

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

' File.....dinsmore1.pbp
' Started....2/29/12
' Microcontroller used: Microchip Technology 16F88
' microchip.com
' PicBasic Pro Code, micro-Engineering Labs, Inc.
' melabs.com
' Compass: Dinsmore 1490 Digital Compass

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

' Dinsmore 1490 digital compass sends LOWS to
' PIC16F88 which displays the direction on an LCD.

'-----Schematic-----

' See schematic at:
' <http://cornerstonerobotics.org/schematics/dinsmore1.pdf>

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

16F88 Pin	Wiring
RA0	DB4
RA1	DB5
RA2	DB6
RA3	DB7
RA4	RS
RB0	Compass Pin 1
RB1	Compass Pin 2
RB2	Compass Pin 3
RB3	Compass Pin 4
RB4	Enable
RB5	No Connection
RB6	No Connection
RB7	No Connection

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

LCD Pin	Wiring
1	Ground(Vss)
2	+5V (Vdd)
3	Center Pin of 20K Pot
4	RA4(Register Select, RS)
5	Ground(Read/Write, R/W)
6	RB4(Enable)
7	No Connection(DB0)
8	No Connection(DB1)
9	No Connection(DB2)
10	No Connection(DB3)
11	RA0
12	RA1
13	RA2

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'          14          RA3

'-----Constants/Defines-----

    DEFINE LCD_EREG    PORTB    ' Set PORTB LCD Enable Port
    DEFINE LCD_EBIT    4        ' Set LCD Enable Bit

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

    TRISB = %00001111    ' Set RB0 - RB3 as inputs, RB4 - RB7
                        ' as outputs

    ANSEL = %00000000    ' Sets all analog bits to digital

    OSCCON = $60        ' Sets the internal oscillator on the
                        ' PIC16F88 to 4 Mz

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

    PAUSE 1000          ' Pause to allow LCD to setup

start:

    IF PORTB.0 = 0 AND PORTB.1 = 1 AND PORTB.2 = 1 AND PORTB.3 = 1 THEN
LCDOUT $FE,1,"N"
    IF PORTB.0 = 0 AND PORTB.1 = 0 AND PORTB.2 = 1 AND PORTB.3 = 1 THEN
LCDOUT $FE,1,"NW"
    IF PORTB.0 = 1 AND PORTB.1 = 0 AND PORTB.2 = 1 AND PORTB.3 = 1 THEN
LCDOUT $FE,1,"W"
    IF PORTB.0 = 1 AND PORTB.1 = 0 AND PORTB.2 = 0 AND PORTB.3 = 1 THEN
LCDOUT $FE,1,"SW"
    IF PORTB.0 = 1 AND PORTB.1 = 1 AND PORTB.2 = 0 AND PORTB.3 = 1 THEN
LCDOUT $FE,1,"S"
    IF PORTB.0 = 1 AND PORTB.1 = 1 AND PORTB.2 = 0 AND PORTB.3 = 0 THEN
LCDOUT $FE,1,"SE"
    IF PORTB.0 = 1 AND PORTB.1 = 1 AND PORTB.2 = 1 AND PORTB.3 = 0 THEN
LCDOUT $FE,1,"E"
    IF PORTB.0 = 0 AND PORTB.1 = 1 AND PORTB.2 = 1 AND PORTB.3 = 0 THEN
LCDOUT $FE,1,"NE"

    PAUSE 200
    GOTO start

    END                    'Ends the program
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