Connect your device to application
Agenda

- We Love Game
- Why need Game Engine
- What is Game Engine
- How many Game Engine
- Get one for You
- Implementation
We Love Game
Do You Love Playing Game?

I DO
Everybody Love Playing Game

- My Father plays Solitaire
- My Sister plays Labyrinth
- My Colleague plays AngryBird
- I play Dracula X, Super Mario III, Final Fantasy III, Tetris, Frozen Bubbles, ZooKeeper, Dragon Ball Z2 Z3, DDR...blah blah
Why Do We Love a Game

- **Art**
  - It looks awesome

- **Story**
  - It is realistic

- **Social**
  - We may make friends via game
    - By exchanging information
    - By sharing common experience

- **Fun**
  - The most important part of a game
GAME EVERYWHERE
Playing Game Everywhere

- FC
- MD, SFC
- SS, PS
- .......
- NOW ?

Long time ago we use GameBoy in toilet. Now we use mobile phone.
Why need Game Engine
Create a Game

- Everyone has creativity
- We might want to clone a existing game
- We have a good idea for game
- Writing Game is COOL, and We are COOL!!
Game Engine helps us

- Faster Development
- Easier Development
  You might don't know OpenGL...
- Abstract Layer
  You might need to port your game to another platform....
- Focus on FUN
  If you spend more time on fighting with code, you have less time to think
  about your game, especially most of us are independent programmer.
What is Game Engine
Game Engine might have:

- Sprite, Scene, Animation
- Modifier
- Particle System
- Event Handling
- Game Thread

- Renderer
- Physics Engine
- Collision Detection
- Script Language
Normal Android application

An Activity contains some Views. We interact with some activities
An Activity holds one GLSurfaceView. Game Engine switch one of scenes to display.
Sprite
Collision Detection
How many Game Engine on Android
Lots of Game Engines

If you search "android game" at Google Code, you will see lots of game engines.

Some of them are Graphics Engine

- Age
- Angle
- Candroidengine
- Catcake
- Cloak
- Cocos2d
- Forget3d
- JMonkeyEngine
- Replicasland
- Rokon
- AndEngine
- ...........more
There are too many good game engines, I can only choose some of them.

Rokon
Cocos2D
AndEngine

Important: I believe there should be some great game engine but I missed
Rokon 2.0.3

http://rokonandroid.com/tutorials
http://code.google.com/p/rokon/

Useful staffs

Sprite, Modifier, Audio, Sprite Animation, Polygon Collision...blah

You can see Particle System at Rokon 1, but nothing about Particle System at Rokon2 yet.
images borrows from Replica Island
Layer accepts GameObject. You can extend GameObject and create your own class then add to Layer.
Rokon (touchable sprite)

TextureAtlas atlas = new TextureAtlas();
Texture textureDoll = new Texture("doll.png");
Sprite mDoll;
    mDoll = new Sprite(X, Y, Width, Height);
    mDoll.setTexture(textureDoll);
    mDoll.setTouchable();
    add(0, mDoll);

@Override
public void onTouchDown(Drawable object, float x, float y,
    MotionEvent event, int pointerCount, int pointerId) {
    if (object == mDoll) {
        android.util.Log.i("Hi", "touch down doll");
    }
}
/* Longer audio file */
RokonMusic.play("audio/music.mp3", true); //true means loop

/* Shorter sound effects */
RokonAudio mAudio = new RokonAudio();
SoundFile mSound = mAudio.createSoundFile(sMenuTap);
mSound.play();
Sprite explosion = new Sprite(x, y, width, height);

Texture texture = new Texture("explosion.png", 5, 5)
explosion.setTextureTile(texture, 25); // 25 is the lastest one

/* tile 1 to tile 25, one frame spends 35ms, repeat once */
explosion.animate(1, 25, 35, 1, false);
Rokon(Physical)

http://code.google.com/p/rokon/source/browse/examples/donate_app/src/com/stickycoding/rokondonatefree/DonateScene.java
Cocos2D

- Python Cocos2d
  → iPhone Cocos2d
  → Android Cocos2d

  http://code.google.com/p/cocos2d-android/

- Android cocos2d matches version 0.8 of cocos2d for iPhone

  0.9 is still in development
Cocos2D

Sprite
Layer
Scene
Director
CCGLSurfaceView
Activity
GLSurfaceView_Renderer
GLSurfaceView
Android Framework
CocosNode accepts Action

Most classes extends CocosNode

- Sprite
- Label
- Scene
- Layer
- ColorLayer
- Menu
- MenuItem

Action rotate = RotateBy.action(2, 360);
Sprite sprite = Sprite.sprite("ball.png");
sprite.runAction(rotate);
1. addChild: every CocosNode may has child CocosNode
2. action: every CocosNode may has Action
CocosNode.runAction(action);
Cocos2D(Physical)
• Some problems

  Particle System Example
  SceneTest Example
  Transition Example
AndEngine

• Fast Development
  http://www.andengine.org/

• Extension
  Box2d
  Multiplayer
  MultiTouch
  ......etc

• Amazing examples
  http://code.google.com/p/andengineexamples/
  You can download the example at Market.
AndEngine

Camera
Layer
Scene
Entity

Engine

EngineOption

Activity

GLSurfaceView(.Renderer)

Android Framework

TextureManager
FontManager
MusicManager
SoundManager
AndEngine(Camera)

- See Example

```java
setChaseShape(IShape);
```

TMXTiledMapExample

Camera
AndEngine

Touch and Multi Touch

Just some more.

Text with filled background.

Text with stroke only.

Custom Font
AndEngine
AndEngine

Particle System
Replica Island

- Well designed game
- Open Source

http://replicaisland.net/

It is very possible to split engine from the game

http://code.google.com/events/io/2009/sessions/WritingRealTimeGamesAndroid.html (it is worth reading)

- Mailing list

https://groups.google.com/group/replica-island-coding-community/topics

Highly activity!!
<table>
<thead>
<tr>
<th></th>
<th>Rokon2</th>
<th>Cocos2d</th>
<th>AndEngine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FPS</strong>&lt;br&gt;(one sprite)</td>
<td>52(*1)</td>
<td>60(*2)</td>
<td>58(*3)</td>
</tr>
<tr>
<td><strong>FPS</strong>&lt;br&gt;(50 physics)</td>
<td>46(*4)</td>
<td>18(*5)</td>
<td>60(*6)</td>
</tr>
<tr>
<td><strong>FPS</strong>&lt;br&gt;(100 physics)</td>
<td>42</td>
<td>8</td>
<td>36</td>
</tr>
<tr>
<td>Physics Engine</td>
<td>box2d</td>
<td>box2d</td>
<td>box2d</td>
</tr>
<tr>
<td>Particle System</td>
<td>No</td>
<td>?</td>
<td>Yes</td>
</tr>
<tr>
<td>License</td>
<td>BSD</td>
<td>BSD</td>
<td>LGPL</td>
</tr>
<tr>
<td>Examples</td>
<td>?(*7)</td>
<td>Yes(*8)</td>
<td>Yes(*9)</td>
</tr>
<tr>
<td>Lastesd Update</td>
<td>Aug 8</td>
<td>Jun 26</td>
<td>Aug 14(ouch!!)</td>
</tr>
<tr>
<td>Game Implement</td>
<td>Tetronimo(*10)&lt;br&gt;Drop Block(*11)</td>
<td>Snake(*12)&lt;br&gt;AlienStars(*13)</td>
<td></td>
</tr>
</tbody>
</table>

Tested on Nexus One, Froyo (FRF91)
These examples were written for Rokon 1.1.1
Game Implementation

信長のグロエ
Nobunaga's Puke

 Implemented in cocos2d-android and Rokon2
From scratch in 3 days
http://code.google.com/p/nobunagapuke/
Q&A