Problem Description:

In this project, it is required to design a traffic light controller for a four-way intersection (shown in figure 1) as per the following specifications:

1. Each road in the intersection is controlled by a traffic light that has 3 different colored lights. The lights should turn on one at a time to indicate one of the following signals:
    a. Red light: stop the traffic flow.
    b. Green light: allow the traffic flow.
    c. Yellow (or orange) light: warns that the state is about to change from green light to red light.
2. The traffic lights should be controlled with fixed time cycles. The time duration for the green light should be 5 seconds, whereas it should be 2 second the yellow light.
3. When the traffic flow is stopped from one road, there should be a delay of 1 seconds before allowing the traffic to flow from the next road.
4. A switch should be used to suspend the control of the traffic lights where all the lights will remain at their current state.
5. External LEDs should be used to test your designed controller. The LEDs can be collected from your lab instructor.

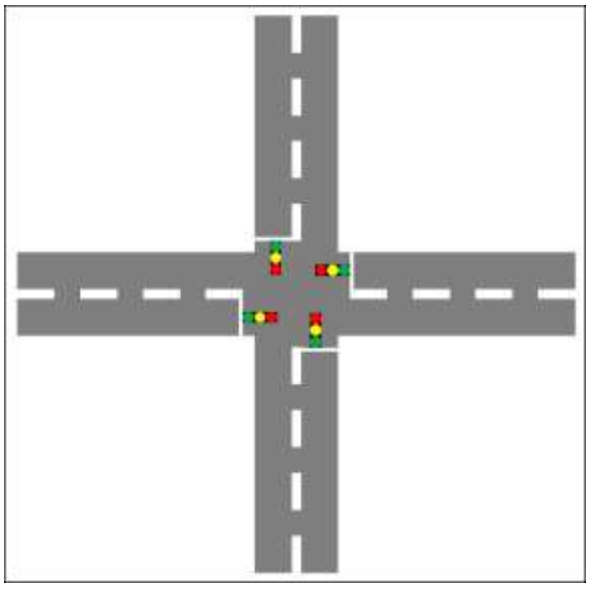

Figure 1: A four-way intersection that is controlled by a traffic light