**Date Submitted: 11/09/18**

**Task 01:**

Youtube Link: <https://www.youtube.com/watch?v=ZBHuc8AtVhM>

**The purpose of this lab is to just implement the introduction code to blink an LED using RTOS.**

**Modified Code:**

**#include** <stdint.h>

**#include** <stdbool.h>

**#include** "inc/hw\_types.h"

**#include** "inc/hw\_memmap.h"

**#include** "driverlib/sysctl.h"

**#include** "driverlib/gpio.h"

**#include** "inc/hw\_ints.h"

**#include** "driverlib/interrupt.h"

**#include** "driverlib/timer.h"

**#include** <time.h>

//----------------------------------------

// Prototypes

//----------------------------------------

**void** **hardware\_init**(**void**);

**void** **ledToggle**(**void**);

**void** **delay**(**void**);

//---------------------------------------

// Globals

//---------------------------------------

**volatile** int16\_t i16ToggleCount = 0;

//---------------------------------------------------------------------------

// main()

//---------------------------------------------------------------------------

**void** **main**(**void**)

{

hardware\_init(); // init hardware via Xware

**while**(1) // forever loop

{

ledToggle(); // toggle LED

delay(); // create a delay of ~1/2sec

i16ToggleCount += 1; // keep track of #toggles

}

}

//---------------------------------------------------------------------------

// hardware\_init()

//

// inits GPIO pins for toggling the LED

//---------------------------------------------------------------------------

**void** **hardware\_init**(**void**)

{

//Set CPU Clock to 40MHz. 400MHz PLL/2 = 200 DIV 5 = 40MHz

**SysCtlClockSet**(SYSCTL\_SYSDIV\_5|SYSCTL\_USE\_PLL|SYSCTL\_XTAL\_16MHZ|SYSCTL\_OSC\_MAIN);

// ADD Tiva-C GPIO setup - enables port, sets pins 1-3 (RGB) pins for output

**SysCtlPeripheralEnable**(SYSCTL\_PERIPH\_GPIOF);

**GPIOPinTypeGPIOOutput**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3);

// Turn on the LED

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 4);

}

//---------------------------------------------------------------------------

// ledToggle()

//

// toggles LED on Tiva-C LaunchPad

//---------------------------------------------------------------------------

**void** **ledToggle**(**void**)

{

// LED values - 2=RED, 4=BLUE, 8=GREEN

**if**(**GPIOPinRead**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2))

{

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_1|GPIO\_PIN\_2|GPIO\_PIN\_3, 0);

}

**else**

{

**GPIOPinWrite**(GPIO\_PORTF\_BASE, GPIO\_PIN\_2, 4);

}

}

//---------------------------------------------------------------------------

// delay()

//

// Creates a 500ms delay via TivaWare fxn

//---------------------------------------------------------------------------

**void** **delay**(**void**)

{

**SysCtlDelay**(6700000); // creates ~500ms delay - TivaWare fxn

}