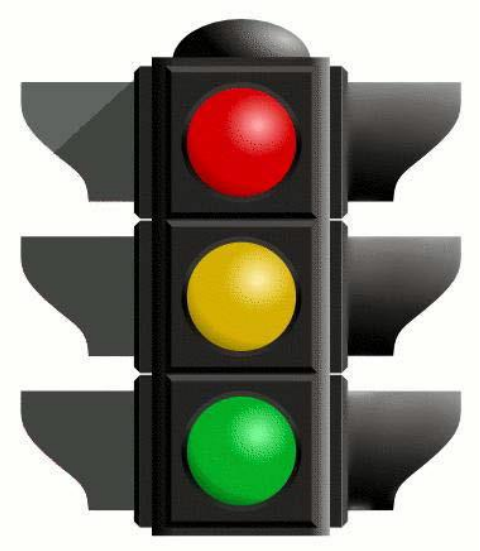
Assignment 2 – Traffic Light



Design a program for the kit, which implements a traffic light, using the LEDs of the EMP expansion board.

The traffic light must cycle through the states: red, yellow and green using a suitable timing.
Remember, that sometimes the red and the yellow lights are lit at the same time.

A single press at <SW1> puts the traffic light in "Norwegian night" state, where the yellow light flashes once every second. A double press at <SW1> puts the traffic light in an emergency state, where the red light is lit constantly. A 2-second-long press at <SW1> returns the traffic light back to normal operation.

All the timing in the system is controlled by a single timer interrupt and the "ticks" variable.

The Program must be designed using at least 2 separated tasks:

- **the Traffic Light** must be implemented as a state machine with <SW1> presses and timer events as inputs.
- a **driver**, which read the <SW1> button and hands over a <SW1> press event to the traffic light.

To get familiar with the EMP board, check the documentation under itslearning -> resources -> datasheets -> EMP board.

If you don't have access to the EMP board, you can also implement the thraffic light on the multicolor LED of the Tiva board. The simultaneous lighting of red and yellow could be represented by the pink color.

Good luck,

Oskar