# Google Cardboard VR Game: Inside the Labyrinth
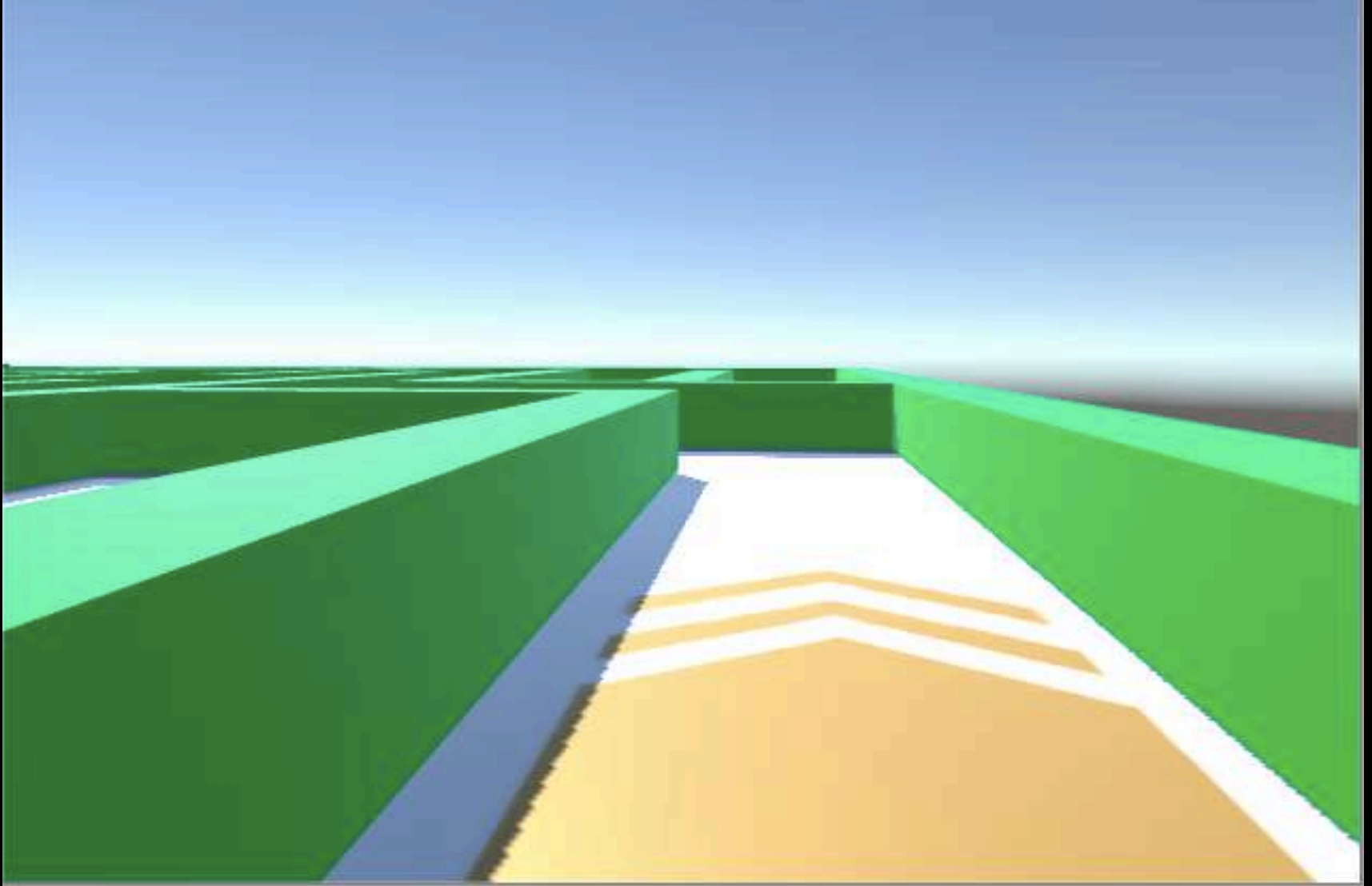
Development based on Udemy course: "Build Virtual Reality Games for Google Cardboard using Unity"

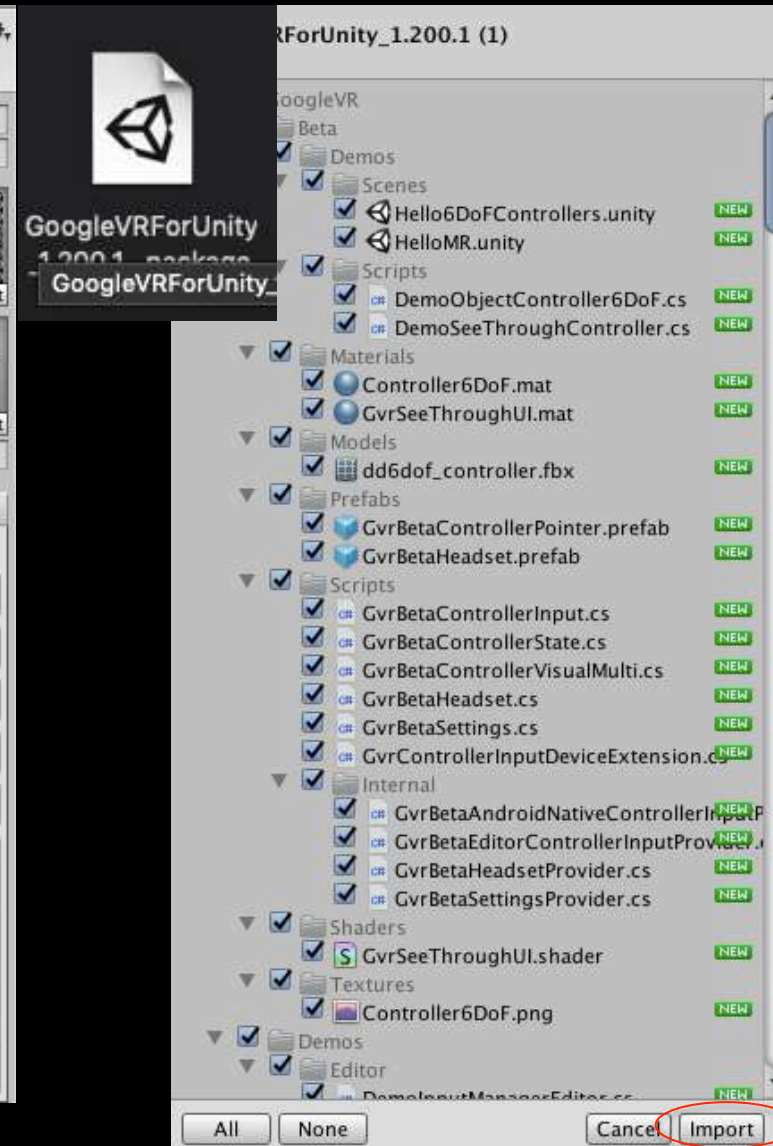Initially inspired by Jim Henson´s movie "Labyrinth" (1986)

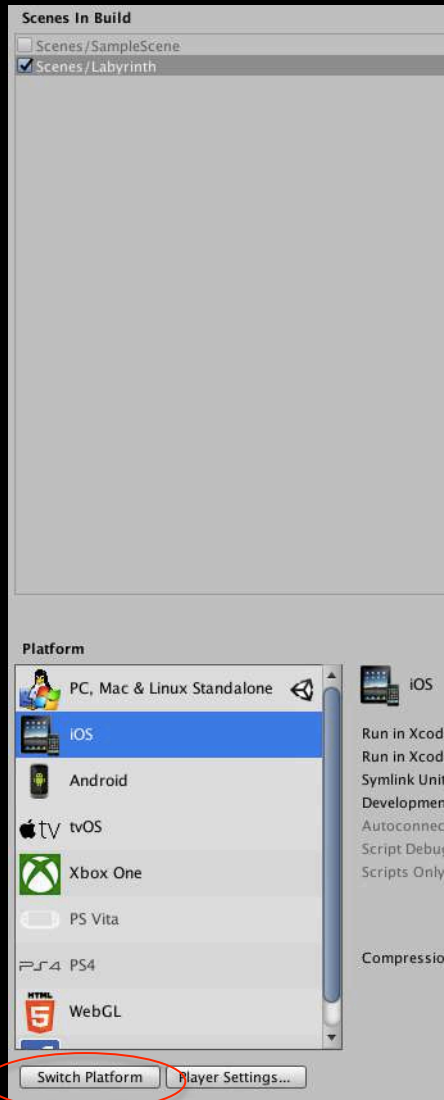Later inspired by my dog, Bruno.
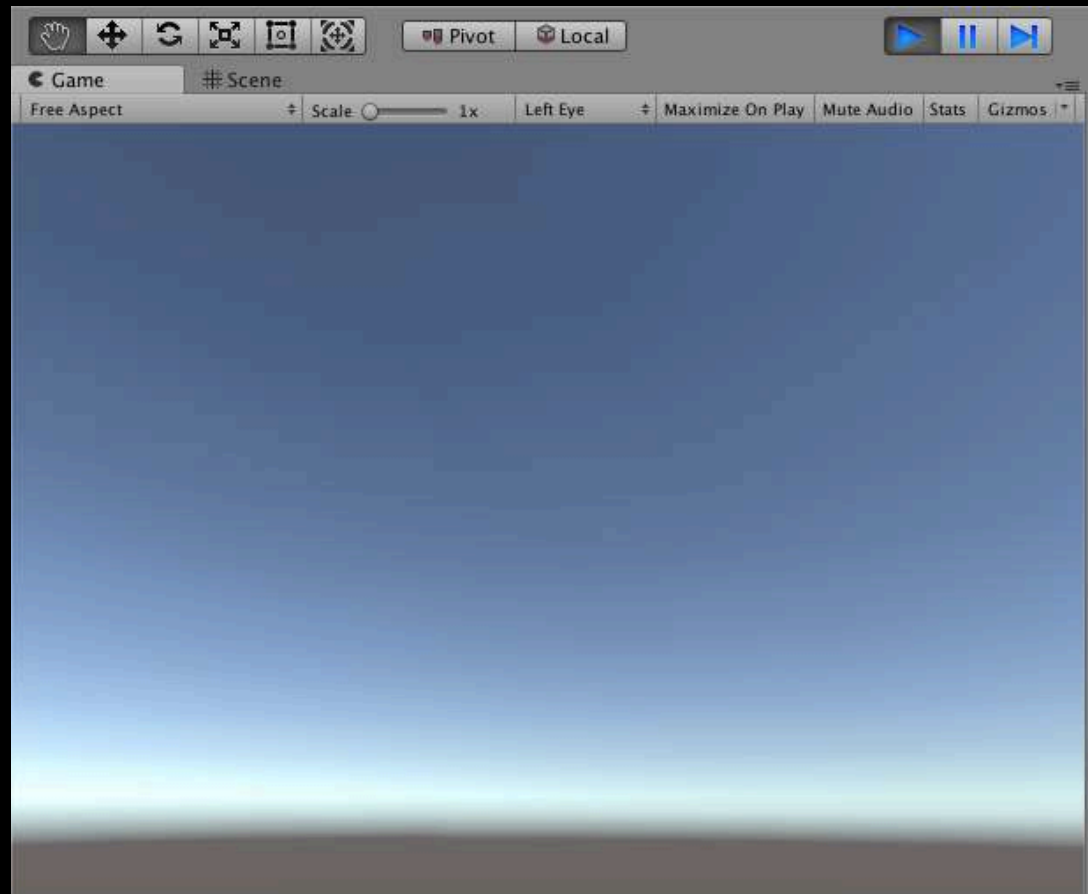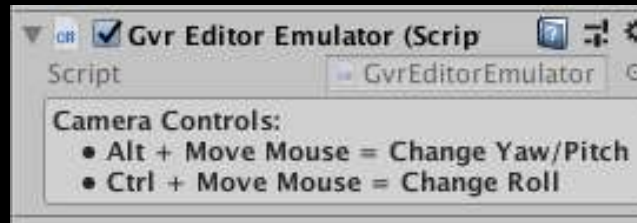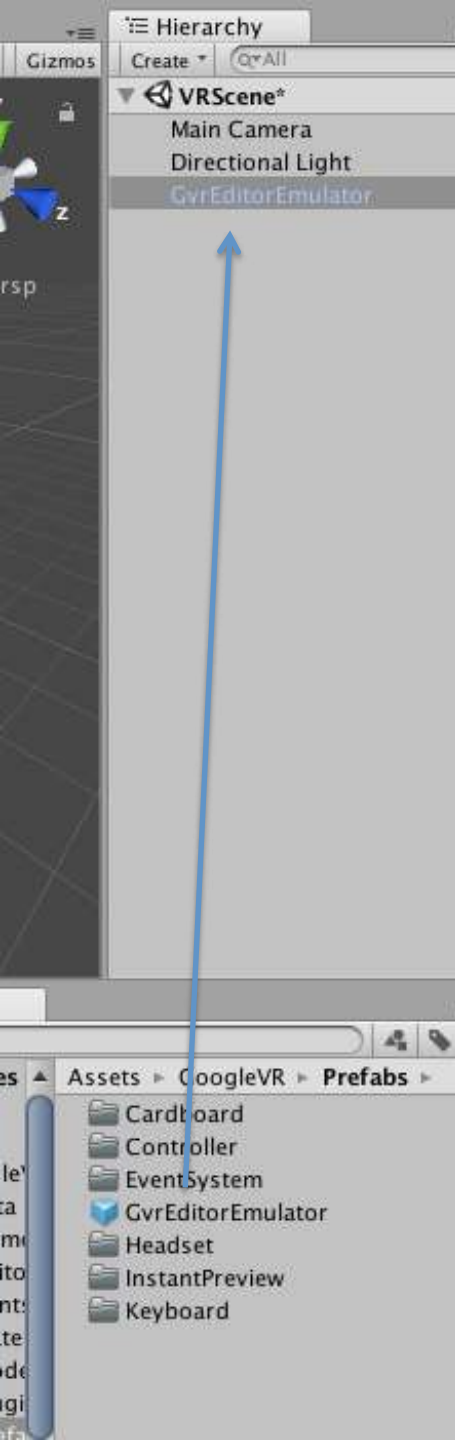
# Part 1: VR Settings and Maze Map

# Create a New Unity Project: Labyrinth
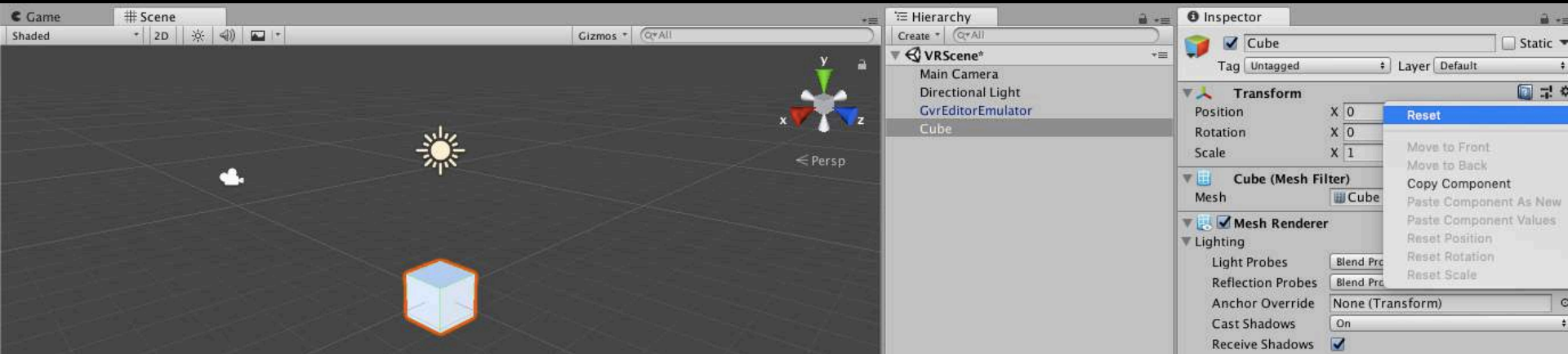## Change platform and enable Google Cardboard VR

# Set up VR View



Gvr Editor Emulator (Scrip

Script    GvrEditorEmulator

**Camera Controls:**
- Alt + Move Mouse = Change Yaw/Pitch
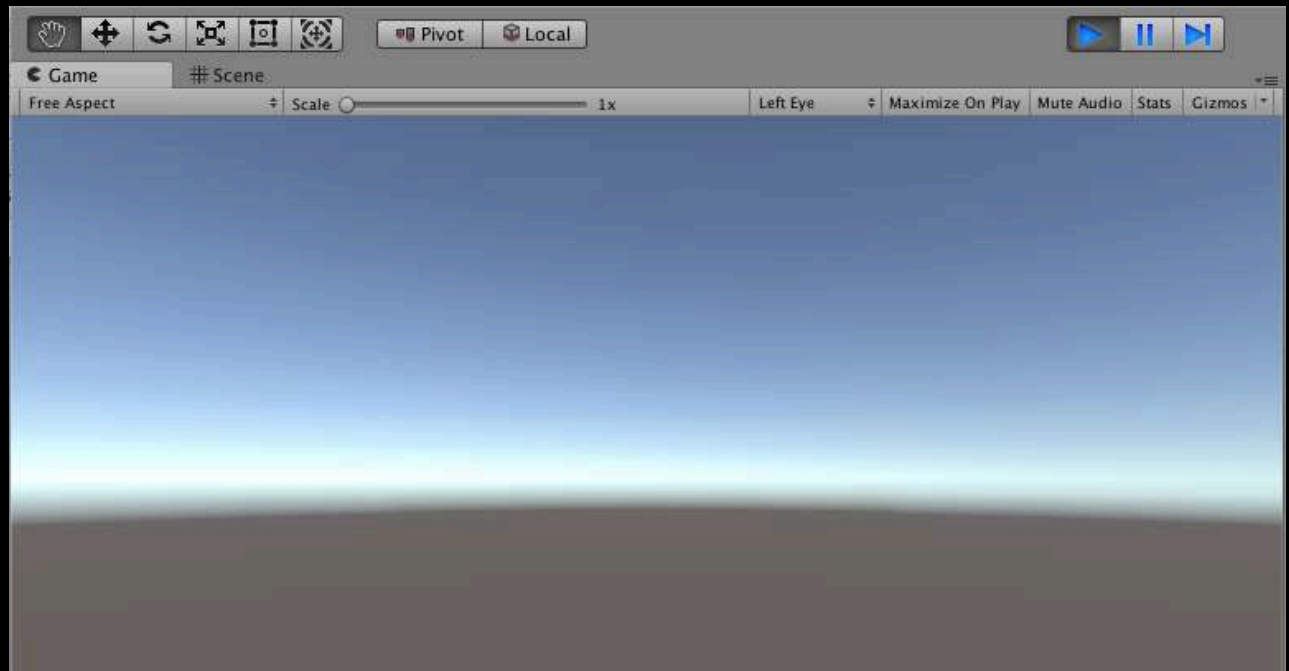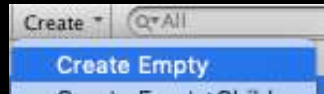- Ctrl + Move Mouse = Change Roll
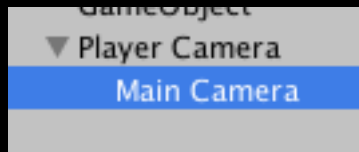
# Fix the VR Camera
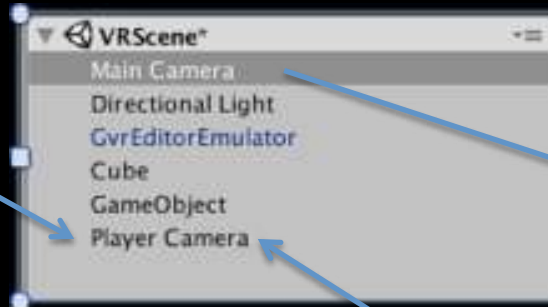


Game object on (0,0,0) is
not visible while playing

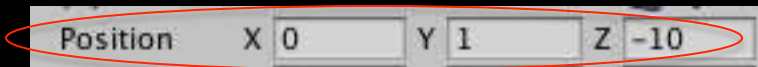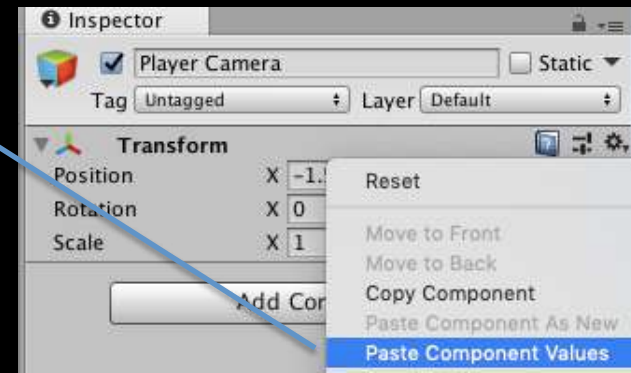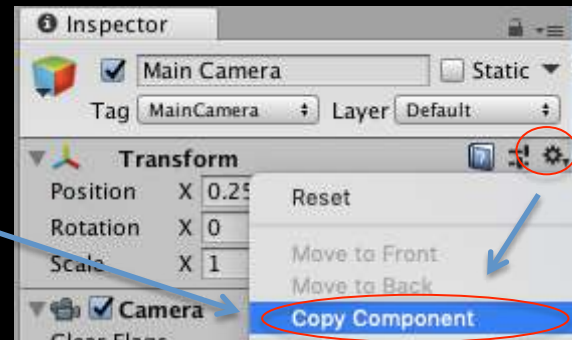# Fix VR Camera: Player Camera solution *Parent-Child

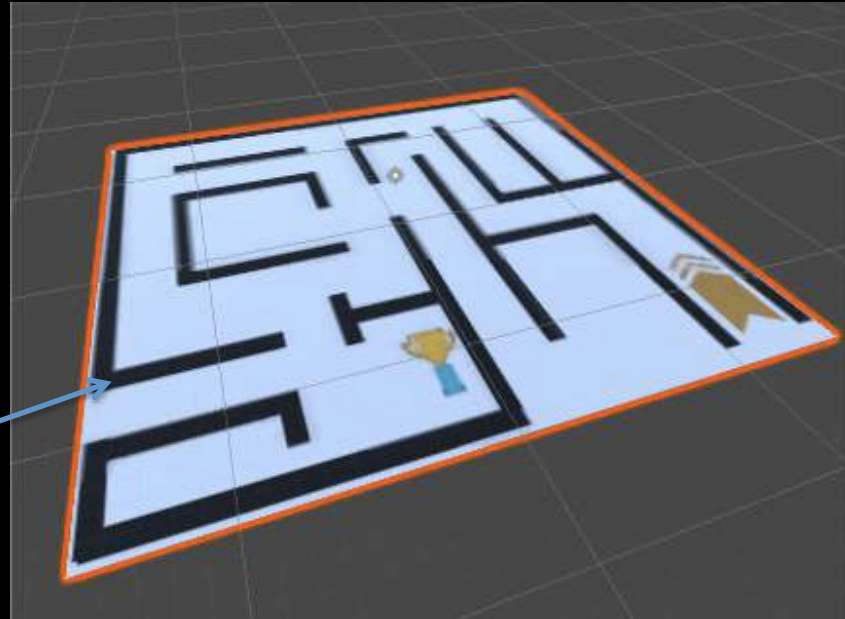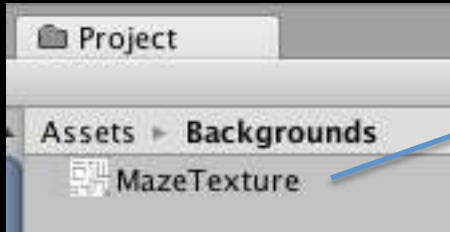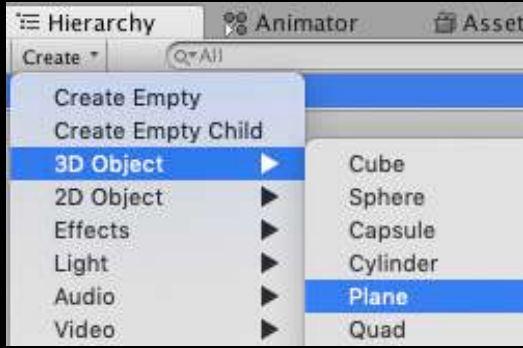Problem: Main Camera changes from (0,1,-10) to (0,0,0) is not visible while playing



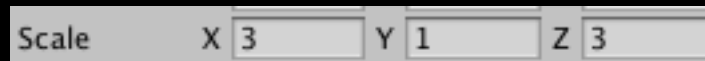Game objects on starting position initially not visible while playing

Main Camera child of Player Camera

# Maze Map



Drag & drop on top of the plane
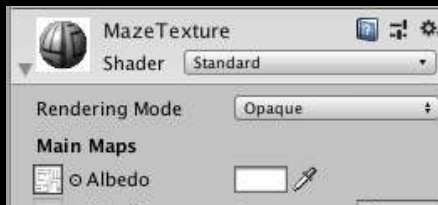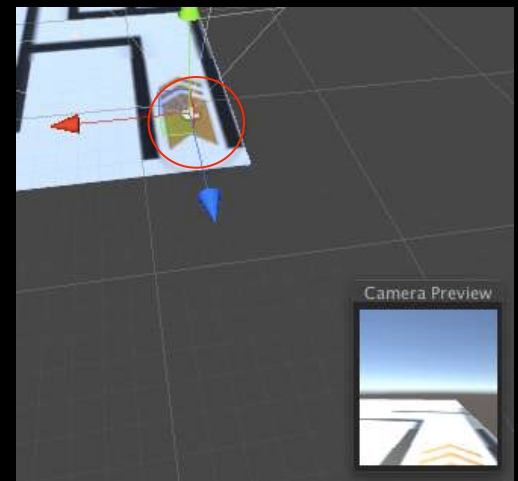
Scale | X 3 | Y 1 | Z 3

Starting player position

MazeTexture
shows here

# Maze Walls & Texture

Create ▾  Q▾All
Create Empty
Create Empty Child
**3D Object** ▶  Cube
2D Object ▶  Sph...

3D or 2D Scale

👁 Thin wall version

bush colour

Create                            ▶
Reveal in Finder

**Material**

Assets ▸ **Materials**
  WallColour

**Scale**  X  0.05

Hexadecimal        012408

WallColour ━━━━━━  ▶

⬚⬚ ◻ ⊕  ☐ Pivot  ● Global

# Scene
▾ 2D ☼ ◀) 🖼 ▾

Assets ▸ **Prefabs**
  MazeWall

MazeWall (1)
MazeWall (2)

☑ MazeWall

▾ Materials
  Size          1
  Element 0   ● WallColour

**Rotation**  X  0      Y  90

Group

▾ Maze Walls
  MazeWall
  MazeWall (1)
  MazeWall (2)
  MazeWall (3)
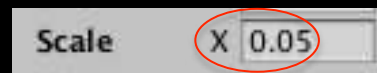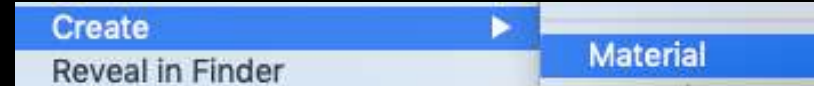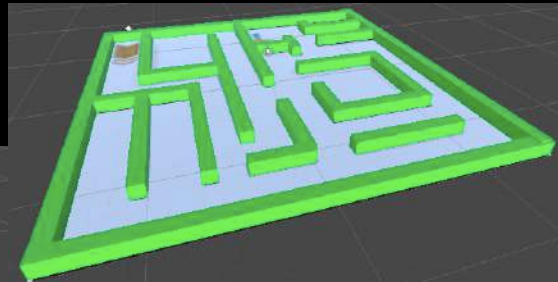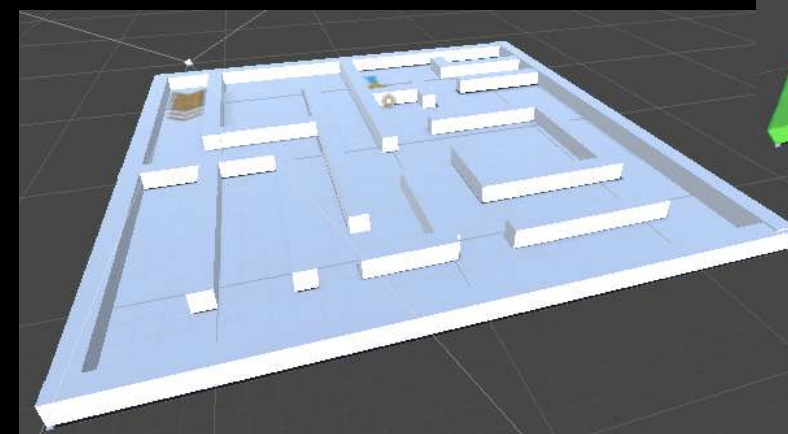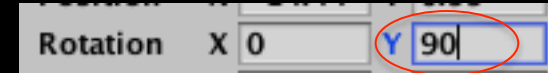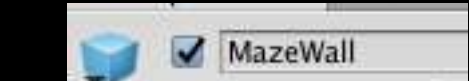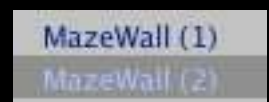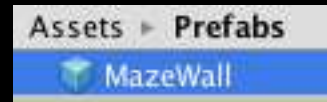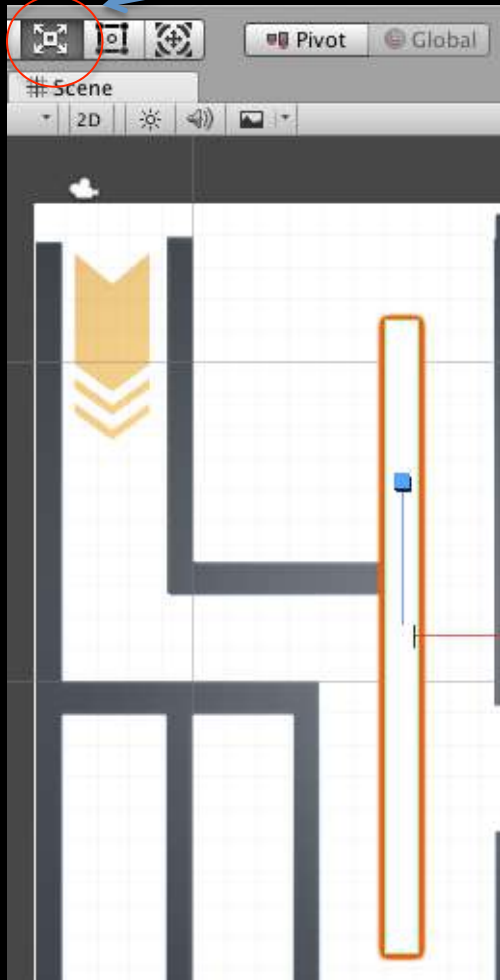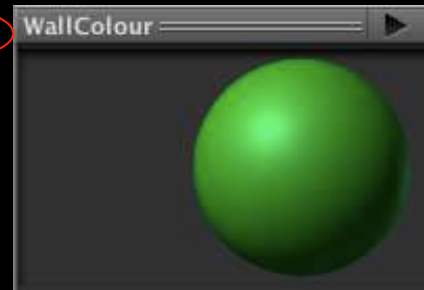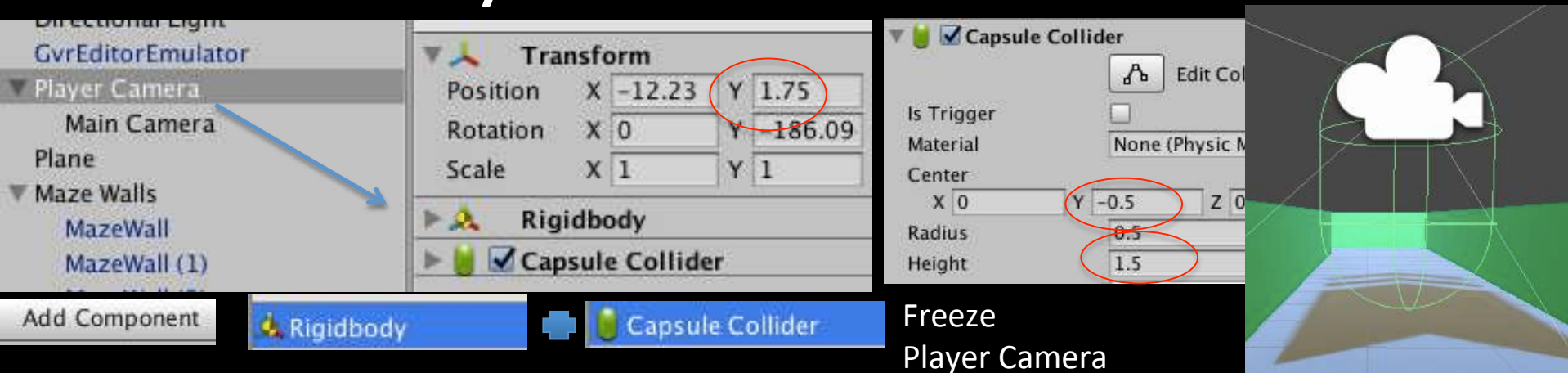
Part 2: (Trophy) Player finds her dog
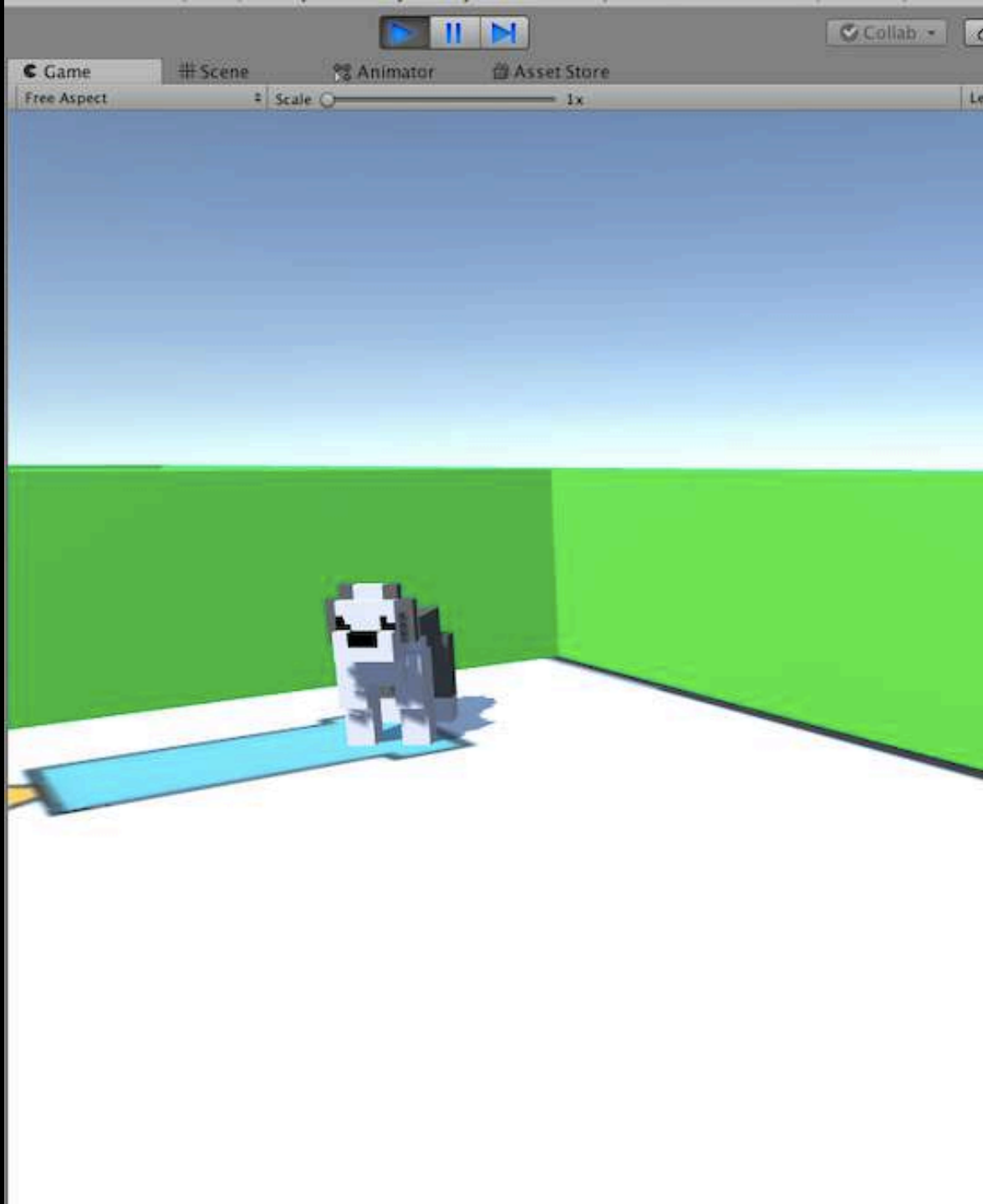
# Player moves forward

Directional Light
GvrEditorEmulator
▼ Player Camera
    Main Camera
Plane
▼ Maze Walls
    MazeWall
    MazeWall (1)

**Transform**
Position    X −12.23    Y 1.75
Rotation    X 0         Y −186.09
Scale       X 1         Y 1

▶ **Rigidbody**
▶ ☑ **Capsule Collider**

Add Component    🔶 Rigidbody    ➕    🟢 Capsule Collider

▼ 🟢 ☑ **Capsule Collider**
                                    🔷 Edit Col
Is Trigger                          ☐
Material                            None (Physic M
Center
    X 0         Y −0.5      Z 0
Radius                              0.5
Height                              1.5

Freeze
Player Camera
Rotation

Assets ▶ **Scripts**
    🔷 CameraWalk

GvrEditorEmulator
CameraWalk (MonoScrip
▼ Player Camera
    Main Camera

🔶 **Rigidbody**
▼ Constraints
    Freeze Position    ☐ X ☐ Y ☐ Z
    Freeze Rotation    ☑ X ☑ Y ☑ Z

☑ **Main Camera**
Tag  MainCamera    ⬍

```
public class CameraWalk : MonoBehaviour {

    public int speed = 2;

    // Use this for initialization
    void Start () {

//      player = GameObject.FindGameObjectWithTag("Player").GetComponent<Camera>();
    }

    // Update is called once per frame
    void Update () {

        if (Camera.main != null)
            transform.position = transform.position + Camera.main.transform.forward * speed * Time.deltaTime;
        else
            Debug.Log("Couldnt find tag MainCamera");
    }

}
```
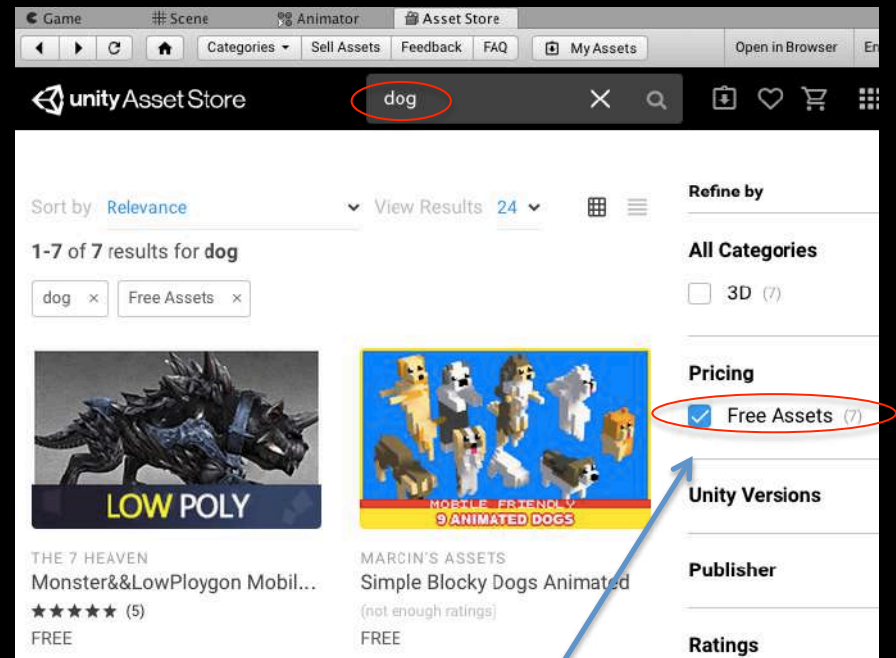
PlayerCamera:
 +Rigidbody
 +CapsuleColider
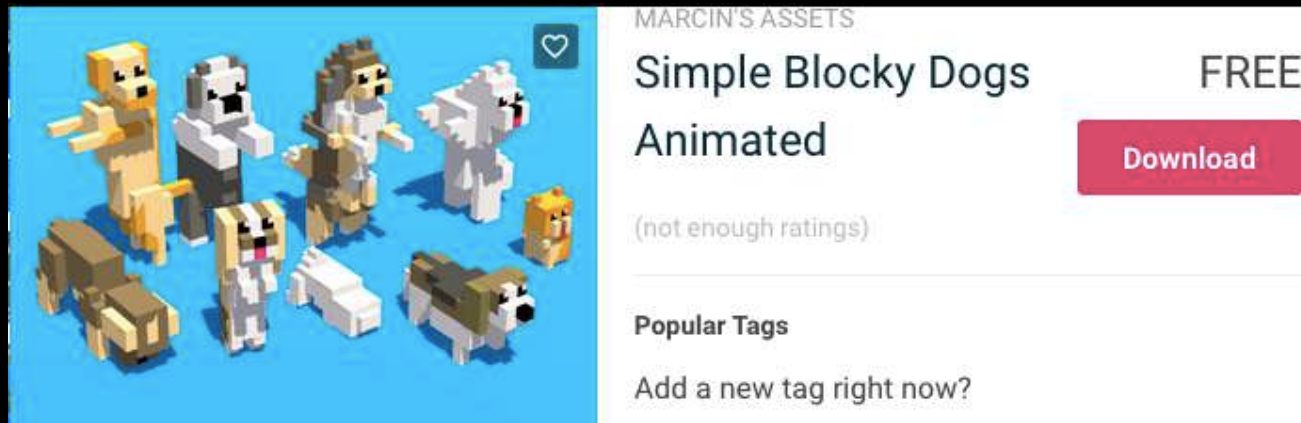 +CameraWalk
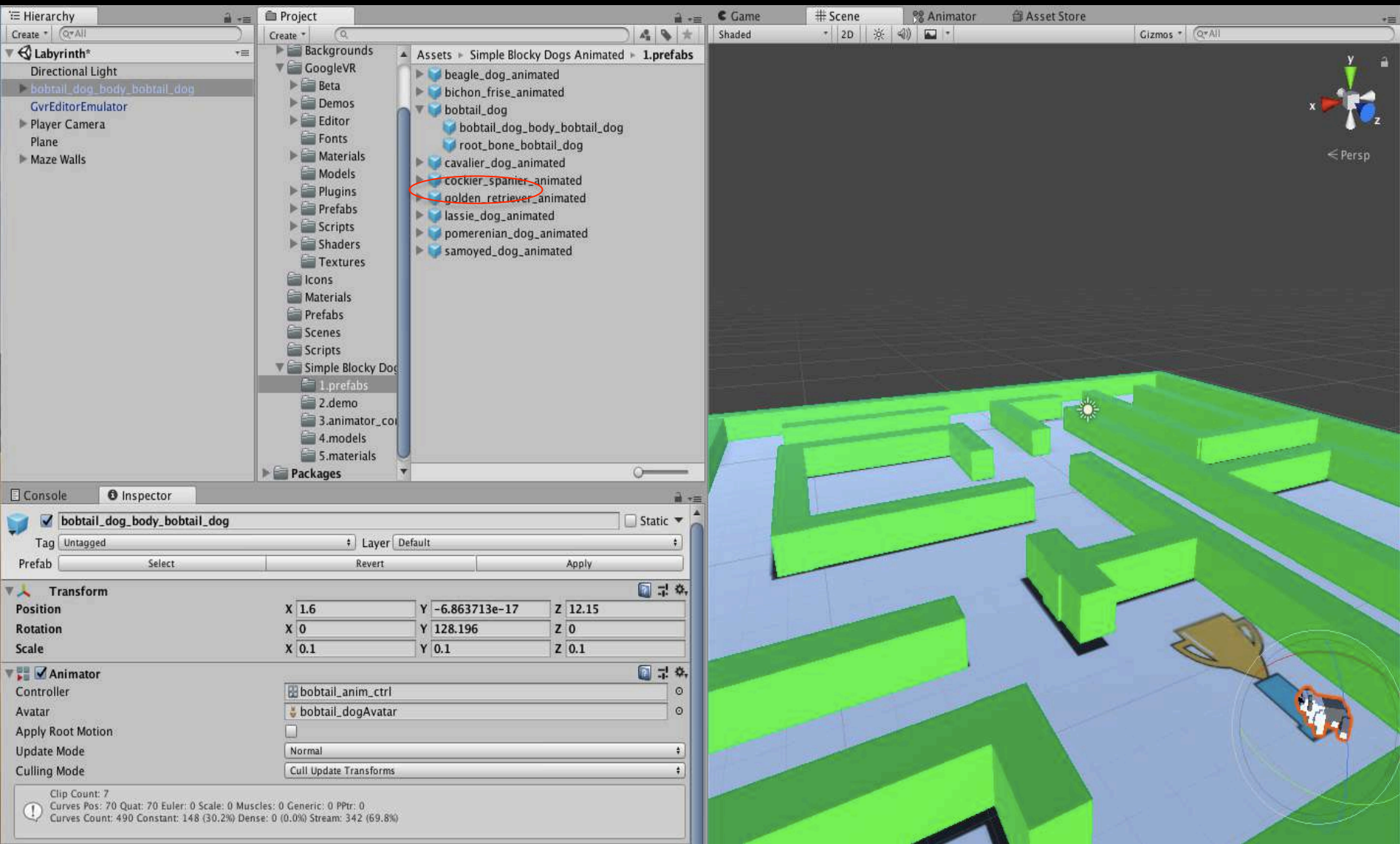
MainCamera:
 +Tag: MainCamera

# Choosing a doggy Trophy
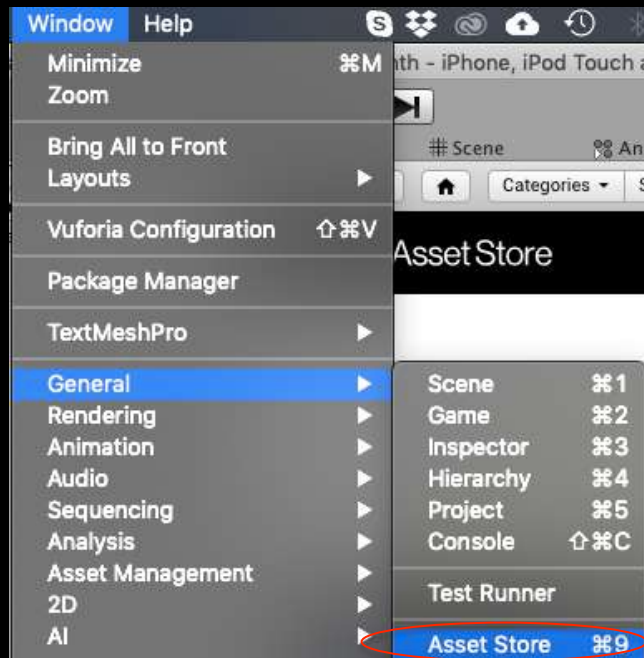


Asset Store Tab

Adopt a dog, it´s free! 🐶

# Placing character (dog) on scene

# Transition to final scene (dog collider & tag)



EndScene

Character: Add component – Box Collider

Add Tag

Dog Character:
 +BoxCollider
 +Is Trigger
 +Tag: TrophyTag

# Transition to final scene (script)

Assets ▸ **Scripts**
CameraWalk

```
public void OnTri|
```
- M **OnParticleTrigger**
- M **OnTriggerEnter**
- M **OnTriggerEnter2D**

OnTriggerEnter is called when the Collider other enters the trigger

```
    }

    public v                                    er)
    {
        if (collider.gameObject.CompareTag() ~
    }
```

bool GameObject.CompareTag(**string** **tag**)
Is this game object tagged with tag ?

```
using UnityEngine.SceneManagement;
```

```
public void OnTriggerEnter(Collider collider)
{
    if (collider.gameObject.CompareTag("TrophyTag"))
    {
        SceneManager.LoadScene("EndScene");
    }
}
```

# Adding a 3D audio cue with Resonance Audio SDK
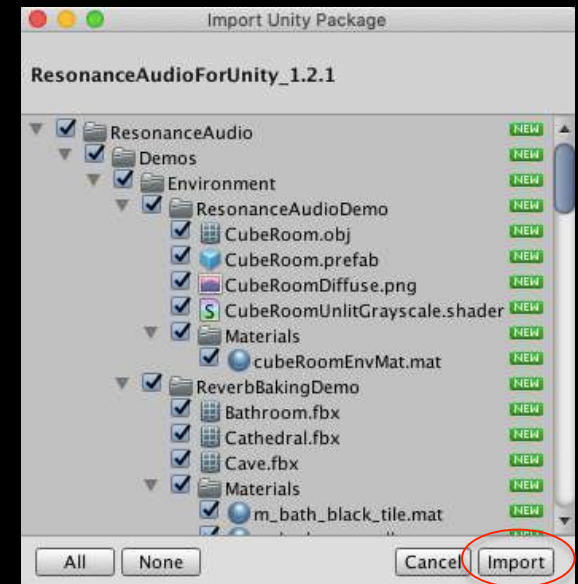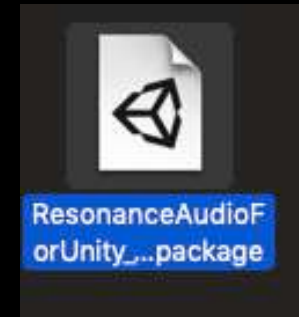
# Configure new Audio Settings
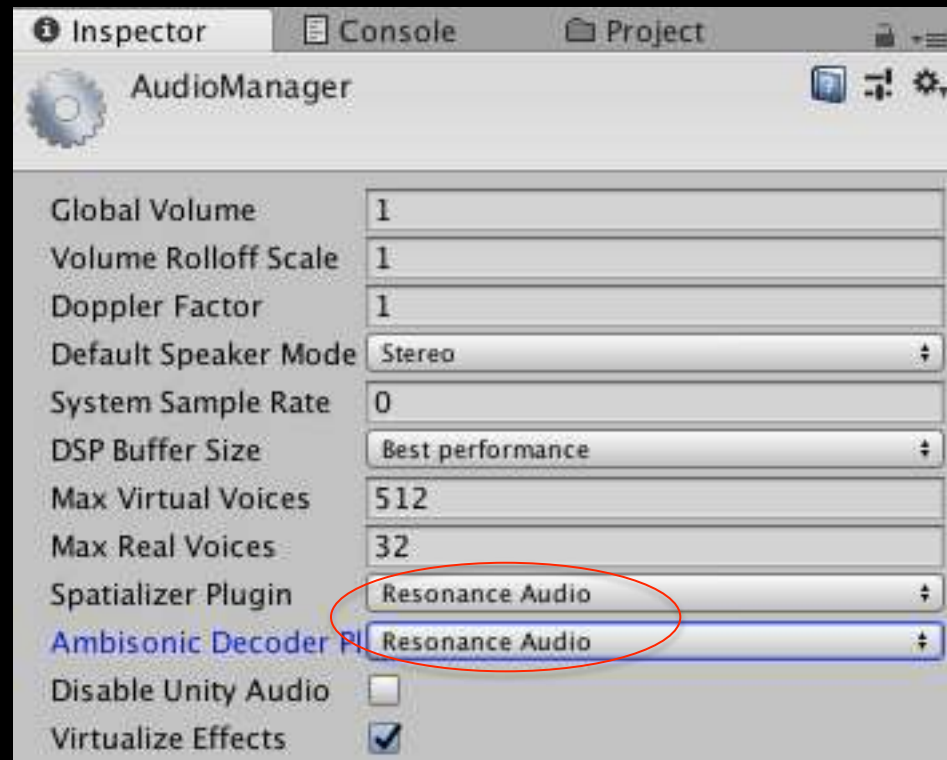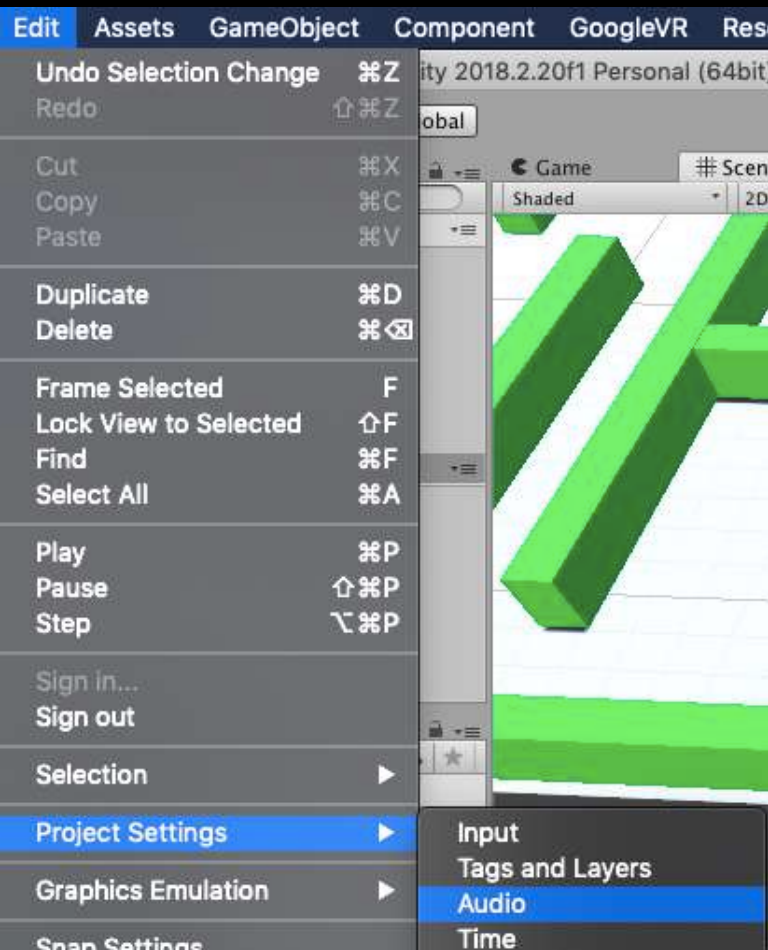


ResonanceAudioSource 🔊

🎧 ResonanceAudioListener

# Source and Listener GameObjects

Dog character is the audio source
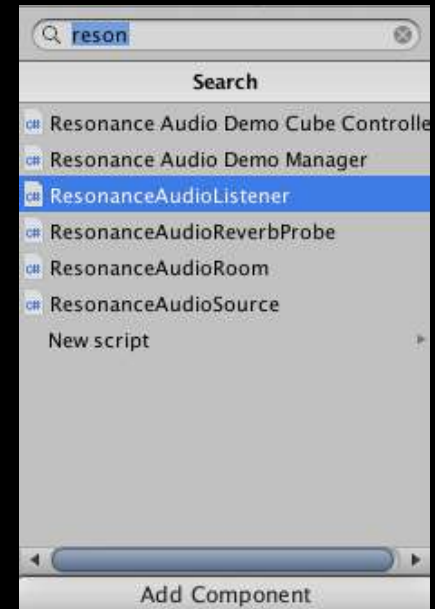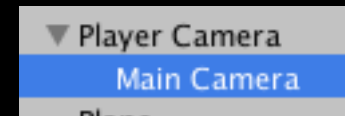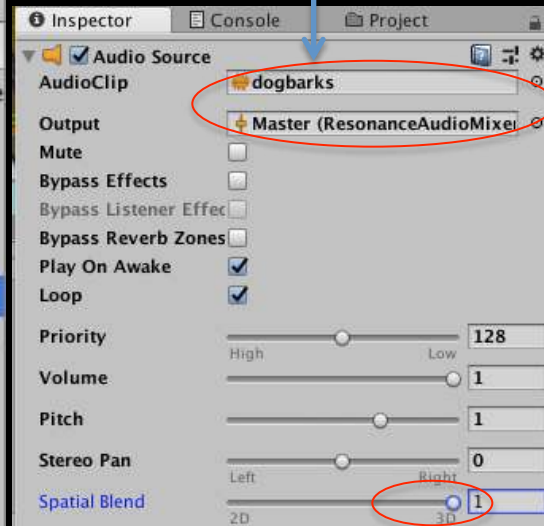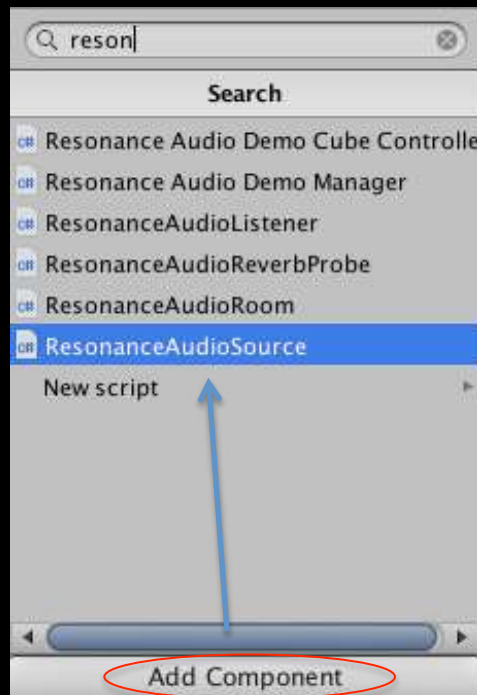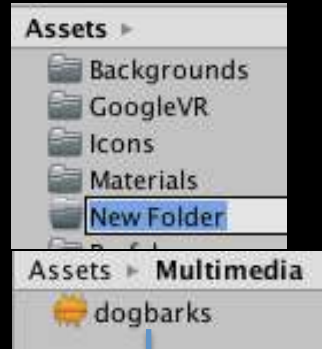+ResonanceAudioSource

Main camera is the audio listener
+ResonanceAudioListener
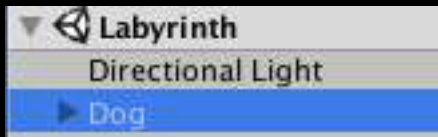
# Part 3: Start & End Scenes
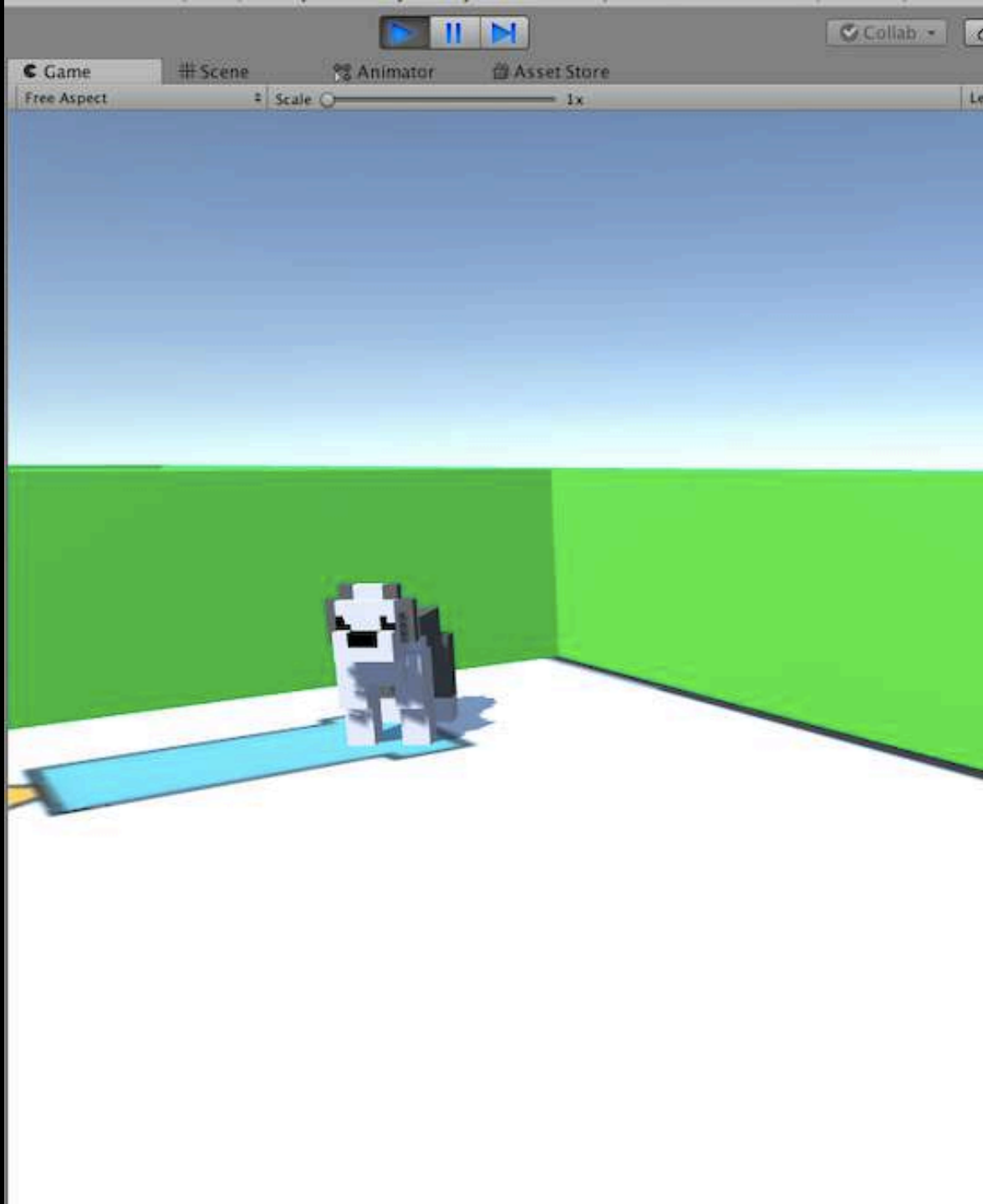
# End Scene



It´s a VR Scene
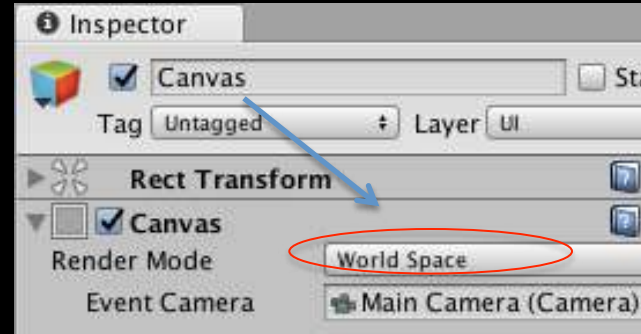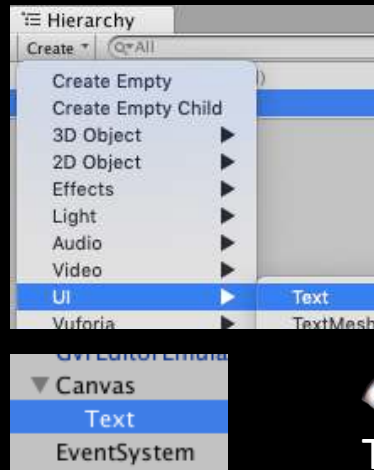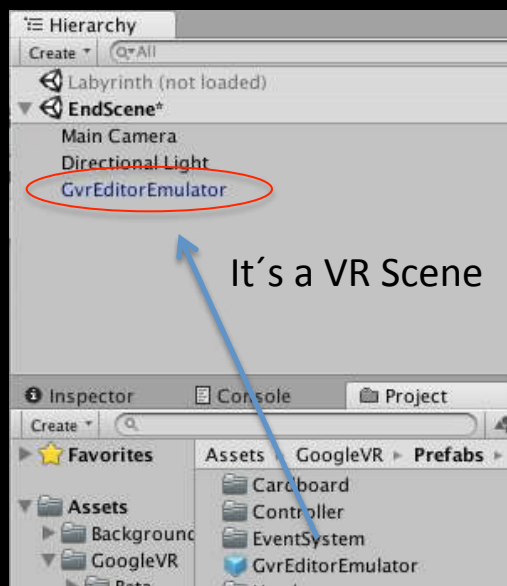
First: Screen Space – Camera
Then: change to WorldSpace
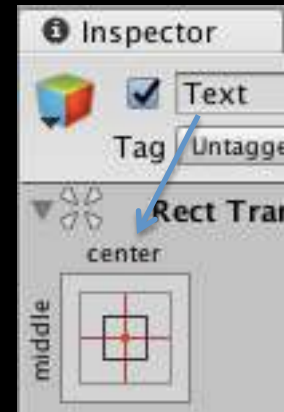
Text Position
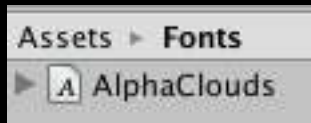
YOU FOUND BRUNO THE DOG!!

dafont.com

ALPHA CLOUDS

# Sky for final scene

Sky**Box**: top, bottom, left, right, front & back images/textures
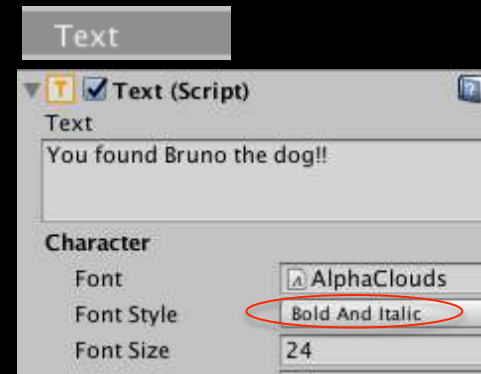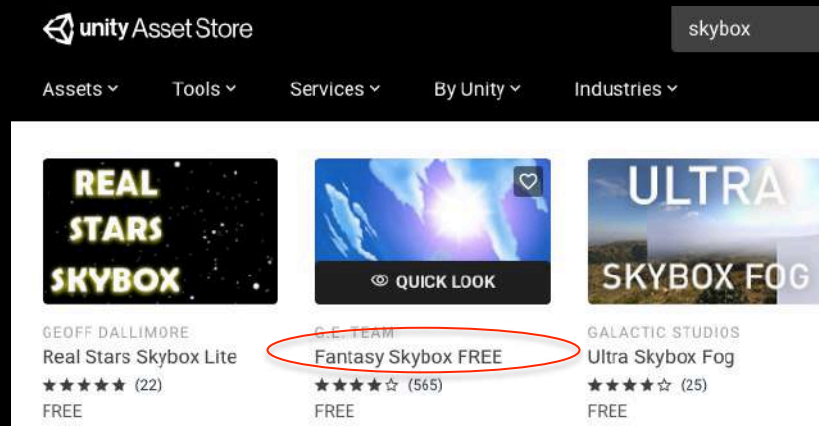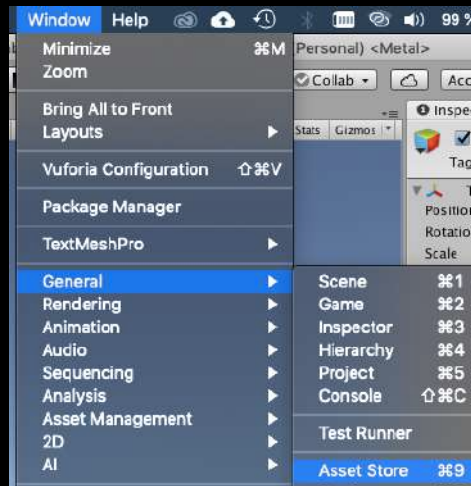


Import

Directly drag & drop on scene or..

# End Scene

# Start Scene

# The click thingy (GVR Reticle Pointer)

# OnClick (The Google VR Way)

**StartScene**
- PlayerCamera
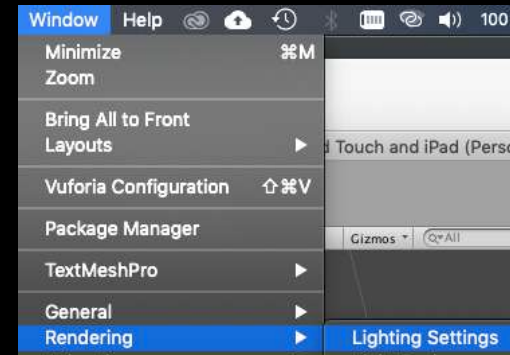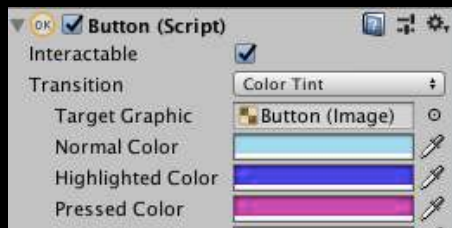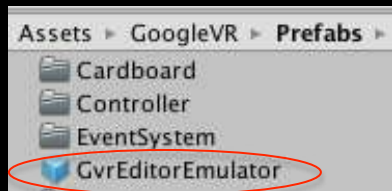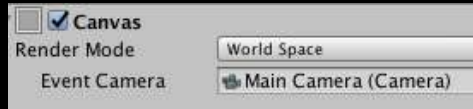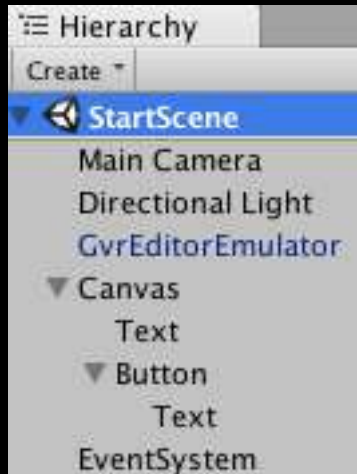  - Main Camera
    - GvrReticlePointer
  - Directional Light
  - GvrEditorEmulator
  - Canvas
    - Text
    - Button
  - EventSystem
  - GvrEventSystem
  - OpenGame
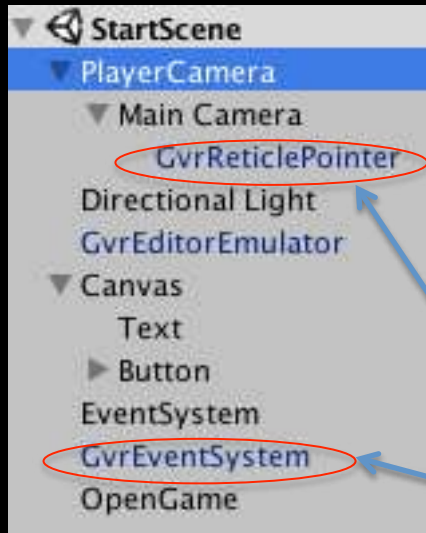
Copy Main Camera position into PlayerCamera (empty object) and make it parent of Main Camera

Assets ▸ GoogleVR ▸ Prefabs ▸ **Cardboard**
  - GvrReticlePointer

Assets ▸ GoogleVR ▸ Prefabs ▸ **EventSystem**
  - GvrEventSystem
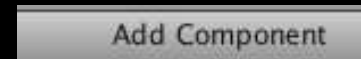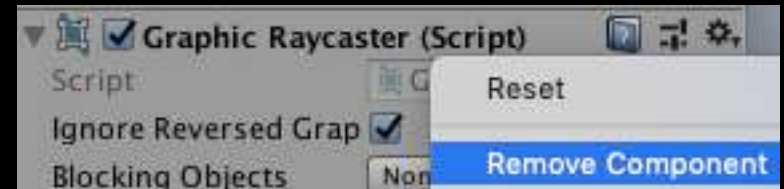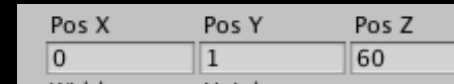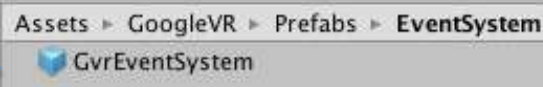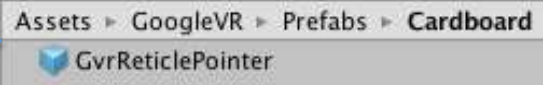
Properties of GvrReticlePointer

☑ GvrReticlePointer

👁 Canvas Pos Z < Max Reticle Distance

**Max Reticle Distance** 100

ReticlePointer
Shader   GoogleVR/Reticle

Color

## Canvas

| Pos X | Pos Y | Pos Z |
|-------|-------|-------|
| 0 | 1 | 60 |

☑ **Graphic Raycaster (Script)**
Script
- Reset
- **Remove Component**

Ignore Reversed Grap ☑
Blocking Objects   Non

Add Component

☑ **Gvr Pointer Graphic Raycaster**
Script ............ GvrPointerGraphicRayc
Ignore Reversed Grap ☑
Blocking Objects   Three D
Blocking Mask   Everything

**Main Camera**

☑ **Gvr Pointer Physics Raycaster (Script)**
Script ............ GvrPointerPhysicsRaycaster
Raycaster Event Mask   Everything
Max Raycast Hits                          64

Find Bruno

Find Bruno

# Scene Transition

**Scenes In Build**

| | Deleted |
|---|---|
| ☑ Scenes/StartScene | 0 |
| ☑ Scenes/Labyrinth | 1 |
| ☑ Scenes/EndScene | 2 |

Auto loads next scene in 10 seconds

Add to any game object on EndScene to restart the game after 10 seconds

```
MenuScene.cs                    ×
on
    using System.Collections;
    using System.Collections.Generic;
    using UnityEngine;
    using UnityEngine.SceneManagement;

    public class MenuScene : MonoBehaviour {

        private float timeElapsed = 0f;
        private float delayBeforeLoading = 10f;
        public string scene = "Labyrinth";

        // Update is called once per frame
        void Update () {
            timeElapsed += Time.deltaTime;

            if (timeElapsed >= delayBeforeLoading)
                ChangeScene();
        }

        public void ChangeScene()
        {
            SceneManager.LoadScene(scene);
        }
    }
}
```
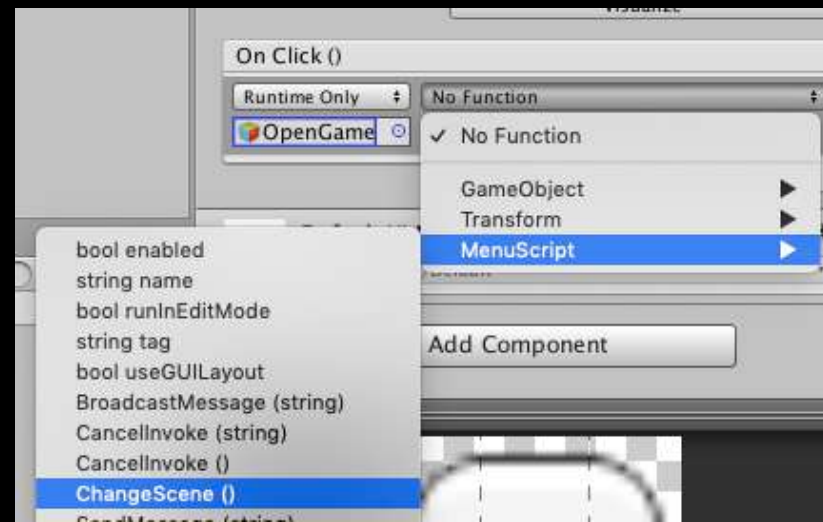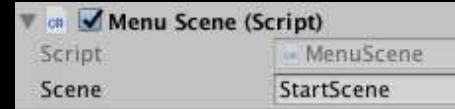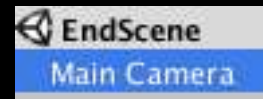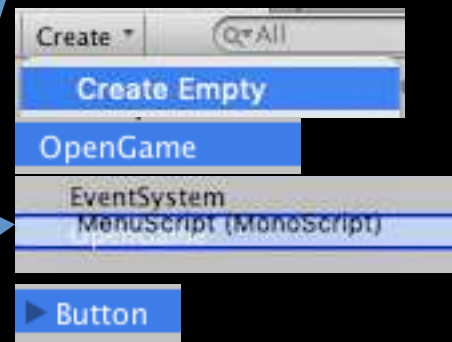
Create ▾      Q▾All

**Create Empty**

OpenGame

EventSystem
MenuScript (MonoScript)

▶ Button

◈ EndScene
Main Camera

▼ ⓒ ☑ Menu Scene (Script)
| Script | MenuScene |
| Scene | StartScene |

On Click ()

| Runtime Only ▾ | No Function ▾ |
| OpenGame ⊙ | ✓ No Function |
| | GameObject ▶ |
| | Transform ▶ |
| | MenuScript ▶ |

bool enabled
string name
bool runInEditMode
string tag
bool useGUILayout
BroadcastMessage (string)
CancelInvoke (string)
CancelInvoke ()
ChangeScene ()

Add Component

# Part 4: Into the Wild
## (Building a natural environment)

# Adding bushes and trees (doesn´t cost a thing!)



Assets ▸ NatureStarterKit2 ▸ Nature ▸

bush01

MazeWall

Scale    X 0.05

Thin walls
Thick bushes

tree01

Scale    X 0.5    Y 0.5    Z 0.5

Bush Wall
bush01
bush01 (1)
bush01 (2)
bush01 (3)
bush01 (4)
bush01 (5)
bush01 (6)
bush01 (7)
bush01 (8)
bush01 (9)
bush01 (10)
bush01 (11)
bush01 (12)
bush01 (13)
bush01 (14)
bush01 (15)
bush01 (16)
bush01 (17)
bush01 (18)
bush01 (19)
bush01 (20)
bush01 (21)
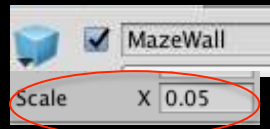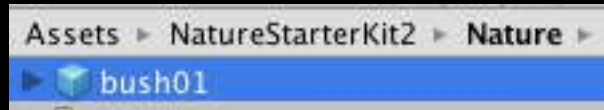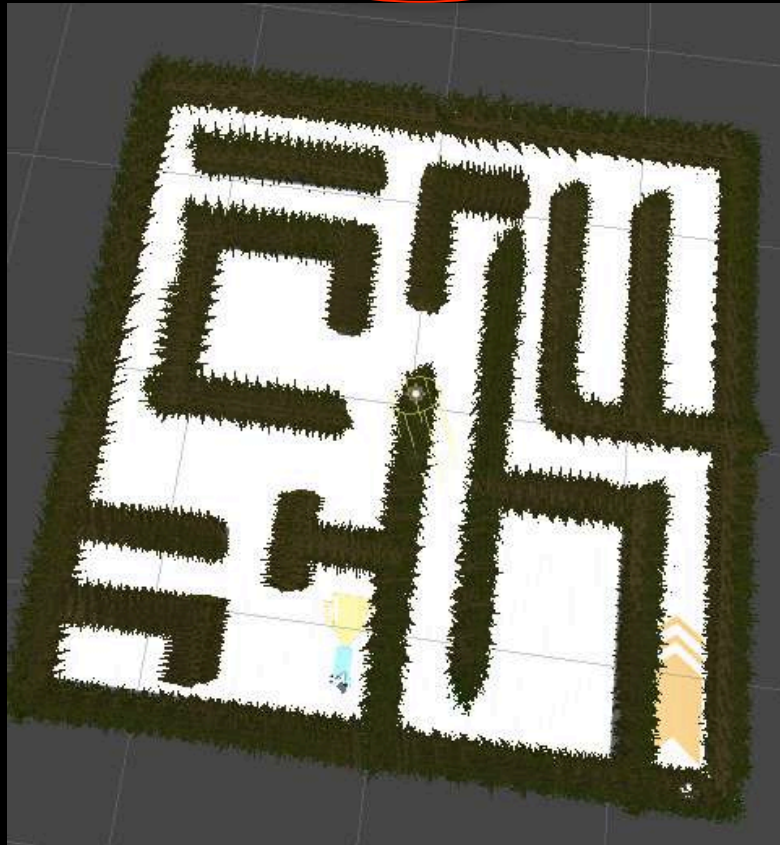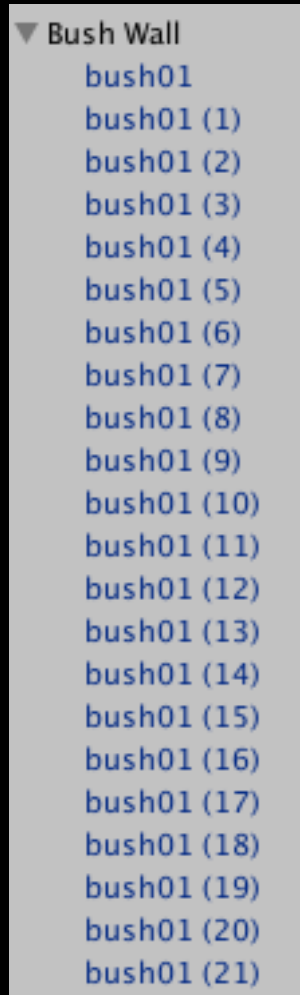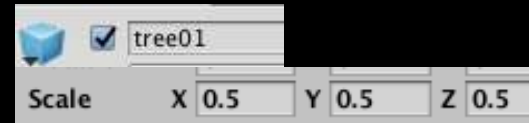
# Replace MazeTexture with terrain 🌳

# Build Project & Enjoy