Alexandria University
Faculty of Engineering
Computer and Systems Engineering Department

Computer Organization
Assigned: Saturday 12/10/2024
Due: Saturday 19/10/2024

Microcontroller Lab 2

Lab Objectives

Digital input and a review on digital output.

Manual Pedestrian 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 until the button is pressed and then both toggles.

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.

Every time the switch or push button are pressed the LED states must change instantly.

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. Use Red and Green LEDs.

Delivery Policy

- Represent the Traffic Lights system using components (LEDs, switch, etc.…) and code.
- You should submit your source code.
- You should submit a report showing the description of your work.
- Each group must send a video showing the Arduino kit and external components with the following sequence of actions:
    - During the first 4 seconds, the Red LED should be on.
    - At the 5th second, 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).
    - You should submit a video along with a report showing your code.
    - Save the video in a readable format (.wmv, .mp4, etc..).
- **Assigned Date**: Saturday 12/10/2024
- **Due Date:** Saturday 19/10/2024 @ 23:59
- **Late delivery** = -25% for each day of delay.

Good Luck