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Program for, "DHT11 interfacing with PIC16F877A"
Program written by_ solderingmind.com
MCU: PIC16F877A; X-tal: 8MHz; mikroC pro for PIC v7.6.0
Date: 15-05-2020
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// LCD module connections
sbit LCD_RS at RB2_bit;
sbit LCD_EN at RB3_bit;
sbit LCD_D4 at RB4_bit;
sbit LCD_D5 at RB5_bit;
sbit LCD_D6 at RB6_bit;
sbit LCD_D7 at RB7_bit;
sbit LCD_RS_Direction at TRISB2_bit;
sbit LCD_EN_Direction at TRISB3_bit;
sbit LCD_D4_Direction at TRISB4_bit;
sbit LCD_D5_Direction at TRISB5_bit;
sbit LCD_D6_Direction at TRISB6_bit;
sbit LCD_D7_Direction at TRISB7_bit;
// END of LCD initialization

// DHT22 pin connection (here data pin is connected to pin RB1)
#define DHT22_PIN          RB1_bit
#define DHT22_PIN_DIR      TRISB1_bit

#include <stdint.h>

// read one byte from sensor
uint8_t dht22_read_byte()
{
    uint8_t i = 8, dht22_byte = 0;

    while(i--)
    {
        while( !DHT22_PIN );

        Delay_us(40);

        if( DHT22_PIN )
        {
            dht22_byte |= (1 << i);    // set bit i
            while( DHT22_PIN );
        }
    }
    return(dht22_byte);
}

// read humidity (in hundredths rH%) and temperature (in hundredths
// °Celsius) from sensor
void dht22_read(uint16_t *dht22_humi, int16_t *dht22_temp)
{

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// send start signal
DHT22_PIN      = 0;    // connection pin output low
DHT22_PIN_DIR  = 0;    // configure connection pin as output
Delay_ms(25);   // wait 25 ms
DHT22_PIN      = 1;    // connection pin output high
Delay_us(30);   // wait 30 us
DHT22_PIN_DIR  = 1;    // configure connection pin as input

// check sensor response
while( DHT22_PIN );
while(!DHT22_PIN );
while( DHT22_PIN );

// read data
*dht22_humi = dht22_read_byte(); // read humidity byte 1
*dht22_humi = (*dht22_humi << 8) | dht22_read_byte(); // read humidity
byte 2
*dht22_temp = dht22_read_byte(); // read temperature byte 1
*dht22_temp = (*dht22_temp << 8) | dht22_read_byte(); // read
temperature byte 2
dht22_read_byte();           // read checksum (skipped)

if(*dht22_temp & 0x8000)// if temperature is negative
{
    *dht22_temp &= 0x7FFF;
    *dht22_temp *= -1;
}
}

char message[] = "00.0";
int humidity, temperature;

// main function
void main()
{
    ADCON1 = 0x07;//ADC Off
    ADCON0 = 0x00;
    CMCON = 0x07;//comparator off
    Lcd_Init();
    Lcd_Cmd(_LCD_CLEAR);
    Lcd_Cmd(_LCD_CURSOR_OFF);
    Lcd_Out(1,1,"DHT22 WITH");
    Lcd_Out(2,1,"PIC16F877A");
    Delay_ms(2000);
    Lcd_Cmd(_LCD_CLEAR);

    while(1)
    {

        dht22_read(&humidity, &temperature);

        Lcd_Out(1,1,"HUMIDITY:");
        Lcd_Out(2,1,"TEMP:");
    }
}

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message[0] = humidity/100 + 48;
message[1] = humidity/10%10 + 48;
message[3] = humidity%10 + 48;
Lcd_Out(1,11, message);
Lcd_Out(1,16,"%");

message[0] = temperature/100 + 48;
message[1] = temperature/10%10 + 48;
message[3] = temperature%10 + 48;
Lcd_Out(2,11, message);
Lcd_Chr_CP(223);
Lcd_Out(2,16,"C");

Delay_ms(1000); // wait a second

} //while(1)
}
// end of code.
```