laptop without a discrete GPU. However, the aliasing artifact is still visible with this setting. If your machine is powerful and you want to improve the rendering quality, you can set the anti aliasing quality to `8x Multi Sampling` to have nice smooth edges. If your computer is not powerful and you want to reduce the computational load, you can also set it to `Disabled`.