

Interfacing Programs using 8051

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LAB1 :

Drive a stepper motor interface to rotate
the motor in Anti-clockwise by N steps.
introduce suitable delay between successive
steps.

```
#include <stdio.h>
#include <reg51.h>
char xdata port_at_0xe803;
char xdata port_at_0xe800;
charidata acc_at_0x30;
delay()
{
    int j;
    for (j=0; j<800; j++)
}
void main()
{
    port = 0x80;
    while (1)
    {
        acc = 0x11;
        porta = acc;
        delay();
        acc = 0x22;
        delay();
        porta = acc;
        delay();
        acc = 0x44;
        porta = acc;
        delay();
    }
}
```

acc = 0x88
porta = acc;
delay();
3
3

4. Write a program to display "FIRE" and "HELP" alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages.

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LAB 2: Display messages FIRE and HELP

alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages.

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

```
char xdata CommW_at_0x803;
char xdata portB_at_0x801;
char xdata portC_at_0x802;
char port[20] = {0x8e, 0xf9, 0xd0, 0x8f,
                0xff, 0x0f, 0x89, 0xc7, 0x81,
                3, 0};
```

```
delay()
```

```
{
```

```
long u;
```

```
For (u=0; u<8000; u++);
```

```
3
```

```
void main()
```

```
{
```

```
int d, *b, j, m;
unsigned char k;
CommW = 0x80;
do
```

```
{
```

```
i = 0;
```

```

for(d=0; d<3; d++)
{
    for(b=0; b<4; b++)
    {
        k = port[i++];
        for(j=0; j<8; j++)
        {
            m = k;
            k = K80080;
            if(k == 00)
                portB = 0b00;
            else
                portB = 0x01;
            portC = 0x01;
            portC = 0x00;
            k = m;
            k <= 1;
        }
        delay();
    }
    while(1);
}

```

Lab 3:

Display messages BANGALORE in rolling fashion on a 7-segment display interface for a suitable period of time.

```

#include <stdio.h>
#include <reg51.h>
char *data CommW_at_0xe803;
char *data portB_at_0xe801;
char *data portC_at_0xe802;
char port[20] = {0xff, 0xff, 0xff, 0x83,
                 0x88, 0xc7, 0xc0, 0xAF,
                 0x8639};

delay()
{
    long u;
    for(u=0; u<4000; u++);
}

void main()
{
    int d, b, j, m;
    unsigned char k;
    CommW = 0x80;
    do
    {
        i = 0;
        for(d=0; d<1; d++)
        {
            for(b=18; b>0; b--)

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```

delay();
K = port[i++]; // port B is ref position
for(j=0; j<8; j++) {
    m = k;
    K = k & 0x80;
    if(K==0) {
        portB = 0x00;
    } else {
        portB = 0x01;
    }
    portC = 0x00;
    k = m;
    k <<= 1;
}
delay();
}

while(1);

```

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Lab 4: Drive a Stepper Motor

interface to rotate the motor in clockwise by N steps. Introduce suitable delay between successive steps.

```

#include Cstdio.h
#include Creg 51.h
char xdata port_at_0xe803;
char xdata porta_at_0xe800;
char idata acc_at_0x30;
delay();
int j;
for(j=0; j<800; j++);
void main() {
    port = 0x80;
    while(1) {
        acc = 0x11;
        porta = acc;
        delay();
        acc = 0x22;
        porta = acc;
        delay();
        acc = 0x88;
        porta = acc;
        delay();
    }
}

```

Lab5: Program to demo the elevator interface.

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

unsigned char xdata CommandWord
    at _One803;
unsigned char xdata PortA - at _One800;
unsigned char xdata PortB - at _One801;
unsigned char xdata PresentFloor, RequestedFloor;
Step = 0x00;
Floor, Step = 0x00;
unsigned long Count, i;
Delay();
{
    for (Count = 0; Count <= 4500; Count++);
}
Reset()
```

```
Step = Step & 0x0F;
PortA = Step;
Step = Step | 0xF0;
PortA = Step;
```

```
GoUp()
```

```
switch (RequestedFloor)
```

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```
case 0x0d: while (Step < 0xF3)
{
    Step++;
    PortA = Step;
    Delay();
    Reset();
    break;
}

case 0x0b: while (Step < 0xF6)
{
    Step++;
    PortA = Step;
    Delay();
    Reset();
    break;
}

case 0x07: while (Step < 0xF9)
{
    Step++;
    PortA = Step;
    Delay();
    Reset();
    break;
}

GoDown()
switch (RequestedFloor)
```

case 0x0d : while (Step > 0xf3)

```

step--;
PortA = step;
Delay();
}
Reset();
break;

```

case 0x0b : while (Step > 0xf6)

```

step--;
PortA = step;
Delay();
}
Reset();
break;

```

case 0x0e : while (Step > 0xf0)

```

step--;
PortA = step;
Delay();
}
Reset();
break;
}

```

void main()

{

CommandWord = 0x82;

PortA = 0xf0;

PresentFloor = 0x0e;

while (1) {

RequestedFloor = PortB;

RequestedFloor = RequestedFloor & 0x0f;

if (RequestedFloor != 0x0f && RequestedFloor
!= PresentFloor) {

if (RequestedFloor < PresentFloor)

GoUp();

else

GoDown();

PresentFloor = RequestedFloor;

}

RequestedFloor = PortB;

}

}

Ques.