System Description:

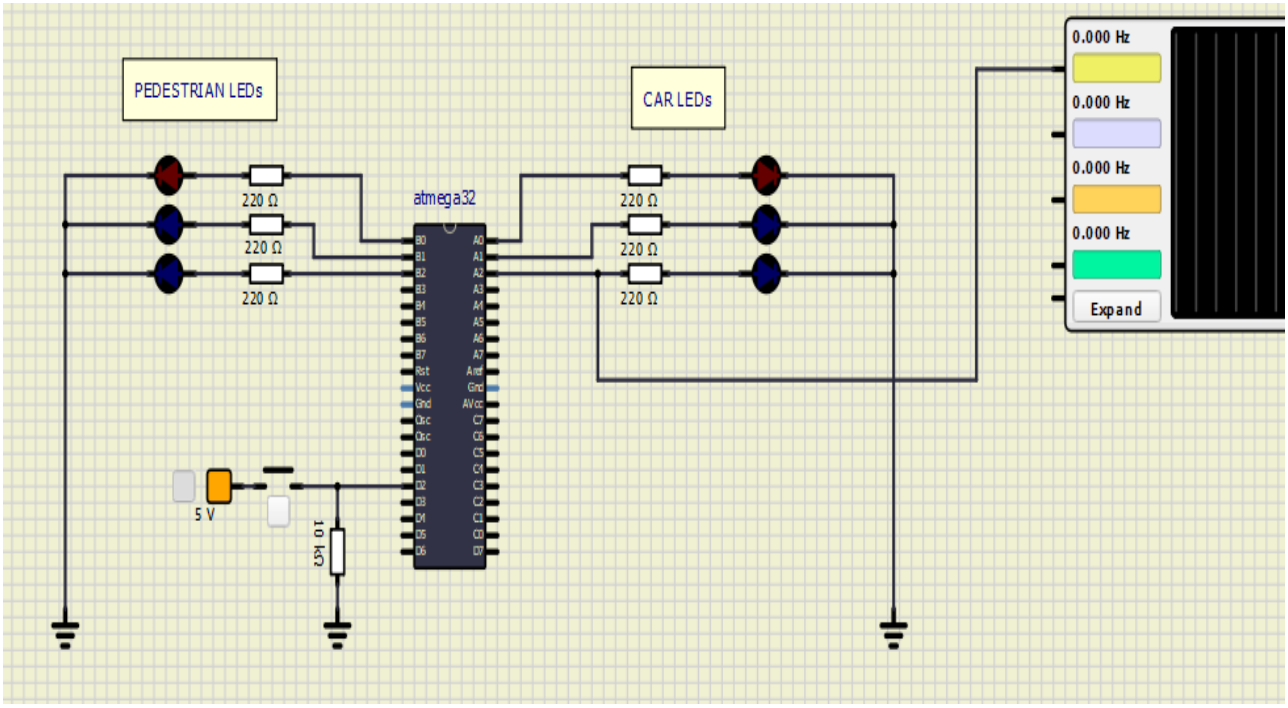
On-demand Traffic light control plays a crucial role in the traffic light system. This helps pedestrians to pass the street safely by pressing a button which will then turn the pedestrian green light on but not before turning the car red light to ensure the pedestrian safety. Timing is very important and user-friendly environment is favorable. This system was simulated on simulIDE and coded using microchip studio.

Mapping of code:

1. carLED
    a. 0 means car green light
    b. 1 means car yellow light
    c. 2 means car red light
2. Mode
    a. 0 means normal operation
    b. 1 means pedestrian mode
3. prevCarLED
    a. 0 means previous car light was green
    b. 2 means previous car light was red

System Design:

1. ATmega32 microcontroller
2. One push button connected to INT0 pin for pedestrian
3. Three LEDs for cars:
    a. Green connected on port A, pin 0
    b. Yellow connected on port A, pin 1
    c. Red connected on port A, pin 2
4. Three LEDs for pedestrians:
    a. Green connected on port B, pin 0
    b. Yellow connected on port B, pin 1
    c. Red connected on port B, pin 2
5. Six 220 Ohm resistors
6. One 1000 Ohm resistor



System flow chart: