**Alexandria University**
**Faculty of Engineering**
**Computer and Systems Engineering Department**

**CS331: Microprocessor Systems**
**Assigned: Sunday 31st Oct, 2021**
**Due: Sunday 07 Nov , 2021**

# Arduino LAB

# Assignment 2

## Traffic Lights:

Pedestrian traffic lights allow any person who wishes to cross the road to press a button which triggers an alert for the trafic light system to change light into “green” and allow him to cross.

You are asked to simulate a similar system using your arduino kit, 2 LEDs, a push-button or a switch.

Normal operation is that only one LED is active (ON) at any moment. A LED stays on for 2 seconds then it becomes (OFF) and the other LED becomes ON and stays for 2 seconds then the cycle continues.

If the switch or push button are pressed then the LEDs should invert their states instantly (The one that was (ON) becomes (OFF) and the one that was (OFF) becomes (ON)) and stay at these new states for 2 seconds and then invert states for 2 seconds and so on.

Every time the switch or push button are pressed the LED states must change instantly and the 2 seconds counter starts.

In case of push button, you press and release .

In case of switch, each press changes the state of the switch itself.

**NOTES**: You should consider using resistors and apply the debouncing code.

## Delivery Policy

- Same groups
- Represent the Traffic Lights system using components (LEDs, switch, etc.…) and code.
- Each group must send an approx. **10** seconds **video** (size around **10 MB**) showing the Arduino kit and external components with the following sequence of actions:
    - During the first 4 seconds, the LEDs should switch states automatically each 2 seconds.
    - At the 5th second (1 second after the previous change of states), You should press the push button or switch and the LEDs must change states instantly.
    - Repeat the previous step at the 8th second (1 second after the previous change of states).
    - Save the video in a readable format (.wmv, .mp4, etc..) and with the **name** of your group number

      Ex.: 1.wmv
    - All members must be present during delivery
    - **Due date: Sunday 07 November @13:59**
    - If video size exceeds mail limit or above (25 MB) then you must send the code before the deadline, and bring your kit and components during the LAB.

- **Late delivery** = -25% for each day of delay.

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## Good Luck