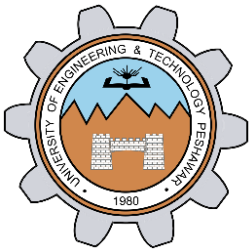
MICROPROCESSOR BASED SYSTEM DESIGN LAB

Lab #03



Spring 2021

CSE307L MBSD Lab

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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

Thursday, May 13, 2021

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

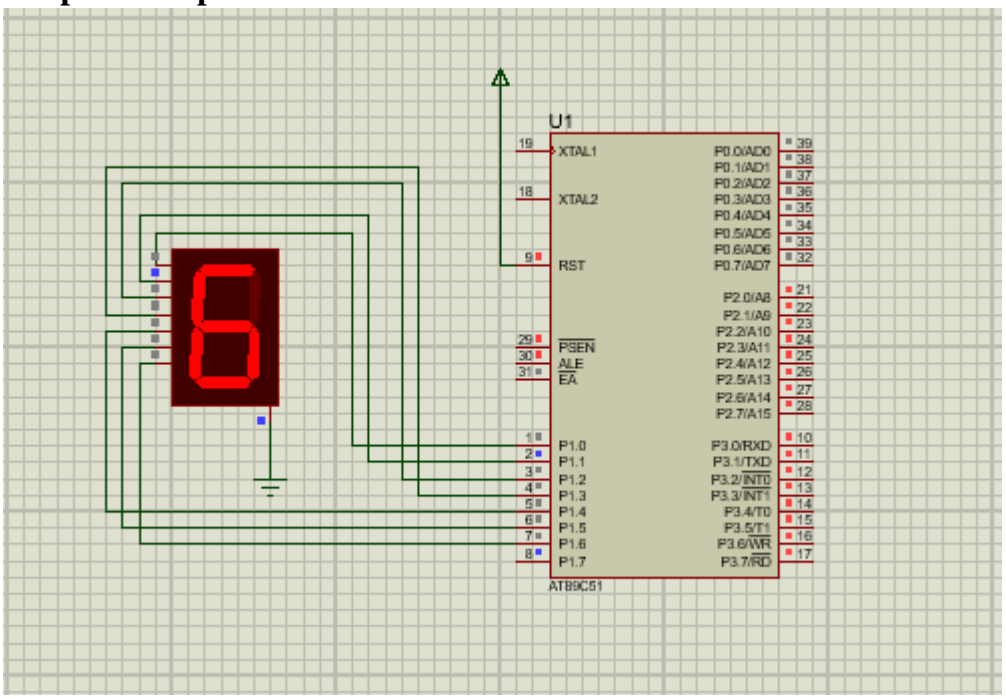
Display 0-9 on Seven Segment Display.

Code:

```
ORG 0
START:
    MOV R1,#3FH
    ACALL DISPLAY

    MOV R1,#06H
    ACALL DISPLAY

    MOV R1,#5BH
    ACALL DISPLAY

    MOV R1,#4FH
    ACALL DISPLAY

    MOV R1,#66H
    ACALL DISPLAY

    MOV R1,#6DH
    ACALL DISPLAY

    MOV R1,#7DH
    ACALL DISPLAY

    MOV R1,#07H
    ACALL DISPLAY

    MOV R1,#7FH
    ACALL DISPLAY

    MOV R1,#6FH
    ACALL DISPLAY

    SJMP START


DISPLAY:
    MOV P1,R1
    ACALL DELAY
    RET
```

```
DELAY:
    MOV R2,#255
AGAIN:
    MOV R3,#255
HERE:
    NOP
    NOP
    DJNZ R3,HERE
    DJNZ R2,AGAIN
    RET

END
```

Output / Graphs / Plots / Results:



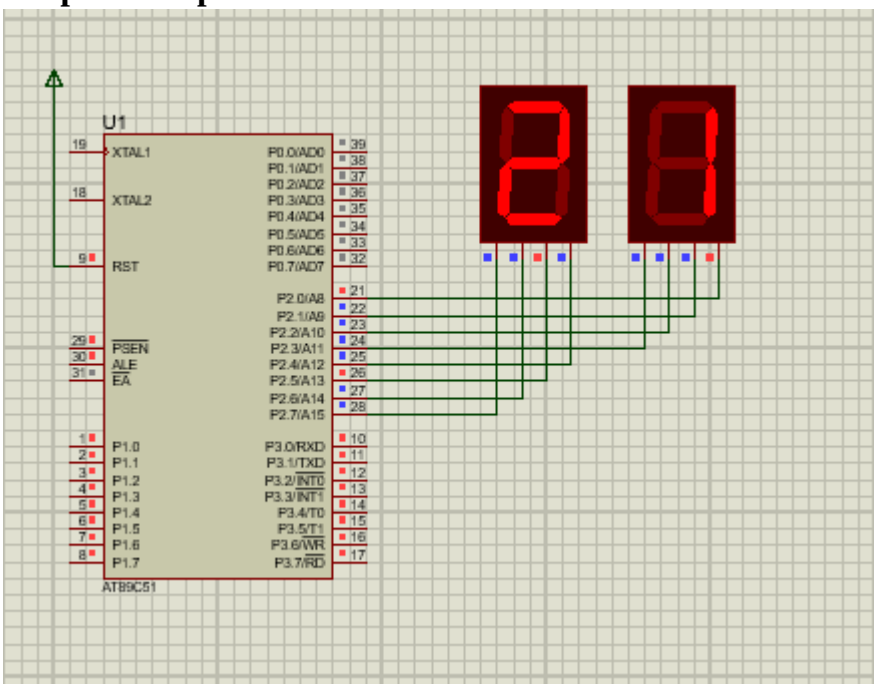
Task 2:

Write a program to count up to 00-99 using seven segment display using with single port.

Code:

```
ORG 0

START:
    MOV A,#0
    MOV R3,#10
TEN:
    MOV R2,#10
UNIT:
    MOV R1,A
    ACALL DISPLAY
    ADD A,#1
    DJNZ R2,UNIT
    ADD A,#6
    DJNZ R3,TEN

    SJMP START

 DISPLAY:
    MOV P2,R1
    ACALL DELAY
    RET

 DELAY:
    MOV R4,#255
 AGAIN:
    MOV R5,#255
 HERE:
    NOP
    NOP
    DJNZ R5,HERE
    DJNZ R4,AGAIN
    RET

 END
```

Output / Graphs / Plots / Results:



Task 3:

Write a program to count up to 0000-9999 using four seven segment display using with single port.

Code:

```
#include <reg51.h>
#include <stdio.h>
int Array[10] = {0x3F,0x06,0x5B,0x4F,0x66,0x6D,0x7D,0x07,0x7F,0x6F};
int cnt,num,temp,i;
void Delay(unsigned int time)
{
  unsigned int x,y;
    for(x = 0;x<time;x++)
          for(y = 0;y<123;y++);
 }
void main(void)
 {
  while (1)
  {
    for (cnt = 0; cnt <= 9999; cnt++)
      {
         for (i = 0; i < 20; i++)
         {
            num = cnt;
```

```
            temp = num / 1000;
            num = num % 1000;
            P3 = 0xFE;
            P2 = Array[temp];
            Delay(1);

            temp = num / 100;
            num = num % 100;
            P3 = 0xFD;
            P2 = Array[temp];
            Delay(1);

            temp = num / 10;
            P3 = 0xFB;
            P2 = Array[temp];
            Delay(1);

            temp = num % 10;
            P3 = 0xF7;
            P2 = Array[temp];
            Delay(1);
        }
    }
  }
}
```

Output / Graphs / Plots / Results: