Write Your “Angry Bird” Game on Tizen for Fun and Profit

Lu Guanqun
Intel Corporation
Why?
The market is big!
Famous games apps
• Playing games is fun.

• Developing a game is more fun.
How?
Native app vs Web app

- Tizen now DOES support the native application development.
- Web is the future and it’s cross platform by its nature.
- So a web game app(HTML5) in this talk.
So how to develop a web game app?
If you’re brave enough…

- Write it by yourself from scratch
- Javascript (CoffeeScript, TypeScript etc)
- Canvas(SVG)/WebGL
- WebAudio
Basic Game Loop

1. Read Input
2. Move
3. Collision Test
4. Render
Use a Game Engine

• There are many choices, and I choose…
Use a Game Engine

- cocos2d-html5
A bit history about cocos2d

- Cocos2d
- Cocos2d for iphone
- Cocos2d-x
- Cocos2d-html5
Basic Workflow

Intro → Menu → Level1 → Cutscene → Level2 → Winning scene

Losing scene

Score board
Basic Concepts
var GameLayer = cc.Layer.extend({
    init:function () {
        this._super();

        var sprite = cc.Sprite.create(s_name);
        sprite.setPosition(cc.p(100, 100));
        this.addChild(sprite);
    }
})

var MainScene = cc.Scene.extend({
    onEnter:function () {
        this._super();

        var layer = new GameLayer();  // create a CCLayer
        this.addChild(layer);
        layer.init();
    }
})
2D Physics Engine – Box2D

- Developed in C++ at first by Erin Catto
- Then have lots of language ports.
- We would use javascript version.
Basic Concepts in Box2D

- “World” – manages the whole physics simulation.
- “Body” – primary element in Box2D world.
- “Shape” – all the collision geometry attached to a body.
- “Fixture” – attach a shape to a body, sets density, friction and restitution.
- “Joint” – connection between two bodies.
Unit

- Box2D uses KMS unit system.
- Kilograms
- Meters (not pixels)
- Seconds
Let’s see some code:

```javascript
// create the world
world = new b2World(new b2Vec2(0, -10), // gravity vector
ture); // allowing sleeping bodies

// create FixtureDef
var fixDef = new b2FixtureDef;
fixDef.density = 1.0;
fixDef.friction = 0.5;
fixDef.restitution = 0.2;

// create a ground body
var bodyDef = new b2BodyDef;

bodyDef.type = b2Body.b2_staticBody;
fixDef.shape = new b2PolygonShape;
fixDef.shape.SetAsBox(20, 2); // size (half width/height as the argument)
bodyDef.position.Set(10, -1.8);
world.CreateBody(bodyDef).CreateFixture(fixDef);
```
Create a dynamic box

```javascript
var bodyDef = new b2BodyDef();
bodyDef.type = b2Body.b2_dynamicBody;                      // specify the dynamic body here!
bodyDef.position.Set(p.x / PTM_RATIO, p.y / PTM_RATIO);
bodyDef.userData = sprite;                               // link Box2D to our sprite
var body = world.CreateBody(bodyDef);

var dynamicBox = new b2PolygonShape();
dynamicBox.SetAsBox(0.5, 0.5);                           // 1m box

// Define the dynamic body fixture.
var fixtureDef = new b2FixtureDef();
fixtureDef.shape = dynamicBox;
fixtureDef.density = 1.0;
fixtureDef.friction = 0.3;
body.CreateFixture(fixtureDef);
```
Draw the objects from Box2D

```javascript
update:function (dt) {
    var velocityIterations = 8;
    var positionIterations = 1;

    // Instruct the world to perform a single step of simulation. It is
    // generally best to keep the time step and iterations fixed.
    this.world.Step(dt, velocityIterations, positionIterations);

    // Iterate over the bodies in the physics world
    for (var b = this.world.getBodyList(); b; b = b.getNext()) {
        if (b.getUserData() != null) {
            var myActor = b.getUserData();
            myActor.setPosition(cc.p(b.getPosition().x * PTM_RATIO, b.getPosition().y * PTM_RATIO));
            myActor.setRotation(-1 * cc.RADIANS_TO_DEGREES(b.getAngle()));
        }
    }
}
```
Classic Box2D Demo
To make it more like Angry Bird, we need:

• A place to shoot the bird
• Some blocks, wood, house
• The monsters
My “Angry Bird” Demo
More…

- Sound effects
- Shiny graphics (I need an artist!)
Profits Part

- Sell it on Tizen app store
- Add some ads
- In App Purpose
References:

- https://github.com/cocos2d/cocos2d-html5
- http://box2d-js.sourceforge.net/
- http://xkcd.com/724/