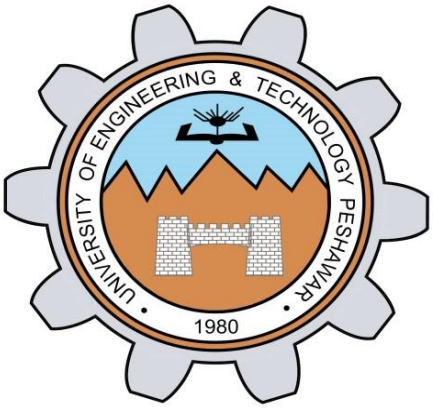
Task no 8



Microprocessor Based System Design

Spring 2022

Submitted by

Name **Registration no**

Muhammad Ali **19pwse1801**

Submitted to: Dr Bilal Habib

Data: 27/6/2022

Department of Computer System Engineering

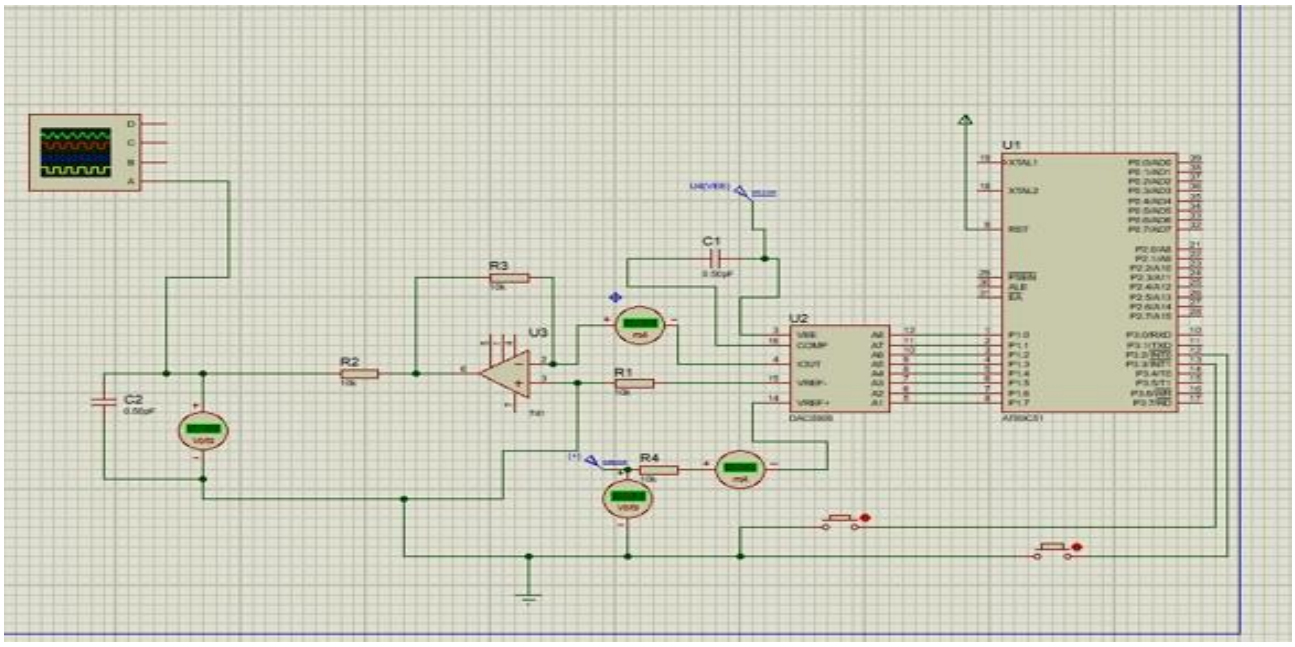
Code: -

```
#include
<reg51.h>
#include <stdio.h>
int wave_sts=0;


void Delay(unsigned int
x)  {    unsigned int i;

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


}


void external_interupt_initialize()

{

  IE=0x81; //external interupt 0 is enabled

  IT0=1; // Select Ext. interrupt0 on falling edge }


void ext(void) interrupt 0  //ISR for external interrupt 0;

{

   wave_sts++;

              if(wave_sts==4)

             {

                 wave_sts=0;

             }

}


void main(void)

{

               external_interupt_initialize();

             while(1)

             {
```

```
            if(wave_sts==0)          {
//sine wave
                unsigned int

            sine[]={128,156,192,226,238,255,238,226,192,128,64,32,6,4,0,16,32,64};          int
i;


for(i=0;i<18;i++)
{
                    P1=sine[i];
                    Delay(400);
                }
                }
                 else if(wave_sts==1)  //saw tooth
                {
                    P1=0;       P1 =
                 0xFF;       while(P1
                != 0x00)
                    {
                        P1--;
                        Delay(40);                  //Delay
                    }
                }

                 else if(wave_sts==2) //Square Wave
                {
                   P1 = 0x00;
                   P1 = 0xFF;
                   Delay(4400);                  //Delay
                   P1 = 0x00;
                   Delay(4400);                  //Delay
                }

                 else          //triangular wave
```

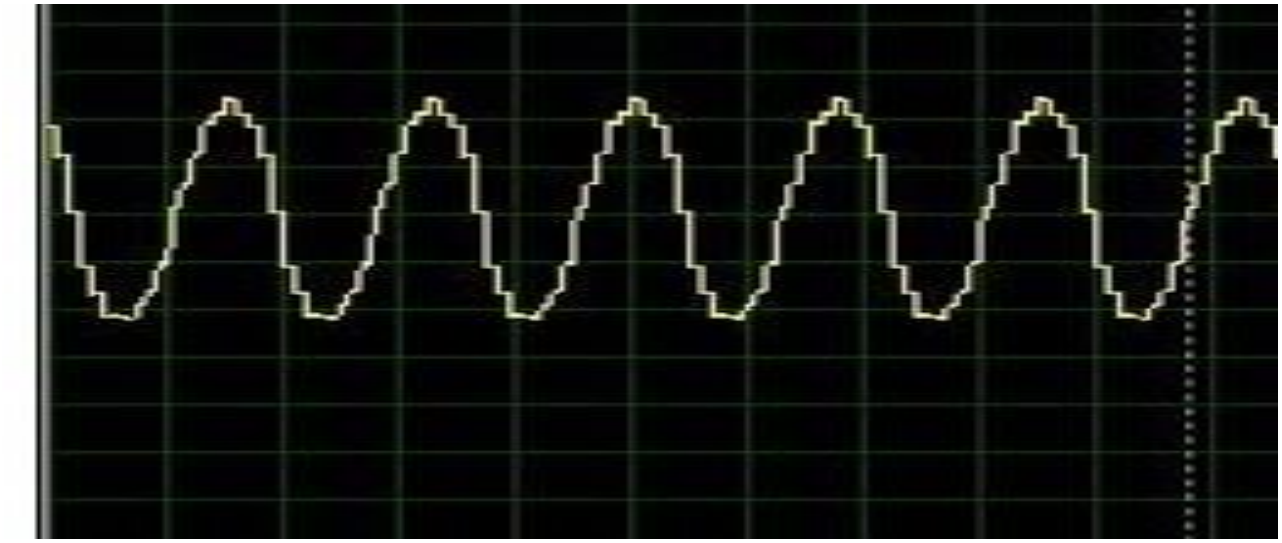
```
                {
                P1 = 0x00;
        while(P1 != 0xFF)               {
                        P1++;
                          Delay(45);    //Delay       }


                    while(P1 != 0x00)
                   {
                        P1--;
                        Delay(45);                  //Delay
                }


                }

    }

}
```

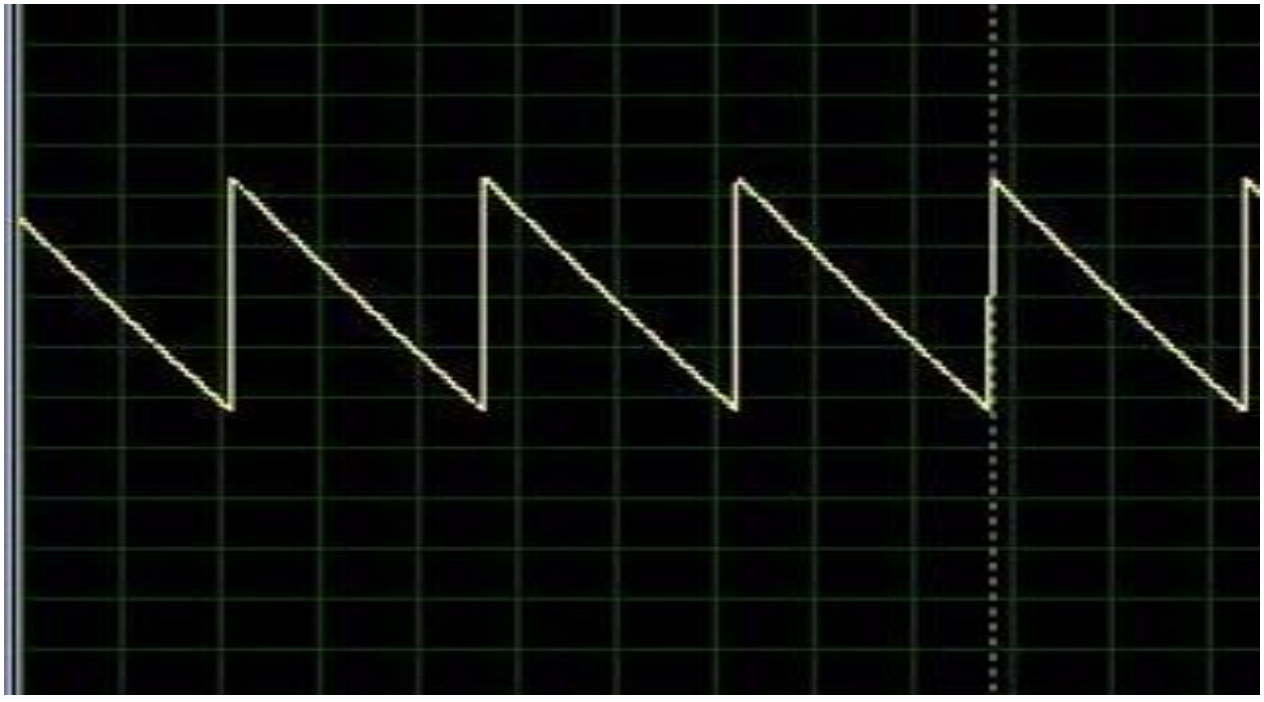
Schematic:



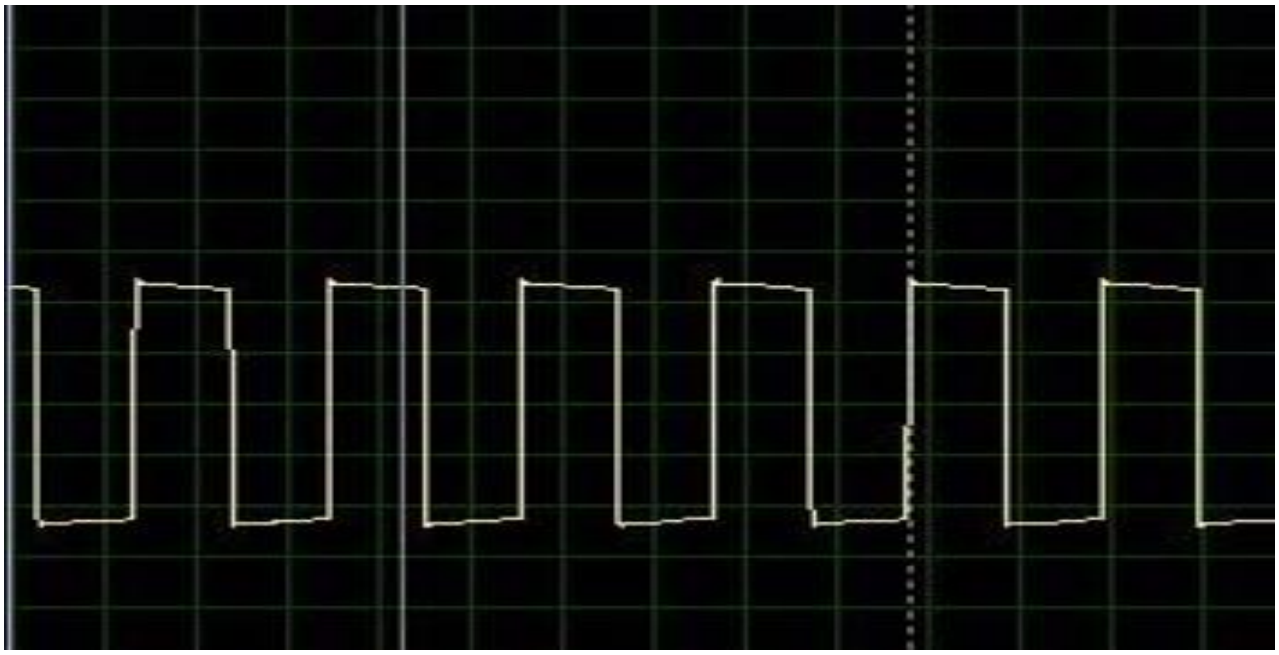
Output:

Sine Wave:





Square Wave:



Triangular Wave: