

HO CHI MINH UNIVERSITY OF TECHNOLOGY
EMBEDDED SYSTEM

LAB 4 REPORT

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1 Exercise

Students create 2 software timers sharing only one timer callback function, in which:

- The first timer is used to print "ahihi" every 2 seconds and will stop after 10 times printing.
- The second timer is used to print "ihaha" every 3 seconds and will stop after 5 times printing.

In this exercise, i will make use of the ID parameter, i will put ID 0 for *timer 1* and ID 1 for *timer 2*. And in the callback function, I will check ID of the timer that callback this time and process to print "AHIHI" or "IHAHA".

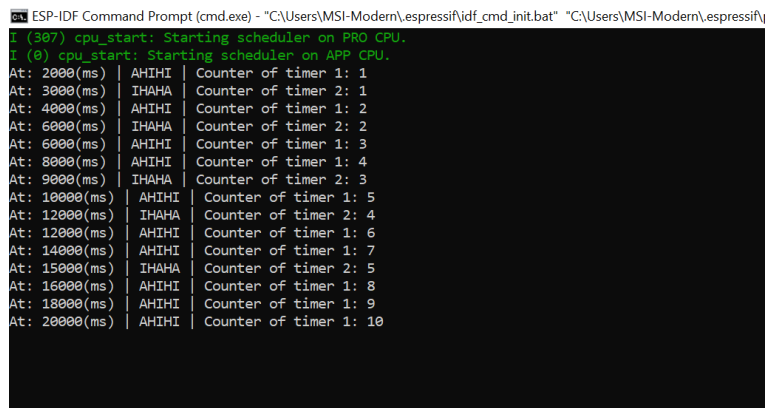


Figure 1: Result of program

2 Impletation

```
1 #include <stdio.h>
2 #include <time.h>
3 #include "freertos/FreeRTOS.h"
4 #include "freertos/task.h"
5 #include "driver/gpio.h"
6 #include "sdkconfig.h"
7 #include "freertos/timers.h"
8
9 #include "freertos/FreeRTOSconfig.h"
10 #include "esp_system.h"
11 #include "esp_spi_flash.h"
12
13 TimerHandle_t timerHandle, timerHandle1;
14 int count = 0, count1 = 0;
15
16 void myTimerCallBackFunction(TimerHandle_t xTimer)
17 {
18     if (pvTimerGetTimerID(xTimer) == (void *) 0) {
19         clock_t currentTime = clock();
20         count++;
21         printf("At: %ld(ms) | AHIHI | Counter of timer 1: %d\n", currentTime,
22             count);
23     }
24 }
```

```
22     if (count == 10) {
23         xTimerStop(timerHandle, 0);
24     }
25 } else {
26     clock_t currentTime = clock();
27     count1++;
28     printf("At: %ld(ms) | IHAHA | Counter of timer 2: %d\n", currentTime,
29           count1);
30     if (count1 == 5) {
31         xTimerStop(timerHandle1, 0);
32     }
33 }
34
35
36 void app_main(void)
37 {
38     timerHandle = xTimerCreate("TIMER1",
39                               200,
40                               pdTRUE,
41                               (void *) 0,
42                               myTimerCallBackFunction);
43     timerHandle1 = xTimerCreate("TIMER2",
44                                300,
45                                pdTRUE,
46                                (void *) 1,
47                                myTimerCallBackFunction);
48
49     if ((timerHandle) && (timerHandle1)) {
50         xTimerStart(timerHandle, 0);
51         xTimerStart(timerHandle1, 0);
52     }
53 }
```