Homework #4: Stoplight Extended State Machine

In this assignment, your team’s task is to program the provided Arduino Uno device to function as the traffic light extended state machine described in Example 3.9 and Figure 3.10 in the textbook. Note: you can decrease the time from 60 to 10 seconds.

You will need to wire several components to the Arduino Uno. See the “circuit diagram” on the following page for wiring.

Required Components:

- Arduino Uno
- breadboard
- red LED
- yellow LED
- green LED
- push button
- three 330 Ω resistors (one per LED)
- 10 kΩ resistor (for button)
- jumper wires

When your team is finished, submit a .zip file containing the solution code.

HINTS:

- LEDs are polarized components
  - anode (+): longer lead, has bend in diagram
  - cathode (-): shorter lead
- Double check wiring before powering the Arduino
- Make sure button is fully connected to breadboard
- Work incrementally. E.g.,
  - turn red LED on / off
  - push button, print message to Serial
  - ...
- MsTimer2
- attachInterrupt( ... )
  - when button goes “LOW”
- #define RED 11
- global variables
- test, test, test