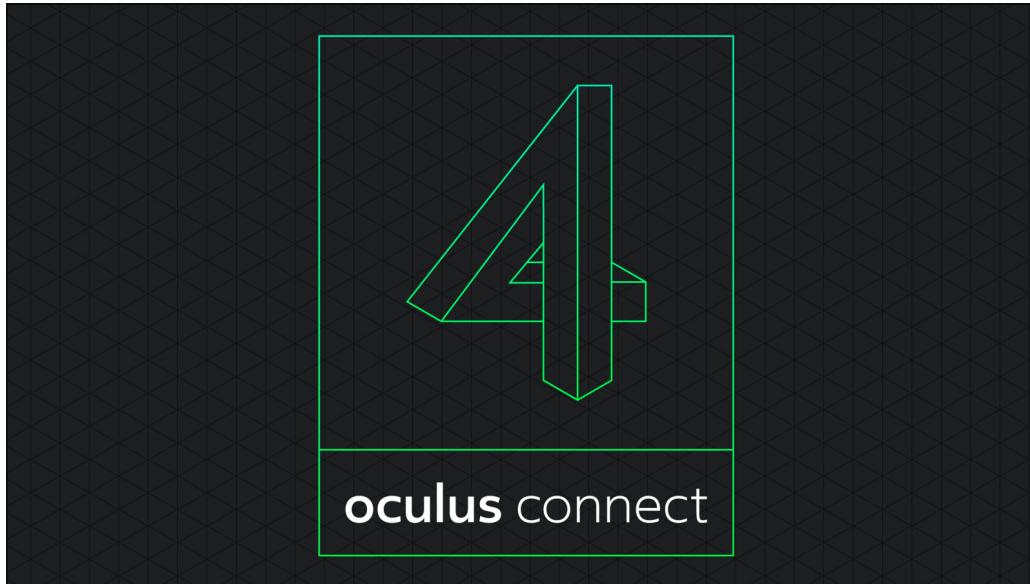




TECH 421 - Future of Digital Media  
TECH 3706 - AR/VR in Architectural Environments



<https://www.oculus.com/go/>

Oculus just announced standalone headset to fill gap b/w mobile VR and dedicated/tethered PC.



Announced ability to customize your “Home”



Announced Oculus “Dash” - environment to use your computer in limitless virtual desktops



BigScreenVR is a company that creates virtual shared environments with shared desktop screens.

Just received \$11m funding.

Companies are looking for ways to keep people *in* VR, make it productive instead of just novelty



<https://blog.bigscreenvr.com/bigscreen-raises-11-million-in-series-a-financing-led-by-true-ventures-a2d49da40e>

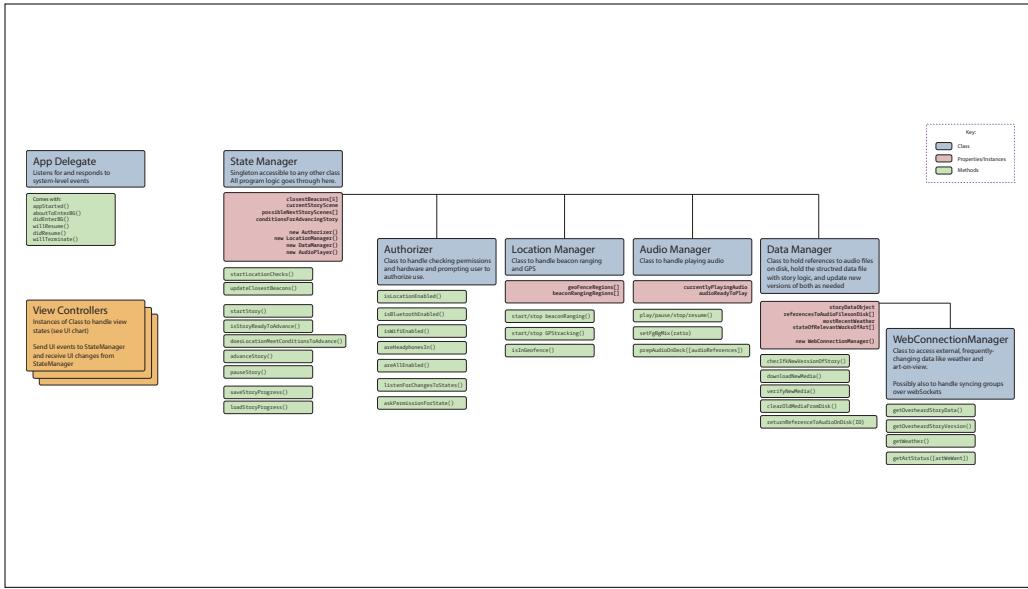
<http://bigscreenvr.com/>



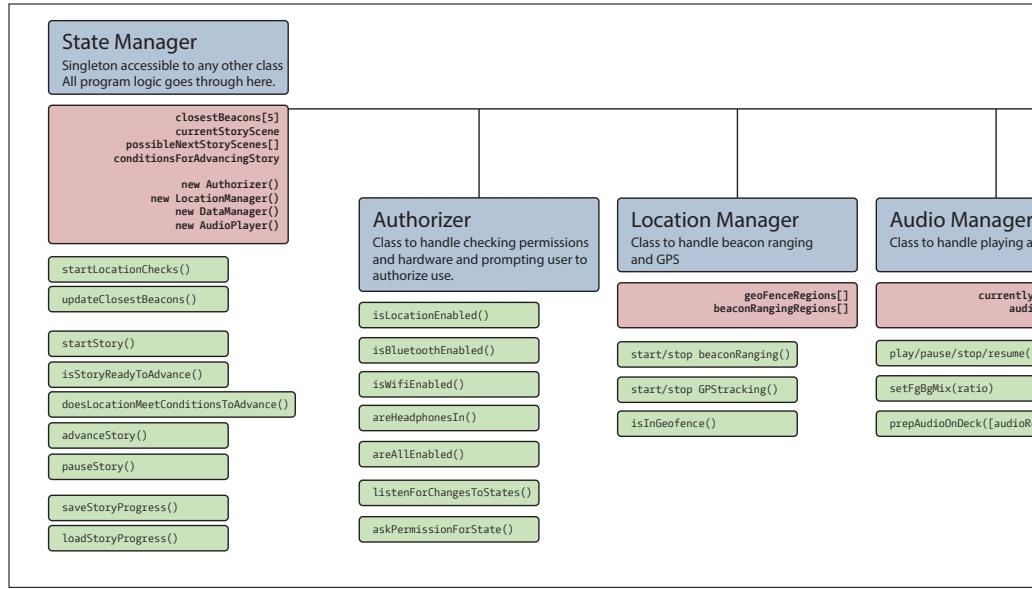
**Milestone: 10/17**

After this weekend

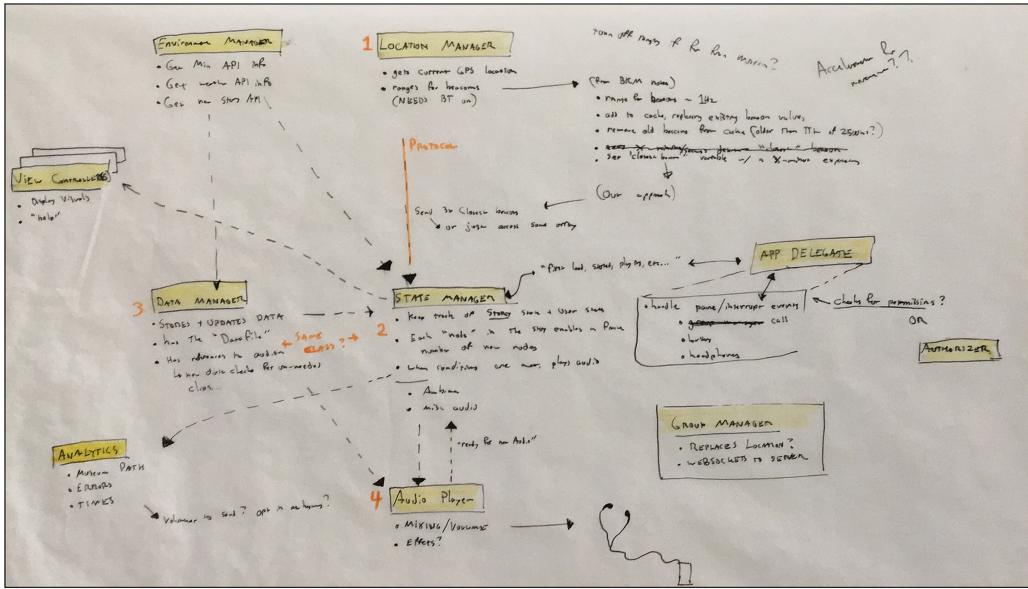
Use this weekend to PLAN AHEAD!



## Example of a way to organize an app with lots of components



Even for simple programs, helps to organize into well-defined pieces (classes) and the variables & functions that go along with each piece.



The same chart, before it was cleaned up and finalized



**Due: 10/24**

(Two weekends from now)

All work on logic/art of your programs is done. We will spend the day troubleshooting the build process.

**10/26**

**In Class Showcase +  
Discussion**

**All Materials due 10/31:**

**Documentation**

- Video of the program
- Planning documentation

**Unity Project File**

**Finished (Compiled) Program**



For those of you working in VR, don't forget the *Standard Assets - FPS controller* as a way to simulate moving around in space.

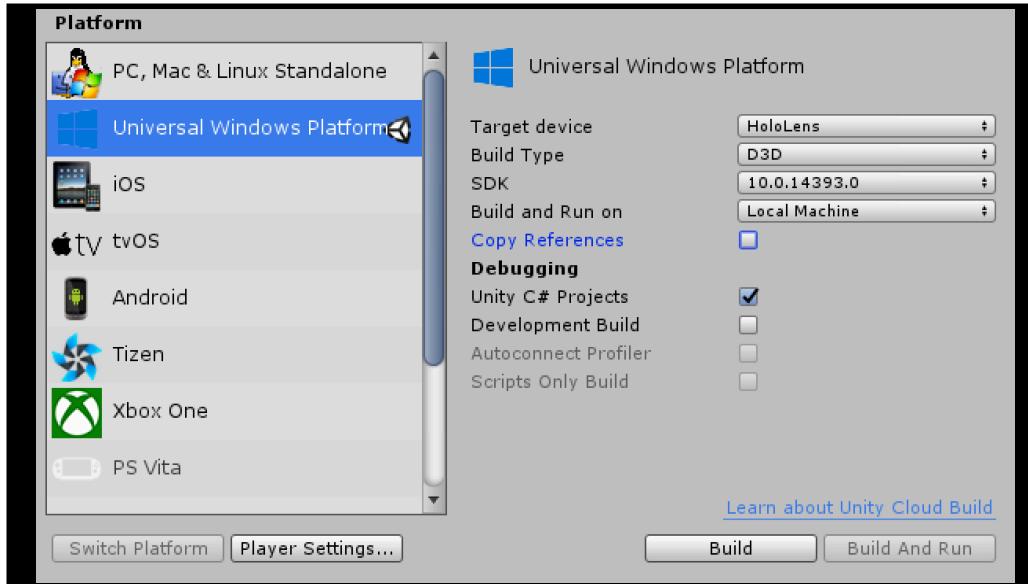
We will do deeper dive into unity for VR next week.

# **MixedReality Toolkit**

(formerly HoloToolkit)

<https://github.com/Microsoft/MixedRealityToolkit-Unity>

<https://github.com/Microsoft/MixedRealityToolkit-Unity>

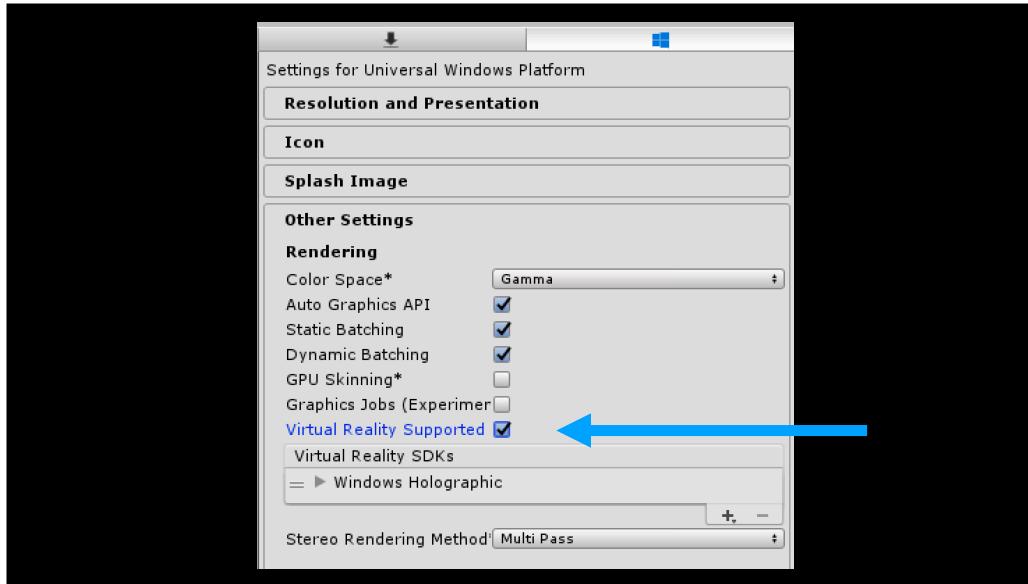


Unfortunately, we can only build to Hololens on PC.

Go to Build Settings (File > Build Settings or Ctrl-Shift-B)

- Select Universal Windows Platform and click on “Switch Platform” if the Unity logo is not already next to it.
- set *Target Device* to *HoloLens*
- set *Build Type* to *D3D*
- *SDK* should be set to *Latest Installed* or match the version above
- *Build and Run on Local Machine*
- Make sure *Unity C# Projects* is checked

**No need to hit “Build” yet. We’re just setting up our project format. Just close the window when you make these changes.**



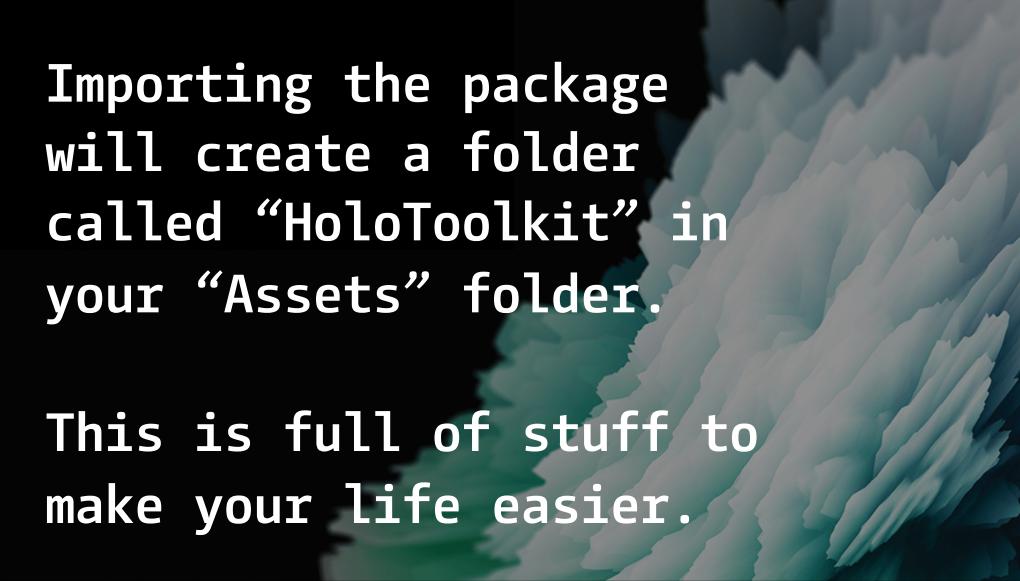
Click on “Player Settings”... or go to *Edit > Project Settings > Player*

(FYI - “Player” in this case doesn’t mean the user/player, but rather Unity itself as in “VCR Player”)

Make sure “Virtual Reality Supported” is checked and that “Windows Holographic” is the only option.

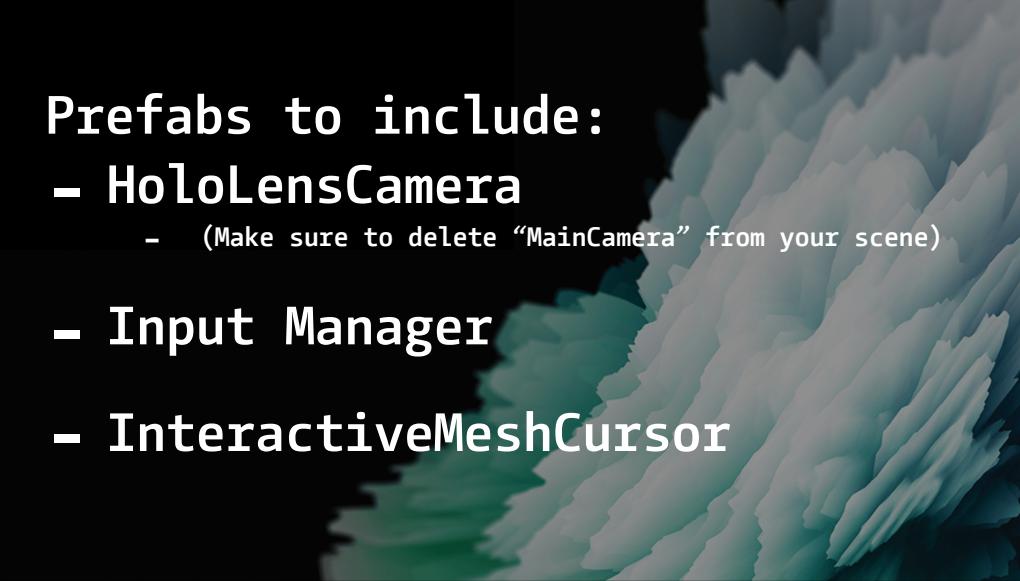
# Useful components in HoloToolkit





Importing the package  
will create a folder  
called “HoloToolkit” in  
your “Assets” folder.

This is full of stuff to  
make your life easier.



## Prefabs to include:

- **HoloLensCamera**
  - (Make sure to delete "MainCamera" from your scene)
- **Input Manager**
- **InteractiveMeshCursor**

## Easy-to-use Interaction Scripts

**Assets/HoloToolkit/Input/Scripts/Interactions/TapToPlace**

Attach to a GameObject to allow you to pick it up and move it around with an air-tap. Hololens will try to drop the object at the point you're looking at.

**Assets/HoloToolkit/Input/Scripts/Interactions/HandDraggable**

Attach to a GameObject to allow you to pick it up and hold it with an air-tap and move it through space as long as you hang on to it

## More Easy-to-use Interaction Scripts!

**Assets/HoloToolkit/Utilities/Scripts/Billboard**

Attach to a `GameObject` to make it always rotate to face you.

**Assets/HoloToolkit/Utilities/Scripts/Tagalong**

Attach to a `GameObject` and it will follow your view around, ensuring that some part of it is always visible. Combine with **Billboard** for a great approach to menus and instructions.

## Advanced Interaction Scripts: Events

What if you want to do trigger your own behaviors on taps and gazes?

`HoloToolkit/Input/Scripts/InputEvents/`

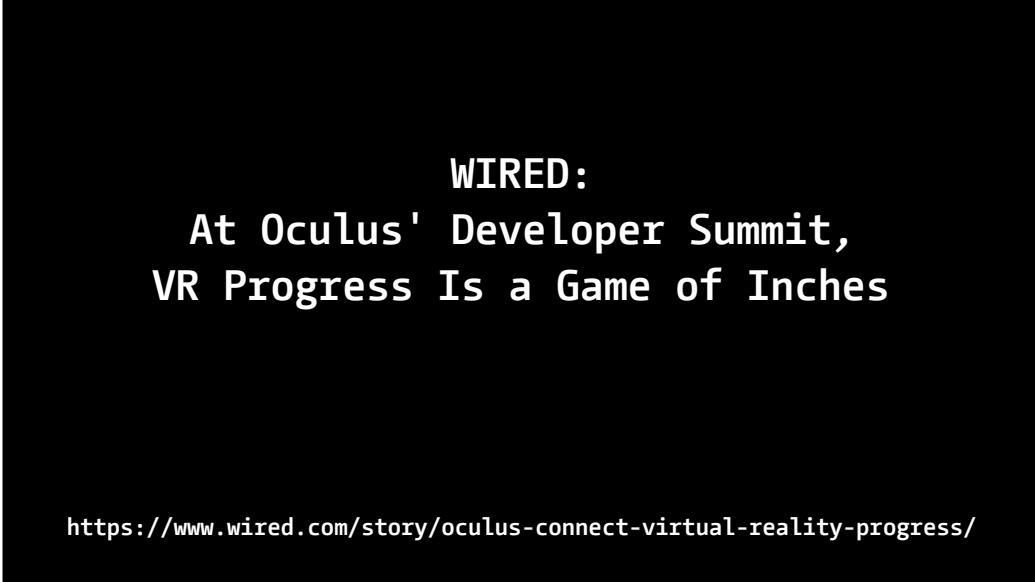
These are scripts that define events you can listen for. You can't add these to objects directly...

## **Advanced Interaction Scripts: Events**

**HoloToolkit/Input/Scripts/InputEvents/**

These scripts define the methods you have to have in your script to listen for these events.

Examples on the github (with comments)



**WIRED:**  
**At Oculus' Developer Summit,  
VR Progress Is a Game of Inches**

<https://www.wired.com/story/oculus-connect-virtual-reality-progress/>

<https://www.wired.com/story/oculus-connect-virtual-reality-progress/>

*Until those billion people get into headsets, though, the company seems to be doing its best to make VR easier to use—and as persistent as possible once you're using it.*

<https://www.wired.com/story/oculus-connect-virtual-reality-progress/>

<https://www.wired.com/story/oculus-connect-virtual-reality-progress/>



Thank you!