Session 2: *TivaWare, Timers, and Interrupts*

- **Topics**
  - Tivaware
  - SysTick timer
  - General purpose timer module (GPTM)
  - Interrupts and Nested Vectored Interrupt Controller (NVIC)
  - Project

- **Objectives**
  - Self-learning from different resources
  - Gaining hands-on skills
  - Teamwork
  - How to use Microcontroller documentation and get what you need?
  - How to use TivaWare library?

- **Applications in Industry**
  - To be discussed

- **Prerequisites**
  - C language knowledge
  - Session 1 topics

- **Resources**
  - Attachments uploaded on Google Drive: https://drive.google.com/drive/folders/1ogqS6xXNCsbkchynz0OArmJ0u2s6Vw_f?usp=sharing
  - Download Code Composer Studio (CCS) software: https://www.ti.com/tool/download/CCSTUDIO/12.4.0https://www.iar.com/products#/search?currentTab=free-trials
  - Link TivaWare to CCS: https://www.instructables.com/Creating-a-new-Tiva-Project-in-Code-Composer-Studi/ (you will need to download TivaWare and check its documentation)
  - You can also continue working with IAR instead of CCS, you will just have to link TivaWare library to IAR.
  - Miro Samek Lessons: https://www.state-machine.com/video-course, (For ex: Interrupts: lessons 16, 17, 18)
  - You may need more resources from the internet, search for what you need.

- You are always free to contact us, anytime, for any questions or need for more information or resources.

- **Task 1**
  - Write a C code project to toggle the white LED each **500 ms** using the **SysTick** timer, one time using the **registers**, and another time using **TivaWare** library.

- **Delivery Date of Task 1**
  - Wednesday 26/7/2023, each team will present his working project on Tiva C TM4C123GH6PM microcontroller board. **[ONLINE]**

- **Task 2**
  - Write a C code project to toggle the white LED each **1000 ms** using **GPTM** one time using the **registers**, and another time using **TivaWare** library.

- **Delivery Date of Task 2**
  - Wednesday 26/7/2023, each team will present his working project on Tiva C TM4C123GH6PM microcontroller board. **[ONLINE]**

- **Task 3**
  - Write a C code project to toggle the white LED each **2500 ms** using **SysTick** timer using SysTick **Interrupt** and **TivaWare** library.

- **Delivery Date of Task 3**
  - Wednesday 26/7/2023, each team will present his working project on Tiva C TM4C123GH6PM microcontroller board. **[ONLINE]**

- **Task 4**
  - Write a C code project to develop the project mentioned in “Keypad_with_GPIO” lab document, but you will make it work only using **Interrupts**.
  - You will need to buy a simple 4*4 keypad.

- **Delivery Date of Task 4**
  - Monday 31/7/2023, each team will present his working project on Tiva C TM4C123GH6PM microcontroller board. **[FACE-TO-FACE]**