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1: 'PicBasic Pro program of LCD via I2C
2: ' for PIC16F877
3:
4: ' INCLUDE          "modedefs.bas"
5: DEFINE ONINT_USED 1
6: DEFINE OSC 20
7:
8: TRISA=%00000000 ' SET PORTA ALL TO OUTPUT
9: TRISB=%00000000 ' SET PORTB ALL TO OUTPUT
10: TRISC=%10000000 ' SET PORTC.7 TO SERIAL INPUT AND THE OTHER TO I2C
11: TRISD=%00000000 ' SET PORTD ALL TO OUTPUT
12: TRISE=%00000000 ' SET PORTE ALL TO OUTPUT
13: ADCON1=7        ' SET PORTA ALL TO DIGITAL
14: PAUSE 100
15:
16: ' DEFINE VALUES
17: SCL VAR PORTC.3 ' DEFINE CLOCK FOR I2C
18: SDA VAR PORTC.4 ' DEFINE DATA FOR I2C
19: SLAVEADDR VAR BYTE
20: DAT VAR BYTE    ' CONTROL BYTE FOR DATA
21: CONT VAR BYTE  ' CONTROL BYTE FOR CONTROL CODES
22:
23: SLAVEADDR = $7C ' SLAVE ADDRESS"0111110"+WRITE"0" REF P12 ON ST7032DS
24: DAT = $40      ' %01000000SEND DATA TO BE DISPLAYED
25: CONT = 0      ' SEND COMMAND
26:
27: ' INITIALIZE-----
28: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%01111100] ' [$7C]Slave Address + Write
29: PAUSE 1
30: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%10000000] ' [$80]Control byte
31: 'bit7=1:able to send data without start & slave address
32: PAUSE 1
33: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00111001] ' [$39]Function set
34: 'bit4=1:interface data 8bits, bit3=1:2 lines, bit0=1:extend instruction
35: PAUSE 1
36: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00010100] ' [$14]Internal osc freq
37: 'bit3=0:bias volts=VOUT/5, bit2=0:disp freq=183Hz
38: PAUSE 1
39: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%01111100] ' [$7C]Contrast
40: 'bit3=0=10:LSB4bit of contrast
41: PAUSE 1
42: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%01011101] ' [$5E]Power/ICON/Contrast
43: 'bit3=1:icon on, bit2=1:volt boost on, bit1=0=10:MSB2bit of contrast
44: PAUSE 1
45: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%01101101] ' [$6D]Follower control
46: 'bit3=1:drive volts buffer on, bit2=0=101:VO=Vrefx2.5
47: PAUSE 250
48: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00001100] ' [$0C] Display on, cursor off
49: 'bit2=1:entire display on, bit1=0:cursor off, bit0=0:blink off
50: PAUSE 1
51: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00000110] ' [$06]Entry mode
52: 'bit1,0=1,0:cursor move to right & text no shift
53: PAUSE 1
54: ' END INITIALIZE-----
55:
56: MAIN1:
57: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$01] ' CLEAR LCD, CURSOR ON 1ST LINE
58: PAUSE 1
59:
60: ' ERASE ICON(KEY)-----
61: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00111001] ' [$39]Function set
62: 'bit4=1:interface data 8bits, bit3=1:2 lines, bit0=1:extend instruction
63: PAUSE 1
64: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$49] ' ICON ADDRESS(KEY)
65: PAUSE 1

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66: I2CWRITE SDA, SCL, SLAVEADDR, DAT, [$00]          ' ERASE ICON BITS
67: PAUSE 1
68: ' ERASE ICON (KEY)-----
69: ' DISPLAY ICON (ANTENNA)-----
70: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$40]        ' ICON ADDRESS (ANTENNA)
71: PAUSE 1
72: I2CWRITE SDA, SCL, SLAVEADDR, DAT, [%00010000]  ' "D4" ICON BIT (ANTENNA)
73: PAUSE 1000
74: ' DISPLAY ICON (ANTENNA)-----
75:
76: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [3, "*" ]    ' DISPLAY TEXT IN 2 LINES
77: PAUSE 1
78: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$01]        ' CLEAR LCD, CURSOR ON 1ST LINE
79: PAUSE 1
80: I2CWRITE SDA, SCL, SLAVEADDR, DAT, ["SB1602B(I2C_LCD)"] ' TEXT TO BE DISPLAYED
81: pause 1000
82: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$C0]        ' PROMPT ON 2ND LINE
83: PAUSE 1
84: I2CWRITE SDA, SCL, SLAVEADDR, DAT, ["PICBASIC Pro"] ' TEXT TO BE DISPLAYED
85: PAUSE 1000
86: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$01]        ' CLEAR LCD, CURSOR ON 1ST LINE
87: PAUSE 1000
88:
89: ' ERASE ICON (ANTENNA)-----
90: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [%00111001]  ' [$39]Function set
91: ' bit4=1:interface data 8bits, bit3=1:2 lines, bit0=1:extend instruction
92: PAUSE 1
93: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$40]        ' ICON ADDRESS (ANTENNA)
94: PAUSE 1
95: I2CWRITE SDA, SCL, SLAVEADDR, DAT, [$00]        ' [$00]ERASE ICON BITS
96: PAUSE 1
97: ' ERASE ICON (ANTENNA)-----
98: ' DISPLAY ICON (KEY)-----
99: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$49]        ' ICON ADDRESS (KEY)
100: PAUSE 1
101: I2CWRITE SDA, SCL, SLAVEADDR, DAT, [%00010000]  ' "D4" ICON BIT (KEY)
102: pause 1000
103: ' DISPLAY ICON (KEY)-----
104:
105: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [$01]        ' CLEAR LCD, CURSOR ON 1ST LINE
106: PAUSE 1
107: I2CWRITE SDA, SCL, SLAVEADDR, DAT, ["PLUSMECHA 2012"] ' TEXT TO BE DISPLAYED
108: PAUSE 1000
109: I2CWRITE SDA, SCL, SLAVEADDR, CONT, [3, "/" ]    ' DISPLAY TEXT IN W HEIGHT
110: PAUSE 1000
111:
112: GOTO MAIN1
113: END

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