TIVAC TIRTOS ASSIGNMENT

Objective

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 to the ADC pin. Use ADC0 CH4. Also initialize a PWM signal to a LED (PF1). Initial value of the PWM dutycycle 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 dutycycle based on the ADC value. Note that the dutycycle 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.

Submit the following:

- Demo (Video link text file), Document, and Code.
- Documentation: Submit the midterm report with 1) Goal, 2) Detailed Implementation, 3) Schematics, 4) Video links, 5) Screenshots, and 6) Conclusions (tasks completed).

Marks are awarded based on the following criteria:

Requirements:

- C - Code submitted with comments and project support materials (30%)
- D - Documentation with comments, variations for tasks, schematics (30%)
- V - Video Demo in txt file, I - Image Screenshots in Document or links (40%)

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

Submit the following for all Labs:

- In the existing Github submission repository, place all assignment files under the root folder TIVAC-TIRTOS, subdirectory TIRTOS-Assignment with one document and one video link file for each sub-task, place modified c files named as tivac_tirtos.c and tivac_tirtos.cfg.
- The folder should have a) Word document (see template), b) source code file(s) with cfg and startup_ccs.c and other include files, c) text file with youtube video links (see template).