2.1 First Run Checks

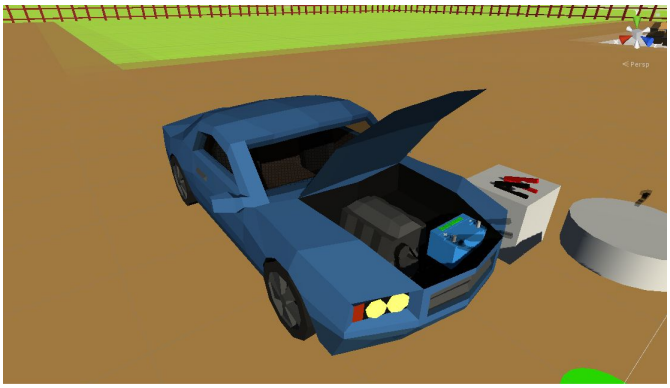
2.2 No VR? No Problem: Using the Simulated Camera Rig

Activities:

Step 1: Unity VR Settings [15 mins]

Step 2: The VRTK Demo Scene [20 mins]

Step 3: No VR Hardware? No Problem (Using the Simulated CameraRig) [15 mins]



Length:	50 minutes
Overview:	Unity has a few special settings to make it work for virtual reality projects, then we'll test out the demo scene to make sure everything is functional before building our own prototype scene.
Project Outcome:	You will be able to test out the demo "farm scene" to experience out interactable elements like "Snap Zones" and picking up objects work. Testing can be done without VR hardware as well using the VR simulator.
Learning Objectives:	The students will be able to: - Articulate three different types of VR interactions - Control the VR simulator (for cases where VR hardware is not available)
Prerequisite:	Unity 2018.3 or later is installed
ISTE Student Standards	4b "select digital tools to manage a design process that considers design constraints" 6a "choose the appropriate platforms and tools for meeting desired objectives"

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Step 1: Unity VR Settings [15 mins]

Video	*https://vimeo.com/349052189*
	OR
Demo	Modifying the Project Settings to prepare Unity for VR use.
Explain	How these settings enable VR ● Unity uses these settings to determine how to render the camera ● Unity uses the OpenVR package to communicate with VR hardware
Discuss	How is playing a first person game different than playing a VR game? Specifically address the controls, how they interact with objects versus keyboard key presses.

Steps to prepare Unity to utilize virtual reality features:

1. Go to the Edit > Project Settings > Player
2. Under "XR Settings", ensure "Virtual Reality Supported" is checkmarked.
3. Under "Other Settings", make sure that in the Configuration section, the Scripting Runtime Version is set to ".NET 4.x Equivalent". Close the Project Settings
4. Under Window > Package Manager menu, select "OpenVR (Desktop)" and choose Install. Close the menu.

- **Explain** These settings notify Unity this will be a virtual reality project.

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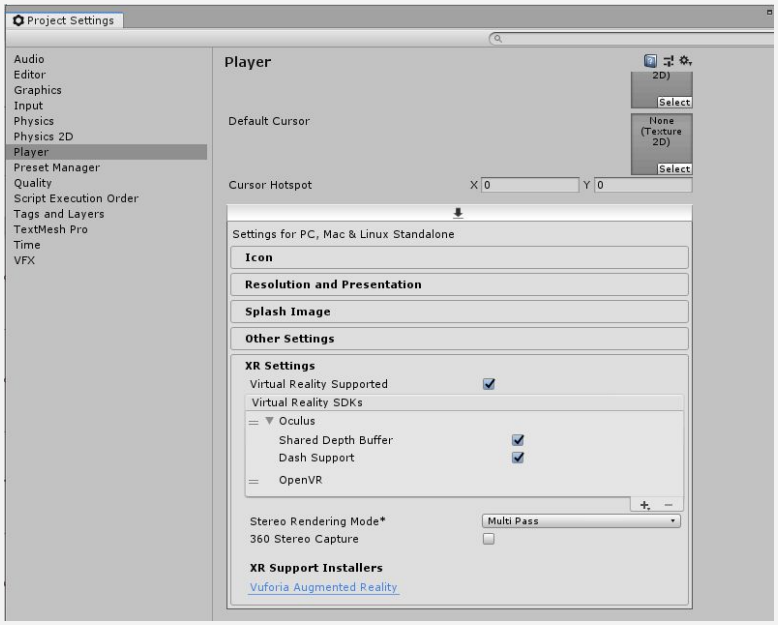


1 - Showing the "Virtual Reality Supported" checkbox inside Project Settings

2 - Showing Scripting Runtime Version is set to .NET 4.x Equivalent

3 - Showing OpenVR is installed

Step 2: The VRTK Demo Scene [20 mins]

Before creating a new scene, play with the examples to see common things you can do with VRTK.

1. In the Project window, go to Assets > VRTK > Samples > Farm > Scenes and open the ExampleScene.
2. Click Play to test the demo scene.

- **Explain** Take notice of the organization and hierarchies of the objects in the scene. There are LOTS of items in the scene, making organization like this even more important to avoid long lists of objects in the Hierarchy.

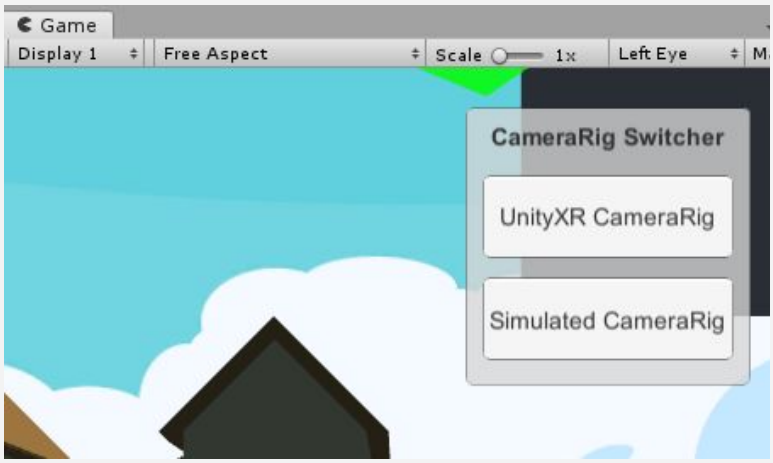
Step 3: No VR Hardware? No Problem (Using the Simulated CameraRig) [15 mins]

Video	*https://vimeo.com/349053717*
	OR
Demo	Using the mouse and keyboard to “drive” your character around the demo scene.
Explain	The Simulated CameraRig allows you to test VR apps without VR hardware
Discuss	How is using the Simulated CameraRig similar to a first person view game?

If you don’t have a VR device like an Oculus Rift or HTC Vive, you can still build and test VR projects.

1. Enter play mode and click "Simulated CameraRig" to switch modes.
2. Press the 1 key on your keyboard, and you can now "drive" your character around using the WASD to steer, and the mouse to change your view.
3. To "drive" your left hand, press 2.
4. To "drive" your right hand, press 3.
5. To reset your character's position back to the starting point, press 4.
6. To reset your hands back to being in front of you, press 5.
7. To interact with objects like fence gates, the scarecrow, and pick up items, click and hold the left mouse button to simulate "grabbing" objects in the virtual world.

- **Explain** Testing using the Simulated Camera Rig is similar to playing a first-person game using keyboard and mouse.



OTHER NOTES
In Play mode, clicking the "Simulated CameraRig" button will enable the keyboard controls.

End of Lesson

Recap

Key concepts:

- Setting up Unity for VR use and testing to see if it works is important as it means it is working for when we build our own VR prototype.

Key skills:

- Changing Unity Project Settings
- Controlling a first person view using just the keyboard

Key terms:

- **Simulated CameraRig:** The players view is simulated similar to a first person game that relies on keyboard controls rather than VR Hardware like the Oculus Rift or HTC Vive.