Embedded system lab 1

Introduction to ESP32 and ESP-IDF and ESP32 GPIO and FreeRTOS task

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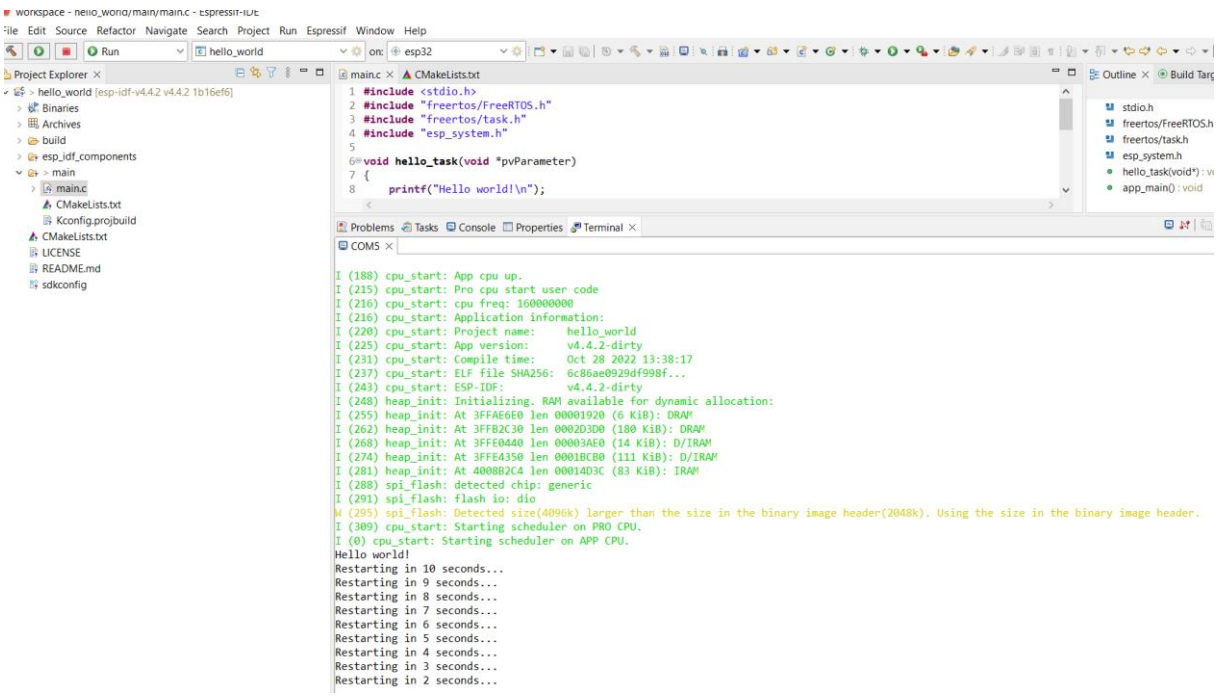
In-class Requirements :

ESP-L01 code :

```
#include <stdio.h>
#include "freertos/FreeRTOS.h"
#include "freertos/task.h"
#include "esp_system.h"

void hello_task(void *pvParameter)
{
    printf("Hello world!\n");
    for (int i = 10; i >= 0; i--) {
        printf("Restarting in %d seconds...\n", i);
        vTaskDelay(1000 / portTICK_RATE_MS);
    }
    printf("Restarting now.\n");
    fflush(stdout);
    esp_restart();
}

void app_main()
{
    xTaskCreate(&hello_task, "hello_task", 2048, NULL, 5, NULL);
}
```

ESP-L01 result :

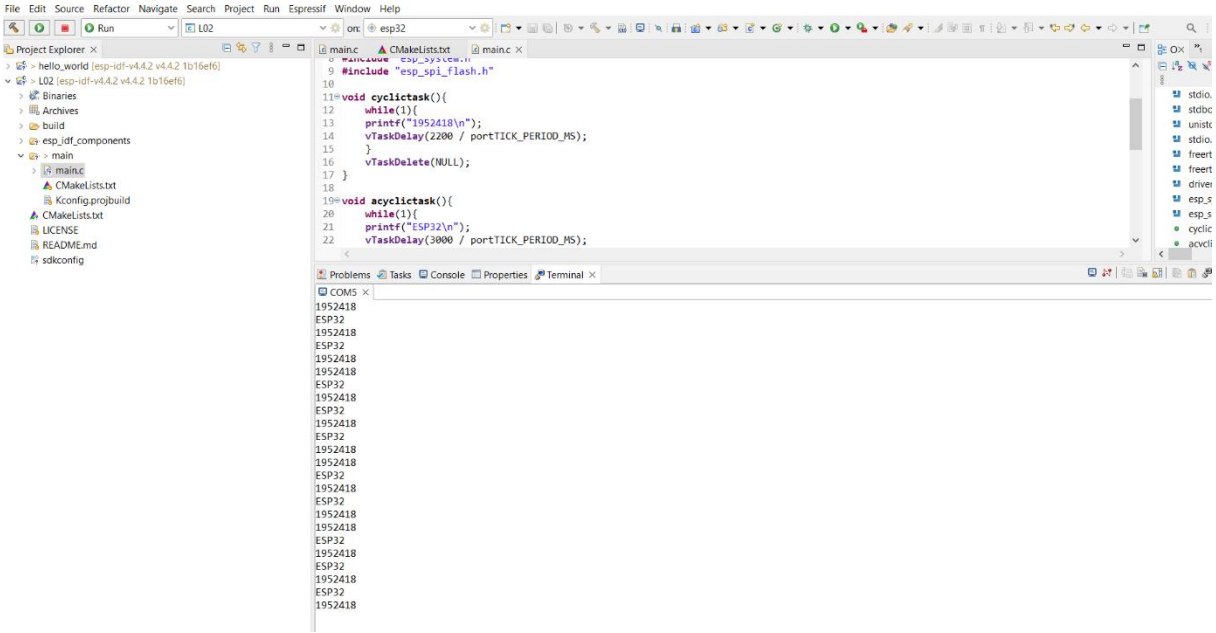


ESP-L02 code :

```
#include <stdio.h>
#include <stdbool.h>
#include <unistd.h>
#include <stdio.h>
#include "freertos/FreeRTOS.h"
#include "freertos/task.h"
#include "driver/gpio.h"
#include "esp_system.h"
#include "esp_spi_flash.h"

void cyclictask(){
	while(1){
	printf("1952418\n");
	vTaskDelay(2200 / portTICK_PERIOD_MS);
	}
	vTaskDelete(NULL);
}

void acyclictask(){
	while(1){
	printf("ESP32\n");
	vTaskDelay(3000 / portTICK_PERIOD_MS);
	}
	vTaskDelete(NULL);
}

void app_main(void)
{
```

```
        xTaskCreate(
                    cyclictask ,
                    "cyclic " ,
                    1024*2 ,
                    NULL ,
                    1,
                    NULL
              );
        xTaskCreate(
                          acyclictask ,
                          "acyclic " ,
                          1024*2 ,
                          NULL ,
                          1,
                          NULL
                    );
}
```

ESP-L02 result :



Does the ESP-IDF need the vTaskStartScheduler() routine?

ESP-IDF FreeRTOS **does not require users to call vTaskStartScheduler() to start the scheduler**. The startup flow of an ESP-IDF application will already call this automatically.