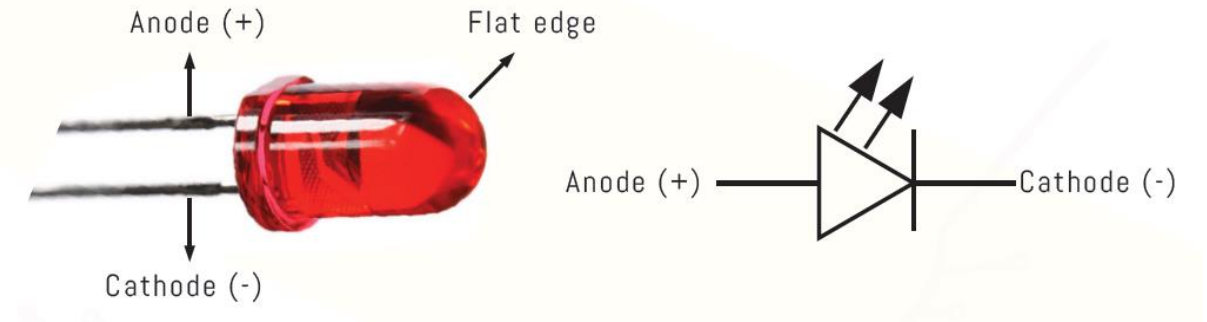
# Traffic Lights Pattern Using LEDs

## Aim:

The project's aim is to learn how to create a traffic light pattern using Led.

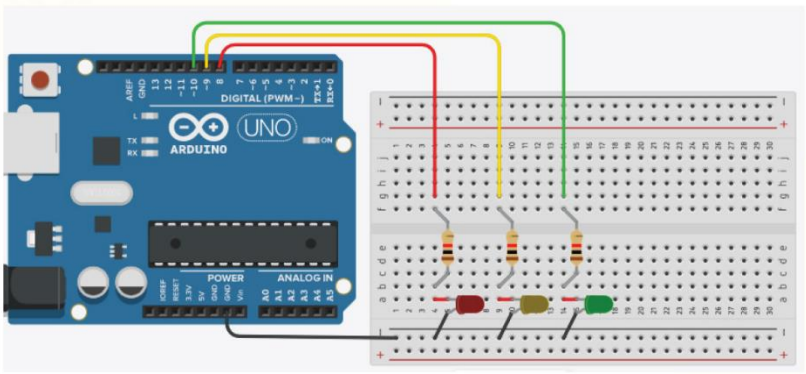
In the simplest terms, a light-emitting diode (LED) is a semiconductor device that emits light when an electric current is passed through it.




## Components Required

| Sr. No | Component | Quantity |
|---|---|---|
| 1 | Arduino Uno | 1 |
| 2 | Arduino Uno cable | 1 |
| 3 | Resistor 220 ohm | 3 |
| 4 | Led ( Red, Yellow, Green) | 3 |
| 5 | Breadboard | 1 |
| 6 | Jumper Wire M-M | 4 |
| 7 | 9v Battery | 1 |
| 8 | Battery Clip | 1 |

## Circuit Diagram



## Connections Procedure

- Take 1 Arduino uno and 1 breadboard and place them side by side.
- Take all the three coloured LEDs and place them serially on the breadboard.
- Connect the negative leg (short lead) of all the LEDs to the common negative slot/ (-) rail of the breadboard.
- Take one male to male wire and connect one end of wire to the negative rail of the breadboard and other end to the GND pin of the arduino board.
- Take one resistor and connect it to a vertical row where the positive leg (long lead) of the red LED is connected as shown in the diagram. Similarly connect resistors to yellow and green LEDs vertical row.
- Now take 3 male to male wires and connect one end of each wire to each resistor. Now connect the other end of wire to the arduino board as per given details.

Wire from red LED resistor --------- pin no.8 of arduino

Wire from yellow LED resistor --------- pin no.9 of arduino

Wire from green LED resistor --------- pin no.10 of arduino

## Procedure to upload the code

- Once connections are done then connect an arduino board to your laptop/computer system using an arduino cable.
- Open arduino IDE.
- Go to File->Open>Download>Select traffic light pattern.
- Click on the upload option.

## Program

```
void setup()
{
pinMode (8,OUTPUT);
pinMode (9,OUTPUT);
pinMode (10,OUTPUT);
}
void loop()
{
digitalWrite (8,HIGH);
```

```
delay (5000);

digitalWrite (8,LOW);

delay (1000);

digitalWrite (9,HIGH);

delay (5000);
digitalWrite (9,LOW);

delay (1000);

digitalWrite (10,HIGH);

delay (5000);

digitalWrite (10,LOW);

delay (1000);

}
```

## Output

As you know, in traffic lights the red light indicates 'STOP', the yellow light indicates 'BE READY' and the green light indicates 'GO'. This activity will show the pattern of traffic lights.

## 9V Battery connection:

1. You are powering the arduino through your laptop. You can also power the arduino through a 9v battery.
2. Disconnect the arduino cable and connect the 9v battery to the arduino board using the power jack connector. Now you can see the circuit is working.

Note: Note: Do not connect the battery all the time to the arduino board. It will drain the battery.

## Troubleshoot

| Issue | Solution |
|---|---|
| My code uploads, but my LED won't turn on. | Make sure that LEDs are connected properly with correct polarity. (anode and cathode). |