

# LeapPaint

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# Chapter 1

## Main Page

[Project Home & Wiki](#)

#Requirements Specification

### Interface

- HUD Requirement to render a cursor where the pointable is intersecting with the screen. The cursor should show the color that will be painting on the screen
- Ring and round cursor to indicate drawing or not drawing.

### Features

- Change Colors
- Change Brushes
- Eraser
- Change size of brush
- Reset drawing
- Change Opacity of brushes

#Unit Tests

#Libraries & Sub Modules

- [Cocos2d 2.0](#)
- [CCControlExtension](#)
- #Build Settings
- Valid Architecture i386 x86\_64
- Other Linker Flags -lz -ObjC
- C Language Dialect GNU99 -std=gnu99

- C ++ Language Dialect GNU++11 -std=gnu++11
- C ++ Standard Library libc++ (LLVM C++ standard lib)

- run script after build:

```
echo TARGET_BUILD_DIR=${TARGET_BUILD_DIR} echo TARGET_NAME=${TARGET_NAME} cd ${TARGET_BUILD_DIR}/${TARGET_NAME}.app/Contents/MacOS ls -la install_name_tool -change /libLeap.dylib ../../Resources/libLeap.dylib ${TARGET_NAME}
```

#### #Documentation

Documentation is done using [Doxygen](#)

## Chapter 2

# Hierarchical Index

### 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

b2Draw	
GLESTDebugDraw . . . . .	22
CCLayer	
BackgroundLayer . . . . .	7
BrushSelectionLayer . . . . .	8
ControlsLayer . . . . .	9
DrawScene . . . . .	14
FingerPaintingScene . . . . .	14
HUDLayer . . . . .	23
LPCCControlButtonVariableSize . . . . .	26
SketchRenderTextureScene . . . . .	35
CCScene	
GameManager . . . . .	15
GameScene . . . . .	19
CCSprite	
LPTool . . . . .	28
<LeapListener>	
FingerPaintingScene . . . . .	14
GameManager . . . . .	15
<NSApplicationDelegate>	
AppDelegate . . . . .	7
NSObject	
AppDelegate . . . . .	7
GameSettings . . . . .	20
LPLine . . . . .	27
SimplePoint . . . . .	29
SimplePointObject . . . . .	33
Utility . . . . .	36
<NSObject>	
<BrushSelectionLayerDelegate> . . . . .	8
ControlsLayer . . . . .	9
<ControlsLayerDelegate> . . . . .	13
GameManager . . . . .	15
<HUDDelegate> . . . . .	23

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LeapPaintTests	26
LeapPuzzTests	26
LPToolTests	29
SimplePointTests	34
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## Chapter 3

# Class Index

### 3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

AppDelegate	7
BackgroundLayer	7
BrushSelectionLayer	8
<BrushSelectionLayerDelegate>	8
ControlsLayer	9
<ControlsLayerDelegate>	13
DrawScene	14
FingerPaintingScene	14
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GameSettingsTests	21
GLESTDebugDraw	22
<HUDDelegate>	23
HUDLayer	23
LeapPaintTests	26
LeapPuzzTests	26
LPCCControlButtonVariableSize	26
LPLine	27
LPTool	28
LPToolTests	29
SimplePoint	29
SimplePointObject	33
SimplePointTests	34
SketchRenderTextureScene	35
Utility	36
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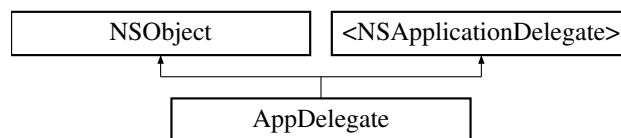


## Chapter 4

# Class Documentation

### 4.1 AppDelegate Class Reference

Inheritance diagram for AppDelegate:



#### Properties

- IBOutlet NSWindow \* **window**

#### 4.1.1 Detailed Description

Definition at line 11 of file [AppDelegate.h](#).

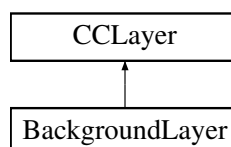
The documentation for this class was generated from the following file:

- LeapPaint/AppDelegate.h

### 4.2 BackgroundLayer Class Reference

```
#import <BackgroundLayer.h>
```

Inheritance diagram for BackgroundLayer:



### 4.2.1 Detailed Description

Background Layer Displays a background image for the scene

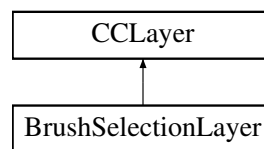
Definition at line 16 of file [BackgroundLayer.h](#).

The documentation for this class was generated from the following file:

- LeapPaint/BackgroundLayer.h

## 4.3 BrushSelectionLayer Class Reference

Inheritance diagram for BrushSelectionLayer:



### Protected Attributes

- NSMutableDictionary \* **imageNamesDictionary**

### Properties

- id< [BrushSelectionLayerDelegate](#) > **delegate**
- bool **layerHidden**

### 4.3.1 Detailed Description

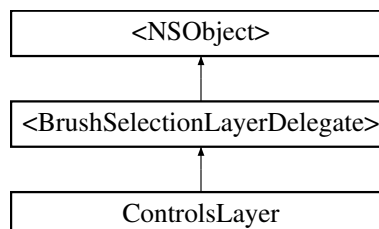
Definition at line 18 of file [BrushSelectionLayer.h](#).

The documentation for this class was generated from the following file:

- LeapPaint/BrushSelectionLayer.h

## 4.4 <BrushSelectionLayerDelegate> Protocol Reference

Inheritance diagram for <BrushSelectionLayerDelegate>:





## Instance Methods

- (void) - **hidePanel**
- (void) - **brushSelected:**

### 4.4.1 Detailed Description

Definition at line 12 of file [BrushSelectionLayer.h](#).

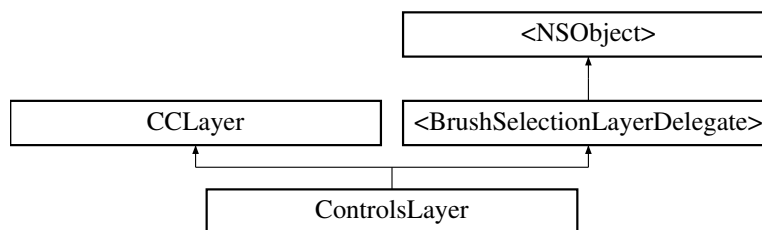
The documentation for this protocol was generated from the following file:

- LeapPaint/BrushSelectionLayer.h

## 4.5 ControlsLayer Class Reference

```
#import <ControlsLayer.h>
```

Inheritance diagram for ControlsLayer:



## Instance Methods

- (void) - [valueChanged:](#)
- (void) - [opacitySliderChanged:](#)
- (void) - [expandPanel](#)
- (void) - [collapsePanel](#)
- (CCControlSwitch \*) - [makeControlSwitch](#)
- (void) - [switchValueChanged:](#)
- (void) - [updateOpacitySlider:](#)

## Protected Attributes

- CCLabelTTF \* [colorLabel](#)
- [GameSettings](#) \* [gameSettings](#)

## Properties

- CCControlSlider \* [slider](#)
- CCControlSlider \* [opacitySlider](#)
- CCControlSwitch \* [opacitySwitchControl](#)
- CCLabelTTF \* [opacitydisplayValueLabel](#)

- id< [ControlsLayerDelegate](#) > delegate
- [BrushSelectionLayer](#) \* brushSelection
- CCLabelTTF \* displayValueLabel
- CCControlSwitch \* switchControl

#### 4.5.1 Detailed Description

Controls Layer User interface controls for operating buttons, switches, sliders

Definition at line 34 of file [ControlsLayer.h](#).

#### 4.5.2 Method Documentation

##### 4.5.2.1 -(void) collapsePanel

Collapses Brushes Panel

Definition at line 445 of file [ControlsLayer.mm](#).

```
00445         {
00446
00447     }
```

##### 4.5.2.2 -(void) expandPanel

Expands brushes panel

Definition at line 440 of file [ControlsLayer.mm](#).

```
00440         {
00441
00442
00443     }
```

##### 4.5.2.3 -(CCControlSwitch \*) makeControlSwitch

Creates and returns a new CCControlSwitch.

Definition at line 492 of file [ControlsLayer.mm](#).

```
00493 {
00494     return [CCControlSwitch switchWithMaskSprite:[CCSprite spriteWithFile:@"switch-mask.png"]
00495           onSprite:[CCSprite spriteWithFile:@"switch-on.png"]
00496           offSprite:[CCSprite spriteWithFile:@"switch-off.png"]
00497           thumbSprite:[CCSprite spriteWithFile:@"switch-thumb.png"]
00498           onLabel:[CCLabelTTF labelWithString:@"On" fontName:@"Arial-BoldMT"
00499           offLabel:[CCLabelTTF labelWithString:@"Off" fontName:@"Arial-BoldMT"
00500           " fontSize:16]];
00500 }
```

**4.5.2.4 - (void) opacitySliderChanged: (CCControlSlider \*) sender**

Does something

**Parameters**

<i>slider</i>	changes
---------------	---------

Definition at line 142 of file [ControlsLayer.mm](#).

```

00142                                     : (CCControlSlider *)sender
00143 {
00144
00145     // Change value of label.
00146     //NSLog(@"slider value %@", [NSString stringWithFormat:@"Slider value = %.02f", sender.value]);
00147     [self.delegate changeOpacityControl:sender.value];
00148 }
```

**4.5.2.5 - (void) switchValueChanged: (CCControlSwitch \*) sender**

Callback for the change value.

Definition at line 503 of file [ControlsLayer.mm](#).

```

00503                                     : (CCControlSwitch *)sender
00504 {
00505     if ([sender isOn])
00506     {
00507         displayValueLabel.string = @"Eraser";
00508
00509         [self.delegate eraserMode:true];
00510     } else
00511     {
00512         displayValueLabel.string = @"Eraser";
00513         [self.delegate eraserMode:false];
00514     }
00515 }
```

**4.5.2.6 - (void) updateOpacitySlider: (float) value**

Callback for opacity changing with the slider

Definition at line 150 of file [ControlsLayer.mm](#).

```

00150                                     : (float) value{
00151
00152
00153     //ensure the value is within its bounds
00154     if (value > self.opacitySlider.maximumValue) {
00155         //Max Value
00156         self.opacitySlider.value = self.opacitySlider.maximumValue;
00157     } else if (value < self.opacitySlider.minimumValue) {
00158         //Min Value
00159         self.opacitySlider.value = self.opacitySlider.minimumValue;
00160     } else {
00161         self.opacitySlider.value = value;
00162     }
00163 }
```

**4.5.2.7 - (void) valueChanged: (CCControlSlider \*) sender**

Does something

## Parameters

<i>slider</i>	changes
---------------	---------

Definition at line 95 of file [ControlsLayer.mm](#).

```

00095             : (CCControlSlider *)sender
00096 {
00097     // Change value of label.
00098     //NSLog(@"slider value %@", [NSString stringWithFormat:@"Slider value = %.02f", sender.value]);
00099     [self.delegate changeThicknessControl:sender.value];
00100 }
```

### 4.5.3 Member Data Documentation

#### 4.5.3.1 -(CCLabelTTF\*) colorLabel [protected]

colorLabel displays name of color in hash value

Definition at line 36 of file [ControlsLayer.h](#).

#### 4.5.3.2 -(GameSettings\*) gameSettings [protected]

gameSettings global reference to shared settings instance

Definition at line 38 of file [ControlsLayer.h](#).

### 4.5.4 Property Documentation

#### 4.5.4.1 -(BrushSelectionLayer\*) brushSelection [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 45 of file [ControlsLayer.h](#).

#### 4.5.4.2 -(id<ControlsLayerDelegate>) delegate [read], [write], [nonatomic], [weak]

colorLabel displays name of color in hash value

Definition at line 44 of file [ControlsLayer.h](#).

#### 4.5.4.3 -(CCLabelTTF\*) displayValueLabel [read], [write], [nonatomic], [strong]

displayValueLabel displays coordinate

colorLabel displays name of color in hash value

Definition at line 37 of file [ControlsLayer.h](#).

Referenced by [switchValueChanged:](#).

#### 4.5.4.4 -(CCLabelTTF\*) opacitydisplayValueLabel [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 43 of file [ControlsLayer.h](#).

4.5.4.5 - (CCControlSlider\*) **opacitySlider** [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 41 of file [ControlsLayer.h](#).

Referenced by [updateOpacitySlider](#)..

4.5.4.6 - (CCControlSwitch\*) **opacitySwitchControl** [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 42 of file [ControlsLayer.h](#).

4.5.4.7 - (CCControlSlider\*) **slider** [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 40 of file [ControlsLayer.h](#).

4.5.4.8 - (CCControlSwitch\*) **switchControl** [read], [write], [nonatomic], [strong]

colorLabel displays name of color in hash value

Definition at line 47 of file [ControlsLayer.h](#).

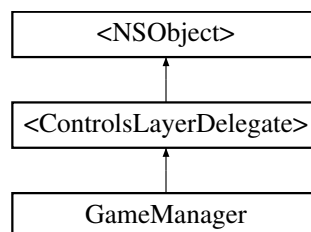
The documentation for this class was generated from the following files:

- LeapPaint/ControlsLayer.h
- LeapPaint/ControlsLayer.mm

## 4.6 <ControlsLayerDelegate> Protocol Reference

```
#import <ControlsLayer.h>
```

Inheritance diagram for <ControlsLayerDelegate>:



### Instance Methods

- (void) - **changeColorControl:**
- (void) - **changeThicknessControl:**
- (void) - **changeBrushControl:**
- (void) - **changeOpacityControl:**

- (void) - **clearDrawing**
- (void) - **eraserMode:**

#### 4.6.1 Detailed Description

Controls Layer Delegate

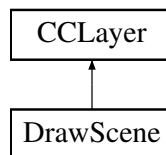
Definition at line 19 of file [ControlsLayer.h](#).

The documentation for this protocol was generated from the following file:

- LeapPaint/ControlsLayer.h

### 4.7 DrawScene Class Reference

Inheritance diagram for DrawScene:



#### Protected Attributes

- LeapController \* **controller**
- CCTexture2D \* **spriteTexture\_**
- b2World \* **world**
- [GLESDDebugDraw](#) \* **m\_debugDraw**
- CCSprite \* **targetSprite**
- b2MouseJoint \* **\_mouseJoint**
- b2World \* **\_world**
- b2Body \* **\_groundBody**
- NSMutableDictionary \* **trackableList**

#### 4.7.1 Detailed Description

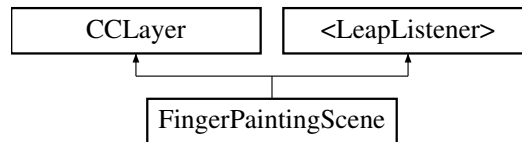
Definition at line 15 of file [DrawScene.h](#).

The documentation for this class was generated from the following file:

- LeapPaint/DrawScene.h

### 4.8 FingerPaintingScene Class Reference

Inheritance diagram for FingerPaintingScene:



### Protected Attributes

- LeapController \* **controller**
- CCTexture2D \* **spriteTexture\_**
- b2World \* **world**
- GLESDebugDraw \* **m\_debugDraw**
- CCSprite \* **targetSprite**
- b2MouseJoint \* **\_mouseJoint**
- b2World \* **\_world**
- b2Body \* **\_groundBody**
- CIColor \* **brushColor**
- NSMutableDictionary \* **trackableList**
- NSMutableDictionary \* **brushesList**
- NSTimer \* **updateDraw**
- RedDot \* **mouseCursor**

#### 4.8.1 Detailed Description

Definition at line 17 of file [FingerPaintingScene.h](#).

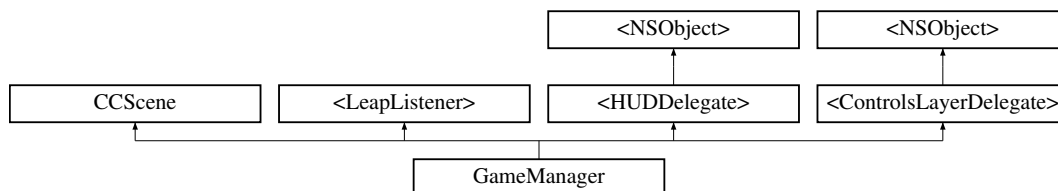
The documentation for this class was generated from the following file:

- LeapPaint/FingerPaintingScene.h

## 4.9 GameManager Class Reference

```
#import <GameManager.h>
```

Inheritance diagram for GameManager:



### Instance Methods

- (float) - **findPercentageDifference:withMin:withValue:**
- (float) - **opacityPercentage:**

## Protected Attributes

- InputMode [inputMode](#)
- LeapPointable \* [currentPointable](#)
- CGPoint [currentPoint](#)
- BOOL [painting](#)
- [GameSettings](#) \* [gameSettings](#)
- int [lastTag](#)
- [SimplePoint](#) \* [lastPoint](#)
- int [framesSinceLastFound](#)

## Properties

- [HUDLayer](#) \* [hudLayer](#)
- [SketchRenderTextureScene](#) \* [textureScene](#)
- [BackgroundLayer](#) \* [backgroundLayer](#)
- [ControlsLayer](#) \* [controlsLayer](#)
- LeapController \* [controller](#)
- LeapScreen \* [leapScreen](#)

### 4.9.1 Detailed Description

Core Application Management Provides interfaces and controls the various inputs, controls and outputs

Definition at line 27 of file [GameManager.h](#).

### 4.9.2 Method Documentation

#### 4.9.2.1 -(float) opacityPercentage: (float) value

Return the Opacity value based on Z position

Definition at line 328 of file [GameManager.mm](#).

```

00328                                     : (float) value {
00329     //NSLog(@"value %0.0f", value);
00330     if (value < kOpMinRange) {
00331         return kOpMax;
00332     } else if (value > kOpMaxRange) {
00333         return kOpMin;
00334     } else {
00335
00336         float percentage = [self findPercentageDifference:kOpMaxRange withMin:kOpMinRange withValue:value];
00337         //NSLog(@"percentage %0.0f", percentage);
00338
00339         percentage = 100 - percentage;
00340
00341         return percentage;
00342     }
00343 }
00344
00345 }
```



### 4.9.3 Member Data Documentation

#### 4.9.3.1 `-(CGPoint) currentPoint` [protected]

colorLabel displays name of color in hash value

Definition at line 32 of file [GameManager.h](#).

#### 4.9.3.2 `-(LeapPointable*) currentPointable` [protected]

colorLabel displays name of color in hash value

Definition at line 31 of file [GameManager.h](#).

#### 4.9.3.3 `-(int) framesSinceLastFound` [protected]

framesSinceLastFound number of frames since last finding a LeapPointable

Definition at line 41 of file [GameManager.h](#).

#### 4.9.3.4 `-(GameSettings*) gameSettings` [protected]

gameSettings singleton to global settings

Definition at line 36 of file [GameManager.h](#).

#### 4.9.3.5 `-(InputMode) inputMode` [protected]

colorLabel displays name of color in hash value

Definition at line 30 of file [GameManager.h](#).

#### 4.9.3.6 `-(SimplePoint*) lastPoint` [protected]

lastPoint is the last known point on the screen of the LeapPointable

Definition at line 40 of file [GameManager.h](#).

#### 4.9.3.7 `-(int) lastTag` [protected]

lastTag is the last tag value tracked of a LeapPointable

Definition at line 39 of file [GameManager.h](#).

### 4.9.4 Property Documentation

#### 4.9.4.1 `-(BackgroundLayer*) backgroundLayer` [read], [write], [nonatomic], [strong]

backgroundLayer is the layer for setting up the background

Definition at line 48 of file [GameManager.h](#).

**4.9.4.2** - **(LeapController\*) controller** [read], [write], [nonatomic], [strong]

controller is the leapController

Definition at line 51 of file [GameManager.h](#).

**4.9.4.3** - **(ControlsLayer\*) controlsLayer** [read], [write], [nonatomic], [strong]

controlsLayer is the layer for managing interface controls

Definition at line 49 of file [GameManager.h](#).

**4.9.4.4** - **(HUDLayer\*) hudLayer** [read], [write], [nonatomic], [strong]

hudLayer displays the icons for tracking where a leapPointable is pointing

Definition at line 46 of file [GameManager.h](#).

**4.9.4.5** - **(LeapScreen\*) leapScreen** [read], [write], [nonatomic], [strong]

leapScreen references the screen being used on the system

Definition at line 52 of file [GameManager.h](#).

**4.9.4.6** - **(SketchRenderTextureScene\*) textureScene** [read], [write], [nonatomic], [strong]

textureScene is the drawing layer

Definition at line 47 of file [GameManager.h](#).

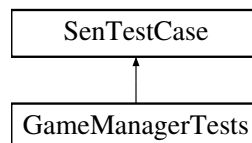
The documentation for this class was generated from the following files:

- LeapPaint/GameManager.h
- LeapPaint/GameManager.mm

## 4.10 GameManagerTests Class Reference

```
#import <GameManagerTests.h>
```

Inheritance diagram for GameManagerTests:



### Protected Attributes

- [GameManager](#) \* node

### 4.10.1 Detailed Description

Tests the [SimplePoint](#) object

Definition at line 15 of file [GameManagerTests.h](#).

### 4.10.2 Member Data Documentation

#### 4.10.2.1 `-(GameManager*) node` [protected]

gameManager instance

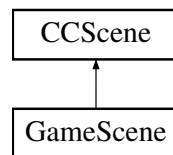
Definition at line 16 of file [GameManagerTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaint/GameManagerTests.h

## 4.11 GameScene Class Reference

Inheritance diagram for GameScene:



### Class Methods

- `(CCScene *) + scene`

### 4.11.1 Detailed Description

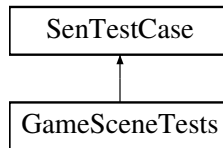
Definition at line 20 of file [GameScene.h](#).

The documentation for this class was generated from the following files:

- LeapPaint/GameScene.h
- LeapPaint/GameScene.mm

## 4.12 GameSceneTests Class Reference

Inheritance diagram for GameSceneTests:



#### 4.12.1 Detailed Description

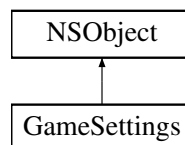
Definition at line 11 of file [GameSceneTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/GameSceneTests.h

### 4.13 GameSettings Class Reference

Inheritance diagram for GameSettings:



#### Class Methods

- [\(GameSettings \\*\) + sharedInstance](#)

#### Properties

- BOOL [depthOpacityMode](#)
- BOOL [eraserMode](#)
- InputMode [inputMode](#)

#### 4.13.1 Detailed Description

Definition at line 35 of file [GameSettings.h](#).

#### 4.13.2 Method Documentation

##### 4.13.2.1 +(GameSettings \*) sharedInstance

Singleton Intializes and Returns a shared instance of the class

Definition at line 23 of file [GameSettings.mm](#).

```

00024 {
00025     static GameSettings *sharedInstance;
00026
00027     @synchronized(self)
00028     {
00029         if (!sharedInstance)
00030             sharedInstance = [[GameSettings alloc] init];
00031
00032         return sharedInstance;
00033     }
00034 }

```

### 4.13.3 Property Documentation

**4.13.3.1 - (BOOL) depthOpacityMode** [read], [write], [nonatomic], [assign]

depthOpacityMode controls use of z axis control of opacity

Definition at line 40 of file [GameSettings.h](#).

**4.13.3.2 - (BOOL) eraserMode** [read], [write], [nonatomic], [assign]

eraserMode controls erasing on drawing canvas

Definition at line 41 of file [GameSettings.h](#).

**4.13.3.3 - (InputMode) inputMode** [read], [write], [nonatomic], [assign]

inputMode controller input mode for leapmotion

Definition at line 42 of file [GameSettings.h](#).

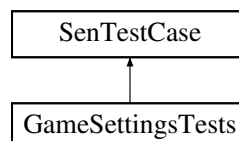
The documentation for this class was generated from the following files:

- LeapPaint/GameSettings.h
- LeapPaint/GameSettings.mm

## 4.14 GameSettingsTests Class Reference

```
#import <GameSettingsTests.h>
```

Inheritance diagram for GameSettingsTests:



### Protected Attributes

- [GameSettings](#) \* gameSettings

### 4.14.1 Detailed Description

Tests the [GameSettings](#) object

Definition at line 16 of file [GameSettingsTests.h](#).

### 4.14.2 Member Data Documentation

#### 4.14.2.1 - (GameSettings\*) gameSettings [protected]

gameSettings singleton instance

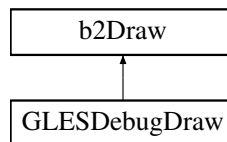
Definition at line 18 of file [GameSettingsTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/GameSettingsTests.h

## 4.15 GLESDebugDraw Class Reference

Inheritance diagram for GLESDebugDraw:



### Public Member Functions

- **GLESDebugDraw** (float32 ratio)
- void **DrawPolygon** (const b2Vec2 \*vertices, int32 vertexCount, const b2Color &color)
- void **DrawSolidPolygon** (const b2Vec2 \*vertices, int32 vertexCount, const b2Color &color)
- void **DrawCircle** (const b2Vec2 &center, float32 radius, const b2Color &color)
- void **DrawSolidCircle** (const b2Vec2 &center, float32 radius, const b2Vec2 &axis, const b2Color &color)
- void **DrawSegment** (const b2Vec2 &p1, const b2Vec2 &p2, const b2Color &color)
- void **DrawTransform** (const b2Transform &xf)
- void **DrawPoint** (const b2Vec2 &p, float32 size, const b2Color &color)
- void **DrawString** (int x, int y, const char \*string,...)
- void **DrawAABB** (b2AABB \*aabb, const b2Color &color)

### 4.15.1 Detailed Description

Definition at line 43 of file [GLES-Render.h](#).

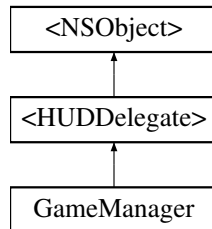
The documentation for this class was generated from the following files:

- LeapPaint/GLES-Render.h
- LeapPaint/GLES-Render.mm

## 4.16 <HUDDelegate> Protocol Reference

```
#import <HUDLayer.h>
```

Inheritance diagram for <HUDDelegate>:



### Instance Methods

- (void) - **changeMode:**
- (void) - **painting:**

#### 4.16.1 Detailed Description

HUD Delegate Protocol User interface controls for operating buttons, switches, sliders

Definition at line 20 of file [HUDLayer.h](#).

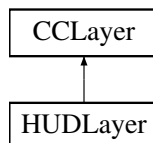
The documentation for this protocol was generated from the following file:

- LeapPaint/HUDLayer.h

## 4.17 HUDLayer Class Reference

```
#import <HUDLayer.h>
```

Inheritance diagram for HUDLayer:



### Instance Methods

- (void) - **toolMoved:toolID:**
- (void) - **startTrackingTool:toolID:**
- (void) - **moveTrackingTool:toolID:**
- (void) - **endTrackingTool**
- (void) - **changeColor:**
- (void) - **changeBrush:**

- (void) - **changeScale:**
- (void) - **erasingMode:**

### Protected Attributes

- NSString \* [primaryToolID](#)
- LPTool \* [primaryTool](#)
- InputMode [inputMode](#)
- ccColor3B [lastColor](#)
- ccColor3B [previousColor](#)
- NSString \* [lastBrush](#)
- float [lastScale](#)
- CCSprite \* [paintingIndicator](#)
- BOOL [eraseMode](#)
- [GameSettings](#) \* [gameSettings](#)

### Properties

- id< [HUDDelegate](#) > [delegate](#)
- CCLabelTTF \* **[xyzcoords](#)**

#### 4.17.1 Detailed Description

HUD Layer Tracks the position of the LeapCursor on the screen

Definition at line 30 of file [HUDLayer.h](#).

#### 4.17.2 Member Data Documentation

##### 4.17.2.1 - (BOOL) [eraseMode](#) [protected]

[eraseMode](#) determines weather the pointable is painting or erasing

Definition at line 44 of file [HUDLayer.h](#).

##### 4.17.2.2 - (GameSettings\*) [gameSettings](#) [protected]

[gameSettings](#) singleton to global seetings

Definition at line 47 of file [HUDLayer.h](#).

##### 4.17.2.3 - (InputMode) [inputMode](#) [protected]

[inputMode](#) is the current mode of input

Definition at line 34 of file [HUDLayer.h](#).



#### 4.17.2.4 - (NSString\*) lastBrush [protected]

lastBrush is last brush to be selected

Definition at line 38 of file [HUDLayer.h](#).

#### 4.17.2.5 - (ccColor3B) lastColor [protected]

lastColor is the lastColor to be selected

Definition at line 36 of file [HUDLayer.h](#).

#### 4.17.2.6 - (float) lastScale [protected]

lastScale is last scale to be selected

Definition at line 39 of file [HUDLayer.h](#).

#### 4.17.2.7 - (CCSprite\*) paintingIndicator [protected]

paintingIndicator shows the state at which the object is currently paintg

Definition at line 43 of file [HUDLayer.h](#).

#### 4.17.2.8 - (ccColor3B) previousColor [protected]

previousColor is the color before the lastcolor to be selected

Definition at line 37 of file [HUDLayer.h](#).

#### 4.17.2.9 - (LPTool\*) primaryTool [protected]

primaryTool points to the current pointable object

Definition at line 32 of file [HUDLayer.h](#).

#### 4.17.2.10 - (NSString\*) primaryToolID [protected]

primaryToolID stores the id tag to the pointable in reference

Definition at line 31 of file [HUDLayer.h](#).

### 4.17.3 Property Documentation

#### 4.17.3.1 - (id<HUDDelegate>) delegate [read], [write], [nonatomic], [weak]

colorLabel displays name of color in hash value

Definition at line 52 of file [HUDLayer.h](#).

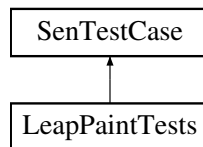
The documentation for this class was generated from the following files:

- LeapPaint/HUDLayer.h

- LeapPaint/HUDLayer.mm

## 4.18 LeapPaintTests Class Reference

Inheritance diagram for LeapPaintTests:



### 4.18.1 Detailed Description

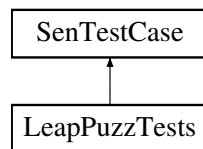
Definition at line 11 of file [LeapPaintTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/LeapPaintTests.h

## 4.19 LeapPuzzTests Class Reference

Inheritance diagram for LeapPuzzTests:



### 4.19.1 Detailed Description

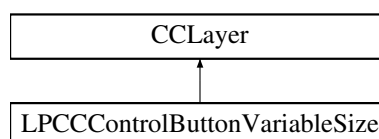
Definition at line 11 of file [LeapPuzzTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/LeapPuzzTests.h

## 4.20 LPCCControlButtonVariableSize Class Reference

Inheritance diagram for LPCCControlButtonVariableSize:



## Instance Methods

- (CCControlButton \*) - [standardButtonWithTitle:](#)

### 4.20.1 Detailed Description

Definition at line 11 of file [LPCCControlButtonVariableSize.h](#).

### 4.20.2 Method Documentation

#### 4.20.2.1 - (CCControlButton \*) standardButtonWithTitle: (NSString \*) title

Creates and return a button with a default background and title color. Creates and return a button with a default background and title color.

Definition at line 57 of file [LPCCControlButtonVariableSize.m](#).

```

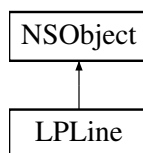
00057                                     : (NSString *)title
00058 {
00060     CCScale9Sprite *backgroundButton = [CCScale9Sprite spriteWithFile:@"button.png"];
00061     CCScale9Sprite *backgroundHighlightedButton = [CCScale9Sprite spriteWithFile:@"buttonHighlighted.png"];
00062
00063     #ifdef __IPHONE_OS_VERSION_MAX_ALLOWED
00064         CCLabelTTF *titleLabel = [CCLabelTTF labelWithString:title fontName:@"HelveticaNeue-Bold" fontSize:30]
00065     ;
00066     #elif __MAC_OS_X_VERSION_MAX_ALLOWED
00067         CCLabelTTF *titleLabel = [CCLabelTTF labelWithString:title fontName:@"Marker Felt" fontSize:30];
00068     #endif
00069     [titleLabel setColor:ccc3(159, 168, 176)];
00070
00071     CCControlButton *button = [CCControlButton buttonWithLabel:titleLabel backgroundSprite:
backgroundButton];
00072     [button setBackgroundSprite:backgroundHighlightedButton forState:CCControlStateHighlighted];
00073     [button setTitleColor:ccWHITE forState:CCControlStateHighlighted];
00074     return button;
00075 }
```

The documentation for this class was generated from the following files:

- LeapPaint/LPCCControlButtonVariableSize.h
- LeapPaint/LPCCControlButtonVariableSize.m

## 4.21 LPLine Class Reference

Inheritance diagram for LPLine:



## Properties

- NSMutableArray \* **points**
- float **width**

### 4.21.1 Detailed Description

Definition at line 11 of file [LPLine.h](#).

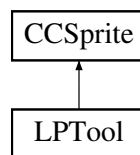
The documentation for this class was generated from the following file:

- LeapPaint/LPLine.h

## 4.22 LPTool Class Reference

```
#import <LPTool.h>
```

Inheritance diagram for LPTool:



### Properties

- NSString \* [toolID](#)
- BOOL [updated](#)

### 4.22.1 Detailed Description

Extends CCSprite object with two properties for tracking sprites with pointable objects

Definition at line 16 of file [LPTool.h](#).

### 4.22.2 Property Documentation

**4.22.2.1** - (NSString\*) [toolID](#) [read], [write], [nonatomic], [strong]

[toolID](#) is the ID number assigned by the LeapMotion SDK

Definition at line 18 of file [LPTool.h](#).

**4.22.2.2** - (BOOL) [updated](#) [read], [write], [nonatomic], [assign]

[updated](#) is if the sprite has been updated in that frame.

Definition at line 19 of file [LPTool.h](#).

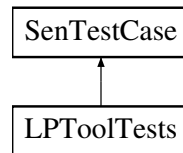
The documentation for this class was generated from the following file:

- LeapPaint/LPTool.h

## 4.23 LPToolTests Class Reference

```
#import <LPToolTests.h>
```

Inheritance diagram for LPToolTests:



### Protected Attributes

- NSString \* [testName](#)

#### 4.23.1 Detailed Description

Tests the [GameSettings](#) object

Definition at line 13 of file [LPToolTests.h](#).

#### 4.23.2 Member Data Documentation

4.23.2.1 - (NSString\*) [testName](#) [protected]

name of the test

Definition at line 14 of file [LPToolTests.h](#).

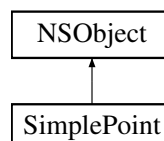
The documentation for this class was generated from the following file:

- LeapPaintTests/LPToolTests.h

## 4.24 SimplePoint Class Reference

```
#import <SimplePoint.h>
```

Inheritance diagram for SimplePoint:



### Instance Methods

- (id) - [initWithPosition:](#)

- (id) - initWithX:withY:
- (id) - initWithPosition:withZ:
- (id) - initWithX:withY:withZ:
- (CGPoint) - point

## Properties

- float [x](#)
- float [y](#)
- float [z](#)
- BOOL [is3d](#)

### 4.24.1 Detailed Description

2D or 3D space coordinate for temporarily manipulating points

Definition at line 18 of file [SimplePoint.h](#).

### 4.24.2 Method Documentation

#### 4.24.2.1 - (id) initWithPosition: (CGPoint) *p*

Init constructor with existing point to create a 2d Point

#### Parameters

<i>p</i>	an point (x,y)
----------	----------------

#### Returns

object instance

init 2d point with CGPoint

Definition at line 18 of file [SimplePoint.mm](#).

```

00018                                     : (CGPoint)p{
00019     if (self = [super init]) {
00020
00021         self.x = p.x;
00022         self.y = p.y;
00023         self.z = 0.0f;
00024         self.is3d = false;
00025     }
00026     return self;
00027 }
00028 }
```

#### 4.24.2.2 - (id) initWithPosition: (CGPoint) *p* withZ:(float) *zVal*

Init constructor with existing point to create a 3d Point

#### Parameters

<i>p</i>	a point (x,y)
<i>zVal</i>	coordinateValue

**Returns**

object instance

Init 3d point with CGPoint and z Value

Definition at line 46 of file [SimplePoint.mm](#).

```

00046             : (CGPoint)p withZ:(float)zVal{
00047     if (self = [super init]) {
00048
00049         self.x = p.x;
00050         self.y = p.y;
00051         self.z = zVal;
00052         self.is3d = true;
00053     }
00054     }
00055     return self;
00056 }
```

**4.24.2.3 - (id) initWithX: (float) xVal withY:(float) yVal**

Init constructor with existing point to create a 2d Point

**Parameters**

<i>xVal</i>	coordinate value
<i>yVal</i>	coordinate value

**Returns**

object instance

Init 2d Point with 2 separate values

Definition at line 31 of file [SimplePoint.mm](#).

```

00031             : (float)xVal withY:(float)yVal{
00032
00033     if (self = [super init]) {
00034
00035         self.x = xVal;
00036         self.y = yVal;
00037         self.z = 0.0f;
00038         self.is3d = false;
00039     }
00040     }
00041     return self;
00042 }
```

**4.24.2.4 - (id) initWithX: (float) xVal withY:(float) yVal withZ:(float) zVal**

Init constructor with existing point to create a 2d Point

**Parameters**

<i>xVal</i>	coordinate value
<i>yVal</i>	coordinate value
<i>zval</i>	coordinate value

**Returns**

object instance

Init 3d Point with 3 separate values

Definition at line 60 of file [SimplePoint.mm](#).

```

00060         : (float)xVal withY:(float)yVal withZ:(float)zVal{
00061
00062     if (self = [super init]) {
00063
00064         self.x = xVal;
00065         self.y = yVal;
00066         self.z = zVal;
00067         self.is3d = true;
00068
00069     }
00070     return self;
00071 }
```

**4.24.2.5 - (CGPoint) point**

Returns point based on x and y

**Returns**

CGPoint

Return the CGPoint type from the object

Definition at line 74 of file [SimplePoint.mm](#).

```

00074     {
00075     return CGPointMake(self.x, self.y);
00076 }
```

**4.24.3 Property Documentation****4.24.3.1 - (BOOL) is3d** [read], [write], [nonatomic], [assign]

is3d is 2d or 3d point type

Definition at line 26 of file [SimplePoint.h](#).

**4.24.3.2 - (float) x** [read], [write], [nonatomic], [assign]

x coordinate

Definition at line 23 of file [SimplePoint.h](#).

Referenced by [point](#).

**4.24.3.3 - (float) y** [read], [write], [nonatomic], [assign]

y coordinate

Definition at line 24 of file [SimplePoint.h](#).

Referenced by [point](#).



4.24.3.4 - (float) z [read], [write], [nonatomic], [assign]

z coordinate

Definition at line 25 of file [SimplePoint.h](#).

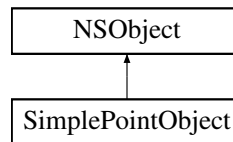
The documentation for this class was generated from the following files:

- LeapPaint/SimplePoint.h
- LeapPaint/SimplePoint.mm

## 4.25 SimplePointObject Class Reference

```
#import <SimplePointObject.h>
```

Inheritance diagram for SimplePointObject:



### Instance Methods

- (id) - **initWithPosition:**
- (id) - **initWithX:withY:**

### Properties

- CGPoint [point](#)

#### 4.25.1 Detailed Description

2D space coordinate for temporarily manipulating points

Definition at line 16 of file [SimplePointObject.h](#).

#### 4.25.2 Property Documentation

4.25.2.1 - (CGPoint) point [read], [write], [nonatomic], [assign]

point is the X and Y coordinates

Definition at line 21 of file [SimplePointObject.h](#).

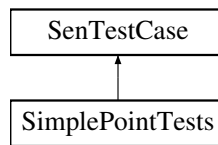
The documentation for this class was generated from the following files:

- LeapPaint/SimplePointObject.h
- LeapPaint/SimplePointObject.m

## 4.26 SimplePointTests Class Reference

```
#import <SimplePointTests.h>
```

Inheritance diagram for SimplePointTests:



### Protected Attributes

- NSString \* [testName](#)
- SimplePoint \* [twoValuePoint](#)
- SimplePoint \* [threeValuePoint](#)

### 4.26.1 Detailed Description

Tests the [SimplePoint](#) object

Definition at line 16 of file [SimplePointTests.h](#).

### 4.26.2 Member Data Documentation

4.26.2.1 - (NSString\*) [testName](#) [protected]

name of the test

Definition at line 18 of file [SimplePointTests.h](#).

4.26.2.2 - (SimplePoint\*) [threeValuePoint](#) [protected]

three coordinate point (x,y,z)

Definition at line 20 of file [SimplePointTests.h](#).

4.26.2.3 - (SimplePoint\*) [twoValuePoint](#) [protected]

two coordinate point (x,y)

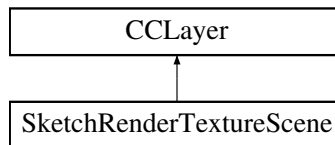
Definition at line 19 of file [SimplePointTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/SimplePointTests.h

## 4.27 SketchRenderTextureScene Class Reference

Inheritance diagram for SketchRenderTextureScene:



### Instance Methods

- (void) - **beginDraw:withZ:**
- (void) - **updateDraw:withZ:**
- (void) - **endDraw:**
- (void) - **changeColor:**
- (void) - **changeBrush:**
- (void) - **changeScale:**
- (void) - **changeOpacity:**
- (void) - **erasingMode:**
- (void) - **clearDrawing**

### Protected Attributes

- CCSprite \* **brush**
- NSMutableArray \* **touches**
- ccColor3B **lastColor**
- ccColor3B **previousColor**
- NSString \* **lastBrush**
- float **lastScale**
- bool **eraseMode**

### Properties

- float **opacity**

#### 4.27.1 Detailed Description

Definition at line 12 of file [SketchRenderTextureScene.h](#).

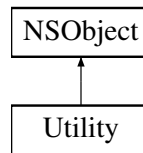
The documentation for this class was generated from the following files:

- LeapPaint/SketchRenderTextureScene.h
- LeapPaint/SketchRenderTextureScene.mm

## 4.28 Utility Class Reference

```
#import <Utility.h>
```

Inheritance diagram for Utility:



### Class Methods

- (int) + [getRandomNumberBetween:to:](#)
- (int) + [getRandomUniformNumberUnder:](#)
- (int) + [getRandomNumberUnder:](#)

### 4.28.1 Detailed Description

[Utility](#) class provides common usage function throughout the application.

Definition at line 17 of file [Utility.h](#).

### 4.28.2 Method Documentation

#### 4.28.2.1 + (int) getRandomNumberBetween: (int) from to:(int) to

Generates a random number between two designated integers

##### Parameters

<i>from</i>	is the bottom of the range
<i>to</i>	is the top of the range

##### Returns

a random number between the from and to parameters

returns random number within a range with defined upper and lower bounds

Definition at line 14 of file [Utility.m](#).

```

00014         : (int)from to:(int)to {
00015
00016         //Check that one isn't greater than the other
00017         //if so, flip them
00018
00019         return (int)from + arc4random() % (to-from+1);
00020 }
```

#### 4.28.2.2 + (int) getRandomNumberUnder: (int) to

Generates a random number between 0 designated integer

## Parameters

<i>to</i>	is the top of the range
-----------	-------------------------

## Returns

a random number between 0 and to parameters

Returns a random number from 0 to an upper bound

Definition at line 23 of file [Utility.m](#).

```
00023      : (int) to {
00024      return (arc4random() % to);
00025 }
```

## 4.28.2.3 + (int) getRandomUniformNumberUnder: (int) to

Generates a random number between 0 designated integer

## Parameters

<i>to</i>	is the top of the range
-----------	-------------------------

## Returns

a random number between 0 and to parameters

Returns a Uniform Random Number from 0 to an upper bound

Definition at line 29 of file [Utility.m](#).

```
00029      : (int) to {
00030      //Check if uniform available
00031      if (arc4random_uniform != NULL)
00032          return arc4random_uniform (to);
00033      else
00034          return (arc4random() % to);
00035 }
```

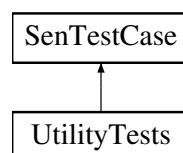
The documentation for this class was generated from the following files:

- LeapPaint/Utility.h
- LeapPaint/Utility.m

## 4.29 UtilityTests Class Reference

```
#import <UtilityTests.h>
```

Inheritance diagram for UtilityTests:



## Protected Attributes

- NSString \* [testName](#)

### 4.29.1 Detailed Description

Tests the [GameSettings](#) object

Definition at line 15 of file [UtilityTests.h](#).

### 4.29.2 Member Data Documentation

#### 4.29.2.1 - (NSString\*) [testName](#) [protected]

name of the test

Definition at line 16 of file [UtilityTests.h](#).

The documentation for this class was generated from the following file:

- LeapPaintTests/UtilityTests.h

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