Uploading the Cube App to the Hololens

1. Developer Mode on Hololens
   1. Update and Discovery
   2. For Developers, check all On. Later the device will be paired.
2. IP Address
   1. Setting, Network, WiFi, Click “I”, Use IPv4 address. My Hololens 2 is currently 192.168.1.109
3. Device Portal
   1. Open Browser, enter IP in the address, Advanced
   2. Enter Username and Password. Mine is MikeK, Keyboard20!
   3. If forget, type in the wrong one multiple times and a new setup screen will appear where you will need to enter the PIN displayed on the Hololens, Press Pair.
4. Start a new 3D project in Unity
5. For the first time into the new Unity project, you will see the menu below. Enter the values below starting with Universal Windows Platform. See below for the other setting. X out of the menu.
6. To switch the platform after starting the new project, use File > Build Settings to open the menu and then enter the values below. X out.

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1. Open XR. File, Build Settings, Player Settings, at bottom of list on the left, select XR Plugin Management and select Install XR Plugin Management.
   1. After installation, check the box “OpenXR”
   2. See this box and select Yes

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* 1. Unity will restart
  2. Make sure OpenXR is selected and if any errors, press “Fix All”

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* 1. On the OpenXR tab on left, select “Single Pass” and “Depth 16 bit”

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* 1. Close Project Settings Window, OpenXR has now been configured.

1. Save Scene in Unity using File, Save As. Fine a location and give name, such as “SpatialHelloWorld”
2. Select Main Camera
   1. Positions to (0,0,0).
   2. Clear Flags is “Solid Color”
   3. Background “Black” (Hololens has black as transparent).
   4. Clipping planes: Near 0.1 and Far 1000 (closer than 0.1 meters will be clipped)

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* 1. Add Component, Track Pose Driver

1. Add Cube, position (0,0,2), the 2 is 2 meters in front of you
2. Right Click Asset folder and add a Folder named Materials. Go into the folder. Add a Material, Change the color to Red, name the Material. Drag material onto the cube.
3. Add text to the cube.
   1. Select Cube Object
   2. 3D Object, 3D Text
   3. Rename Text Object to “Text”
   4. Scale to 0.1 all dimensions
   5. Move text in front of cube
   6. Font size 20
   7. Color Blue
4. Test by pressing play. Should see the main camera view with background as Black color.
5. Unity Project Build Settings and press “Add Open Scene”. The scene should now appear in “Scenes to Build” box. You can also drag the scene from the “Assets>Scenes” folder to this box.
6. Next Player Settings.
   1. Change package name to “Hololens2Demo”
   2. Scroll down and check Internet Client, Pictures Library and Video Library. The two image libraries will be needed next week.
   3. X out of Player Settings
7. Build with Unity
   1. In Unity Build Settings Window, press Build
   2. A “Select Folder” window will open. Select or make a new folder inside the Project Directory. I created a new folder named “Build”. Ong used “Hololens2 Demo”
   3. Unity the starts the build
   4. When complete, Windows Explorer opens to the project folder.
   5. Move to the “Build” folder
   6. Select the project name “.sln” . Mine is “KnoxProjWeek1\_0.sln”
   7. Visual Studio will open
8. Upload to Hololens through Visual Studio
   1. From the pulldowns in VS, select “Release”, “ARM64” and “Remote Machine” if Hololens is connected to the same WiFi network. It could also be connected through a direct USB-C connection.
   2. Debug and Start without Debugging
   3. If it’s the first time connecting to the Hololens, a window will open for a PIN. On the Hololens, go to the Developer settings again and press the Pair button. A number will appear and type that number on the PC.
9. Changes to the unity program and re-running the above steps will over-write the .sln file (note the date on the PC file explorer is still the original date) and running the ‘sln from Visual Studio will over-write the file on the Hololens and launch the app on the Hololens once it completes the upload.

RECORD A VIDEO FROM THE HOLOLENS

Open a browser and enter the Hololens IP address, mine is 192.168.1.109. The Windows Portal will open. Select Mixed Reality Capture and there is a selection for recording the live video directly from the Hololens. Save the file to download to the PC. Note: there are selections for Audio Capture.

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Possible Errors

Note: Don’t use “Build and Run”, only use “Build”

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