

Micro Lab

Ödev

6

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```
#include <main.h>
#fuses f15, NOWDT, NOPROTECT
#use delay (clock = 4000000)
```

```
#define pin-up PHE0
#define pin-down pin-E1
#define display1 pin-C0
#define display2 pin-C1
#define display3 pin-C2
#define display4 pin-C3
```

```
int k;
int loop = 0;
int birler, onlar = 0;
int up, stop = 0;
unsigned long int digit = 0;
int number[10] = {0x3F, 0x06, 0x5B,
0x4F, 0x66, 0x6D, 0x7C, 0x07,
0x7F, 0x6F};
int cls[4] = {0x58, 0x38, 0x6D, 0x79};
int opa[4] = {0x5C, 0x73, 0x78, 0x54};
int itr[4] = {0x80, 0xD4, 0xF8, 0xBF};
```

```

void button-stop() {
  if (input(pin-stop) && !input(pin-up))
  {
    stop=1;
    up=0;
    output-c(0x00);
    output-d(0x00);
    digit=0;
    while (input (pin-stop));
  }
  up=0;
}

```

```

void button-up() {
  if (!input (pin-stop) && input (pin-up))
  {
    output-c(0x00);
    up=1;
    loop=0;
    stop=0;
    if (digit == 99)
      digit=0;
    while (input (pin-up)) ;
  }
}

```

```

#int = 0 #int = timer 0
void ext-keesmes() { Set-timer0(248);
  for (k=0; k<50; k++)
  {
    output-high(display1);
    output-d(itr[3]);
    delay-ms(5);
    output-low(display1);
  }
}

```



```

output-high (display 2);
output-d (itr[2]);
delay-ms (5);
output-low (display 2);
output-high (display 3);
output-d (itr[1]);
delay-ms (5);
output-low (display 3);
output-high (display 4);
output-d (itr[0]);
delay-ms (5);
output-low (display 4);
} }

```

```

-void main () {
    Set-tris-b (0xFF);
    Set-tris-e (0xFF);
    Set-tris-d (0x00);
    Set-tris-c (0x00);
    output-d (0x00);
    output-c (0x00);
    Setup-timer-0 (RCC-EXT-H-T0-L);
    Enable-interrupts (INT_0);
    Enable-interrupts (GLOBAL);
    ext-eval-edge (H-T0-C);
    Set-timer0 (248);
    while (TRUE) {
        output-c (0xFF);
        output-d (0x00);
        delay-ms (20);
        loop = 0;
    }
}

```

```
Output - d (0x80);  
delay-ms(20);  
button - Stop();  
button - up();
```

```
while (up == 1) {
```



```
for (int y=0; y<500; y++) {  
    birler = digit % 10; y++;  
    onlar = digit / 10;  
    digit++;  
}
```

```
if (digit == 100) {  
    digit = 0;  
    loop++;  
}
```

```
for (int k=0; k<10; k++)  
{
```

```
    output-high (display1);  
    output-d (number[birler]);  
    delay-ms (5);  
    output-low (display1);
```

```
    output-high (display2);  
    output-d (number[onlar]);  
    delay-ms (5);  
    output-low (display2);
```

```
    button-stop();  
    if (stop == 1) break; }  
    if (stop == 1) break; }  
    if (stop == 1) break;
```

2- Timer içerisinde yüklenecde
sayı ~~256~~ 256'ya ne kadar
uzak ise kesme süresini 0 kadar
uzatır. Kesme süresi 256'dan
sonra ~~artmaya~~ başlayacak bitle eşitlik
5'de en fazla, 250'de en
az süredir.

$$1- \text{Kesme Süresi} = (T_{\text{komut}}) \times \left(\frac{\text{BSine}}{\text{Oreni}} \right) \times (256 - \text{Timer})$$

$$T_{\text{komut}} = \frac{1}{f_{\text{komut}} \text{ Hz}}$$

$$f_{\text{komut}} = \frac{f_{\text{osc}}}{4}$$

$$\text{Kesme Süresi} = 1 \mu\text{s} \times 256 \times 256 - 20$$

$$= 60416 \mu\text{s}$$

$$\approx 60 \text{ ms}$$

$$\text{Sayı ilerleme Süresi} = 60 \text{ ms} \times 50 \text{ ms} = 3.025$$