

INFORME PRÀCTICA 2_2

CODI

```
#include <Arduino.h>
#define LED 16

volatile int interruptCounter;
int totalInterruptCounter;
hw_timer_t * timer = NULL;
portMUX_TYPE timerMux = portMUX_INITIALIZER_UNLOCKED;

void IRAM_ATTR onTimer() {
    portENTER_CRITICAL_ISR(&timerMux);
    interruptCounter++;
    portEXIT_CRITICAL_ISR(&timerMux);
}

void setup() {
    Serial.begin(115200);
    timer = timerBegin(0, 80, true);
    timerAttachInterrupt(timer, &onTimer, true);
    timerAlarmWrite(timer, 1000000, true);
    timerAlarmEnable(timer);
}

void loop() {
    if (interruptCounter > 0) {
        portENTER_CRITICAL(&timerMux);
        interruptCounter--;
        portEXIT_CRITICAL(&timerMux);
        totalInterruptCounter++;
        Serial.print("An interrupt as occurred. Total number: ");
        Serial.println(totalInterruptCounter);
    }
}
```

FUNCIONAMENT

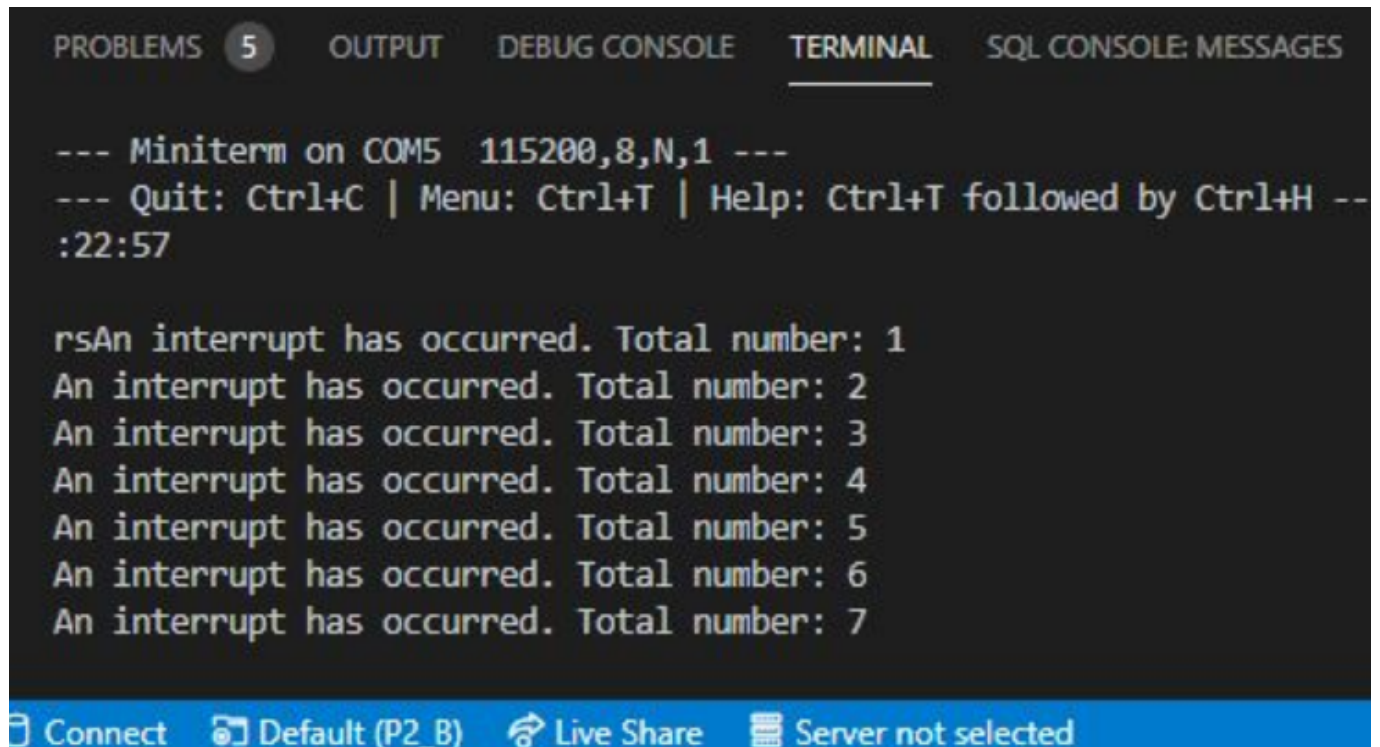
Per generar els resultats pel monitor, configurem el setup obrint la connexió *Serial.begin(115200)*.

Inicialitzem un temporitzador amb el *timer=timerBegin(0,80,true)* i el vinculem a la funció que s'executa quan es fa la interrupció *timerAttachInterrupt()*. Seguidament, fem servir la funció *timerAlarmWrite()* per especificar el valor del contador en el que es generarà la interrupció del temporitzador.

En cada bucle, comprovarem si la variable *interruptCounter* és més gran a 0, si és així el reduïrem especificant que s'ha reconegut la interrupció.

Finalment, també s'indicaran el número total de interrupcions realitzades.

SORTIDA DE LA TERMINAL



The image shows a screenshot of a terminal window with a dark background and light-colored text. At the top, there is a navigation bar with several tabs: 'PROBLEMS' (with a '5' in a circle), 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL' (which is underlined), and 'SQL CONSOLE: MESSAGES'. The terminal content starts with a header line: '--- Miniterm on COM5 115200,8,N,1 ---'. Below this is a line of instructions: '--- Quit: Ctrl+C | Menu: Ctrl+T | Help: Ctrl+T followed by Ctrl+H ---'. The next line shows the time ':22:57'. Following this, there are seven lines of text, each stating 'rsAn interrupt has occurred. Total number: ' followed by a number from 1 to 7. At the bottom of the terminal window, there is a blue status bar containing the text 'Connect', 'Default (P2_B)', 'Live Share', and 'Server not selected'.

```
PROBLEMS 5 OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE: MESSAGES

--- Miniterm on COM5 115200,8,N,1 ---
--- Quit: Ctrl+C | Menu: Ctrl+T | Help: Ctrl+T followed by Ctrl+H ---
:22:57

rsAn interrupt has occurred. Total number: 1
An interrupt has occurred. Total number: 2
An interrupt has occurred. Total number: 3
An interrupt has occurred. Total number: 4
An interrupt has occurred. Total number: 5
An interrupt has occurred. Total number: 6
An interrupt has occurred. Total number: 7

Connect Default (P2_B) Live Share Server not selected
```