System Manual

Prerequisites

System Requirements

To run the application, you will need:

- A PC meeting the following requirements:
  - 64-bit Windows 10 Pro, Enterprise or Education.
  - 64-bit CPU.
  - 4GB of RAM or more.
- A Microsoft HoloLens.

Installation Checklist

Download and Install	Notes
Visual Studio 2017 or Visual Studio 2015 Update 3	If you choose a custom install, ensure that **Tools (1.4) and Windows 10 SDK (10.0.10586)** is enabled under Universal Windows App Development Tools node. Both Visual Studio 2017 and Visual Studio 2015 Update 3 are supported. All editions of those versions (including Community) are also supported.
Unity 5.6	**Last known release**: version 5.6 on 31 March 2016.

Download and Configuration

1. Extract the project files to a given location in your computer.
2. Open Unity.
3. Click the **OPEN** button to open the project.
4. Navigate to the directory containing the project files you just extracted and click **Open**.
5. Configure the Project Settings for HoloLens development:
   a. First, specify our Unity project to export as a Universal Windows Platform app.
      i. Select **File > Build Settings...**
      ii. Select **Windows Store** in the Platform list.
      iii. Set **SDK** to **Universal 10**
      iv. Set **Build Type** to **D3D**.
      v. Tick the **Unity C# Projects** checkbox.

   b. Then, set the framerate and quality settings to highest performance.
      i. Select **Edit > Project Settings > Quality**
      ii. Select the **dropdown** under the **Windows Store** logo and select **Fastest**. You'll know the setting is applied correctly when the box in the Windows Store column and **Fastest** row is green.
   c. Finally, add the HoloLens as a virtual reality device.
      i. From the **Build Settings...** window, open **Player Settings...**
      ii. Select the **Settings for Windows Store** tab
      iii. Expand the **Other Settings** group
      iv. In the **Rendering** section, check the **Virtual Reality Supported** checkbox to add a new **Virtual Reality Devices** list and confirm **"Windows Holographic"** is listed as a supported device.
6. Configure the Scene Settings for HoloLens development:
   a. In the **Hierarchy**, select the **Main Camera**
   b. In the **Inspector** panel, set the transform **position** to **0, 0, 0** so the location of the users head starts at the Unity world origin.
   c. Change **Clear Flags** to **Solid Color**.
   d. Change the **Background** color to black (**RGBA 0,0,0,0**). Black renders as transparent in the HoloLens.
   e. Change **Clipping Planes - Near** to the HoloLens recommended 0.85 (meters).
7. Add our custom image shader to the Graphics Settings:
   a. Go to **Edit > Project Settings > Graphics**.
   b. Change Element 0 to **Custom/AlphaMask**:
      i. Click the circular dot at the end of the Element 0 box.
      ii. Search for **AlphaMask** and select it.

Building the Application

1. From the **Build Settings...** window, click **Build**.
2. Select a folder where you want to build the project and click **Select Folder**.

Deploying to the HoloLens

1. When Unity finishes building, navigate to the folder selected in **Step 2** above.
2. Inside the folder, click on the **.sln** file to open it in Visual Studio.
3. Connect the Microsoft HoloLens to your computer. Make sure it is turned on.

4. In the toolbar, go to the first drop-down menu from the left and change the contents to **Release**.
5. Change the next drop-down menu to **x86**.
6. Change the third drop-down menu to **Remote Machine**.
7. Click the play button next to **Remote Machine** to deploy.
8. The first time you deploy, you will be asked by Visual Studio to enter a **PIN**. To obtain it, do the following in the HoloLens:
    a. Perform the **bloom** gesture to launch the main menu.
    b. Gaze at the **Settings** and perform the air tap gesture to launch it.
    c. In **Settings**, go to **Update > For Developers** and tap on **Pair**.
    d. Type the displayed PIN in Visual Studio.

Running the App

1. In the HoloLens **main menu**, look for the Unity icon with the same title as the project.
2. Tap the icon to run.

References

For further, up-to-date information on the above user manual, visit:

https://developer.microsoft.com/en-us/windows/mixed-reality/install_the_tools

https://developer.microsoft.com/en-us/windows/mixed-reality/unity_development_overview#configuring_a_unity_project_for_hololens