```
'--------------Title--------------

' File......16F877A_LCD3.pbp
' Started....3/23/06
' Microcontroller used:  Microchip Technology PIC16F877A
'                          microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
'                     melabs.com

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

' Display resistance readings from a potentiometer
' on parallel LCD display.

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

' See LCD BASICS lesson at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii14_lcd1.pdf
'
' lcd3.pbp (the 16F88 program) is used in
' the lesson LCD POT COMMAND AND LCD DEFINES at:
' http://www.cornerstonerobotics.
org/curriculum/lessons_year2/erii16_lcd3_pot_command_and_lcd_defines.pdf

'-----------Comments-------------

' Other resistive components(5k to 50K) may be substituted
' for the potentiometer such as, ceramic photo
' resistor or resistive flex sensor.
' See PIC Microcontroller Project Book by John Iovine,
' pages 189 and following for a discussion on reading
' resistive sensors.

'-----New PicBasic Pro Commands----

' The PicBasic Pro Compiler Manual is on line at:
' http://www.microengineeringlabs.com/resources/index.htm#Manuals
'
' POT Pin, Scale, Var
' POT reads a potentiometer or other resistive components
' (5K-50K) from a specified Pin.
' Adjust Scale for the varying RC constants.
' Look around page 118 in the PicBasic Pro Compiler Manual

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

' See schematic at:
' http://www.cornerstonerobotics.org/schematics/pic16f877a_lcd3.pdf

'       16F88 Pin               Wiring
'       --------                ---------
'       RA0                     LCD pin 11(DB4)
'       RA1                     LCD pin 12(DB5)
'       RA2                     LCD pin 13(DB6)
'       RA3                     LCD pin 14(DB7)
```

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'       RA4                     LCD Register Select(RS)
'       RB3                     LCD Enable(E)
'       RB1                     Resistive Input
'       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)
'         13                    RA2(DB6)
'         14                    RA3(DB7)

'--------Revision History--------

' 11/28/07 Change MCU from 16F84A to 16F88
' 11/28/07 Add 16F88 oscillator and ANSEL = 0
'          initializations
' 12/09 Change MCU from 16F88 to 16F877A

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

    p0 VAR BYTE                 ' Byte for potentiometer reading

'----------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                  ' 1 second pause to allow LCD to setup

start:                          ' Start label for loop
```

```
    POT 1,255,p0                ' POT command, potentiometer reading
                                ' sent to RB1, scale set for 255, p0
                                ' assigned reading of potentiometer.
                                ' p0 value may vary from a
                                ' minimum of 0 to a maximum of 255.
                                ' In order to obtain the maximum reading
                                ' of 255, you will probably have to
                                ' experiment with the value of the capacitor.

    LCDOUT $FE,1,"Pot Reading", $14, #p0
                                ' Clears LCD screen, displays "Pot Reading"
                                ' Cursor moves to right one position and
                                ' displays value of p0

    PAUSE 100                   ' Pause 1/10 second

    GOTO start                  ' Loop to start label

    END
```