

Lecture (07)

16F84A

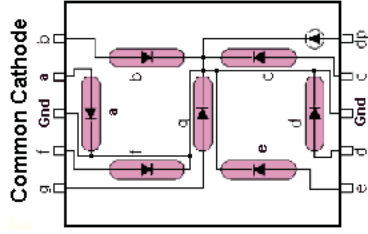
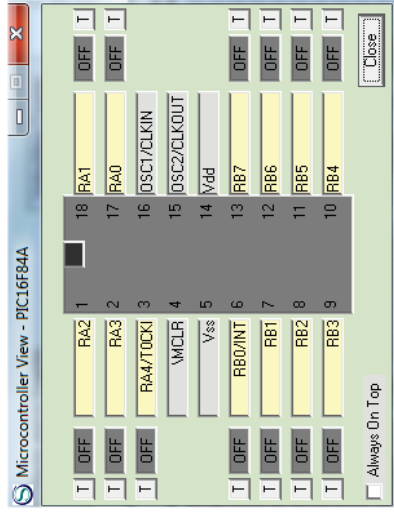
7 segments direct interface

7 segments interface using decoder

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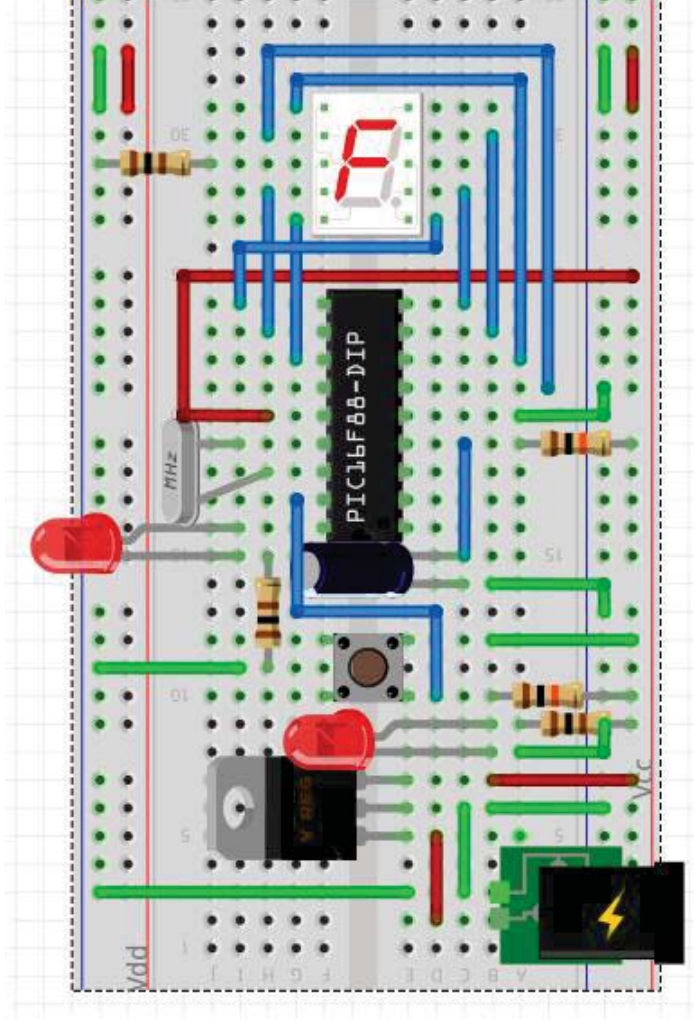
PressControlledUpDown1X7SegmentCounter

7 Segment	a	b	c	d	e	f	g
PIC16F84A	RB0	RB1	RB2	RB3	RB4	RB5	RB6



Agenda

- Single 7 segment display direct interface to 16F84A
- PressControlledUpDown1X7SegmentDecodedCounter
- PressControlledUpDown2X7SegmentDecodedCounter
- Assignment, PressControlledUpDown1X7SegmentBinaryCounter



7Segments configuration (0-2)

symbol	h	g	f	e	d	c	b	a	binary	7segment
0										
1										
2										

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7Segments configuration (0-2)

symbol	h	g	f	e	d	c	b	a	binary	7segment
0									0b00111111	
1									0b00000110	
2									0b01011011	

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7Segments configuration (3-5)

symbol	h	g	f	e	d	c	b	a	binary	7segment
3										
4										
5										

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7Segments configuration (3-5)

symbol	h	g	f	e	d	c	b	a	binary	7segment
3									0b01001111	
4									0b01100110	
5									0b01101101	

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7Segments configuration (6-8)

symbol	h	g	f	e	d	c	b	a	binary	7segment
6										
7										
8										

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7Segments configuration (6-8)

symbol	h	g	f	e	d	c	b	a	binary	7segment
6									0b01111100	
7									0b00000111	
8									0b01111111	

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7Segments configuration (9)

symbol	h	g	f	e	d	c	b	a	binary	7segment
9										

7Segments configuration (9)

symbol	h	g	f	e	d	c	b	a	binary	7segment
9									0b01100111	

```

#include <xc.h>
#include <pic16f84a.h>
#include "config.h"
void delay_ms(int x);
void
SevenSegmentDecoder(int
t number);
void main(void) {
TRISB=0x00;
int x;
while(1)
{
if(RA0==0)
{
if(x<9)
x++;
else
x=0;
}
else
{
if(x>0)
{x=x-1;}
else
{x=9;}
}
SevenSegmentDecoder(x);
delay_ms(500); }
}
else
{
if(x>0)
{x=x-1;}
else
{x=9;}
}
SevenSegmentDecoder(x);
delay_ms(500); }
}
void
SevenSegmentDecoder(int
number)
{
switch (number)
{
case 0:
PORTB=0b00111100;
break;
case 1:
PORTB=0b00000110;
break;
case 2:
PORTB=0b01011011;
break;
case 3:
PORTB=0b01001111;
break;
case 4:
PORTB=0b01100110;
break;
case 5:
PORTB=0b01101101;
break;
case 6:
PORTB=0b01111100;
break;
}
}
}

```

```

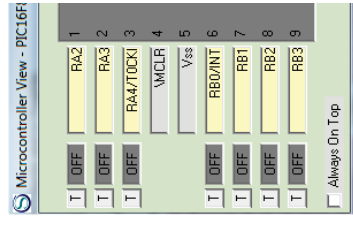
case 7:
PORTB=0b00000111;
break;
case 8:
PORTB=0b01111111;
break;
case 9:
PORTB=0b01100111;
break;
default:
PORTB=0b01111111;
break;
}
}
}
void delay_ms(int x)
{
for(int n=0;n<x;n++)
{
_delay(1000);
}
}

```

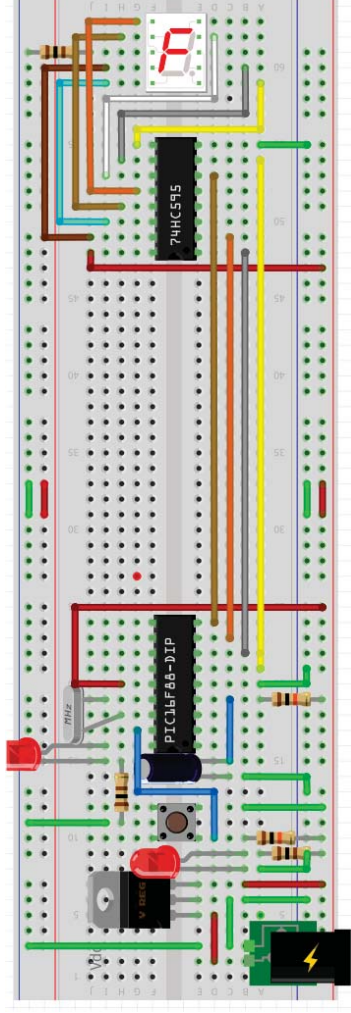
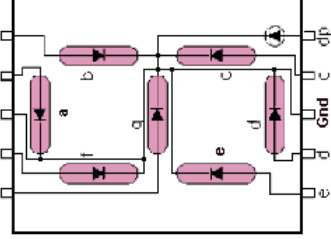
PressControlledUpDown1X7SegmentDecodedCounter

PIC16F84A	RB0	RB1	RB2	RB3
74LS48	Input A	Input B	Input C	Input D

74LS48	Output a	Output b	Output c	Output d	Output e	Output f	Output g
7Segment	a	b	c	d	e	f	g



Common Cathode



Assignment, PressControlledUpDown1X7SegmentBinaryCounter

```

void main(void) {
    TRISB=0x00;
    TRISA=0b000011101;
    int x=0;
    while(1)
    {
        if(RA0==1)
        {
            if(x<9)
                x++;
            else
                x=0;
        }
        else
        {
            if(x>0)
                {x=x-1;}
        }
    }
}

```

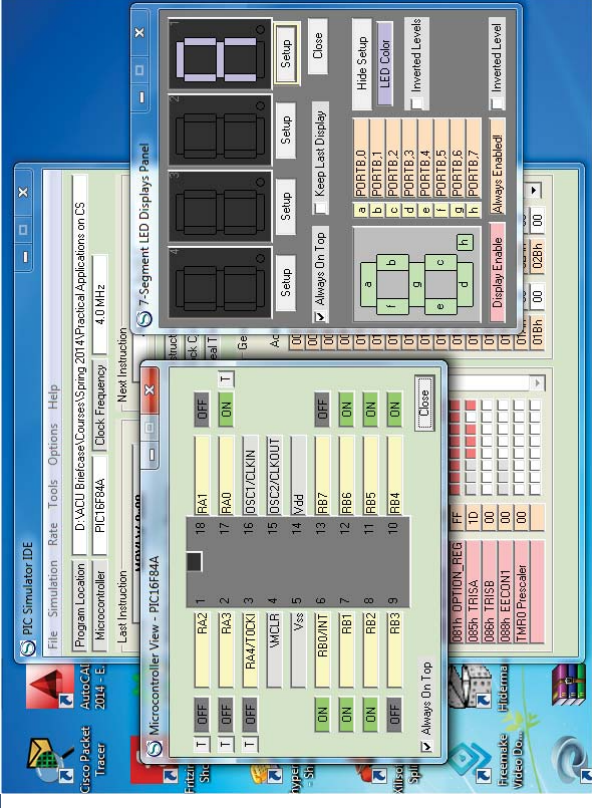
```

else
    {x=9;}
}
PORTB=x;
RA1=~RA1;
delay_ms(500);
}
}

void delay_ms(int x)
{
    for(int n=0;n<x;n++)
    {
        _delay(1000);
    }
}

```

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7Segments configuration (A, b, c)

symbol	h	g	f	e	d	c	b	a	binary	7segment
A										
b										
c										

14

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7Segments configuration (d, e, f)

symbol	h	g	f	e	d	c	b	a	binary	7segment
d										
e										
f										

14

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7Segments configuration (6)

symbol	h	g	f	e	d	c	b	a	binary	7segment
6										



Thanks,..
See you next week (ISA),...