Tutorial 1:

CREATE AN AUGMENTED REALITY (AR) BUSINESS CARD

1. Introduction

- **Learning Objectives:**
  - Understanding of AR Technology and its implications.
  - Ability to use Unity and Vuforia to create a marker-based AR function
  - Understanding of valuable AR implementations.

2. Group Activity: Why AR?

a. What is AR?

"Augmented reality, as seen in Google Glass or Microsoft's HoloLens, layers virtual information or graphics on top of the real world." explained Eric Jophnson in Re/code.

b. What is the need of AR?

In a group of 2, you are given 3 minutes to fill in the table below with online research.

Industry	Real-word Example
Education/Training	
Real Estate	
Disability Support Services	
Law	
Tourism	

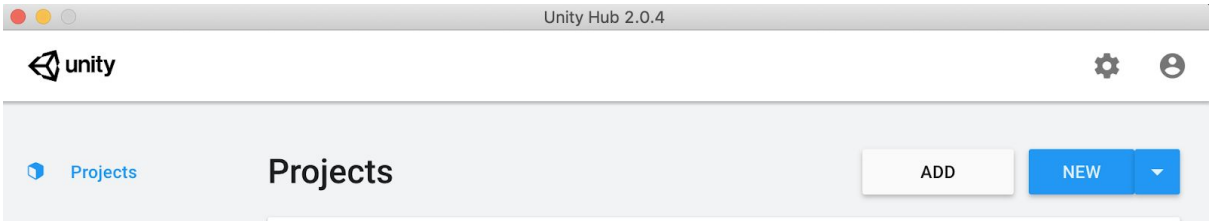
3. Get started

For this unit, we will be using Unity with Vuforia plugin.

Go to https://store.unity.com/download-nuo and download a personal version of Unity. This should include the plugin Vuforia.

a. Set up your first Vuforia/Unity Project

Once you have Unity opened, you can now go ahead with creating your first Unity project.



Click New and create a project with the properties as below:

> **Template:** 3D
> **Project Name:** AR Business Card

Hit Create!

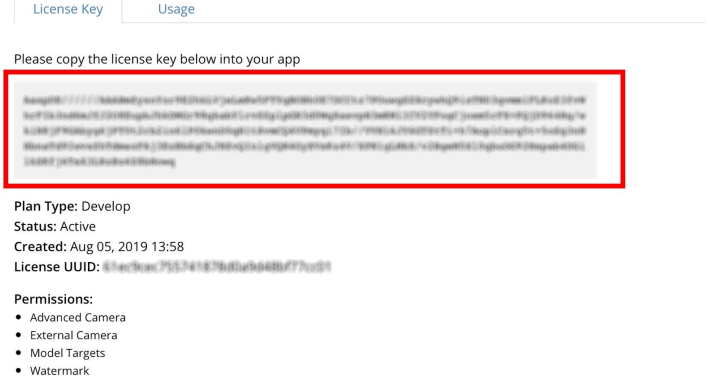
Once you have successfully created a Unity Project, go to **File → Build Settings → Choose iOS or Android**, depending on your export needs **→ Switch Platform.**

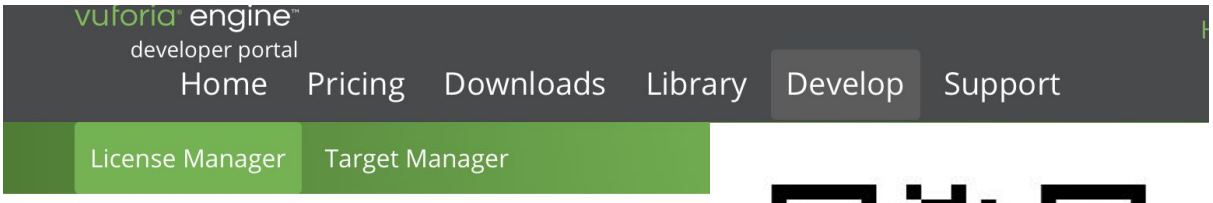
You will also need to go to **Player Settings** → Tick **Vuforia Augmented Reality Supported*** (this may take a while for Unity to import Vuforia)

b. Set up a Vuforia marker

Go to Vuforia developer platform and sign up.

Go to **Developer** tab and click on **Get Development Key.** Give it a name and click **Generate**





Next, go to **Target Manager** subtask under **Develop.**

Go to **Add Database,** give it a name and type: device then click **Create.**

Next, click **Add Target** → **Type: Single Image** → **File:**
For this tutorial, we will be creating a marker-based AR app that uses a QR code as the marker. You can either download the attached QR code or take a screenshot of the on the right and upload it to generate the marker.
Finally, give it a **width** if you want to add this constants as well as a **name,** hit **Add.**
Voila! You have successfully created your marker for your first AR app.

Challenge Task: Add more markers and explore the ranking system.

Finally, you will have to download the database of marker(s) you've just established. To do so, on the Target Manager tab, choose the database you've just created → Download all with development platform as Unity Editor

We need to import our database to the Unity project. We can do this in Unity by choosing **Assets** → **Import package** → **Custom package** and **picking our file**.

c. Your business card

For the purpose of this tutorial, a business card 3D object has been created for you. You can simply import this by choosing **Assets** → **Import New Asset** → **Locate *businesscard.fbx.***
Instead of using self-made assets, you can also go to **Window** → **Asset Store** from Unity menu

Challenge Task: Create your own 3D business card using Maya or other 3D modeling applications.

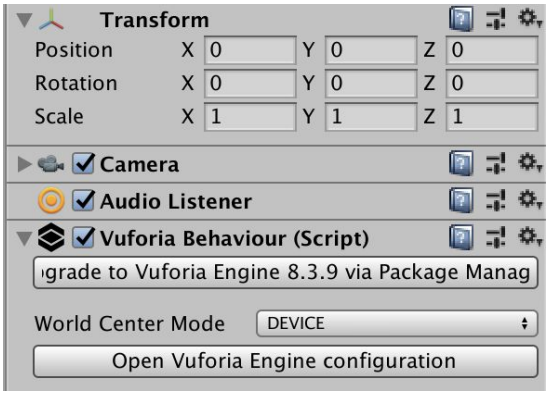
4. Individual Activity: Generate an AR-based Business Card

a. Set up AR camera

First you have to Delete Unity's default **Main Camera** by **right click on it → Delete**

Next, go to **GameObject → Vuforia Engine → AR Camera**

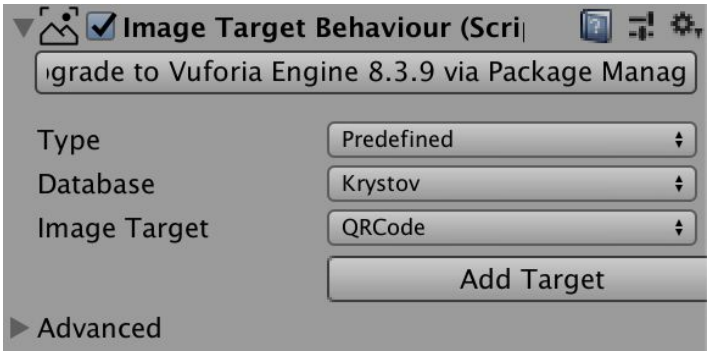
Set the position to 0, 0, 0 (x, y, z accordingly) and click **Open Vuforia configuration**



Remember that key that we generated? Retrieve it on the Vurofia Developer website and paste into **App License Key**

b. Import your marker

Go to **GameObject → Vuforia Engine → Image** → Choose your **database** (whichever you named it earlier) and **Image Target** (aka "the marker" you created or The QR Code).



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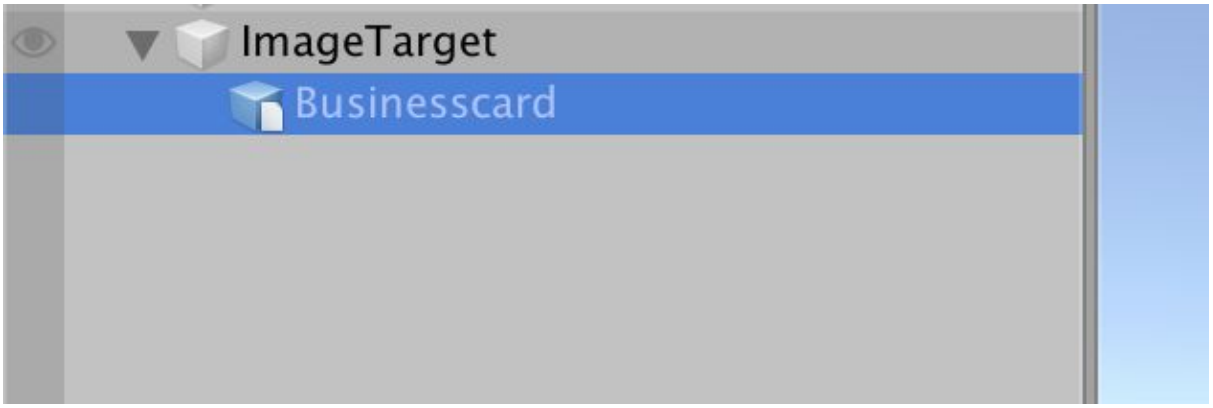
Your marker, or QR code should appear in your main scene.

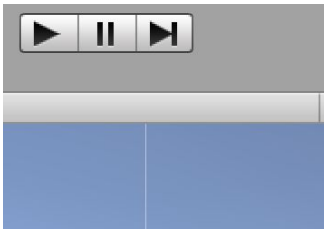
Remember the business card asset which we imported earlier, drag it into the scene and transform it using scale and rotate tools. Alternatively, adjust the transform properties as below.

Finally, make created business card a child object of the target image (qr code) by **dragging the business carb object onto the target image** on the left composition panel so it appears as below



Congratulations! You've created an AR business card!

Click on **play** and test your newly created AR business card. To test it, download the QR code on your phone and try to wave it in front of your computer's webcam to see the effect.



Challenge Task: Animate your business card so it flips and shows the back of the card when clicked. (hint: create a C# script and attach it to your AR camera)

5. Group Activity: Brainstorm an AR Implementations

Now that you have created your first AR composition, think about what can be done with the same foundation techniques that have been covered in this tutorial.

Here are some cool AR-based projects/campaigns to inspire you:

1. Home Depot's Project Colour App
https://corporate.homedepot.com/newsroom/project-color-app-paint

2. Taco Bell's AR Cups
https://www.clickz.com/augmented-reality-puts-twitter-on-steroids-for-taco-bell/

In a group of 2, discuss about an AR implementation that you can create for your final project of this unit. (hint: focus on something that you are both passionate about)