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'@ DEVICE HS_OSC, WDT_OFF, BOD_OFF



'**************************DEFINITIONS**************************
Define  LCD_DREG       PORTD
Define  LCD_DBIT       4
Define  LCD_RSREG      PORTE
Define  LCD_RSBIT      0
Define  LCD_EREG       PORTE
Define  LCD_EBIT       1
define OSC 4
TRISA = %00001011

'**************************VARIABLES*****************************

x      var    word
y      var    word
z      var    word
v      var    byte
r      var    byte
v2     var    byte
v3     var    byte
t      var    byte
v4     var    byte
v5     var    byte
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v6     var    byte
w      var    byte
v7     var    byte
v8     var    byte
v9     var    byte
n      var    word
m      var    byte
v10    var    byte
v11    var    byte
v12    var    byte

       'ADCON1 = 4            ' Set PortA 0, 1, 3 to A/D inputs
       ADCON1 = 2             ' Set PortA 0, 1, 2, 3, 4 to A/D inputs
       Low PORTE.2            ' LCD R/W line low (W)
       Pause 100              ' Wait for LCD to start

       Goto   mainloop        ' Skip subroutines


'**********************SUBROUTINES************************************

getad:                        ' Subroutine to read A/D Converter
       PAUSEUS 50             ' Wait for A/D channel acquisition time
       ADCON0.2 = 1           ' Start conversion
       WHILE ADCON0.2         ' Wait for it to complete
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    WEND
    Return


getx:                   ' Subroutine to read x value
    ADCON0 = $41        ' Set A/D to Fosc/8, Channel 0, On
    Gosub getad
    x = ADRESH
                        ' Calculations to convert x value to volts
v = 5 * x / 255 * 4         ' Added * 4 to multiply reading back to 12 volts
r = 5 * x // 255 * 4
v2 = 100 * r / 255
v3 = 100 * r // 255
v3 = 10 * v3 / 255
IF (v3 >= 5) THEN v2 = v2 + 1
IF (v2 >= 100) THEN
v = v + 1
v2 = 0
ENDIF
    Return


gety:                   ' Subroutine to read y value
    ADCON0 = $49        ' Set A/D to Fosc/8, Channel 1, On
    Gosub getad
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    y = ADRESH


v4 = 5 * y / 255            ' Calculations to convert y value to volts
t = 5 * y // 255
v5 = 100 * t / 255
v6 = 100 * t // 255
v6 = 10 * v6 / 255
IF (v6 >= 5) THEN v5 = v5 + 1
IF (v5 >= 100) THEN
v4 = v4 + 1
v5 = 0
ENDIF
    Return



getz:                   ' Subroutine to read z value
    ADCON0 = $59        ' Set A/D to Fosc/8, Channel 3, On
    Gosub getad
    z = ADRESH


v7 = 5 * z / 255            ' Calculations to convert y value to volts
w = 5 * z // 255
v8 = 100 * w / 255
v9 = 100 * w // 255
v9 = 10 * v9 / 255
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IF (v9 >= 5) THEN v8 = v8 + 1
IF (v8 >= 100) THEN
v7 = v7 + 1
v8 = 0
ENDIF
    Return


 getn:                  ' Subroutine to read n value
    ADCON0 = $51        ' Set A/D to Fosc/8, Channel 2, On
    Gosub getad
    n = ADRESH

v10 = 5 * n / 255           ' Calculations to convert y value to volts
m = 5 * n // 255
v11 = 100 * m / 255
v12 = 100 * m // 255
v12 = 10 * v12 / 255
IF (v12 >= 5) THEN v11 = v11 + 1
IF (v11 >= 100) THEN
v10 = v10 + 1
v11 = 0
ENDIF
    Return
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'**********************MAINLOOP************************************

mainloop:
      Gosub   getx          ' Get x value
      Gosub   gety          ' Get y value
      Gosub   getz          ' Get z value
      gosub   getn          ' Get n value

      Lcdout $fe, 1, DEC1 v, ".", DEC2 v2, " V1 "                    'send to LCD
      lcdout $fe, $14, dec1 v4, ".", dec2 v5, " V2"                  'send to LCD
      lcdout $fe, $c0, dec1 v7, ".", dec2 v8, " V3 "                 'send to LCD
      lcdout $fe, $14, dec1 v10, ".", dec2 v11, " V4"                'send to LCD
      Pause   100           ' Do it about 10 times a second

if x<125 and y>125 and z>125 and n>125 then high PortD.1     '125 = 2.5V
if y<125 and x>125 and z>125 and n>125 then high PortD.0
if z<125 and x>125 and y>125 and n>125 then high PortD.2
if n<125 and x>125 and y>125 and z>125 then high PortD.3

      Goto    mainloop       ' Do it forever

      End
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