

Using the scheduler get your board to do the following:

- The 7-segment display will count from 0 to 9 repeatedly, initially with a 1.0 s period.
- Turning the rotary encoder clockwise will speed the counter up by 0.1 s (to a minimum of a 0.5 s period), and anticlockwise the counter will slow down (to a maximum of a 1.5 s period).
- The RGB LED will initially operate with the red and green components turning on and off with a 0.05 s period and 50% duty cycle (so on at 0, off at 0.025, on at 0.05, off at 0.075 and so on).
- Moving the joystick will change the RGB operation as follows:
 - Moving left will increase the duty cycle of the red component in 10% increments, moving right will decrease the duty cycle in 10% decrements.
 - Moving up/down will affect the green component similarly.
 - Pressing the joystick down will turn the blue component on or off.

You should have at least four task functions - one to update the RGB display, one to update the 7-segment display, and two to process input from the joystick and rotary encoder respectively. Timing for the 7-segment counter and the RGB LED duty cycles will have to be handled by an internal counter in those functions - for example, the 7-segment counter will initially update every second - so the task should run every 0.1 seconds, and only change the display every tenth time it runs. When the timing is adjusted up or down, the task will still run every 0.1 seconds, but will update the display every ninth time it runs, or every eleventh time, and so on.

Tasks should communicate in the manner shown in the week 9 lab exercise (using global variables), and should not mix code relating to different parts of the hardware (so for example, the task which checks the rotary encoder status should not update the 7-segment display directly, but should set a global variable to show the status - the 7-segment task will read this status variable and alter the update speed accordingly). Code should be uploaded by midday on Monday the 11th of December. **Please read the instructions from the first assignment on submitting your project.**