UNITY AND AUGMENTED REALITY
AUGMENTED REALITY

Examples

Oculus Rift (not AR)

Hololens

3D overlays

2D overlays
• 3D Game Engine
• Renders 3D graphics, particle effects, animations
• Built in physics engine
• Can export to Android, iOS, OS X, Windows, etc.
• Unity asset package for AR
• Uses physical tracking targets to position virtual objects
• Targets can be pre-determined or user-defined
• Uses image “features” for recognition
Demo

https://youtu.be/g9U9WKgqPLQ
TUTORIAL 1
Configuring Unity and Vuforia
Unity Scripts can be written in C# or JavaScript

- Scripts are attached to GameObjects (things in the scene)
- Each script has a Start function (called once) and an Update function (called every frame)
GameObjects can be translated, rotated and scaled using `gameObject.transform`.

Movement can be relative to screen or parent object.

Movement can be combined with `Time.deltaTime` for smooth movement.
TUTORIAL 2
Moving GameObjects
• Scripts can have options which show up in Unity’s inspector pane. Simply make a public variable.
• References to GameObjects and other scripts can also be passed by dragging that object to the field in the inspector.
• We can then call functions inside the other script.
TUTORIAL 3
Calling scripts from other scripts
• GameObjects move with parent objects
• A GameObject can change its parent with:
  `gameObject.transform.parent = [newparent].transform`
• ImageTargets automatically move, show, and hide their children when a target is detected
• GameObjects move with parent objects
• A GameObject can change its parent with:
  
  ```
  gameObject.transform.parent = [newparent].transform
  ```

• ImageTargets automatically move, show, and hide their children when a target is detected
• GameObjects move with parent objects
• A GameObject can change its parent with:
  
  `gameObject.transform.parent = [newparent].transform`

• ImageTargets automatically move, show, and hide their children when a target is detected
• GameObjects move with parent objects
• A GameObject can change its parent with:
  
gameObject.transform.parent=[newparent].transform

• ImageTargets automatically move, show, and hide their children when a target is detected
TUTORIAL 4
Anchoring to the camera
Prefabs are collections of GameObjects, scripts, and other parts which are grouped together as one unit for reuse.

Modifying one instance of a prefab can be used to change all the others.
TUTORIAL 5
Saving Prefabs
OTHER RESOURCES

• Just Google it!
• docs.unity3d.com/ScriptReference/
• developer.vuforia.com/support