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lab5_ml_168.c

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```
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//ECE 473 Lab5&6
//Fall 2019
//Code for ATmega168

#include <avr/io.h>
#include "uart_functions_ml168.h"
#include <avr/interrupt.h>
#include <string.h>
#include <util/delay.h>
#include "sht21.h"
#include <stdlib.h>

//Bit Macros
#define BIT0 0
#define BIT1 1
#define BIT2 2
#define BIT3 3
#define BIT4 4
#define BIT5 5
#define BIT6 6
#define BIT7 7

volatile uint8_t rcv_rdy=0;
char rx_char;
//Array to hold incoming data
char rx_array[16];
//counter for decode_rx_data()
uint8_t i_decode;
//Variable to hold length of string in decode_rx_data()
uint8_t length;
//Flag to take sample
uint8_t sample_flag=0;
//Compare array
char sample_array[] = "sample";
//Transmission array
char tx_array[16];

ISR(USART_RX_vect){
    static uint8_t i;
    rx_char = UDR0;//get character
    rx_array[i++]=rx_char;//store in array
    if (rx_char=='\0') {
        rcv_rdy ^=(1<<BIT0);;
        i=0;//reset counter
    }
}

int main()
{
    uart_init();
    sei();
    DDRB = 0x20;// Setting LED Pin as output
    //SHT21 Temperature value
    uint16_t SHT21_temp_val;
    uint8_t fc_toggle = 0;

    while (1) {
        SHT21_temp_val = read_temperature_SHT21();//read temperature sensor
        delay_ms(500);//for testing
        PORTB ^= (1<<5);//for testing
        delay_ms(500);//for testing
        PORTB ^= (1<<5);//for testings

        if (rcv_rdy==1) {
            rcv_rdy ^= (1<<BIT0);
            fc_toggle ^= (1<<BIT0);
        }
    }
}
```

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```
    sht21_temp_convert(tx_array,SHT21_temp_val,fc_toggle);//convert data
    //itoa(1024,tx_array,10);
    uart_puts(tx_array);//send data back
    uart_putc('\0');
}
}

return 0;
}
```