



# PyroElectro.com - PyroEDU

*Introduction To Microcontrollers Electronics – Lesson 8: Build An LED Game*

## FORMULAS

The following formulas and information are meant to go with the online lesson found here:  
[http://www.pyroelectro.com/edu/microcontrollers/led\\_game/](http://www.pyroelectro.com/edu/microcontrollers/led_game/)

## EXAMPLE ARDUINO PROGRAM

Here is the code for lesson 8's Build An LED Game. You can easily copy and paste the code below into an Arduino IDE for compiling.

```
int led_0=1;
int led_1=0;
int led_2=0;
int led_3=0;
int led_4=0;

int adc_val=0;

void setup()
{
    pinMode(5, OUTPUT);
    pinMode(6, OUTPUT);
    pinMode(8, OUTPUT);
    pinMode(9, OUTPUT);
    pinMode(10, OUTPUT);
    pinMode(11, OUTPUT);
    pinMode(13, OUTPUT);

    digitalWrite(5, LOW);
    digitalWrite(6, LOW);
    digitalWrite(9, LOW);
    digitalWrite(10, LOW);
    digitalWrite(11, LOW);
    digitalWrite(13, LOW);

    digitalWrite(8, HIGH);
    digitalWrite(8, LOW);

    attachInterrupt(1, winner_check, RISING);
}

void loop()
{
    adc_val = analogRead(0) / 4;

    while(led_4 != 1) {
        led_4 = led_3;
        led_3 = led_2;
        led_2 = led_1;
```

```

led_1 = led_0;
led_0 = 0;

digitalWrite(5, led_0);
digitalWrite(6, led_1);
digitalWrite(9, led_2);
digitalWrite(10, led_3);
digitalWrite(11, led_4);

delay(adc_val);
}

    while(led_0 != 1) {
    led_0 = led_1;
    led_1 = led_2;
    led_2 = led_3;
    led_3 = led_4;
    led_4 = 0;

    digitalWrite(5, led_0);
    digitalWrite(6, led_1);
    digitalWrite(9, led_2);
    digitalWrite(10, led_3);
    digitalWrite(11, led_4);

    delay(adc_val);
    }

void winner_check()
{
if( led_2 == 1 ){
//Winner! Continue
digitalWrite(13, HIGH);
digitalWrite(13, LOW);
}
else
{
//Loser! Continue
}
}
}

```

## ADDITIONAL INFORMATION

If you have any questions about the formulas or information found in this document, please feel free to head on over to the forums and ask us some questions!

<http://www.pyroelectro.com/forums/viewforum.php?f=25>