**REPORT LAB**

**EMBEDDED SYSTEM - CO3054**

*Group:* **CC02**

*Student:* **Dương Gia An – 1952163**

Contents

[**I.** **INTRODUCTION TO ESP32 AND ESP-IDF** 2](#_Toc117868766)

[1. After install ESP-IDF extension on VS code, I create a project with HelloWorld Template. 2](#_Toc117868767)

[2. Build the Project and connect ESP32 (COM3). 2](#_Toc117868768)

[3. Flash (UART) project code to ESP32 by Press BOOT button on ESP32 while Flashing. 3](#_Toc117868769)

[4. Press Monitor Device to see ESP execute flashed code. 5](#_Toc117868770)

[**II.** **ESP32 GPIO AND FREERTOS TASK** 6](#_Toc117868771)

[Code in file **main.c** 6](#_Toc117868772)

[Link Github: CO3054\_ES\_LAB/LAB1 at main · kinggiaan/CO3054\_ES\_LAB (github.com) 7](#_Toc117868773)

[***Explain:*** 7](#_Toc117868774)

[***Result:*** 8](#_Toc117868775)

[***Does the ESP-IDF need the vTaskStartScheduler() routine?*** 9](#_Toc117868776)

1. **FREERTOS SOFTWARE TIMER**
2. After create new Project with Template. I config “configUSE\_TIMERS” in FreeRTOSConfig.h by new file override.h

A screenshot of a computer

Description automatically generated with medium confidence

1. Initialize Global variables: 2 timer by NULL and counter by 0.

Graphical user interface, text

Description automatically generated

1. In app\_main(), I use **xTimerCreate**  for 2 timer **auto\_loader\_timer1** and **auto\_loader\_timer2.**   
   Text

   Description automatically generated
2. After creae 2 timer. I set condition to make sure them ok ( mean not **NULL**) to Start timer by **xTimerStart(timer, delay).**  
   Text

   Description automatically generated
3. In call back function for Timer. I check Timer ID by p**vTimerGetTimerID**. When a timer in 2 timer expires, I check if timer’s ID is 1 or 2 then print as requirment.   
   After they done their task, I use **xTimerStop** to stop timer.

Text

Description automatically generated

1. After 2 timer done there task, about 25 second, I check if true that 2 timer done there task.

Text

Description automatically generated

1. Result and github link for project: [HK221\_CO3054\_ES\_LAB/LAB3/LAB3\_SoftwareTimer at lab3 · kinggiaan/HK221\_CO3054\_ES\_LAB (github.com)](https://github.com/kinggiaan/HK221_CO3054_ES_LAB/tree/lab3/LAB3/LAB3_SoftwareTimer)   
    Text

   Description automatically generated
2. **ESP32: WIFI SUBSYSTEM**By using ESP-IDF template for **softAP** and **STATION.**

[esp-idf/examples/wifi/getting\_started at master · espressif/esp-idf (github.com)](https://github.com/espressif/esp-idf/tree/master/examples/wifi/getting_started)  
  
1. Result for **softAP** that I can connect to my phone to ESP wifi (myssid) :

Text

Description automatically generated

Graphical user interface, application

Description automatically generated

2. Result ESP as a **STATION** that connect to my WIFI name’s **P0922** and attempt to connect another one’s name **P0922\_5G**:

Text

Description automatically generated