Real-Time and Embedded Systems Design – Lab 5 Report Submission

Team 17

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#include <stdint.h>

#include "tm4c123gh6pm.h"

#include "FreeRTOS.h"

#include "task.h"

#include "timers.h"

#include <stdio.h>

static void vTask1( void \*pvParameters );

//static void vTask2( void \*pvParameters );

static void vTask3( void \*pvParameters );

void vApplicationIdleHook(void);

int main()

{

    \_\_asm("CPSID I");

    SYSCTL\_RCGCGPIO\_R=0x20;

    GPIO\_PORTF\_DIR\_R=0x0E;

    GPIO\_PORTF\_DEN\_R=0x0E;

        \_\_asm("CPSIE I");

        xTaskCreate(vTask1, (const portCHAR \*)"Task1", 128, NULL, 1, NULL );

    //  xTaskCreate(vTask2, (const portCHAR \*)"Task2", 128, NULL, 1, NULL );

        xTaskCreate(vTask3, (const portCHAR \*)"Task3", 128, NULL, 1, NULL );

        vTaskStartScheduler();

}

static void vTask1( void \*pvParameters )

{

    portTickType xLastWakeTime;

    xLastWakeTime = xTaskGetTickCount();

    for ( ; ; )

    {

        //const TickType\_t xDelay = 500 / portTICK\_RATE\_MS;

        GPIO\_PORTF\_DATA\_R ^=(1U << 1);

        //vTaskDelay(1000/portTICK\_RATE\_MS);

        vTaskDelayUntil(&xLastWakeTime,(1000/portTICK\_RATE\_MS));

        //vTaskDelay(xDelay);

    }

}

static void vTask3( void \*pvParameters )

{

    portTickType xLastWakeTime;

    xLastWakeTime = xTaskGetTickCount();

    for ( ; ; )

    {

        //const TickType\_t xDelay = 500 / portTICK\_RATE\_MS;

        GPIO\_PORTF\_DATA\_R ^=(1U << 3);

        //vTaskDelay(3000/portTICK\_RATE\_MS);

        vTaskDelayUntil(&xLastWakeTime,(2000/portTICK\_RATE\_MS));

        //vTaskDelay(xDelay);

    }

}

void vApplicationIdleHook()

{

    GPIO\_PORTF\_DATA\_R ^=(1U << 2);

    for ( ; ; ) {}

}

A picture containing diagram

Description automatically generated

Figure - Timing Diagram

Chart, bar chart

Description automatically generated

Figure - Color Diagram