EasyTouch 3.1

User documentation & Classes

Table of contents

Introduction

What is EasyTouch

EasyTouch allow you to quickly and easily develop actions based on a touchscreen or a mouse.

All major gestures are recognized such as touch, tap, double tape, twist, pinch.. and much more.

EasyTouch allows automatic detection of all gameobjects with collider on collision layers that you can set, To allow easy handling of the various elements that make up your scene

EasyTouch is written in C# , it notifies you of an action on the touch screen or with mouse by events. The events are sent by delegate system for C # or internal messaging function of Unity (SendMessage) for Javascript developers.

Each event passes a parameter class, with all the informations about the current action (position, angle, picked object ...)

EasyTouch simulates the second finger when you press the ALT or CTRL key, an orange circle appears on the screen to the simulated position.
ALT => For twist or pinch gesture
CTRL => For swipe or drag gesture

EasyTouch is provided with two extensions EasyJoystick & EasyButtons that allow you to easily create virtual controllers

What's new in 3.1

News

News

- Add Window Phone 8 & BLACKBERRY support
- Add multi camera support. Self-selection is done in the order of cameras, and stops if an object is detected. Usefull for your own gui
- Add new statics methods to setup and get the pickableLayer mask
- Management of reserved areas is divided into two methods :
- AddReservedArea & RemoveReservedArea => for rect origin on bottom left
- AddReservedGuiArea & RemoveReservedGuiArea => for rect origin on top left (gui)
- Add a new event On_EasyTouchIsReady, it occur when EasyTouch is ready.
- New inspector style

Gesture class

- Add new member pickCamera : The camera of the object self-selection
- Add new member isGuiCamera : Is that the camera is Flag GUI

Bugs fixed

- Fixe On_LongTap2Fingers : It happened only once
- Fixe XCode error with reserved area
- FingerUp event no longer send when the touh is NGUI Panel

What's new in 3.0

News

- Add new static method SetCamera(Camera cam) : To set the current camera use by EasyTouch
- Add new static method GetFingerPosition(int fingerIndex) : To get the position of a specific finger
- Add new static method ResetTouch(int fingerIndex) : to reset the gesture
- New version of EasyJoystick
- New extension EasyButton
- The key simulation of the second finger are now configurable, and texture (especially to flash compilations because Ctrl & Alt are not recognized in this mode)
- Add new option Enable hover extension that allow you to know if the current touch is hover a virtual controller
  => Add new member to Gesture classe "isHoverVirtualController"

Gesture class news

- Add member twoFingerDistance on Gesture class : The distance between two finger for a two finger gesture.
- Add new method NormalizedPosition in Gesture class that return the normalize position relative to screen resolution
- Add new member isHoverVirtualController on Gesture classe : to know is a touch is hover a virtual controller

Improvement

- On_GUI is now not compil on mobile device.
- Time.realtimeSinceStartup replace Time.time to calculate the gesture time.
- Add new parameter to IsRectUnderTouch(Rect rect, bool guiRect=false)
  guiRect = false => origin is on lower left corner
  guiRect = true => origine is on upper left corner
- Same change on method IsInRect on Gesture Class
- Better detection of very short and quick swipe

Bugs fixed

- Fix : After enabled EasyTouch with static method "SetEnabled" a random event was sent
- Fix : Now the touch is reset if you start a swipe after a longtap without up your finger

What's new in 2.4 & 2.5

News

- Add static method IsRectUnderTouch : to get if a touch is in a rect.
- New inspector style for pro & free skin
- Add hierarchy icon to identify EasyTouch gameObject
- Remove string comparisons by enumeration, for better performance
- Add EasyJoystick support
- Add menu

Bugs fixed

- Fix 2 static methods that didn't properly reference the EasyTouch instance
- On_SimpleTap2Fingers event no longer firing after during a pinc or twist gesture

What's new in 2.3

News

- Added support for the Unity Remote (tested on iPad & Nexus7)
  Thank you to fulvio Massini for the support he has given us to implement this functionality

What's new in 2.1 & 2.2

News

- - Add new Static method : GetCurrentPickedObject(int fingerIndex) taht return the current

gameobject under touch Look at CameController example.

Bugs fixed

- On_TouchStart & On_TouchTap events and are no longer sent after the end of a two-fingers gesture

What's new in 2.0

News

- C# migration
- Implementing delegate for sending messages. (Broadcast messages is retained with a parameter for javascript developers)
- Management of multiple layer for the auto selection
- Management of fake singleton, in case you have more than one EasyTouch per scene by error
- Add custom inspector
- Add Debug.LogError if no camera with flag MainCamera was found in the scene
- New documentation

EasyTouch class

- remove SetPickableLayer & GetPickableLayer static methods
- Add static method GetTouchCount : to get the number of touches.

Gesture class

- Add method (GetScreenToWordlPoint(Camera cam,float z) that return the world coordinate position for a camera and z position
- Add method (GetSwipeRrDragAngle()) that return the swipe or drag angle in degree

Bugs fixed

- On_DragEnd2Fingers and On_SwipeEnd2Fingers messages were sent to wrong during a drag or a swipe.
- On_Cancel2Fingers is new sent to the picked object (if auto-select)

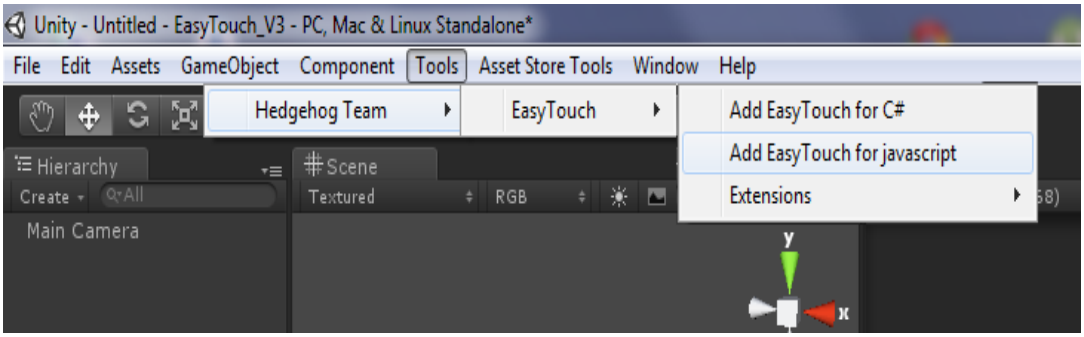
Quick Start

Quick Start (Javascript)

1- Import EasyTouch Package.

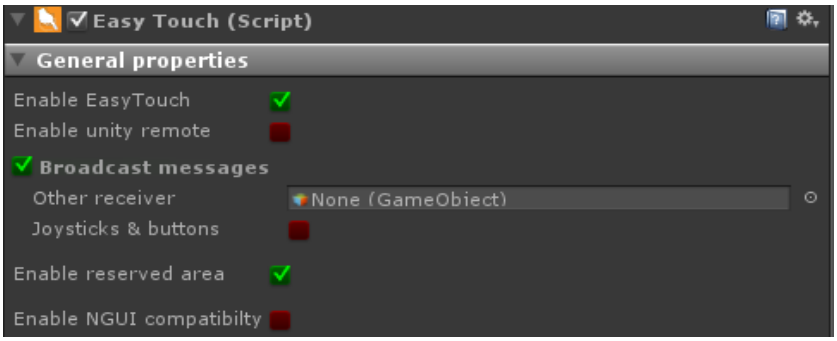
2- Place plugins directory in project root (This action allows you to use C # classes in Javascript)

3- Select Add EasyTouch for javascript in Hedgehog Team menu



4- Select gameobject EasyTouch, and set to TRUE Broadcast messages in the inspector.

EasyTouch is set by default to send messages by C # events. In javascript it 's impossible or very difficult to use C# Delegates, we must use the internal broadcast messages of Unity.



5- Create a new javascript

6- Add this fonction :

```
// Touch start event
function On_TouchStart( gesture:Gesture){
        Debug.Log( "Touch in " + gesture.position);
}
```

8- Add this script on the EasyTouch gameObject
In BroadCast messages mode, the events are sent to the gameobject with the EasyTouch script. (If no gameobject has been selected with the auto-select)

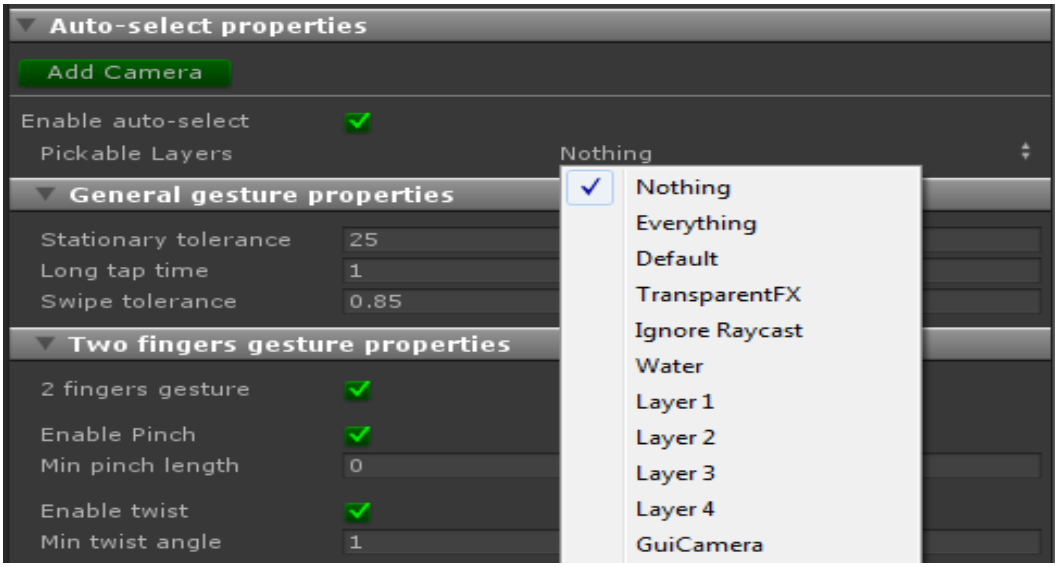
9- Run it in editor, and click on the screen

This example will do nothing if you run it on your mobile devise, it's just to show you how to use EasyTouch events with javascript.

Quick Start with auto-select (Javascript)

1- Do steps 1 to 4 of the Quick Start (Javascript)

2- Select the EasyTouch gameobject , and add a pickable layers in the Auto-select properties in the inspector, If you dn't set the camera, EasyTouch will take the camera with MainCam flag



3- Create a sphere and assign it a simple diffuse material

4- Setting the auto-select on the sphere : Assign the same layer that you assign as parameter to the sphere.

5- Create a new javascript

6- Add this function :

```
function On_TouchStart( gesture:Gesture){
        gameObject.renderer.material.color = Color( Random.Range(0.0,1.0),  Random.Range(0.0,1.0),
Random.Range(0.0,1.0));
}
```

7- Add this new script to the **sphere**

In BroadCast messages mode, If EasyTouch auto-selects a gameobject, it sends the event to this object and not the holder of the EasyTouch script

8- Run it in editor mode or in your device. If you touch the sphere or click on it, it will change color.

Quick Start (C#)

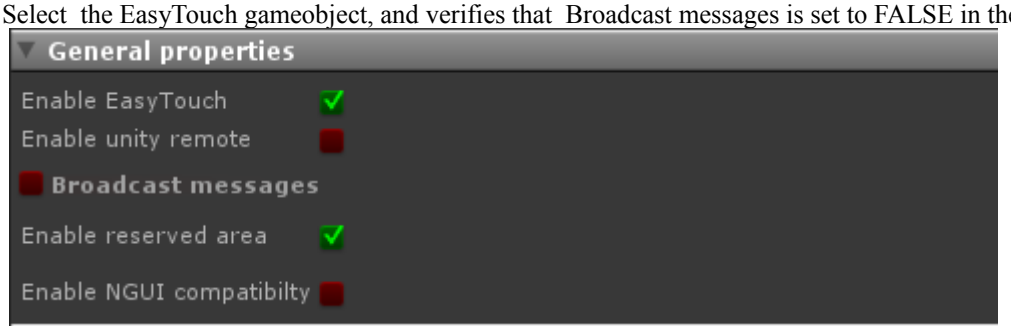
1- Import EasyTouch Package.

2- Create an empty gameObject, and name it EasyTouch.(You can choose another name)

Step 1 & 2 can be replace by the option menu

3- Add the EasyTouch.cs script on the EasyTouch gameObject that you just created.

4- Select the EasyTouch gameobject, and verifies that Broadcast messages is set to FALSE in the inspector.



5- Create a new C# script MyFirstTouch

6- Add these methods

```
// Subscribe to events
void OnEnable(){
	EasyTouch.On_TouchStart += On_TouchStart;
}

// Unsubscribe
void OnDisable(){
	EasyTouch.On_TouchStart -= On_TouchStart;
}

// Unsubscribe
void OnDestroy(){
	EasyTouch.On_TouchStart -= On_TouchStart;
}

// Touch start event
public void On_TouchStart(Gesture gesture){
	Debug.Log( "Touch in " + gesture.position);
}
```

7- Create an empty gameObject, and name it Receiver.

8- Add MyFirstTouch script to the gameObject Receiver.

9- Run it in editor, and click on the screen

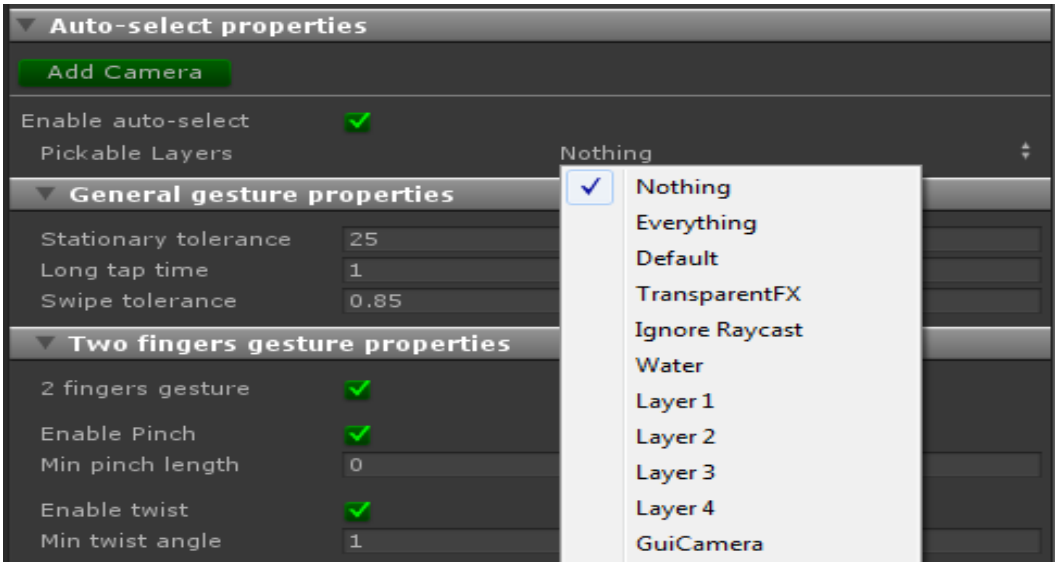
This example will do nothing if you run it on your mobile devise, it's just to show you how to use EasyTouch events with C#.

With C# events all script that are subscribed to an event will receive the event

Quick Start with auto-select (C#)

1- Do steps 1 to 4 of the Quick Start (C#)

2- Select the EasyTouch gameobject , and add a pickable layers in the Auto-select properties in the inspector



3- Create a sphere and assign it a simple diffuse material

4- Setting the auto-select on the sphere : Assign the same layer that you assign as parameter to the sphere.

5- Create a new C#

6- Add these methods :

```
// Subscribe to events
void OnEnable(){
	EasyTouch.On_TouchStart += On_TouchStart;
}

// Unsubscribe
void OnDisable(){
	EasyTouch.On_TouchStart -= On_TouchStart;
}

// Unsubscribe
void OnDestroy(){
	EasyTouch.On_TouchStart -= On_TouchStart;
}

// At the touch beginning
public void On_TouchStart(Gesture gesture){

	// Verification that the action on the object
	if (gesture.pickObject == gameObject)
		gameObject.renderer.material.color = new Color( Random.Range(0.0f,1.0f),
Random.Range(0.0f,1.0f), Random.Range(0.0f,1.0f));
}
```

7- Add this script to the sphere.

8- Run it in editor mode or in your device. If you touch the sphere or click on it, it will change color.

Examples scenes

EasyTouch comes with several C# examples with Event-Delegate notification (examples folder).

OneFinger and TwoFinger examples let you watch a simple implementation of each event.

Concepts

Event system

When you make an action with the touch screen or mouse, EasyTouch raise an event corresponding to the current action. Each event will have a parameter of type Gesture.

You only have to write the code according to the gesture, as in a motor GUI events.

Events can be raised in two different ways (look at general properties inspector)
- Event / Delegate system.
- Unity built-in Sending message system (SendMessage)

To help you make your choice :

	Unity built-in SendMessage	Event / Delegate system
Advantage	• Events are sent to the object selected, simply add a script with a method corresponding to the event processing • Simplify implementation with respect to the event Delgate	• Faster than Unity built-in SendMessage • Notify several objects at once
Disadvantage	• Slower than Event-Delegate • Only two objects can be notified at the same time. The holder of EasyTouch script if no object is selected, or the selected object. Another gameObject at the discretion of the developer via method SetOtherReceiverObject	• The event is sent to all objects that subscribe to it • More line of code is required (subscribe and unsubscribe event) • A test condition on the member PickedObject(**Gesture class**) must be carried out in the beginning of each treatment in the event • not compatible with javascript

Auto-Select

When you perform an action on the touch screen or mouse, EasyTouch can detect if the action is performed on a gameobject.

If gameobject is detected, it will be assign to the class member pickedObject of the Gesture class which will be sent with the event. With the broadcast message mode (built in unity), the event itself will be sent to this object.

This setting is enabled by default (Inpsector properties), you just indicate the layers that can be selected.

Warning:

With Event-Delegate mode, events are sent to all objects that have subscribed to the event, unlike the broadcast mode which sends the object itself.

Even if the script that processes an event is attached to a selectable object, you need to test the pickedObject member.

```
public void On_TouchStart(Gesture gesture){
        // Verification
        if (gesture.pickObject == gameObject)
                gameObject.renderer.material.color = Color.red;
}
```

Inspector properties

EasyTouch has different parameters that you can customize with the inspector, the default settings work correctly on all mobile platforms.

All these properties can be setting with script, look at : EasyTouch Class

General properties

Enable EasyTouch : Enables ou disables EasyTouch

Enable unity remote : Enables ou disables the support of Unity Remote

Enable hover extention : To test if a touch is hover a virtual controller (joystick or buttons), in this case the member isHoverController of Gesture class passed as parameter is egual to TRUE

Broadcast messages :

- **True =** The events will be sent with then internal messaging function of Unity (SendMessage). Use this if you develop in Javascript (you can use in C# too, if you want)
- **False =** The events will be sent with events/Delegate C# system, never use this mode with Javascript

- **Other receiver :** Allows you to direct all messages to a gameobject
- **Joysticks & buttons :** Enable this if you have joystick or button in your scene

Enable NGUI compatibility :

If a touch is hover a NGUI panel , Easytouch doesn't raise any event

- **NGUICamera** : All camera used by NGUI
- **NGUILayers** : all layer used by NGUI

Auto-select properties

Enable auto-select : Enables or disables the auto-select of gameobject under the touch**.**

Add Camera : Bby default EasyTouch will take the camera with the main flag to raycast, but you can add other camera on set GUI to true, it's a camera for your GUI . You will find this information on gesture class

Pickable Layers : To set up all layer that EasyTouch must test

General gesture properties

Stationnary tolerance : Distance below which a finger mouvemenst generate static touch, Act on this value if the tap are not detected correctly. The default value works well on a IPAD2

Long tap time : Represents the maximum time to generate an event tap, or the minimum time to generate a long tap event

Swipe tolerance : This value is used to detect the orientation of a gesture swipe or drag. It must be between 0 and 1

0 => Gesture imprecise
1 => Gesture very precise

Tow fingers gesture properties

2 Fingers gesture : Enables or disables the recognize of 2 fingers gesture

Enable Pinch : Enables or disables the recognize of pinch gesture
Min pinch lenght : The mininum distance that fingers must travel to detect a pinch gesture

Enable twist : Enables or disables the recognize of twist gesture.
Min twist angle : The minimum angle that fingers must travail to detect a twist gesture

Second fingers simulation

Texture : Ethe texture showing for the simulation

Classes

Events

Below is a list of all the events raised by EasyTouch. Look at_C#-Event-Template or _Jave—Event-Template folder on Plugins folder

For complet classe description go to http://www.blitz3dfr.com/Doc/ET3

On_EasyTouchIsReady( )
Occurs EasyTouch is ready .

On_Cancel(Gesture gesture)
Occurs when The system cancelled tracking for the touch, as when (for example) the user puts the device to her face.

On_Cancel2Fingers(Gesture gesture)
Occurs when the touch count is no longer egal to 2 and different to 0, after the begining of a two fingers gesture.

On_TouchStart(Gesture gesture)
Occurs when a finger touched the screen.

On_TouchDown(Gesture gesture)
Occurs as the touch is active.

On_TouchUp(Gesture gesture)
Occurs when a finger was lifted from the screen.

On_SimpleTap(Gesture gesture)
Occurs when a finger was lifted from the screen, and the time elapsed since the beginning of the touch is less than the time required for the detection of a long tap.

On_DoubleTap(Gesture gesture)
Occurs when the number of taps is egal to 2 in a short time.

On_LongTapStart(Gesture gesture)
Occurs when a finger is touching the screen, but hasn't moved since the time required for the detection of a long tap.

On_LongTap(Gesture gesture)
Occurs as the touch is active after a LongTapStart

On_LongTapEnd(Gesture gesture)
Occurs when a finger was lifted from the screen, and the time elapsed since the beginning of the touch is more than the time required for the detection of a long tap.

On_DragStart(Gesture gesture)
Occurs when a drag start. A drag is a swipe on a pickable object

On_Drag(Gesture gesture)
Occurs as the drag is active.

On_DragEnd(Gesture gesture)
Occurs when a finger that raise the drag event , is lifted from the screen.

On_SwipeStart(Gesture gesture)
Occurs when swipe start.

On_Swipe(Gesture gesture)
Occurs as the swipe is active.

On_SwipeEnd(Gesture gesture)
Occurs when a finger that raise the swipe event , is lifted from the screen.

On_TouchStart2Fingers(Gesture gesture)
Like On_TouchStart but for a 2 fingers gesture.

On_TouchDown2Fingers(Gesture gesture)
Like On_TouchDown but for a 2 fingers gesture.

On_TouchUp2Fingers(Gesture gesture)
Like On_TouchUp but for a 2 fingers gesture.

On_SimpleTap2Fingers(Gesture gesture)
Like On_SimpleTap but for a 2 fingers gesture.

On_DoubleTap2Fingers(Gesture gesture)
Like On_DoubleTap but for a 2 fingers gesture.

On_LongTapStart2Fingers(Gesture gesture)
Like On_LongTapStart but for a 2 fingers gesture.

On_LongTap2Fingers(Gesture gesture)
Like On_LongTap but for a 2 fingers gesture.

On_LongTapEnd2Fingers(Gesture gesture)
Like On_LongTapEnd but for a 2 fingers gesture.

On_Twist(Gesture gesture)
Occurs when a twist gesture start

On_TwistEnd(Gesture gesture)
Occurs as the twist gesture is active.

On_PinchIn(Gesture gesture)
Occurs as the twist in gesture is active.

On_PinchOut(Gesture gesture)
Occurs as the pinch out gesture is active.

On_PinchEnd(Gesture gesture)
Occurs when the 2 fingers that raise the pinch event , are lifted from the screen.

On_DragStart2Fingers(Gesture gesture)
Like On_DragStart but for a 2 fingers gesture.

On_Drag2Fingers(Gesture gesture)
Like On_Drag but for a 2 fingers gesture.

On_DragEnd2Fingers(Gesture gesture)
Like On_DragEnd2Fingers but for a 2 fingers gesture.

On_SwipeStart2Fingers(Gesture gesture)
Like On_SwipeStart but for a 2 fingers gesture.

On_Swipe2Fingers(Gesture gesture)
Like On_Swipe but for a 2 fingers gesture.

On_SwipeEnd2Fingers(Gesture gesture)
Like On_SwipeEnd but for a 2 fingers gesture.

EasyTouch Class

This is the main class, you need to add it to your main camera or on a empty gameobject in your scene.

Member Enumeration Documentation

enum SwipeType{ None, Left, Right, Up, Down, Other }
Represents the different directions for a swipe or drag gesture.

Static Method Documentation

static bool GetEnable2FingersGesture ( )
Return if 2 fingers gesture is enabled or disabled

Returns
true = enabled
false = disabled

static bool GetEnableAutoSelect ( )
Return if auto select is enabled or disabled

Returns
true = enabled false = disables

static bool GetEnabled ( )
Return if EasyTouch is enabled or disabled

Returns
True = Enabled False = Disabled

static bool GetEnablePinch ( )
Return if 2 pinch gesture is enabled or disabled

Returns
true = enabled
false = disables

static bool GetEnableTwist ( )
Return if 2 twist gesture is enabled or disabled

Returns
true = enabled
false = disabled

static float GetlongTapTime ( )
Return the long the tap time.

Returns
the long tap time

static float GetMinPinchLength ( )
Return the minimum length of the pinch.

Returns
the minimum length

static float GetMinTwistAngle ( )
Gets the minimum twist angle.

Returns
the minimum twist angle

static GameObject GetOtherReceiverObject ( )
Return the other event receiver.

Returns
GameObject

static float GetStationnaryTolerance ( )
Return the stationnary tolerance.

Returns
the stationnary tolerance

static float GetSwipeTolerance ( )
Return the swipe tolerance.

Returns
the swipe tolerance.

static int GetTouchCount ( )
Return the current touches count.

Returns
int

static void GetCurrentPickedObject(int fingerIndex)
Gets the current picked object.

Parameters
fingerindex int

Returns
gameobject

static void GetFingerPosition(int fingerIndex)
Gets the a specific finger position

Parameters
fingerindex int

Returns
vector2

static void SetEnable2FingersGesture (bool enable)
Enables or disables the recognize of 2 fingers gesture.

Parameters
enable true = enabled
false = disabled

static void SetEnableAutoSelect (bool enable)
Enables or disables auto select.

Parameters
enable true = enabled
false = disables

static void SetEnabled (bool enable)
Enables or disables Easy Touch.

Parameters
enable true = enabled
false = disabled

static void SetEnablePinch (bool enable)
Enables or disables the recognize of pinch gesture

Parameters
enable true = enabled
false = disables

static void SetEnableTwist (bool enable)
Enables or disables the recognize of twist gesture

Parameters
enable true = enabled
false = disables

static void SetlongTapTime (float time)
Set the long tap time in second

Parameters
time Float

static void SetMinPinchLength (float length)
Sets the minimum length of the pinch.

Parameters
length Float.

static void SetMinTwistAngle (float angle)
Sets the minimum twist angle.

Parameters
angle Float

static void SetOtherReceiverObject (GameObject receiver)
Sets the other receiver for EasyTouch event.

Parameters
receiver GameObject.

static void SetStationnaryTolerance (float tolerance)
Sets the stationnary tolerance.

Parameters
tolerance float Tolerance.

static void SetSwipeTolerance (float tolerance)
Sets the swipe tolerance.

Parameters
tolerance Float

static static bool IsRectUnderTouch(int fingerIndex)
Reset a touch

Parameters
rec Rect

guiRect

Returns
True if this a touch is under a specified rect, otherwise, false

static static void ResetTouch(Rect rect, bool guiRect=false)
Determines whether a touch is hover a specified rect

Parameters
fingerindex int

static static void SetPickableLayer(LayerMask mask)
Set the pickables layer for easytouch

Parameters
LayerMask mask
guiRect

static static LayerMask GetPickableLayer( )
Get the pickables layer of easytouch

Return
LayerMask

Gesture Class

This is the class passed as parameter by EasyTouch events, that containing all informations about the touch that raise the event, or by the tow fingers gesture that raise the event.

Public Member Functions

Vector3 GetTouchToWordlPoint (float z)
Transforms touch position into world space, or the center position between the two touches for a two fingers gesture.

Returns
Vector3 : world position
Parameters
z The z position in world units from the camera

float GetSwipeOrDragAngle ()
Gets the swipe or drag angle. (calculate from swipe Vector)

Returns
Float : The swipe or drag angle.

bool IsInRect (Rect rect, bool guiRect = false)
Determines whether the touch is in a specified rect
Parameters
rect : the rect
guiRect : Rect is GUI coordinate

Returns
true or false.

Vector2 NormalizedPosition ()
Normalized the position

Returns
Vector2 : The normalized position relative to the screen resolution.

Public Attributes

int fingerIndex
The index of the finger that raise the event (Starts at 0), or -1 for a two fingers gesture.

int touchCount
The touches count.

Vector2 startPosition
The start position of the current gesture, or the center position between the two touches for a two fingers gesture.

Vector2 position
The current position of the touch that raise the event, or the center position between the two touches for a two fingers gesture.

Vector2 deltaPosition
The position delta since last change.

float actionTime
Time since the beginning of the gesture.

float deltaTime
Amount of time passed since last change.

EasyTouch.SwipeType swipe
The siwpe or drag type (look at SwipeType enumeration).

float swipeLength
The length of the swipe.

Vector2 swipeVector
The swipe vector direction.

float deltaPinch
The pinch length delta since last change.

float twistAngle
The angle of the twist.

GameObject pickObject
The current picked gameObject under the touch that raise the event.

GameObject otherReceiver
Other receiver of the event.

GameObject otherReceiver
The distance between two finger for a two finger gesture

Bool isHoverController
Is the touch is hover a virtual controller