

LeapPaint

Generated by Doxygen 1.8.3.1

Wed May 8 2013 13:08:43

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## 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](#)

## 2 Hierarchical Index

### 2.1 Class Hierarchy

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

b2Draw

<b>GLSDebugDraw</b>	<b>19</b>
CCLayer	
<b>BackgroundLayer</b>	<b>5</b>
<b>BrushSelectionLayer</b>	<b>6</b>
<b>ControlsLayer</b>	<b>7</b>
<b>DrawScene</b>	<b>11</b>
<b>FingerPaintingScene</b>	<b>12</b>
<b>HUDLayer</b>	<b>20</b>
<b>LPCCControlButtonVariableSize</b>	<b>23</b>
<b>SketchRenderTextureScene</b>	<b>31</b>
CCScene	
<b>GameManager</b>	<b>13</b>
<b>GameScene</b>	<b>16</b>
CCSprite	

<b>LPTool</b>	<b>24</b>
<LeapListener>	
<b>FingerPaintingScene</b>	<b>12</b>
<b>GameManager</b>	<b>13</b>
<NSApplicationDelegate>	
<b>AppDelegate</b>	<b>5</b>
NSObject	
<b>AppDelegate</b>	<b>5</b>
<b>GameSettings</b>	<b>17</b>
<b>LPLine</b>	<b>24</b>
<b>SimplePoint</b>	<b>26</b>
<b>SimplePointObject</b>	<b>29</b>
<b>Utility</b>	<b>32</b>
<NSObject>	
<BrushSelectionLayerDelegate>	<b>6</b>
<b>ControlsLayer</b>	<b>7</b>
<ControlsLayerDelegate>	<b>11</b>
<b>GameManager</b>	<b>13</b>
<HUDDelegate>	<b>19</b>
<b>GameManager</b>	<b>13</b>
SenTestCase	
<b>GameManagerTests</b>	<b>15</b>
<b>GameSceneTests</b>	<b>16</b>
<b>GameSettingsTests</b>	<b>18</b>
<b>LeapPaintTests</b>	<b>22</b>
<b>LeapPuzzTests</b>	<b>22</b>
<b>LPToolTests</b>	<b>25</b>
<b>SimplePointTests</b>	<b>30</b>
<b>UtilityTests</b>	<b>33</b>

### 3 Class Index

### 3.1 Class List

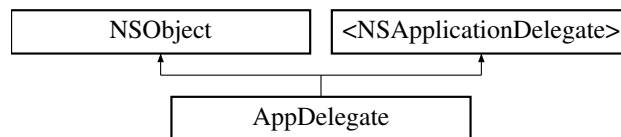
Here are the classes, structs, unions and interfaces with brief descriptions:

<a href="#">AppDelegate</a>	5
<a href="#">BackgroundLayer</a>	5
<a href="#">BrushSelectionLayer</a>	6
<a href="#">&lt;BrushSelectionLayerDelegate&gt;</a>	6
<a href="#">ControlsLayer</a>	7
<a href="#">&lt;ControlsLayerDelegate&gt;</a>	11
<a href="#">DrawScene</a>	11
<a href="#">FingerPaintingScene</a>	12
<a href="#">GameManager</a>	13
<a href="#">GameManagerTests</a>	15
<a href="#">GameScene</a>	16
<a href="#">GameSceneTests</a>	16
<a href="#">GameSettings</a>	17
<a href="#">GameSettingsTests</a>	18
<a href="#">GLESDebugDraw</a>	19
<a href="#">&lt;HUDDelegate&gt;</a>	19
<a href="#">HUDLayer</a>	20
<a href="#">LeapPaintTests</a>	22
<a href="#">LeapPuzzTests</a>	22
<a href="#">LPCCControlButtonVariableSize</a>	23
<a href="#">LPLine</a>	24
<a href="#">LPTool</a>	24
<a href="#">LPToolTests</a>	25
<a href="#">SimplePoint</a>	26
<a href="#">SimplePointObject</a>	29
<a href="#">SimplePointTests</a>	30
<a href="#">SketchRenderTextureScene</a>	31
<a href="#">Utility</a>	32

## 4 Class Documentation

### 4.1 AppDelegate Class Reference

Inheritance diagram for AppDelegate:



#### Properties

- IBOutlet UIWindow \* **window**

#### 4.1.1 Detailed Description

Definition at line 11 of file AppDelegate.h.

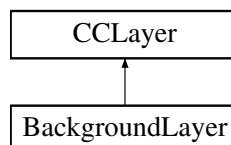
The documentation for this class was generated from the following file:

- 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.

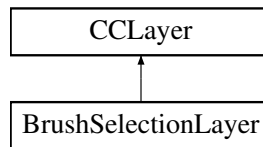
The documentation for this class was generated from the following file:

- 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

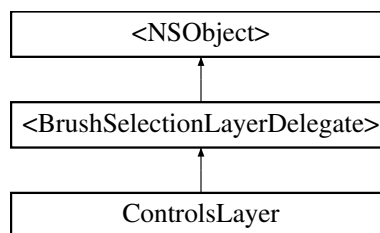
Definition at line 18 of file BrushSelectionLayer.h.

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.

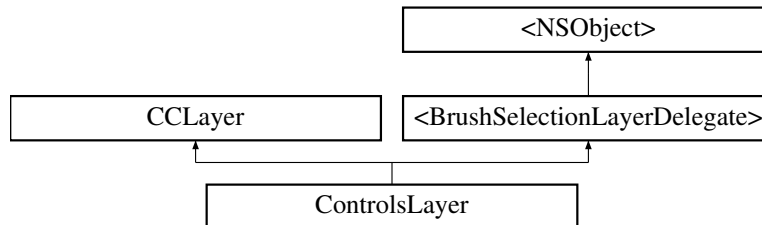
The documentation for this protocol was generated from the following file:

- 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

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

### Properties

- CCControlSlider \* [slider](#)
- CCControlSlider \* [opacitySlider](#)
- CCControlSwitch \* [opacitySwitchControl](#)
- CCLabelITTF \* [opacitydisplayValueLabel](#)
- id< [ControlsLayerDelegate](#) > [delegate](#)
- [BrushSelectionLayer](#) \* [brushSelection](#)
- CCLabelITTF \* [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.

```
445         {
446
447     }
```

### 4.5.2.2 -(void) expandPanel

Expands brushes panel

Definition at line 440 of file ControlsLayer.mm.

```
440         {
441
442
443     }
```

### 4.5.2.3 -(CCControlSwitch \*) makeControlSwitch

Creates and returns a new CCControlSwitch.

Definition at line 492 of file ControlsLayer.mm.

```
493 {
494     return [CCControlSwitch switchWithMaskSprite:[CCSprite spriteWithFile:@"switch-mask.png"]
495           onSprite:[CCSprite spriteWithFile:@"switch-on.png"]
496           offSprite:[CCSprite spriteWithFile:@"switch-off.png"]
497           thumbSprite:[CCSprite spriteWithFile:@"switch-thumb.png"]
498           onLabel:[CCLabelTTF labelWithString:@"On" fontName:@"Arial-BoldMT"
499           fontSize:16]
500           offLabel:[CCLabelTTF labelWithString:@"Off" fontName:@"Arial-BoldMT"
501           " fontSize:16]];
502 }
```

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

Does something

#### Parameters

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

Definition at line 142 of file ControlsLayer.mm.

```
142         : (CCControlSlider *) sender
143     {
144
145         // Change value of label.
146         // NSLog(@"slider value %@", [NSString stringWithFormat:@"Slider value = %.02f", sender.value]);
147         [self.delegate changeOpacityControl:sender.value];
148     }
```

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

Callback for the change value.

Definition at line 503 of file ControlsLayer.mm.

```

503             : (CCControlSwitch *)sender
504 {
505     if ([sender isOn])
506     {
507         displayValueLabel.string = @"Eraser";
508     }
509     [self.delegate eraserMode:true];
510 } else
511 {
512     displayValueLabel.string = @"Eraser";
513     [self.delegate eraserMode:false];
514 }
515 }
```

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

Callback for opacity changing with the slider

Definition at line 150 of file ControlsLayer.mm.

```

150             : (float) value{
151
152
153     //ensure the value is within its bounds
154     if (value > self.opacitySlider.maximumValue){
155         //Max Value
156         self.opacitySlider.value = self.opacitySlider.maximumValue;
157     } else if (value < self.opacitySlider.minimumValue){
158         //Min Value
159         self.opacitySlider.value = self.opacitySlider.minimumValue;
160     } else{
161         self.opacitySlider.value = value;
162     }
163 }
```

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

Does something

##### Parameters

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

Definition at line 95 of file ControlsLayer.mm.

```

95             : (CCControlSlider *)sender
96 {
97     // Change value of label.
98     //NSLog(@"slider value %@", [NSString stringWithFormat:@"Slider value = %.02f", sender.value]);
99     [self.delegate changeThicknessControl:sender.value];
100 }
```

### 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.

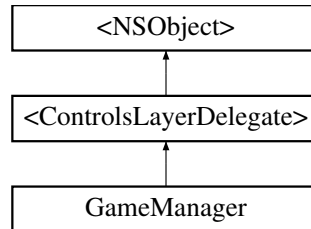
The documentation for this class was generated from the following files:

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

## 4.6 &lt;ControlsLayerDelegate&gt; 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

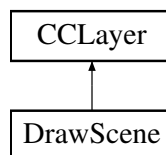
Definition at line 19 of file ControlsLayer.h.

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**
- [GLESDebugDraw](#) \* **m\_debugDraw**
- CCSprite \* **targetSprite**

- b2MouseJoint \* **\_mouseJoint**
- b2World \* **\_world**
- b2Body \* **\_groundBody**
- NSMutableDictionary \* **trackableList**

#### 4.7.1 Detailed Description

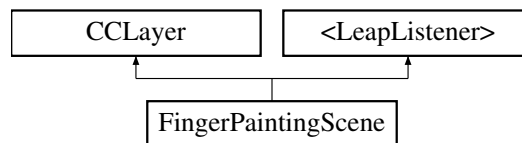
Definition at line 15 of file DrawScene.h.

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**
- [GLESDbgDraw](#) \* **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.

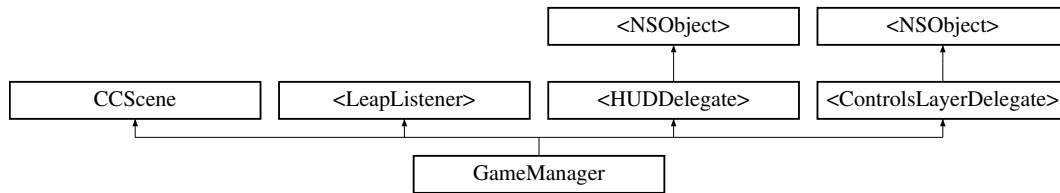
The documentation for this class was generated from the following file:

- 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.



```

328                                     :(float)value{
329     //NSLog(@"value %0.0f", value);
330     if (value < kOpMinRange){
331         return kOpMax;
332     }else if (value > kOpMaxRange){
333         return kOpMin;
334     }else {
335
336         float percentage = [self findPercentageDifference:kOpMaxRange withMin:kOpMinRange withValue:value];
337         //NSLog(@"percentage %0.0f", percentage);
338
339         percentage = 100 - percentage;
340
341         return percentage;
342     }
343 }
344
345 }

```

### 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.

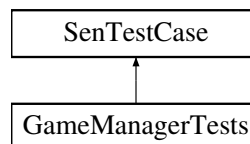
The documentation for this class was generated from the following files:

- 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

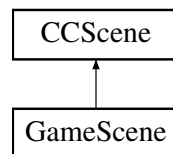
Definition at line 16 of file GameManagerTests.h.

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

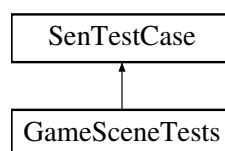
Definition at line 20 of file GameScene.h.

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

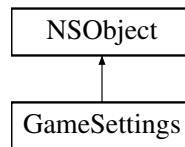
Definition at line 11 of file GameSceneTests.h.

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.

```
24 {  
25     static GameSettings *sharedInstance;  
26  
27     @synchronized(self)  
28     {  
29         if (!sharedInstance)  
30             sharedInstance = [[GameSettings alloc] init];  
31  
32         return sharedInstance;  
33     }  
34 }
```

## 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`.

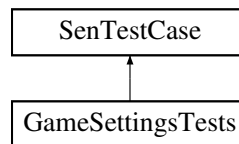
The documentation for this class was generated from the following files:

- `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

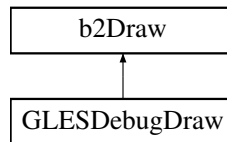
Definition at line 18 of file `GameSettingsTests.h`.

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.

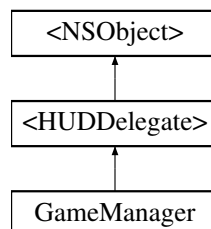
The documentation for this class was generated from the following files:

- 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.

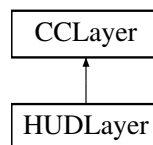
The documentation for this protocol was generated from the following file:

- 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

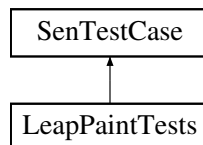
Definition at line 52 of file HUDLayer.h.

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

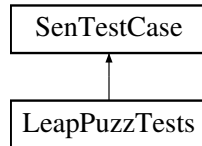
Definition at line 11 of file LeapPaintTests.h.

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

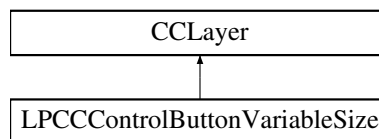
Definition at line 11 of file LeapPuzzTests.h.

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.

```

57                                     : (NSString *)title
58 {
59     CCScale9Sprite *backgroundButton = [CCScale9Sprite spriteWithFile:@"button.png"];
60     CCScale9Sprite *backgroundHighlightedButton = [CCScale9Sprite spriteWithFile:@"buttonHighlighted.png"];
61
62     #ifdef __IPHONE_OS_VERSION_MAX_ALLOWED
63         CCLabelTTF *titleLabel = [CCLabelTTF labelWithString:title fontName:@"HelveticaNeue-Bold" fontSize:30];
64         ;
65     #elif __MAC_OS_X_VERSION_MAX_ALLOWED
66         CCLabelTTF *titleLabel = [CCLabelTTF labelWithString:title fontName:@"Marker Felt" fontSize:30];
67     #endif
68     [titleLabel setColor:ccc3(159, 168, 176)];
69 }

```

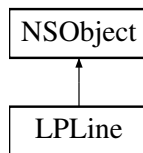
```
70     CCControlButton *button = [CCControlButton buttonWithType:titleButton backgroundImage:
backgroundButton];
71     [button setBackgroundImage:backgroundHighlightedButton forState:CCControlStateHighlighted];
72     [button setTitleColor:ccWHITE forState:CCControlStateHighlighted];
73
74     return button;
75 }
```

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.

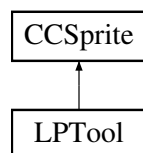
The documentation for this class was generated from the following file:

- 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.

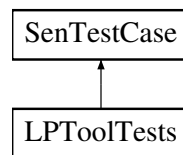
The documentation for this class was generated from the following file:

- 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.

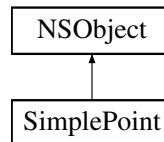
The documentation for this class was generated from the following file:

- 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.

```

18             : (CGPoint)p{
19     if (self = [super init]) {
20
21         self.x = p.x;
22         self.y = p.y;
23         self.z = 0.0f;
24         self.is3d = false;
25     }
26     }
27     return self;
28 }
```

**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.

```

46             : (CGPoint)p withZ:(float)zVal{
47     if (self = [super init]) {
48
49         self.x = p.x;
50         self.y = p.y;
51         self.z = zVal;
52         self.is3d = true;
53     }
54     }
55     return self;
56 }
```

**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.

```

31         : (float)xVal withY:(float)yVal{
32
33     if (self = [super init]) {
34
35         self.x = xVal;
36         self.y = yVal;
37         self.z = 0.0f;
38         self.is3d = false;
39
40     }
41     return self;
42 }
```

**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.

```

60         : (float)xVal withY:(float)yVal withZ:(float)zVal{
61
62     if (self = [super init]) {
63
64         self.x = xVal;
65         self.y = yVal;
66         self.z = zVal;
67         self.is3d = true;
68
69     }
70     return self;
71 }
```

**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.

```

74         {
75     return CGPointMake(self.x, self.y);
76 }

```

#### 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.

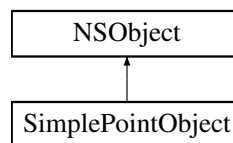
The documentation for this class was generated from the following files:

- 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.

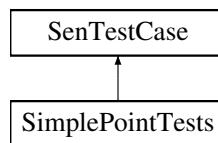
The documentation for this class was generated from the following files:

- 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)

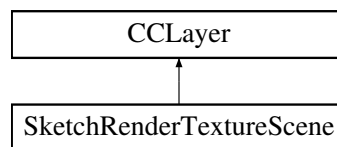
Definition at line 19 of file SimplePointTests.h.

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.

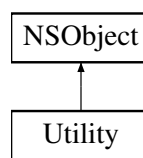
The documentation for this class was generated from the following files:

- 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.

```
14                                     :(int)from to:(int)to {
```

```

15
16     //Check that one isn't greater than the other
17     //if so, flip them
18
19     return (int)from + arc4random() % (to-from+1);
20 }

```

#### 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.

```

23         : (int)to{
24     return (arc4random() % to);
25 }

```

#### 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.

```

29         : (int)to{
30     //Check if uniform available
31     if (arc4random_uniform != NULL)
32         return arc4random_uniform (to);
33     else
34         return (arc4random() % to);
35 }

```

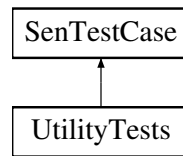
The documentation for this class was generated from the following files:

- 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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