// Interrupt example #1 – T. Thoen, based on Simon Monk’s example from

// Programming Arduino Next Steps p. 63

// 3-19-15

// Connect a pushbutton between pin 2 and ground

// Uses the on-board LED connected to pin 13

// Interrupt example

int yellowLED = 13;

volatile boolean flashFast = false; // Use on-board LED

void setup()

{

pinMode(yellowLED, OUTPUT); // define output pin

digitalWrite(2, HIGH); // Hmmm…why is this here??

attachInterrupt(0, interruptPoint , FALLING);

}

void loop()

{

int delayTime = 1000; // define a local variable

if (flashFast) delayTime = 100; // same as if (flashFast == 1)

digitalWrite (yellowLED, HIGH);

delay(delayTime);

digitalWrite (yellowLED, LOW);

delay(delayTime);

}

void interruptPoint() // ISR

{

flashFast = ! flashFast; // toggle value to on / off

}

**ELTN 117 – Introduction to Digital Logic and Programming**

**Homework 9 - Interrupts**

1. Copy the following code into a blank sketch. Compile and test it:
2. Describe what the following line of code means (be specific!):

**attachInterrupt(0, interruptPoint , FALLING);**

**This line of code configures interrupt 0, on the external interrupt pin D2. “FALLING” configures the interrupt to trigger when pin D2 goes from HIGH to LOW, or in other words when the pushbutton is pressed.**

1. What is the purpose of the line of code: **digitalWrite(2, HIGH);** ?

**This line of code powers the external interrupt 0 on pin D2 with 5V, this is necessary because the trigger for the interrupt is set off by a change from HIGH to LOW on this pin.**

1. What are the main parts required to make an interrupt work (as discussed in class)?
2. Does the program toggle every time you press the button? Why or why not?

**The program does toggle when the button is pressed because the Boolean flashFast is switched from True to False with every press of the button.**

1. Modify the code to do something else when the interrupt occurs – remember, keep the interrupt service routine (called interruptPoint in this program) short, and don’t use delays!

void interruptPoint() // ISR

{

flashFast = ! flashFast; // toggle value to on / off

switch(count)

{

case 0:

Serial.println("Hello World!");

count++;

break;

case 1:

Serial.println("Ouch! What did you do that for?");

count++;

break;

case 2:

Serial.println("Pick on somebody your own size!");

count++;

break;

case 3:

Serial.println("How would you feel if I got up and poked your head for a change?");

count++;

break;

case 4:

Serial.println("Oh, woe is me... I give up");

count++;

break;

default:

count = 0;

break;

}

}