**Aim:** Design a system for car stereo systems such that whenever the increase volume button is pressed, a Green Light is emitted for 20 Ms & whenever the decrease volume button is pressed, a Red Light is emitted for 40 Ms.

**Apparatus:** ⦿ Arduino Board

⦿ LED

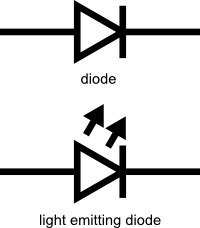
⦿ Resistance (220 Ω)

⦿ Wire

⦿ Pushbutton

⦿ Breadboard

**Theory:** LEDs are a particular type of diode that convert electrical energy into light. LED stands for ‘*Light Emitting Diode*’. In 1962, Nick Holonyak, Jr. invented the first LED that could produce visible red light. LEDs are comprised of compound semiconductor materials, which are made up of elements from group III and group V of the periodic table, commonly used to make LEDs are gallium arsenide (GaAs) and gallium phosphide (GaP). This is reflected in the similarity between the diode and LED schematic symbols:

The pushbutton is a component that connects two points in a circuit when you press it. The example turns on an LED when you press the button.

**Problems & Troubleshooting:**

1. Problem in fixing wire from bread board to Arduino.
2. Problem in writing Arduino programming.
3. Problem in finding the Positive and negative terminal of LED.
4. Problem while connecting the pushbutton with LED.
5. Problem while writing the Code of pushbutton and setting the delay/time to LED emission.

**Precautions:**

1. Correct connection of negative and positive terminal of led.
2. Don’t put Arduino board near water.
3. Check the USB port of computer is working.
4. Check the Arduino software and select the correct port (in which Arduino is connected).

**Learning Outcome:**

1. Arduino function as a controller in it.
2. Bread board is used to organize the circuit.
3. Learned how to recognize the positive and negative terminal of LEDs even without using a multimeter.
4. Learned the Coding of Pushbutton and Delay function of it.

**Observation:**

1. The LED glows like a Flash for the mentioned time as the pushbutton is pressed.
2. Insert the Jump Wire in correct mentioned Pin.

**Result:** LED Emission was verified after uploading the program as the Pushbutton is Pressed.

*\*Screenshot File Contain the Circuit Diagram of Experiment.*