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MICROCONTROLLER AND MICROPROCESSOR LAB

EXPERIMENT 10 - A

AIM: Write an embedded C program to display values from 0 to 9 on a 7-segment display interfaced with an 8051-microcontroller hardware kit.

SOFTWARE USED: Keil uVision5

CODE:

```
#include<reg51.h>

sbit a=P2^7;
sbit b=P2^6;
sbit c=P2^5;

unsigned int i=0,y=0,x=0,z=0,seg=0;

unsigned char array[16]={0x3f, 0x06, 0x5b, 0x4f, 0x66, 0x6d, 0x7d, 0x07, 0x7f, 0x6f, 0xf7, 0x7c, 0x39, 0x5e, 0x79, 0x71};

void main()
{
	TMOD=0x11;
	IE=0x8a;
	TH0=0xf3;
	TL0=0Xfb;
	TH1=0xf3;
	TL1=0Xfb;
	TR0=1;
	TR1=1;

	while(1)
	{
		if(y==1)
		{
			y=0;
			P0=array[i];
		}
		if(z==1)
		{
			z=0;
			i++;
			if (i==10)
			{
				i=0;
				seg++;
```

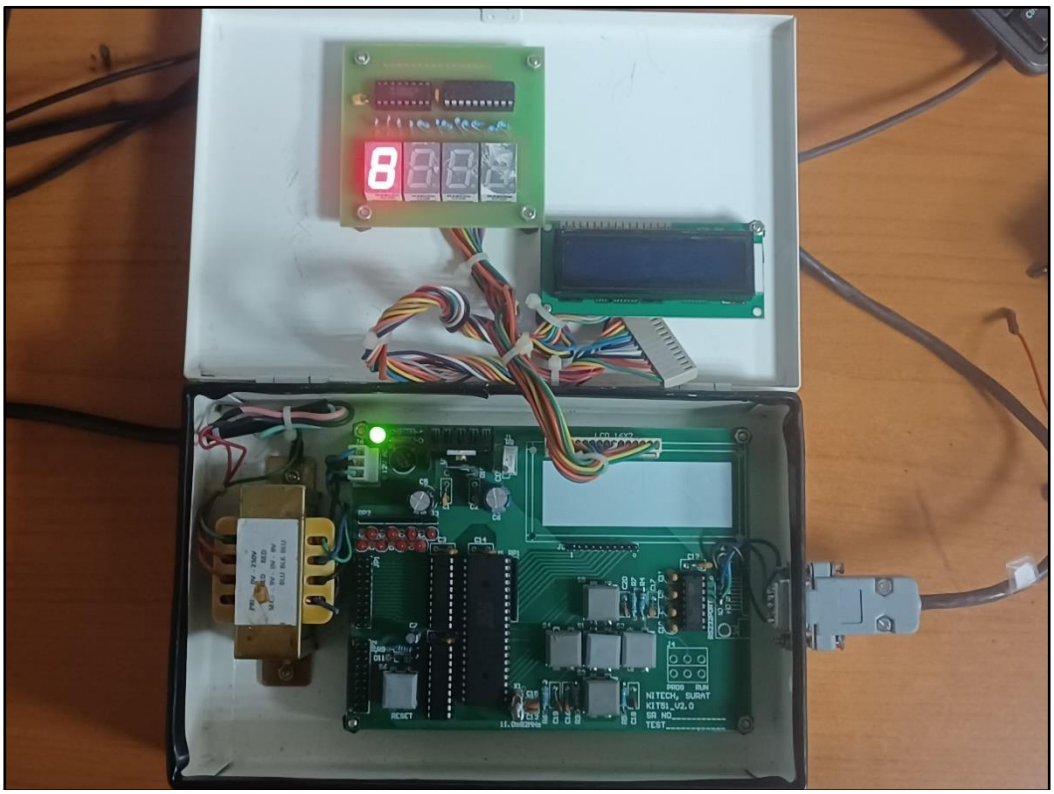
```
                        }
                        if(seg==0)
                        {
                                a=0;
                                b=0;
                                c=0;
                        }
                        if(seg==1)
                        {
                                a=0;
                                b=0;
                                c=1;
                        }
                        if(seg==2)
                        {
                                a=0;
                                b=1;
                               c=0;
                        }
                       if(seg==3)
                       {
                                a=0;
                                b=1;
                                c=1;
                        }
                       if(seg==4)
                       {seg=0;
                        }
                }
        }
}

void timer0_isr() interrupt 1
{
        y=1;
        TH0=0xf3;
        TL0=0xfb;
}

void timer1_isr() interrupt 3
{
        x++;
        if(x==1000)
        {x=0;
                z=1;
        }
```

```
        TH1=0xf3;
        TL1=0xfb;
}
```

RESULT:



CONCLUSION:

This embedded C program utilizes timers to cycle through values 0-9 displayed on a 7-segment interface. Interrupts manage timing for display updates. Ensure proper hardware connections and consider memory constraints for expanded functionalities.