ARMeasure

Introduction

The ARMeasure package brings the ability to Measure the object size on planes in real-world by using Unity and Augmented-Reality .it currently works Unity's AR Foundation + ARKit(iOS) + ARCore (android).

This tool currently supports measuring length ,height,angle. We need a lot of feedback to make it as useful as possible for everyone!,you can send us with email (lycwalk@gmail.com) , we will reply in time.

Main Features

- Check if have planes
- Detect the real distance between two points in the plane
- Detect the height of vertical object
- Detect the angle between two sides in planes
- Choose different distance units, including,cm,m,ft,in and yd

Sample Scenes

- Scenes/MeasureLength: A basic scene with measuring the object length, it shows how to use the prefabs and how call hte simple api to complete the measuring work.

- Scenes/MeasureHeight : A scene with measuring the object height. It shows how to use the prefabs and how to use the HitPanel prefab with ARCamera to complete measuring height of obejct.

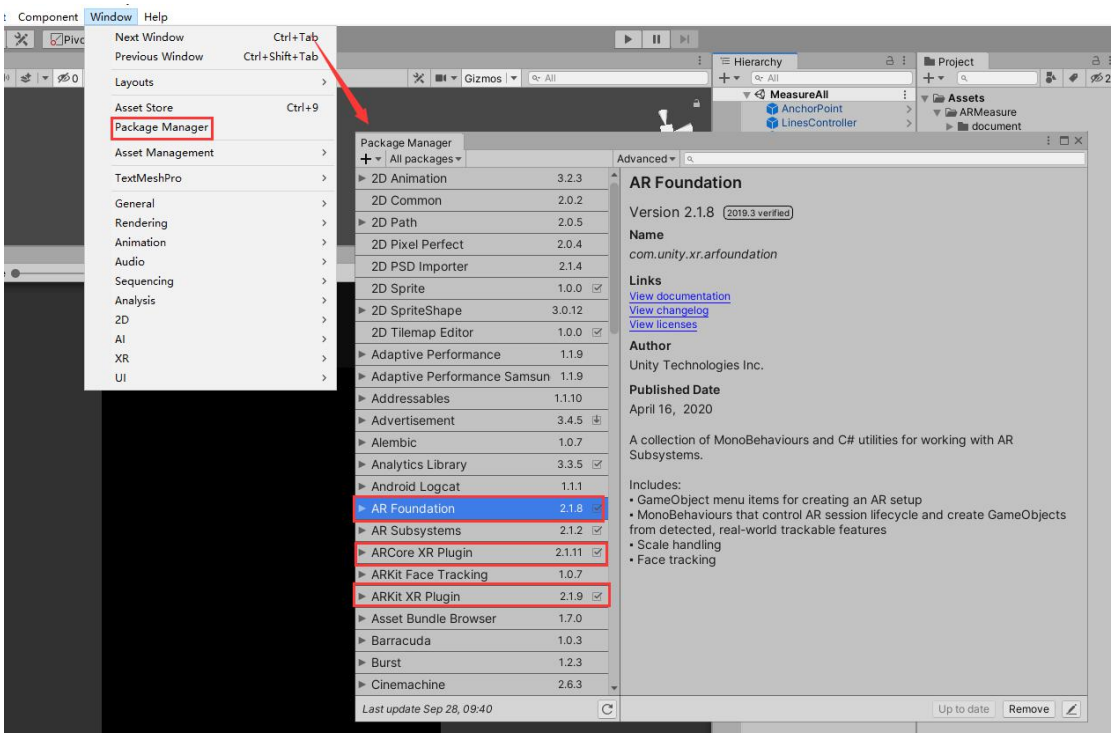
- Scenes/MeasureAngle: A scene with measuring the angle between two sides. It shows how to use the prefabs and how to add points to generate a triangle to show the angle

- Scenes/MeasureAll: A scene with measuring the length, angle,height, it shows how to use all features and how to switch each other besides, it shows how to change length unit.

Set-up AR Package

Before using our tool . you need install two packages first,our tool base on the ARFoundation ,ARKit,ARCore package, they are provide by unity3d free, you can install them directly like this:

Windows->Package Manager



And the ARFoundation version **must match** the right unity3d

Unity3d Version	ARFoundation Version
2018.4+	1.5 (preview)
2019.3+	2.1 (verified)
2020.1+	3.0 (verified)
2020.2+	4.1 (preview)

Basic setting up

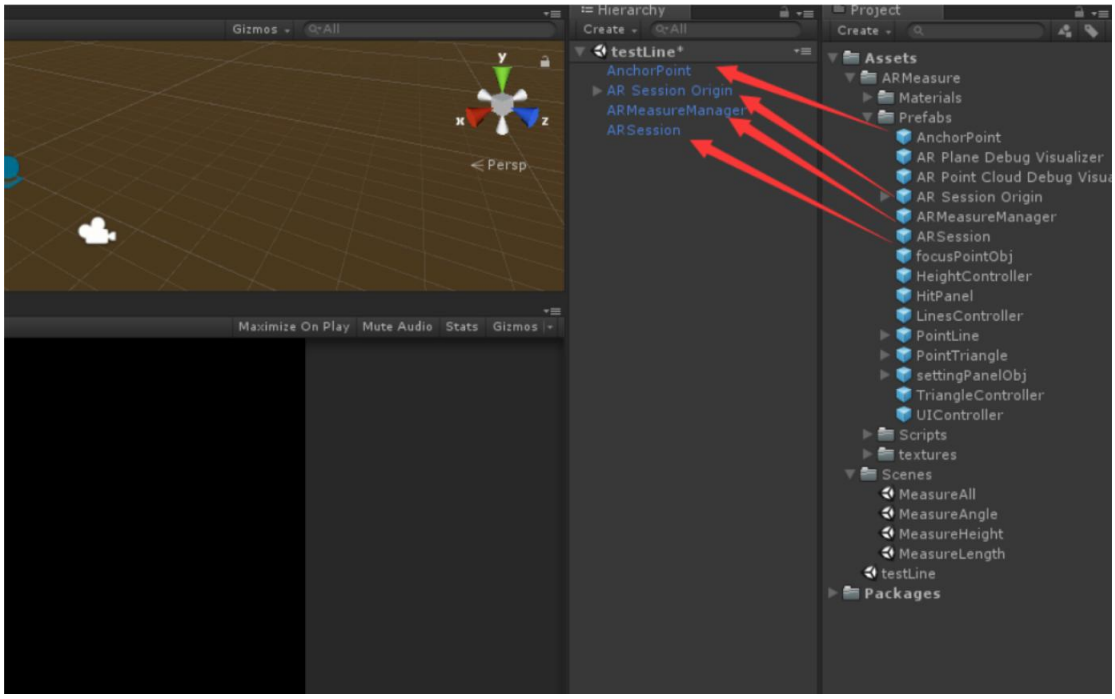
- Drag the "**ARSession**" prefab into your project

  It is necessary and controls the lifecycle and configuration options for AR session
- Drag the "**AR Session Origin**" prefab into your project

  It is necessary and it controls the arcamera to get device'c webcam . detects/manage the planes
- Drag the "**ARMeasureManager**" prefab into your project

  It is necessary and it manage the measure mode (Angle,Length,Height) and handle points ,lines,and so on.

Like this:

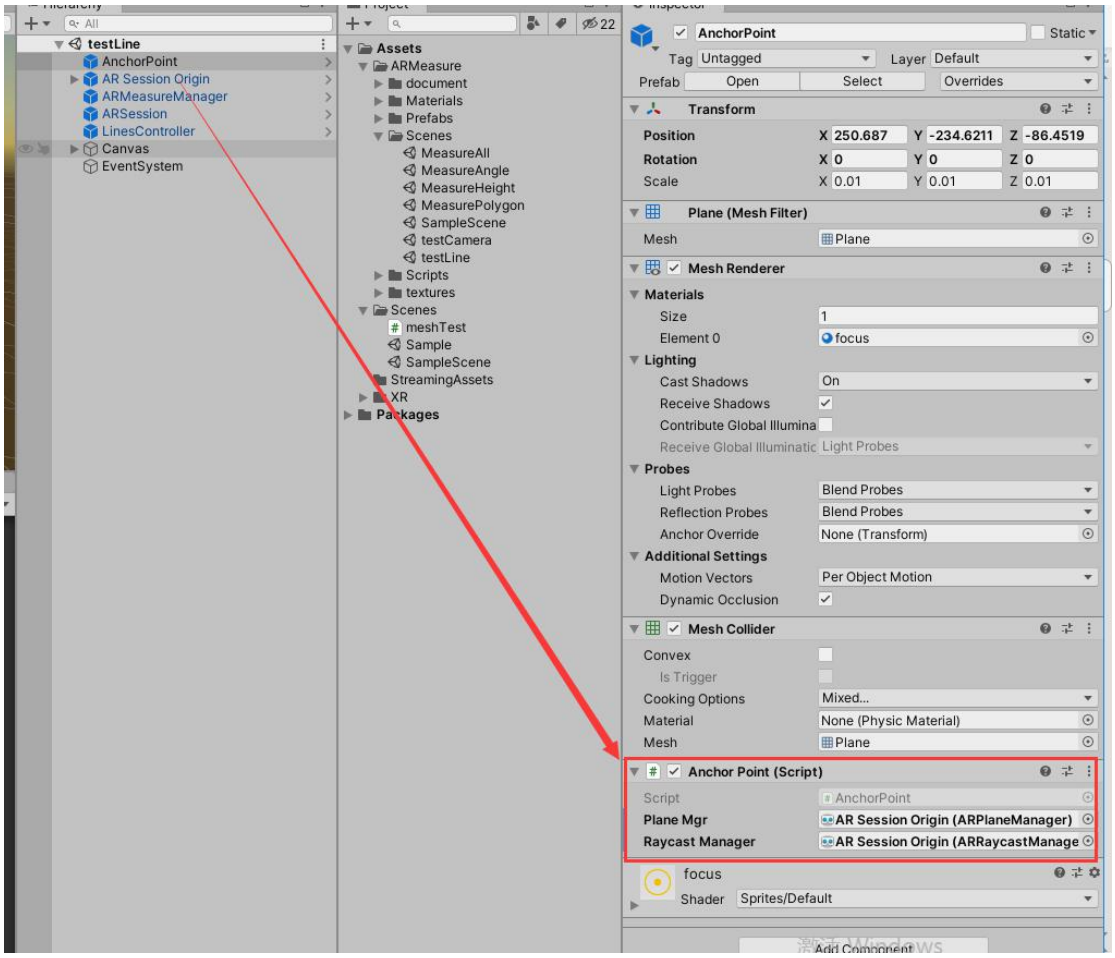


- Drag the "**AnchorPoint**" prefab into your project

  1,It is necessary and it show the moving target point in the existing plane.

  2,drag the "**AR Session Origin**" object into variable "m_**PlaneMgr**","m_**RaycastManager**"

  Like this:



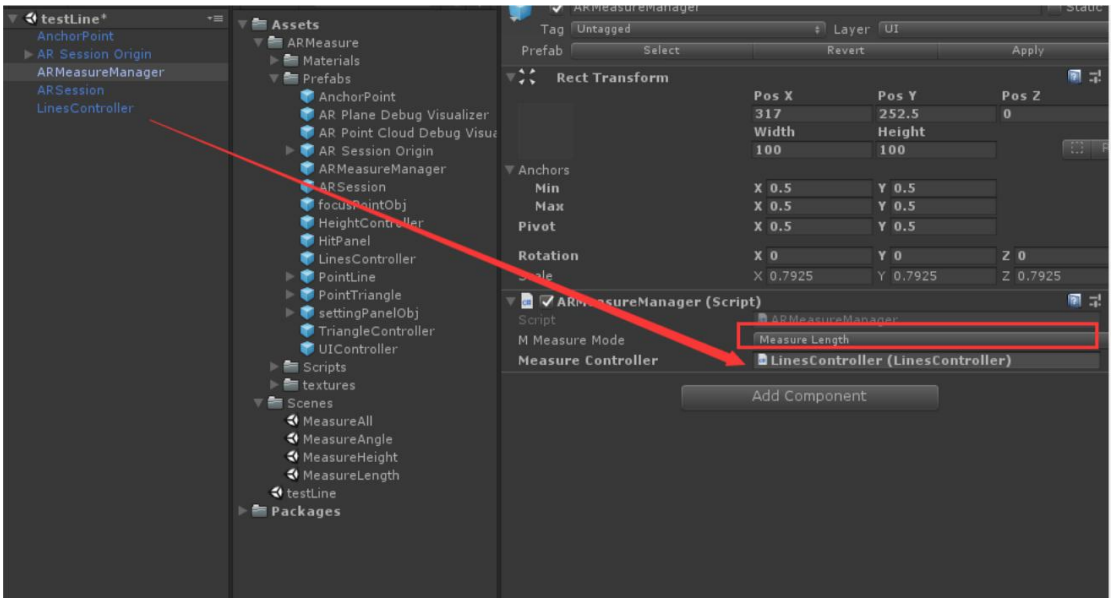
Start Measuring Length

- Drag the “**LinesController**” prefab into your project.

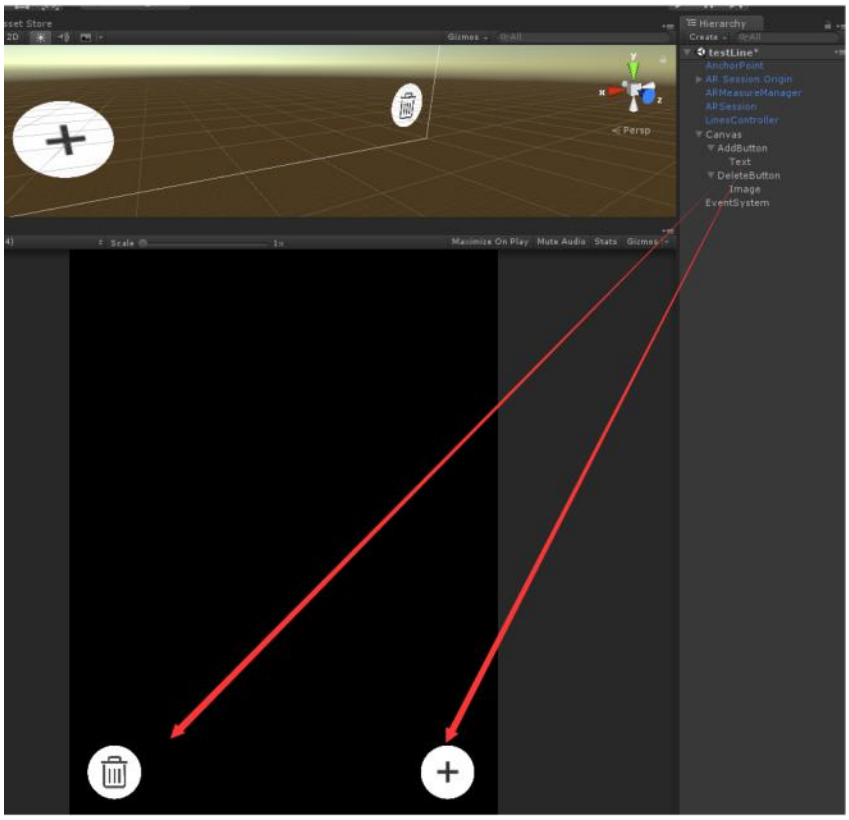
  It is necessary and it show the moving target point in the exsiting plane

- Select the “**ARMeasureManager**” Object, set the variable “m_**MeasureMode**” as MeasureLength, and Drag the **LinesController** object into the variable “**mMeasureController**”.

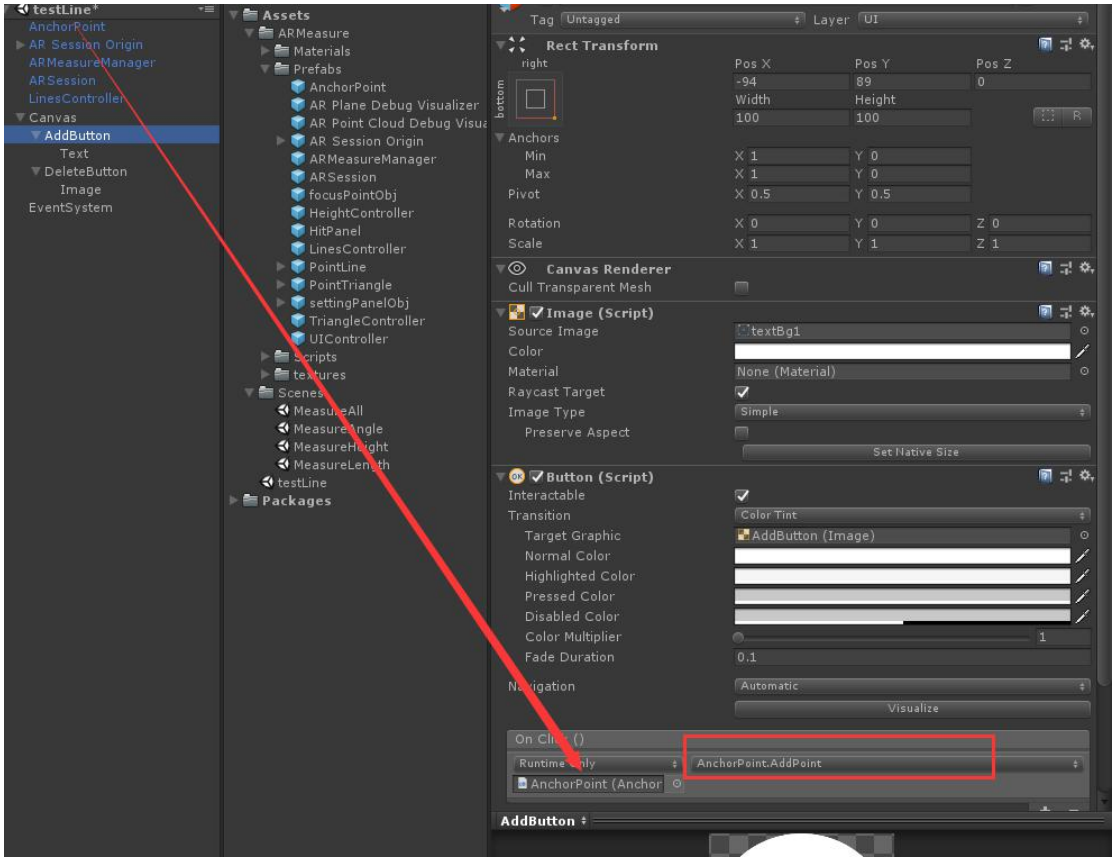
  Like this:

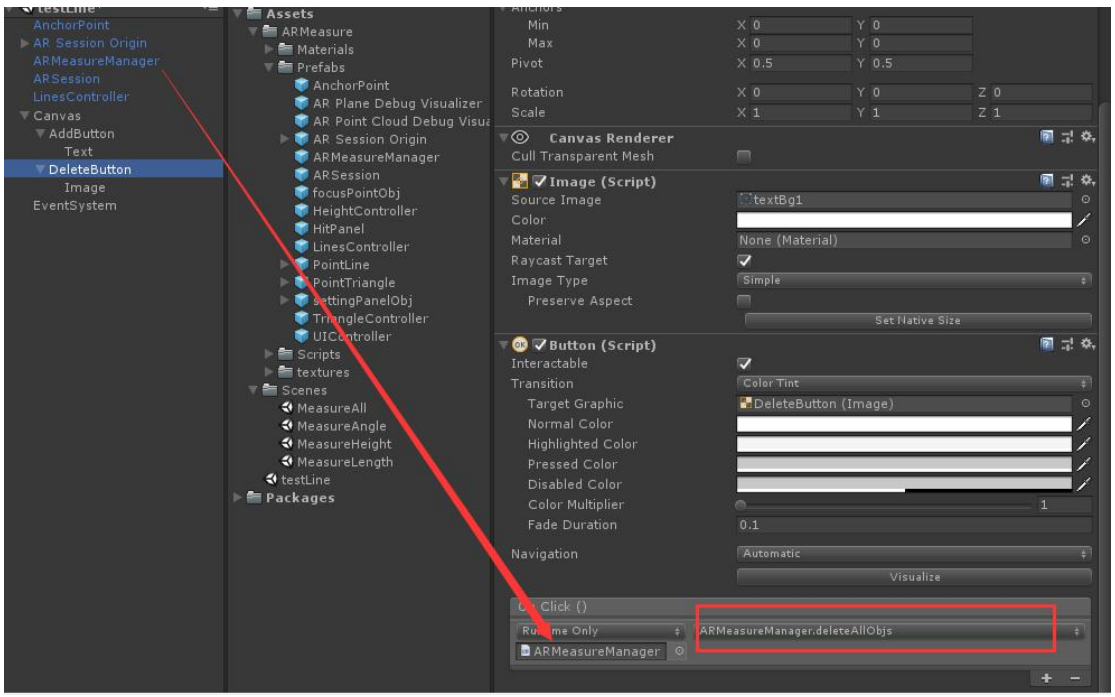


- Create buttons to control **add/remove** point



- Call the API “**AnchorPoint.AddPoint()**”,”**ARMeasureManager.deleteAllObjs()**”

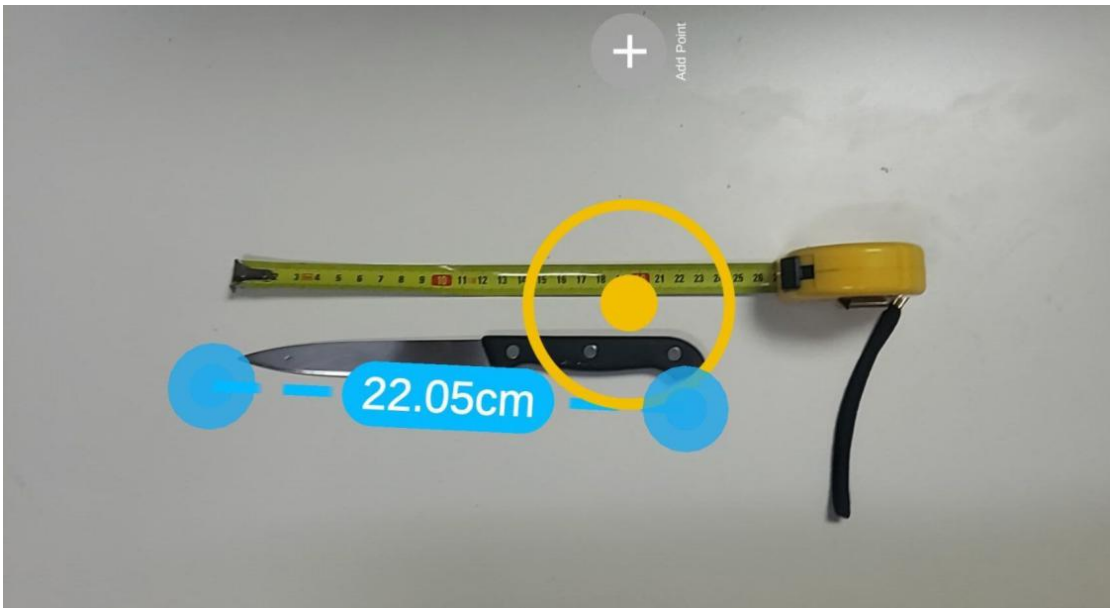




- Use event to check if track the plane “**AnchorPoint.trackPlaneEvent**”

Before detecting plane success,it need to show tip users to moving the camera to detect the plane hide the tip.

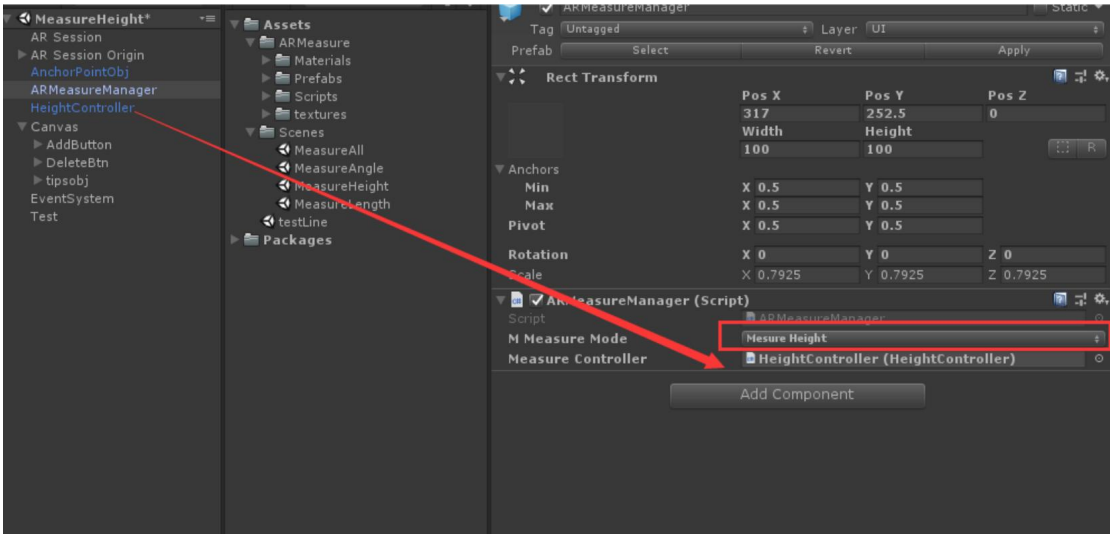
```
// Use this for initialization
void Start () {
    AnchorPoint anchorPoint = GameObject.FindObjectOfType<AnchorPoint>();
    if(anchorPoint)
    {
        anchorPoint.trackPlaneEvent += AnchorPoint_TrackPlaneEvent;
    }
}
void AnchorPoint_TrackPlaneEvent()
{
    //do something you want
}
```



Start Measuring Height

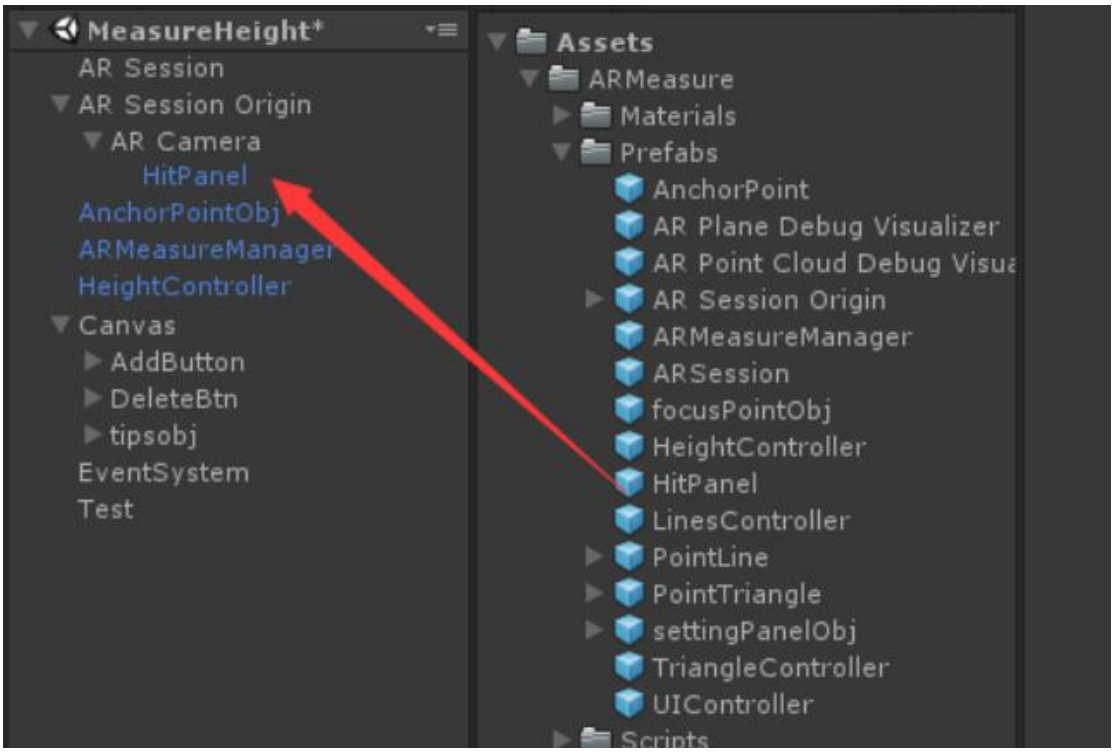
- Like drag “**LinesController**” prefab ,measure height need to drag the “**HeightController**” prefab into your project.

- Select the “**ARMeasureManager**” object , set the variable “mMeasureMode” as MeasureHeight , and Drag the LinesController object into the variable “mMeasureController”

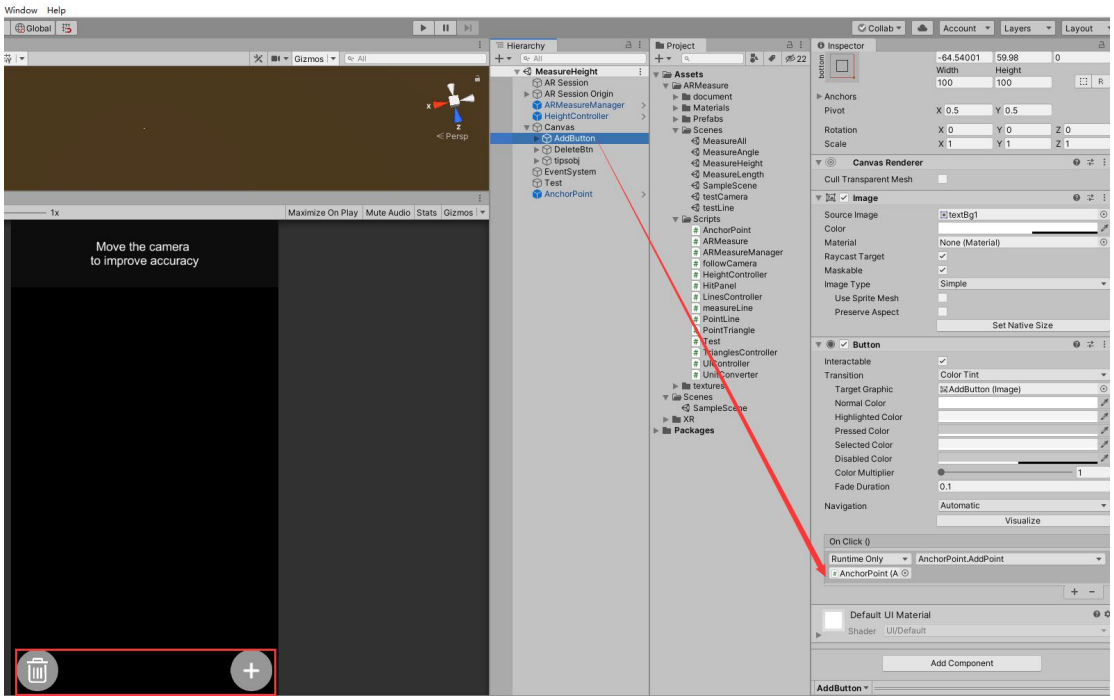


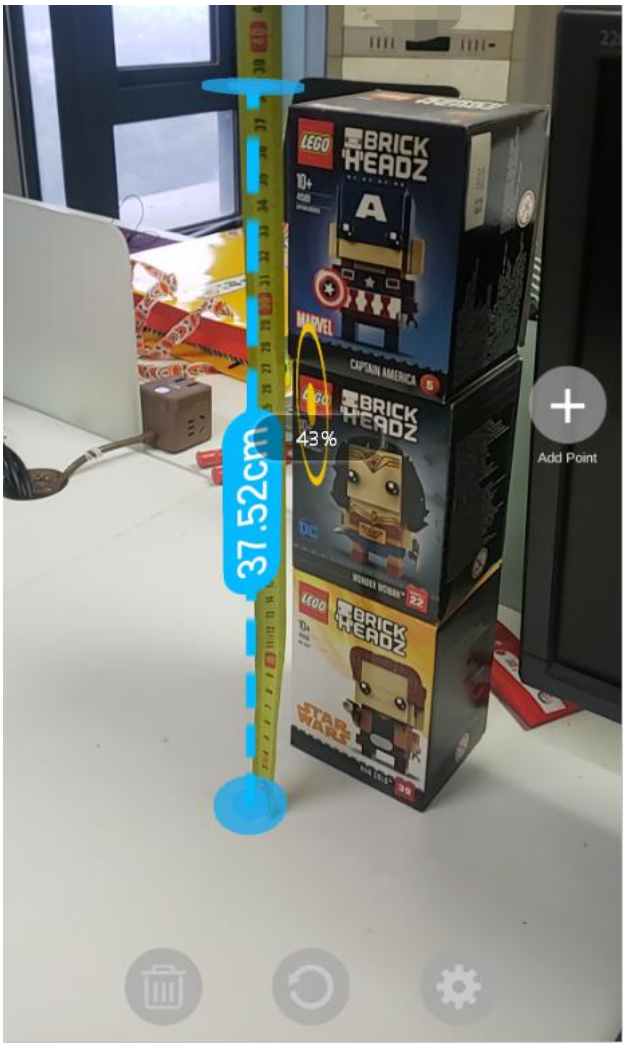
- **Important: different from “Measure Height” and “Measure Angle”**

  Drag “**HitPanel**” prefab into project and place it at “**ARSession Origin/ARCamera/**”,like this:



- Create buttons to control add/remove point and measure the height
- Call API “AnchorPoint.AddPoint()”,”ARMeasureManager.deleteAllObjs()”

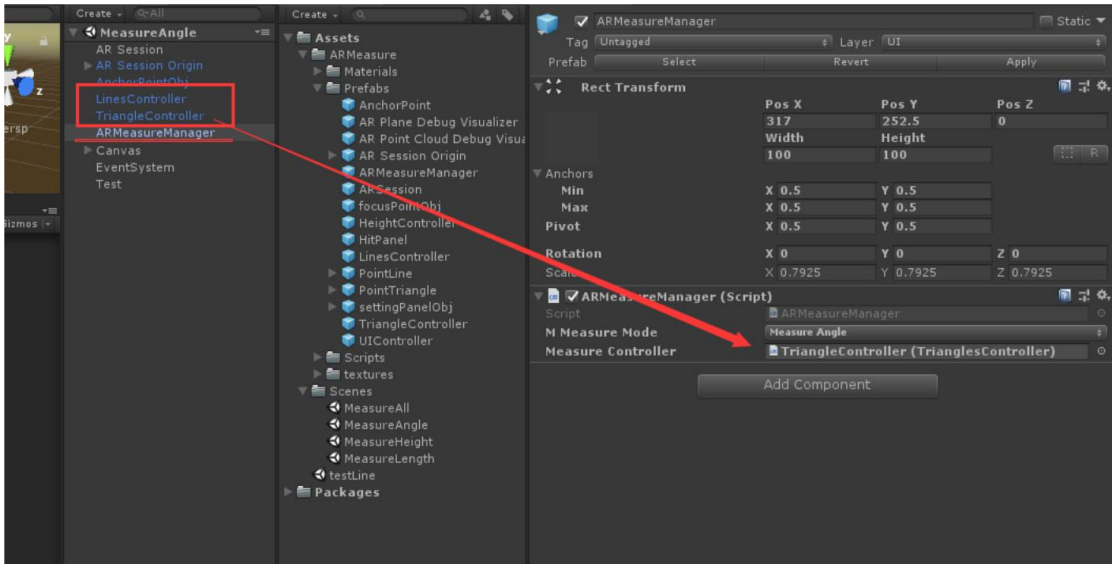




Start Measuring Angle

- Drag the “TrangleController” prefab into your project, besides, if the “LineController” can’t exsiting in your project before, you need to drag “LinesController” into you project too, because the TriangleController need the “LinesController” api

- Select the “**ARMeasureManager**” object ,set the variable “mMeasureMode” as MeasureAngle and Drag the “TriangleCotnroller” object in to the variable “mMeasureController”



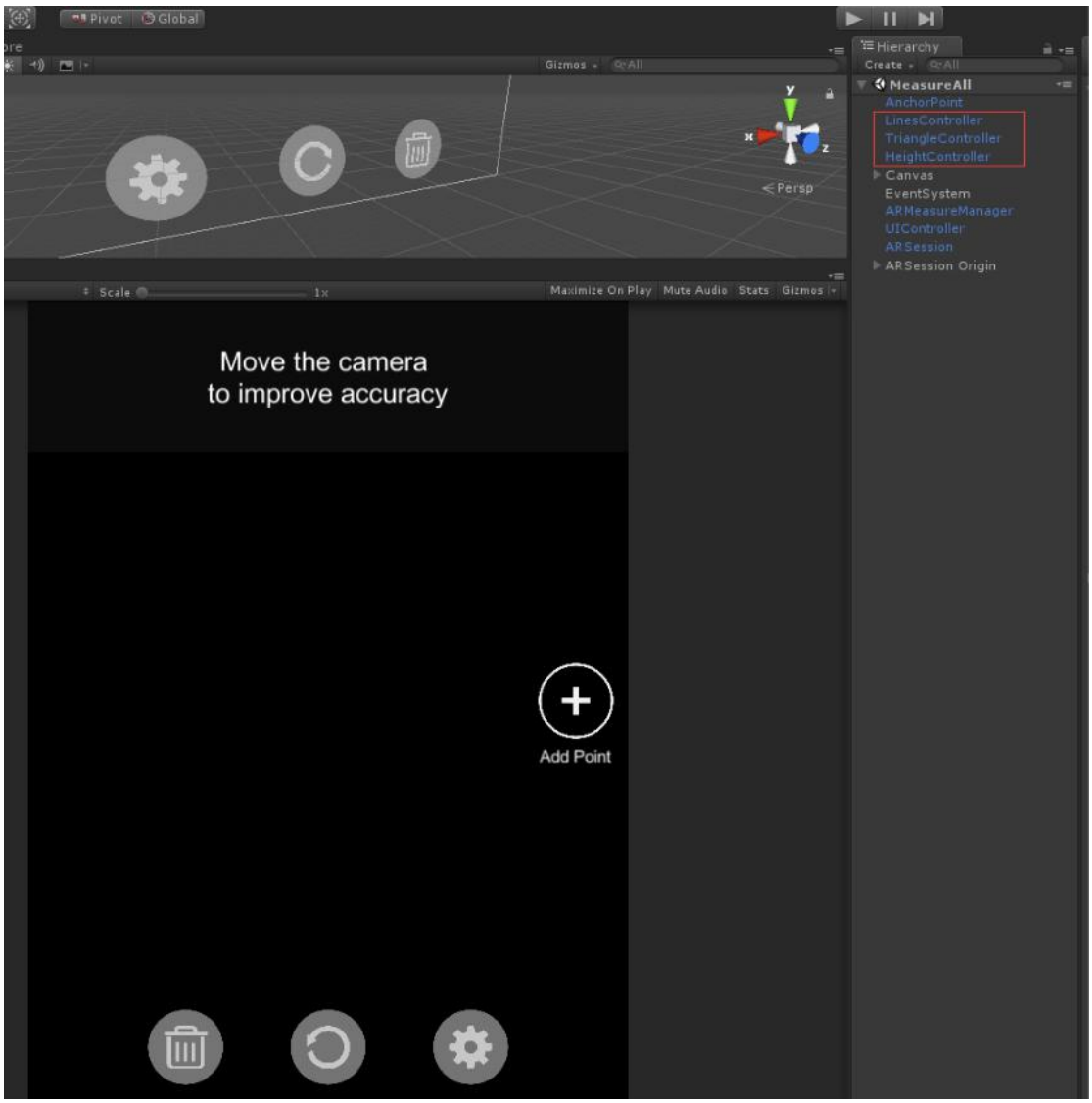
- Other steps are the same as “Measure-Length”

Create Mixed-mode Measure

- Drag some of these prefab (“LinesController”, “HeightController”, “TriangleController”) you want to use

- When switch measure mode , you need re-assign the ARMeasureManager.mMeasureMode (by MeasureLength,MeasureAngle, MeasureHeight), and ARMeasureManager.m_MeasureController (by LinesController, HeightContorller,TriangleController)

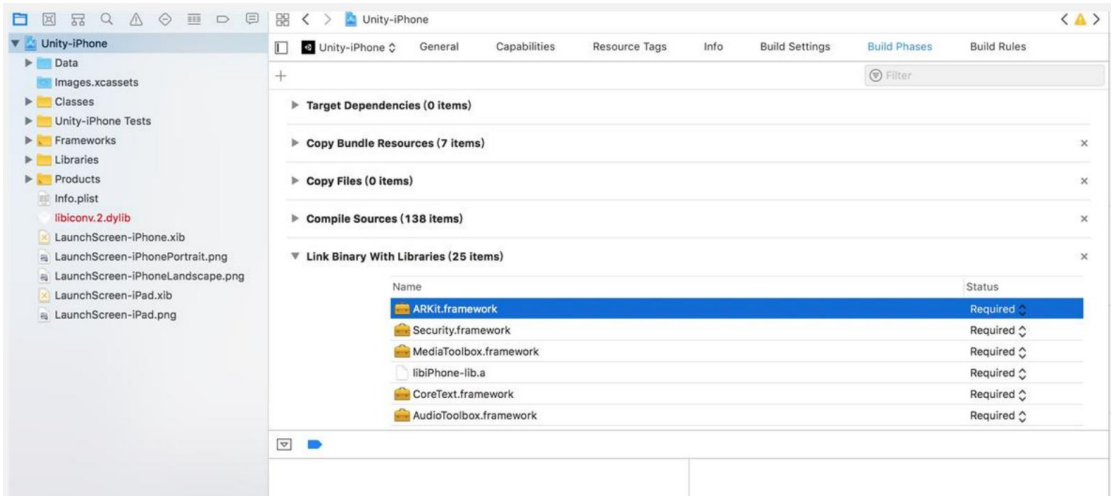
You can see the demo scene named “MeasureAll” ,this scene show how to switch measure-mode , and how to switch the length unit.


Pivot
Global
Gizmos
Persp
Hierarchy
Create
MeasureAll
AnchorPoint
LinesController
TriangleController
HeightController
Canvas
EventSystem
ARMeasureManager
UIController
ARSession
ARSession Origin
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos
Move the camera
to improve accuracy
Add Point

Build to run

For iOS :

After completing the development in unity, yoiu can build it for ios(xcode project) , add “ARkit.framework” in “build Phases”->>”Link Binary With Libraries”, like this:



Note:

1,make sure you have imported the **ARFoundation ,ARKit, and ARCore** in your project.it can’t work.

2,if the device’s camera can’t open, Please check if **the version of unity3d** matches **the version of ARFoundation**,otherwise this will not work