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\* Projekt.c

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#define F\_CPU 8000000UL

#include <avr/io.h>

#include <util/delay.h>

#include <stdio.h>

#include <stdlib.h>

#include "FreeRTOS.h"

#include "task.h"

#include "semphr.h"

#include "LCD\_Programm.h"

#include "SPI\_interface.h"

void vTask1( void \*pvParameters );

void vTask2( void \*pvParameters );

SemaphoreHandle\_t xMutex;

float f\_values[2];

/\*-----------------------------------------------------------\*/

int main( void )

{

char buffer[16];

DDRC = 0xFF;

LCD\_Init();

SPI\_Init();

xTaskCreate( vTask1, "Read\_Task", 1000, *NULL*, 1, *NULL* );

xTaskCreate( vTask2, "Write\_Task", 1000, *NULL*, 1, *NULL* );

xMutex = xSemaphoreCreateMutex();

// Who am i

LCD\_Print("Who am I? ");

LCD\_Cursor\_Position(0,2);

LCD\_Print(*utoa*(SPI\_MasterReceive(WHO\_AM\_I),buffer,2));

*\_delay\_ms*(3000);

LCD\_Init();

vTaskStartScheduler();

while(1)

{

// if all is well then the PC will never reach here

PORTC = 0x55;

*\_delay\_ms*(1500);

PORTC = 0xAA;

*\_delay\_ms*(1500);

}

return 0;

}

/\*-----------------------------------------------------------\*/

void vTask1( void \*pvParameters )

{

TickType\_t xLastWakeTime = xTaskGetTickCount();

*uint8\_t* i = 0;

while(1)

{

if(xSemaphoreTake(xMutex, portMAX\_DELAY) == 1)

{

f\_values[0] = read\_Pressure();

f\_values[1] = read\_Temperature();

PORTC &= ~(1<<i);

i++;

if (i==8)

{

i = 0;

}

xSemaphoreGive(xMutex);

}

//vTaskDelay(pdMS\_TO\_TICKS(100UL));

vTaskDelayUntil(&xLastWakeTime, pdMS\_TO\_TICKS( 100UL ));

}

}

/\*-----------------------------------------------------------\*/

void vTask2( void \*pvParameters )

{

TickType\_t xLastWakeTime = xTaskGetTickCount();

char buffer[16];

while(1)

{

if(xSemaphoreTake(xMutex,portMAX\_DELAY) == 1)

{

PORTC = 0xFF;

LCD\_Cursor\_Position(0,1);

// Pressure

LCD\_Print("p=");

LCD\_Print(ftoa(f\_values[0],1,buffer));

LCD\_Print(" hPa");

// Temperature

LCD\_Cursor\_Position(0,2);

LCD\_Print("T=");

LCD\_Print(ftoa(f\_values[1],1,buffer));

LCD\_Print("C ");

// NHN

LCD\_Print("h=");

LCD\_Print(ftoa(NHN(f\_values[0]),1,buffer));

LCD\_Print("m");

xSemaphoreGive(xMutex);

}

//vTaskDelay(pdMS\_TO\_TICKS(100UL));

vTaskDelayUntil(&xLastWakeTime, pdMS\_TO\_TICKS( 100UL ));

}

}