

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

' File.....16F877A_LCD2.pbp
' Started....3/18/06
' Microcontroller used: Microchip Technology PIC16F877A
' microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
' melabs.com

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

' Demonstrates several commands to move LCD cursor
' on a 16 x 2 LCD display.

'-----Related Lessons-----'

' See LCD BASICS lesson at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii14_lcd1.pdf
'
' lcd2.pbp (the 16F88 program) is used in
' the lesson LCD Command Control Codes at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii15_lcd2_lcd_command_control_codes.pdf

'-----Connections-----'

' See schematic at:
' http://www.cornerstonerobotics.org/schematics/pic16f877a_lcd1_lcd2.pdf

16F877A 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)
RB3	LCD Enable(E)

' See schematic for the usual connections

'-----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)
7	No Connection(DB0)
8	No Connection(DB1)
9	No Connection(DB2)
10	No Connection(DB3)
11	RA0(DB4)
12	RA1(DB5)

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'          13          RA2(DB6)
'          14          RA3(DB7)

'-----Revision History-----
' 11/28/07 Add 16F88 oscillator and ANSEL = 0
'          initializations
' 1/2/09   Change MCU from 16F88 to 16F877A
' 1/2/09   Delete ANSEL = 0 and add ADCON1 initialization

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

c0 VAR BYTE          ' Byte for counter
c1 VAR BYTE          ' Byte for second counter

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

ADCON1 = %00000110   ' Changes PORTE and PORTA analog bits to
                    ' digital operation since not using ADC
                    ' (Analog to Digital Converter)

' For the ADCON1 Register table, look at the
' PIC16F877A datasheet. For Microchip PIC datasheets:
' http://www.microchip.
com/stellent/idcplg?IdcService=SS_GET_PAGE&nodeId=2046
' Select 8-bit PIC Microcontrollers, then the device from the
' drop down menu. Now download the 16F87XA Datasheet.
' The ADCON1 Register is Register 11-2: ADCON1 Register,
' look around page 128 in the 16F877A datasheet.

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

        PAUSE 1000          ' Pause to allow LCD to setup

start:

        LCDOUT $FE,1,"Three"      ' Clears LCD screen, displays "Three"

        PAUSE 1000          ' Pause 1 second

        LCDOUT $fe,1          ' Clears LCD sreen

        LCDOUT $FE,$C0,"days"    ' Cursor moves to beginning of
                                ' second line, displays "days"

        PAUSE 1000          ' Pause 1 second

        LCDOUT $fe,$14,"only"    ' Cursor moves to right one
                                ' position and displays "only"

        PAUSE 1000          ' Pause 1 second

        LCDOUT $fe,1          ' Clears LCD sreen

        LCDOUT $fe,1,"Valid"     ' Clear LCD screen, display "Valid"
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PAUSE 1000           ' Pause 1 second

FOR c0 = 1 TO 5      ' FOR..NEXT loop so "Valid" scrolls
                    ' off the screen to the left

LCDOUT $fe,24       ' Scrolls display one character
                    ' position to the left

PAUSE 100           ' Pause 100 milliseconds

NEXT                ' Continue to next c0

LCDOUT $fe,1,"in store only" ' Clear LCD screen, display "in store only"

PAUSE 1000         ' Pause 1 second

FOR c0 = 1 TO 16    ' FOR..NEXT loop so "in store only"
                    ' scrolls off the screen to the right

LCDOUT $fe,28       ' Scrolls display one character
                    ' position to the right

PAUSE 100           ' Pause 100 milliseconds

NEXT                ' Continue to next c0

FOR c1 = 1 TO 2     ' FOR..NEXT loop to display
                    ' CD's $5.00 two times

LCDOUT $fe,1        ' Clear LCD screen

LCDOUT $fe, $80+17,"CD's $5.00"
                    ' Display "CD's $5.00" starting
                    ' 17 positions from the beginning
                    ' of the first line, i.e., just off
                    ' LCD screen

PAUSE 200           ' Pause 1 second

FOR c0 = 1 TO 28    ' FOR..NEXT loop so "CD's $5.00"
                    ' scrolls off the screen to the left

LCDOUT $fe,24       ' Scrolls display one character
                    ' position to the left

PAUSE 150           ' Pause 150 milliseconds

NEXT c0             ' Continue to next c0

NEXT c1             ' Continue to next c1

PAUSE 500           ' Pause 500 milliseconds

GOTO start          ' Go to loop label
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END