

CSE2037 Lab - 8, Section A

Pins: Three GPIO pins will be used as outputs for green, yellow and red LEDs.

Pins: A single pin will be used as external interrupt.

Task:

- a. In the main loop all three LEDs run the following states indefinitely to mimic traffic lights:
 - i. The green LED is turned on for 10 seconds (cars move)
 - ii. The yellow LED is turned on for 3 seconds (cars stop)
 - iii. The red LED is turned on for 6 seconds (pedestrians walk)
 - iv. The red and yellow LEDs are turned on for 2 seconds.
- b. If a pedestrian presses the button in state **i** after 5 seconds, then the system will switch to state **ii**. If the button is pressed before 5 seconds, then the system will wait until 5 seconds have passed and switch to state **ii**.
- c. If the system is in state **iii** or state **iv**, button press will do no operation.
- d. Sys_tick will be used for timing definitions.

Hint: Do not use HAL_Delay function. Utilize sys_tick frequency for counting approximate durations.

Note: We provide the document early. Hence, the students can solve the problem before the lab. This does not mean that they can cheat. Therefore, the student understands that "honor system is observed" while preparing the lab solutions. He or she will sign the returned lab sheet by writing the below phrase.

"Honor system is observed while preparing this solution. I did not get help from anybody beside my lab partner. I did not help anybody beside my lab partner. I did not allow anybody to violate the honor system."

Date / Signature of the Student