

'-----Title-----

' File.....count2.pbp
' Started....5/9/08
' Microcontroller used: Microchip Technology PIC16F88
' microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
' melabs.com

'-----Program Description-----

' Program displays 8-bit counter variable in decimal,
' hexadecimal, and binary numbering systems.
' Momentary switch pauses count.

'-----Background Information-----

' Three numbering systems used in PicBasic Pro:

Name	Base	Symbol
Binary	Base 2	%
Decimal	Base 10	No Symbol
Hexadecimal	Base 16	\$

' For example, the decimal number 255 is written as
' as %11111111 in binary and \$FF in hexadecimal.

'-----PIC Connections-----

16F88 Pin	Wiring
RA0	LCD pin 11(DB4)
RA1	LCD pin 12(DB5)
RA2	LCD pin 13(DB6)
RA3	LCD pin 14(DB7)
RA4	LCD Register Select(RS)
RB0	Momentary Switch to +5 V and 10K Pull-Down Resistor to Ground
RB3	LCD Enable(E)
Vdd	+5 V
Vss	Ground
MCLR	4.7K Resistor to +5 V

'-----LCD Connections-----

LCD Pin	Wiring
1	Ground(Vss)
2	+ 5v(Vdd)
3	Center of 20K Pot(Contrast)
4	RA4(Register Select,RS)
5	Ground(Read/Write,R/W)
6	RB3(Enable)

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'          7          No Connection(DB0)
'          8          No Connection(DB1)
'          9          No Connection(DB2)
'         10          No Connection(DB3)
'         11          RA0(DB4)
'         12          RA1(DB5)
'         13          RA2(DB6)
'         14          RA3(DB7)

'-----Variables-----

    c0    VAR    BYTE          ' BYTE to store counter variable, c0

'-----Initialization-----

    ANSEL = 0                  ' Configure all pins to digital
                              ' operation since not using ADC
                              ' (Analog to Digital Converter)

    OSCCON = $60               ' Sets the internal oscillator in the
                              ' 16F88 to 4 MHz

'-----Main Code-----

    PAUSE 1000                 ' Pause 1 second to allow LCD to setup

    FOR c0 = 0 TO 255          ' Count from 0 to 255

    IF PORTB.0 = 1 THEN c0 = c0 - 1
                              ' Repeats same count, c0 as long as
                              ' switch remains pressed.

    LCDOUT $fe,1,"DEC=", DEC c0, " HEX=", HEX c0
                              ' Clears LCD screen, displays the decimal
                              ' value of c0, DEC c0, and hexadecimal
                              ' value of c0, HEX c0

    LCDOUT $fe,$c0,"BIN=", BIN c0
                              ' Display binary value of c0, BIN c0,
                              ' on the second line of the LCD screen

    PAUSE 300                 ' Pause 300 ms

    NEXT c0

    END
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