Report on

‘Traffic Density Control System’

By

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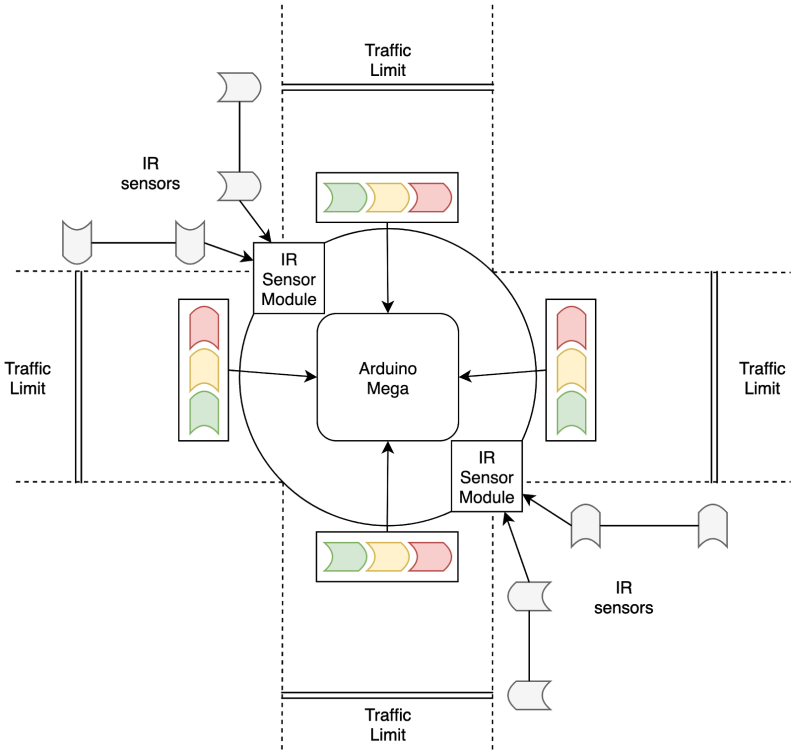
Objective:

To construct a traffic density control system.

Description:

This project is used to control traffic based on the density of vehicles on road. The traffic on the road is a big problem for the ambulance, due to the traffic many ambulances could not make it to the hospitals on time. So this device can be implemented to reduce the number of vehicles waiting on the road at the traffic signal. There will be a traffic limit on each road if that limit is reached the traffic signal falls to a green till there are no vehicles beyond traffic limit point.

Block Diagram:



System Requirement Specification

Hardware Requirement:

- LEDs Red x 4

- LEDs Green x 4
- LEDs Yellow x 4
- Resistors
- IR Sensor Driver
- Arduino Mega
- IR sensor
- Jumper cable

Software Requirement:

- Arduino IDE

Working Principle:

I have used eight IR sensors IR1, IR2, IR3, IR4, IR5, IR6, IR7 and IR8. For example, we take two sensors of one road IR1 and IR2. These two are placed at a gap of 10 to 20m. When the first IR1 sensor is triggered and the second IR2 sensor is not triggered, the vehicles have not reached the traffic limit. This means there is not much traffic on that particular road. When both IR1 and IR2 sensors are triggered, the vehicles have reached the traffic limit so the signal has to be changed to green. The changing of the signal is done by Arduino based on the IR sensors.

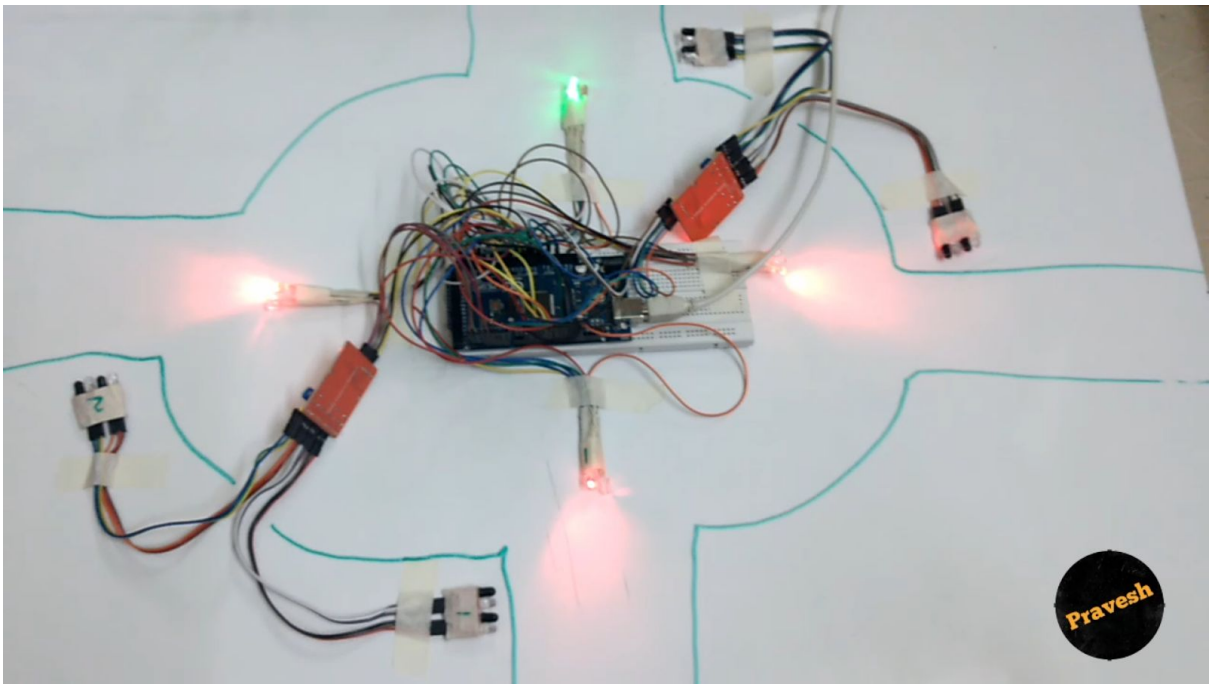
Circuit Connections:

- Connection of Arduino to IR Sensor:
    - 5v - Vcc
    - 21 - Signal of IR1
    - 20 - Signal of IR2
    - 19 - Signal of IR3
    - 18 - Signal of IR4
    - 17 - Signal of IR5
    - 16 - Signal of IR6

    - 15 - Signal of IR7
    - 14 - Signal of IR8
    - Gnd - Gnd
- Connection of Arduino to LEDs:
    - 2 - LED1
    - 3 - LED2
    - 4 - LED3
    - 5 - LED4
    - 6 - LED5
    - 7 - LED6
    - 8 - LED7
    - 9 - LED8
    - 10 - LED9
    - 11 - LED10
    - 12 - LED11
    - 13 - LED12

Result:

The result of the project Traffic density control system is verified and it satisfied all my requirements without any exceptions.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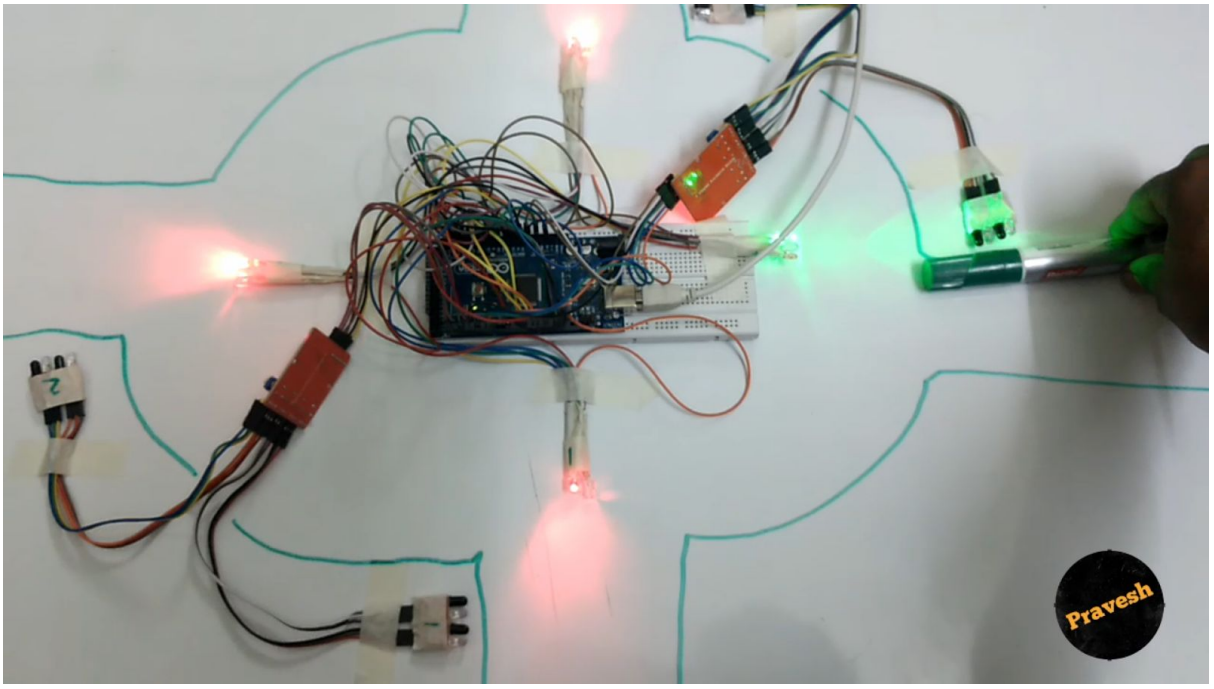
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