



**Computing & Information Sciences**  
FLORIDA INTERNATIONAL UNIVERSITY

# Mobile Application Development

## lecture12

Spring 2012 - COP 4655 U1

M/W 6:25pm – ECS 138

Steve Luis

# Agenda

- Animation and Block Objects
- Participation assignment #4



# Block Objects

- You use a block when you want to create units of work (that is, code segments) that can be passed around as though they are values
- Use blocks inline so you don't declare them (usually).

```
[UIView animateWithDuration:0.5 animations:^(  
    button0.frame = newButton0FrameLocation;  
    button1.frame = newButton1FrameLocation;  
});
```

# Animation Demo Definitions

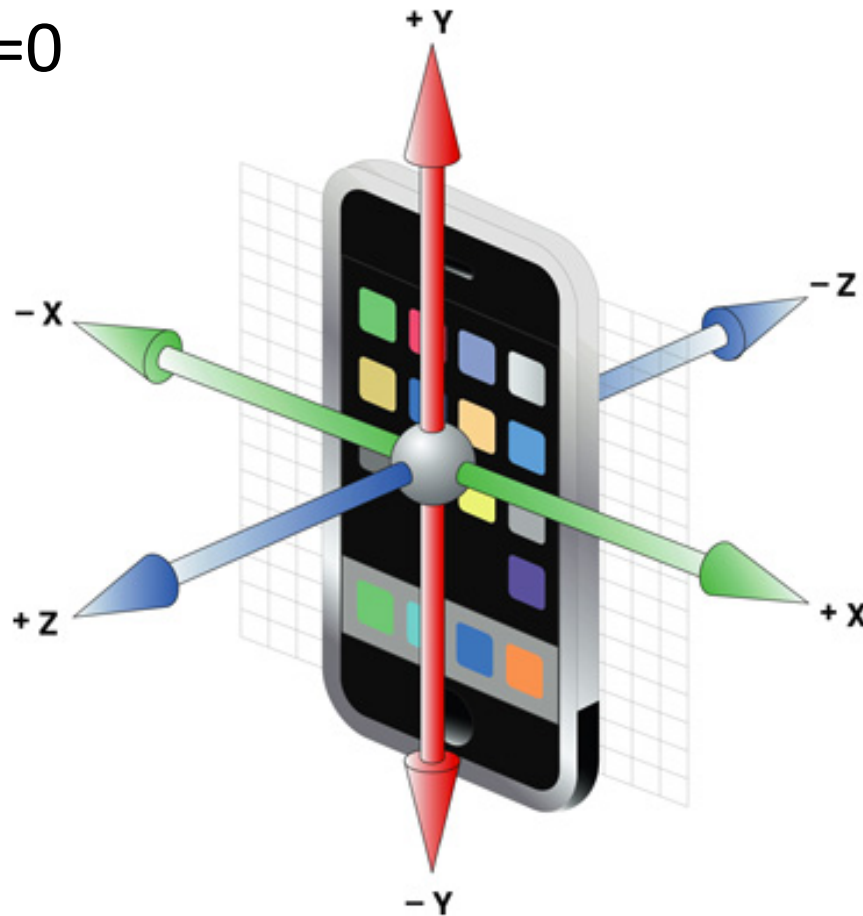
- CGRect-- struct that contains origin (x,y) location of frame and size (x,y) extent of view.
- CGPoint – x,y location
- UIView animateWithDuration:animations:
  - Animates selected view properties by using block code
- UIEvent – represents an event in iOS like screen touches or device shaken.
- UITouch – identifies the aspects of the touching the screen such as location.

# UIAccelerometer

- The iPad accelerometer measures the force of gravity in 6 directions. Values returned: -1..1
- Obtain the single UIAccelerometer object that receives acceleration data. [Singleton Pattern]
- Set the desired reporting sample interval and a custom delegate to receive acceleration events.
- Sample rate measured in seconds:  
30 samples per second =  $1/30 = 0.33$

# Orientation

$$x=0 ; y=-1 ; z =0$$



# Low Pass Filter

- Use low-pass filter to reduce the influence of sudden changes on the accelerometer data – eliminate jitter.
- A low pass filter has the effect of changing slowly by weighting the previous readings more than the current. Think weighted average.
- weights the current reading only 10% and previous readings 90%, fewer frequency changes have an major effect on the filtered result.
- FILTERFACTOR = 0.2
- $\text{filtered.x} = \text{acceleration.x} * \text{FILTERFACTOR} + (\text{filtered.x} * (1.0 - \text{FILTERFACTOR}));$

# Readings

- Apple Developers Library:
  - Motion Events
  - UIAccelerometer

Block Objects:

[http://developer.apple.com/library/mac/#documentation/General/Conceptual/DevPedia-CocoaCore/Block.html#//apple\\_ref/doc/uid/TP40008195-CH3-SW1](http://developer.apple.com/library/mac/#documentation/General/Conceptual/DevPedia-CocoaCore/Block.html#//apple_ref/doc/uid/TP40008195-CH3-SW1)



# Participation Assignment #4

Write code to move the UIButton in the direction of the iPad is tilted in.

- The button should wrap around each edge of the screen so as it moves off screen it appears on the other side.
- Implement a filter to reduce movement jitter.
- Submit your assignment by Monday March 5<sup>th</sup> at 11pm.

# Team Assignment

- Team 1: Zanini, Coto, Hernandez
- Team 2: Elias, Gomez, Molina-Fuster
- Team 3: Malek, Letterman, Elliot
- Team 4: Long, Miguel Martinez, Garcia
- Team 5: Walker, Zabala, Johnson
- Team 6: Marcos Martinez, Cohen, Vassiliouk
- Team 7: Sierra, Boza