**1.** Create a C-program to display a vertical line at the left and the right margin

of the swinging LED:

#include "lm3s9b92.h"

int main(void)

{

int i = 0;

P1DDR = 0xFF;

while (1)

{

while(E!=1)

//do nothing until P4(0)goes to high (rising edge)

{

}

P1DR = 0xFF; //all bits on

for(i=0; i<2000; i++);// we will find a proper time delay during the lab

//because we need to find at which time we get the best display .

P1DR = 0x00; //all bits off

while(E=1); //do nothing until P4(0)goes to low (falling edge)

P1DR = 0xFF; //all bits on

for(i=0; i<2000; i++);

P1DR = 0x00; //all bits off

}

return 0;

}

Create a C program to display one character: M

#include "lm3s9b92.h"

void timerConfig(void)

{

int waitcycle=0;

SYSCTL\_RCGC1\_R |= (1<<16);

waitcycle++; //Wait

TIMER0\_CTL\_R &= ~0x0001; //Timer 0 disabled

TIMER0\_CFG\_R = 0x04; // 2 x 16-bit mode

TIMER0\_TAMR\_R = 0x22; // periodic mode + match enable

TIMER0\_TAPR\_R = 30-1; // prescaler PR= ceil(16M/2^16\*0.12)-1

}

//…………………………………………………………………………………………

void timerWait(unsigned short usec)

{

TIMER0\_TAILR\_R= (usec\*16)/29; // load value

TIMER0\_CTL\_R |= 0x0001; // Enabling the timer

while((TIMER0\_RIS\_R & (1<<0))==0); //wait until the flag set

TIMER0\_ICR\_R |= (1<<0); //clear the interrupt flag

TIMER0\_CTL\_R &= ~0x0001; //Disable the Timer

**}**

//…………………………………………………………………………………………………

int main(void)

{

int i,waitcount=0;

int address[]= {0xFE,0x40,0x20,0x10,0x20,0x40,0xFE}; // character M define in an array which can be accessed with delay time for display ( we have to figure the delay time in lab by try and error)

timerConfig();// calls Configer TIMER0

SYSCTL\_RCGC2\_R = (1<<3)|(1<<4) ;// Enable clock for port D and E

waitcount++;

GPIO\_PORTE\_DIR\_R = 0x00;// Set port E as an input

GPIO\_PORTE\_DEN\_R = 0x01;// Enable port E

waitcount++;

GPIO\_PORTD\_DIR\_R = 0xFF;// Set PORTD as an output

GPIO\_PORTD\_DEN\_R = 0xFF;/**/**Enable Port D

while(1)

{

while(GPIO\_PORTE\_DATA\_R != 0x01)

{

} //It is on the left margin now

timerWait(2000); // wait before starting to print the character

for(i=0;i<7;i++)

{

GPIO\_PORTD\_DATA\_R=address[i];// print each( ◼) via for loop and time wait in //between to make character M properly on display

timerWait(2000);// should try this time during lab

};

GPIO\_PORTD\_DATA\_R=0x00;// for the last blank part after character M

while(GPIO\_PORTE\_DATA\_R == 0x01)

{

}

//It is on the left margin now

**}**

}

Create a C- program to display a short character stream.

Make up your own stream: MOIN

#include "lm3s9b92.h"

void timerConfig(void)

{

int waitcycle=0;

SYSCTL\_RCGC1\_R |= (1<<16);

waitcycle++; //Wait

TIMER0\_CTL\_R &= ~0x0001; //Timer 0 disabled

TIMER0\_CFG\_R = 0x04; // 2 x 16-bit mode

TIMER0\_TAMR\_R = 0x22; // periodic mode + match enable

TIMER0\_TAPR\_R = 30-1; // prescaler PR= ceil(16M/2^16\*0.12)-1

}

//…………………………………………………………………………………………

void timerWait(unsigned short usec)

{

TIMER0\_TAILR\_R= (usec\*16)/29; // load value

TIMER0\_CTL\_R |= 0x0001; // Enabling the timer

while((TIMER0\_RIS\_R & (1<<0))==0); //wait until the flag set

TIMER0\_ICR\_R |= (1<<0); //clear the interrupt flag

TIMER0\_CTL\_R &= ~0x0001; //Disable the Timer

**}**

//…………………………………………………………………………………………………

int main(void)

{

int i,waitcount=0;

int address[]= {0xFE,0x40,0x20,0x10,0x20,0x40,0xFE,0x00,0x7c,0x82,0x7C,0x00,0xFE,0x00,0xFE,0x40,0 x20,0x10,0x08,0x04,0xFE};

// string “MOIN “ define in an array which can be accessed with delay time for display ( we have to figure the delay time in lab by try and error)

timerConfig();// calls Configer TIMER0

SYSCTL\_RCGC2\_R = (1<<3)|(1<<4) ;// Enable clock for port D and E

waitcount++;

GPIO\_PORTE\_DIR\_R = 0x00;// Set port E as an input

GPIO\_PORTE\_DEN\_R = 0x01;// Enable port E

waitcount++;

GPIO\_PORTD\_DIR\_R = 0xFF;// Set PORTD as an output

GPIO\_PORTD\_DEN\_R = 0xFF;/**/**Enable Port D

while(1)

{

while(GPIO\_PORTE\_DATA\_R !== 0x01)

{

} //It is on the left margin now

timerWait(2000); // wait before starting to print the character

for(i=0;i<20;i++)

{

GPIO\_PORTD\_DATA\_R=address[i];// print each( ◼) via for loop and time wait in //between to make character M properly on display

//timerWait(2000);// should try this time during lab

};

GPIO\_PORTD\_DATA\_R=0x00;// for the last blank part after string Moin

while(GPIO\_PORTE\_DATA\_R == 0x01)

{

}

//It is on the left margin now

**}**

}