

'-----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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