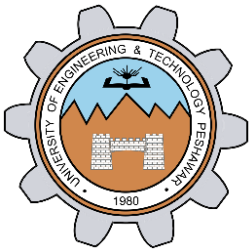
MICROPROCESSOR BASED SYSTEM DESIGN LAB

LAB 6



Spring 2021

CSE307L MBSD Lab

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Registration No. : **18PWCSE1658**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engr. Amaad Khalil

Saturday, July 10, 2021

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

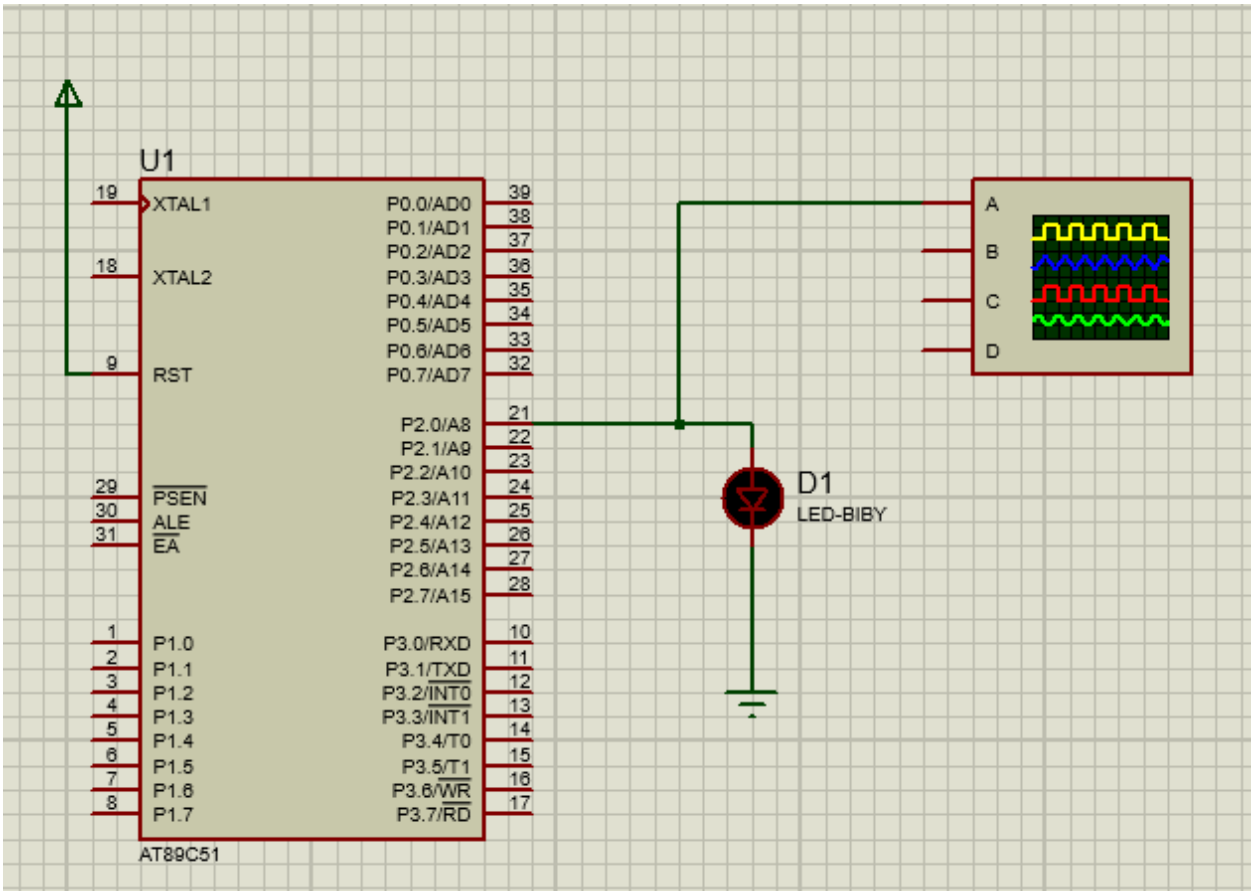
Write a program to create 1ms exact delay through timer.

Code:

```
#include <reg51.h>
#include <stdio.h>

sbit Led = P2^0;


void timer() interrupt 1
{
  Led = ~Led;
  TH0 = 0xFC;
  TL0 = 0x17;

}

void init()
{
  TMOD = 0x1;
  EA = 1;
  ET0 = 1;
  TH0 = 0xFC;
  TL0 = 0x17;
}

void main(void)
 {
  init();
   TR0 = 1;
  while (1)
    ;
 }
```

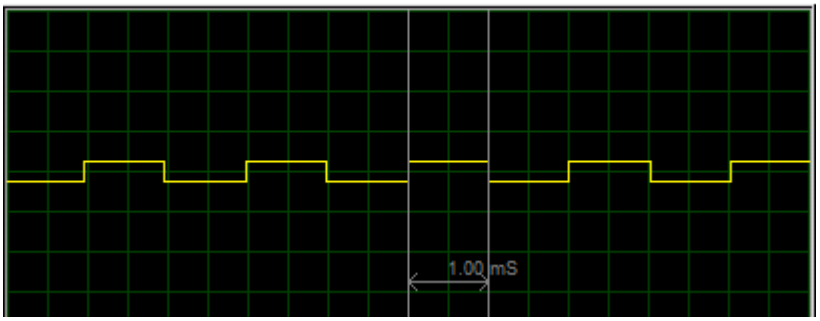
Output / Graphs / Plots / Results:

Schematic:



Oscilloscope Verification:

Digital Oscilloscope



Task 2:

Interface seven segment display with 8051 microcontroller. Generate 1 second and 1ms delay using Timer.

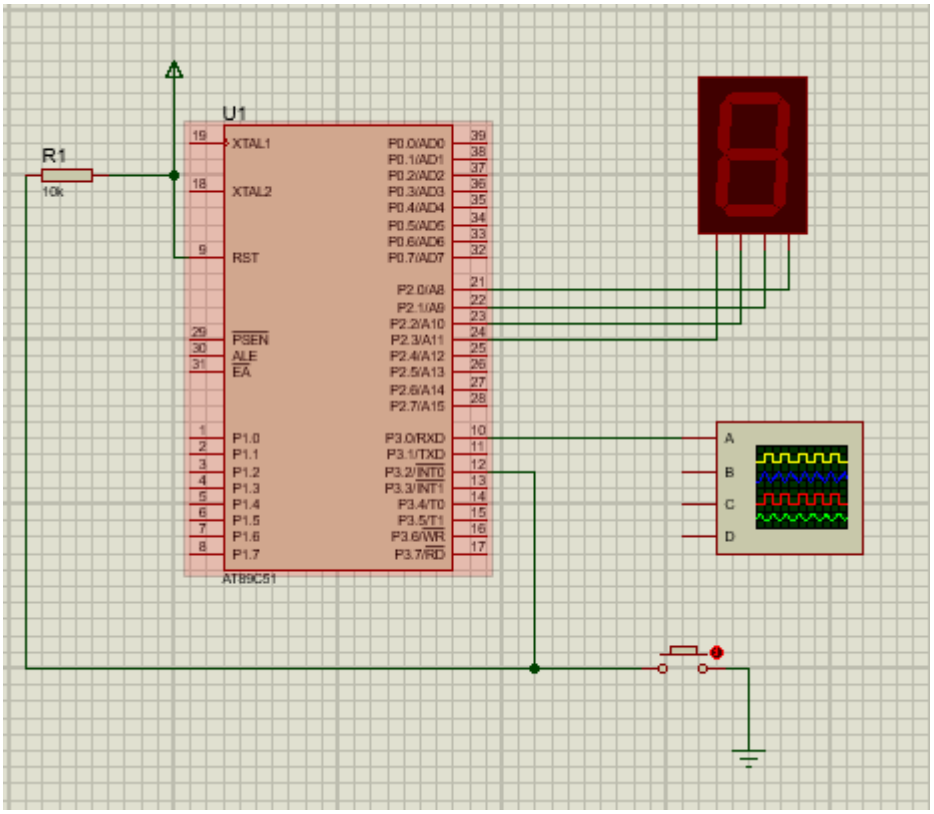
Code:

```
#include <reg51.h>
#include <stdio.h>

int number = 0;
int flag = 1;
sbit OS = P3^0;
int i =0;

void ext0() interrupt 0
{
  flag = !flag;
}


void timer() interrupt 1
{

  if(flag)
  {
    OS = ~OS;
    number = (number +1)%10;
    TH0 = 0xFC;
    TL0 = 0x17;
  }
  else
  {
    i++;
    if(i ==16)
    {
        OS = ~OS;
        number = (number +1)%10;
        i = 0;
        TH0 = 0x3C;
        TL0 = 0xAF;
    }
  }
}

void init()
```

```
{
  TMOD = 0x1;
  EA = 1;
  ET0 = 1;
  EX0 = 1;
  IT0 = 1;
  TH0 = 0xFC;
  TL0 = 0x17;
}

void main(void)
 {
  init();
   TR0 = 1;
  while (1)
  {
    P2 = number;
   }
 }
```

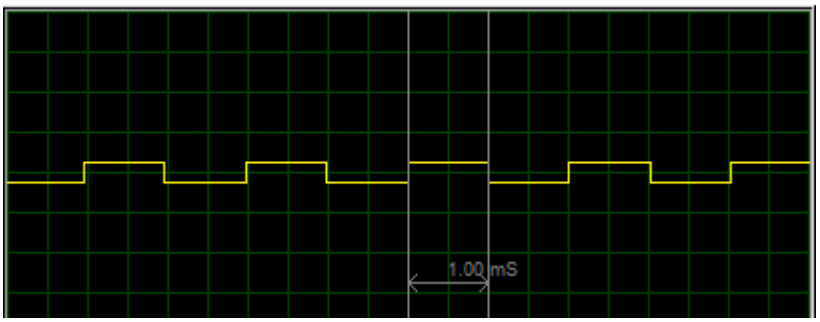
Output / Graphs / Plots / Results:

Schematic:



Oscilloscope Verification:

Digital Oscilloscope



After pressing the button:

Digital Oscilloscope