Embedded and Real-Time Systems

Project 4
Due to Dec 04, 2018

Task 1: Red LED blinking at 0.25Hz
Task 2: Green LED blinking at 0.25Hz
Task 3: Red LED and Green LED light up alternatively at 0.25 Hz
Task 4: Red LED and Green LED light up simultaneously at 0.25 Hz
Task 5: Seven-Segment counts from 0 to 9
Switch 1: Connected to PD1 generates an interrupt whenever pushed
Switch 2: Connected to PD2 generates an interrupt whenever pushed
Switch 3: Connected to PD3 generates an interrupt whenever pushed

Part 1: In this section you should implement an RTC (Run to Completion) scheduler. Task 1 and Task 2 run with assigned priority of 4. Task 3, Task 4 and Task 5 have priorities of 3, 2 and 1 respectively. Task 3 runs whenever Switch 1 is pressed, Task4 runs whenever Switch 2 is pressed, and Task 5 runs whenever switch 3 is pressed. Lower priority number indicates higher priority. In the interrupt routines just set a flag to show that the related Task is ready to run. Call the scheduler at the end of each completed task.

Part 2: Repeat part 1 using a preemptive scheduler. Here, the scheduler is called at the end of each task and at the end of each interrupt service routine.

Deadline: 23:55 December 04, 2018
Good luck!

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