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

Team 17

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```c
#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 ( ; ; ) {}
}
```

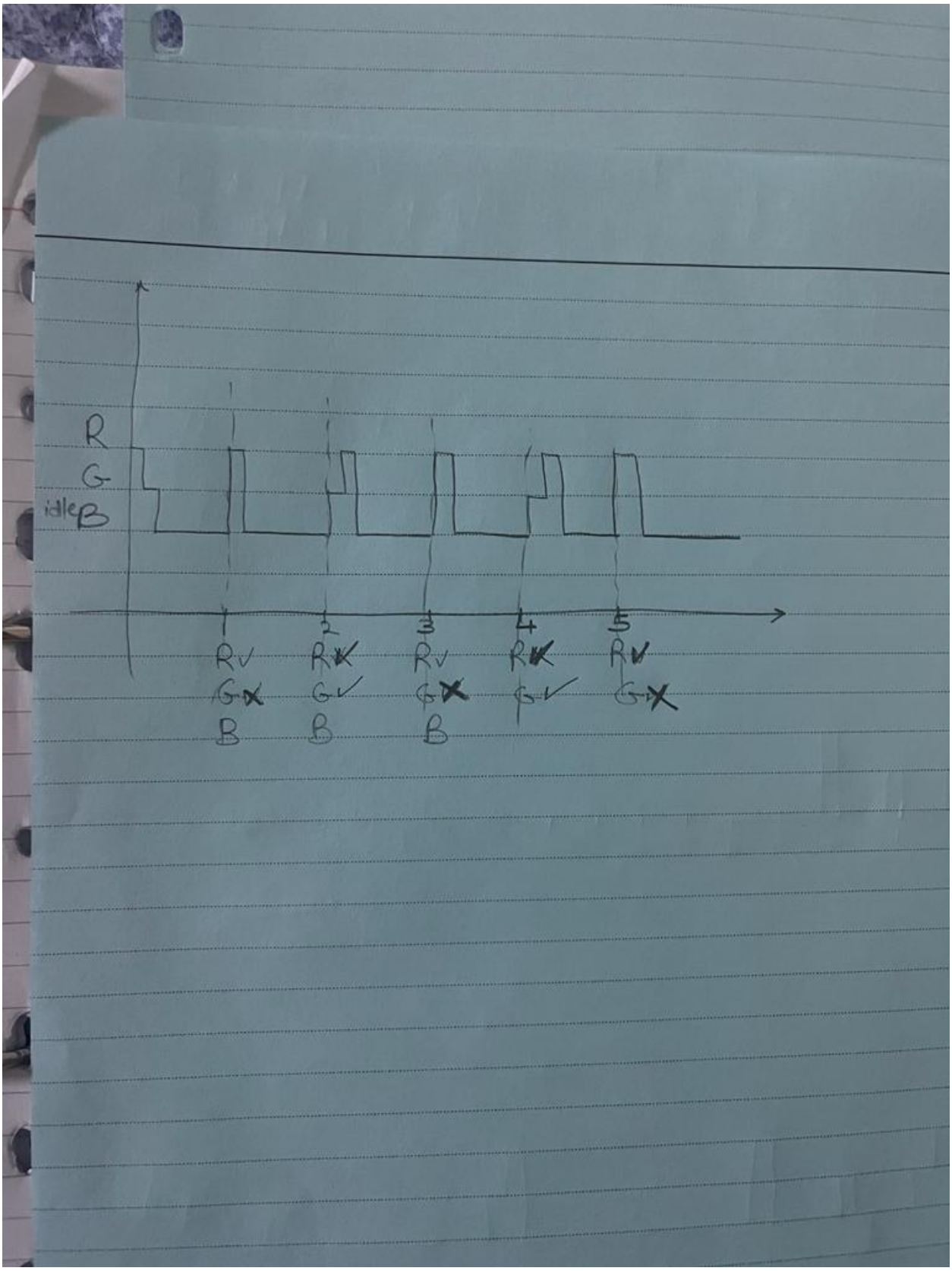

Figure 1 - Timing Diagram

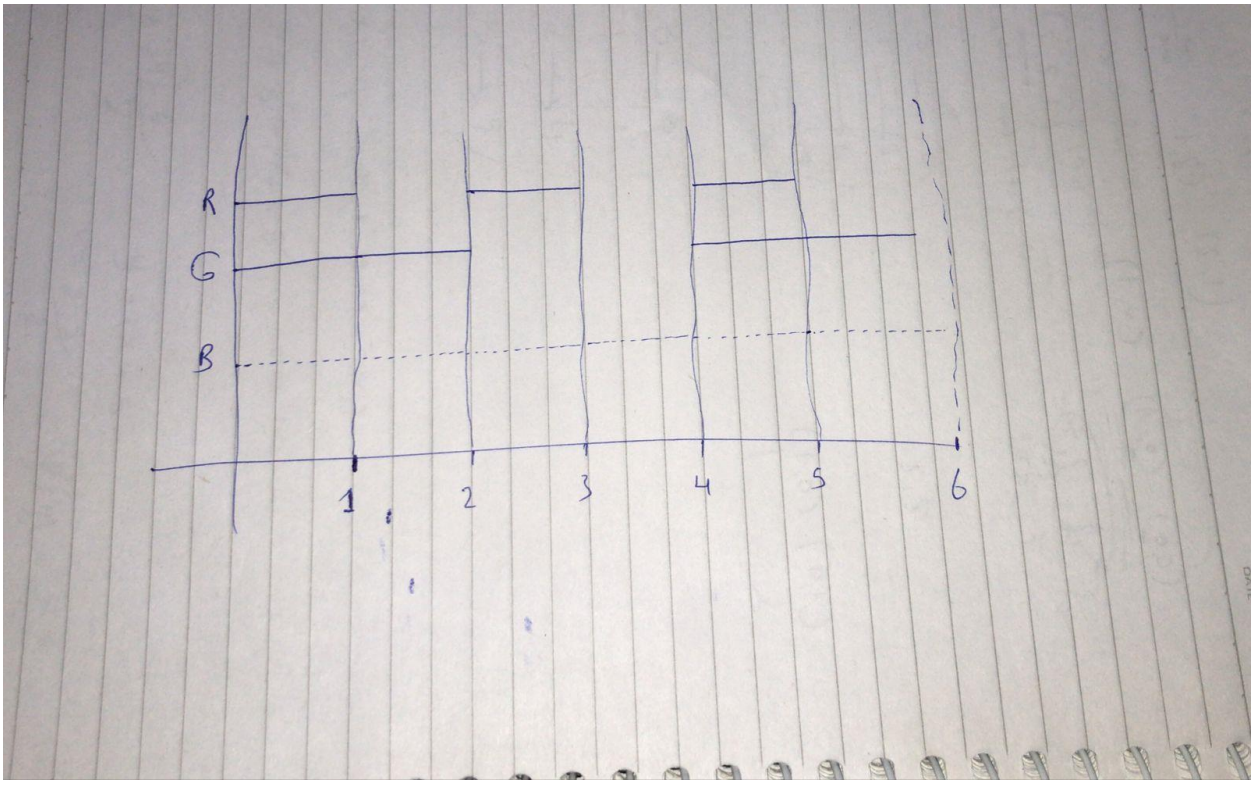

Figure 2- Color Diagram