```actionscript
/*
   Flash - Arduino Example script
   version 1.5 : 13-09-2010
   copyleft : Kasper Kamperman - Art & Technology - Saxion

   More info on how to setup up Arduino Flash communication :
   http://www.kasperkamperman.com/blog/arduino/arduino-flash-communication-as3/
   The included 'readme.rtf'.

   Summary :
   - Set pinmodes (input, output, pwm, servo) in the defaultPinConfig array to the setup
you use.
   - Change the speed of the timer to your preference (now 25 fps).
   - Read/set inputs-outputs in the timerEvent function. The value of analog pin 0 is
     now connected to the y-position of the ball instance on the stage.
*/

import net.eriksjodin.arduino.Arduino;
import net.eriksjodin.arduino.ArduinoWithServo;
import net.eriksjodin.arduino.events.ArduinoEvent;
import net.eriksjodin.arduino.events.ArduinoSysExEvent;

// == VARIABLES ========================================================================

// Used movieclips
var ball1:MovieClip = ball1;
var ball2:MovieClip = ball2;
var ball3:MovieClip = ball3;

// make a timer object that calls the timerEvent function 20 times a second (every 50ms)
var refreshTimer = new Timer(50);

refreshTimer.addEventListener(TimerEvent.TIMER, onTick);

// Change this array to the pin configuration you use in your own setup.
var defaultPinConfig:Array = new Array(
    null,        // Pin 0   null (is RX)
    null,        // Pin 1   null (is TX)
    'digitalIn', // Pin 2   digitalIn or digitalOut
    'digitalIn', // Pin 3   pwmOut or digitalIn or digitalOut
    'digitalIn', // Pin 4   digitalIn or digitalOut
    'digitalIn', // Pin 5   pwmOut or digitalIn or digitalOut
    'digitalIn', // Pin 6   pwmOut or digitalIn or digitalOut
    'digitalIn', // Pin 7   digitalIn or digitalOut
    'digitalIn', // Pin 8   digitalIn or digitalOut
    'digitalIn', // Pin 9   pwmOut or digitalIn or digitalOut or servo
    'digitalIn', // Pin 10  pwmOut or digitalIn or digitalOut or servo
    'digitalIn', // Pin 11  pwmOut or digitalIn or digitalOut
    'digitalIn', // Pin 12  digitalIn or digitalOut
    'digitalOut', // Pin 13  digitalIn or digitalOut ( led connected )
    'analogIn',   // Analog pin 0  analogIn
    'analogIn',   // Analog pin 1  analogIn
    'analogIn',   // Analog pin 2  analogIn
    'analogIn',   // Analog pin 3  analogIn
    'analogIn',   // Analog pin 4  analogIn
    'analogIn'    // Analog pin 5  analogIn
);


// Arduino object
var a:ArduinoWithServo;

// connect to a serial proxy on port 5331
a = new ArduinoWithServo("127.0.0.1", 5331);

// listen for connection
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a.addEventListener(Event.CONNECT,onSocketConnect);
a.addEventListener(IOErrorEvent.IO_ERROR,errorHandler);

// listen for firmware (sent on startup)
a.addEventListener(ArduinoEvent.FIRMWARE_VERSION, onReceiveFirmwareVersion);

// == SETUP AND INITIALIZE CONNECTION ( don't modify ) =================================

// triggered when there is an IO Error
function errorHandler(errorEvent:IOErrorEvent):void
{    trace("- "+errorEvent.text);
     trace("- Did you start the Serproxy program ?");
}

// triggered when a serial socket connection has been established
function onSocketConnect(e:Object):void
{    trace("- Connection with Serproxy established. Wait one moment.");

     // request the firmware version
     a.requestFirmwareVersion();
}

function onReceiveFirmwareVersion(e:ArduinoEvent):void
{    trace("- Connection with Arduino - Firmata version: " + String(e.value));

     trace("- Set default pin configuration.");

     // set Pinmodes by the default array.
     for(var i:int = 2; i<defaultPinConfig.length; i++)
     { // set digital output pins
       if(defaultPinConfig[i] == "digitalOut") a.setPinMode(i, Arduino.OUTPUT);
       // set digital input pins
       if(defaultPinConfig[i] == "digitalIn")  a.setPinMode(i, Arduino.INPUT);
      // set pwm output pins
       if(defaultPinConfig[i] ==  "pwmOut")    a.setPinMode(i, Arduino.PWM);
       // set servo output pins
       if(defaultPinConfig[i] ==  "servo")
       { a.setupServo(i, 0);
         // write set start position to 0 otherwise it turns directly to 90 degrees.
         a.writeAnalogPin(i, 0);
       }
     }

     // you have to turn on reporting for every ANALOG pin individualy.
     for(var j:int = 0; j<6; j++)
     { a.setAnalogPinReporting(j, Arduino.ON);
     }

     // for digital pins its only one setting
     a.enableDigitalPinReporting();

     startProgram();
}

// == START PROGRAM ====================================================================

function startProgram()
{    trace("- Start program.");

     // start the timer that calls the onTick function
     refreshTimer.start();
}

// == YOUR PROGRAM HERE ================================================================

/*
```

```
How the get data from the Arduino :

    a.getDigitalData(<pin number>);
    example : a.getDigitalData(2);

    a.getAnalogData(<analog pin number>);
    example : a.getAnalogData(0);

    note : you can only get data from a pin if its configured as INPUT
           input.

Set Arduino outputs :

    a.writeDigitalPin(<pin number>, <0 or 1>);
    example : a.writeDigitalPin(13, 1);

    When configured as PWM   :   a.writeAnalogPin(<pin number>, <0 - 255>);
    When configured as Servo :   a.writeAnalogPin(<pin number>, <0 - 179>);

    example : a.writeAnalogPin(9,128);

    note :  to write digital data the pin has to be configured as OUTPUT
            to write analog data the pin has to be configured as PWM
            to write servo position data the pin has to be configured as servo

*/


/* In the function onTick we change the y positions of 3 sprites on the stage.
   - ball1: direct analogValue of input 0
   - ball2: analogValue doesn't exceed the stageHeight-the height of the ball.
   - ball3: as ball2 but then smoothed

   Check other inputs also in the onTick function.
*/

function onTick(event:TimerEvent):void
{
    // calculate position
    var analogValue:Number;
    analogValue = a.getAnalogData(0);

    // use analogValue directly for ball1 y value
    ball1.y = analogValue;

    // keep the ball2 in range of the stage
    ball2.y = analogValue * ((stage.stageHeight-ball2.height)/1023);

    // keep the ball3 in range of the stage and smooth movement
    var position:Number = analogValue * ((stage.stageHeight-ball3.height)/1023);

    // smooth factor between 0-1. The higher the slower the changes, but more smooth.
    var factor:Number = 0.8;

    // set ball y position
    ball3.y = (factor * ball3.y) + ((1-factor) * position);

    //trace("ball1.y: "+ball1.y+" - ball2.y: "+ball2.y+" - ball3.y: "+ball3.y);

    // set the light on pin13 to HIGH (1) when the analogValue is higher than 512
    // otherwise to LOW (0) when the analogValue is below 512

    if(analogValue>512) a.writeDigitalPin(13, 1);
    else                a.writeDigitalPin(13, 0);


}
```