

Follow the submission guideline to be awarded points for this Assignment.

Goal of this assignment is to create four tasks, 1) ADC task, 2) UART display task, 3) Switch Read task, and 4) Heartbeat function (PF3). The heartbeat function is performed throughout the execution of the program. Each task will be executed in order specified above every 15 ms. Connect a potentiometer/joystick (one axis) to the ADC pin. Use ADC0 CH4. Also initialize a PWM signal to a LED (PF1). Initial value of the PWM duty cycle is set to 0. Create a timer 0/1/2 HWI for every 1 ms, at 5th instance of HWI the task ADC is performed, at 10th instance of HWI the task UART displays the current value ADC in the terminal, and at 15th instance of HWI the task Switch Read is performed to check the status of the SW1/SW2 to update the current value of duty cycle based on the ADC value. Note that the duty cycle of the PWM does not change unless the switch is pressed, even when the ADC value changes. However, the UART should display the dynamic value of the ADC.

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Submit the following for all Labs:

- In the document, for each task submit the modified or included code (only) with highlights and justifications of the modifications. Also include the comments.
- Create a private Github repository with a random name (no CPE/403, Lastname, Firstname). Place all labs under the root folder TIVAC, sub-folder named Assignment1, with one document and one video link file for each lab, place modified c files named as asng_taskxx.c, tivac_tirtos.c and tivac_tirtos.cfg.
- If multiple c files or other libraries are used, create a folder asng1_t01 and place these files inside the folder.
- The folder should have a) Word document (see template), b) source code file(s) with startup_ccs.c and other include files, c) text file with youtube video links (see template).
- Submit the doc file in canvas before the due date. The root folder of the github assignment directory should have the documentation and the text file with youtube video links.
- Organize your youtube videos as playlist under the name “cpe403”. The playlist should have the video sequence arranged as submission or due dates.