

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

' File.....LCD1.pbp
' Started....3/18/06
' Microcontroller used: Microchip Technology PIC16F88
' microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
' melabs.com

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

' Prints simple message to 16 x 2 parallel
' LCD which uses Hitachi 44780 controller.
' Most hobby LCD's use this controller.

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

' See LCD BASICS lesson at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii14_lcd1.pdf
'
' lcd1.pbp is used in the lesson LCD Command Control Codes at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii15_lcd2_lcd_command_control_codes.pdf

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

' A practical guide to interfacing and
' programming LCD modules can be found at
' www.epemag.wimborne.co.uk/resources.htm
' or by googling everyday practical electronics lcd
' The article includes LCD pin functions.

'-----New PicBasic Pro Command-----

' The PicBasic Pro Compiler Manual is on line at:
' <http://www.microengineeringlabs.com/resources/index.htm#Manuals>
'
' LCDOUT Item{,Item...}
' Display Items on an intelligent Liquid Crystal Display. PBP
' supports LCD modules with a Hitachi 44780 controller or
' equivalent.
' Look around page 95 in the PicBasic Pro Compiler Manual

'-----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)
RB3	LCD Enable(E)

' See schematic for the other usual PIC connections

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

<i>LCD Pin</i>	<i>Wiring</i>
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

'-----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 to allow LCD to setup

start:

LCDOUT \$FE,1,"Hello World" ' Clears LCD screen, displays
 ' Hello World

PAUSE 500 ' Pause 1/2 second

GOTO start ' Go to start label

END