

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

' File.....LCD3.pbp
' Started....3/23/06
' Microcontroller used: Microchip Technology PIC16F88
' 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 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-----

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)
RB3	LCD Enable(E)
RB1	Resistive Input

' See schematic for the usual connections

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'-----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

'-----Variables-----
'
'     p0 VAR BYTE          ' Byte for potentiometer reading

'-----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          ' 1 second pause to allow LCD to setup
start:
'
'     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
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          ' 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
```