

Task 3 : To interface LED/Buzzer with Arduino and write a program to implement traffic light system.

Aim:

The aim of this experiment is to interface an LED and a buzzer with an Arduino and to write a program that implements a basic traffic light system. The traffic light system consists of three lights (red, yellow, and green) with specified durations for each phase, creating a simulated traffic signal.

Apparatus Required:

- Arduino Board
- LED (Red)
- LED (Yellow)
- LED (Green)
- Resistors (for the LEDs, as needed)
- Jumper wires
- Breadboard
- Computer with Arduino IDE installed

Procedure:

Connect the red LED to pin 9, the yellow LED to pin 8, and the green LED to pin 7 on the Arduino board.

Connect the positive (anode) leg of each LED to its corresponding pin on the Arduino.

Connect the negative (cathode) leg of each LED to the ground (GND) on the Arduino.

Connect the buzzer to any digital pin on the Arduino (e.g., pin 6).

Connect the positive leg of the buzzer to the chosen digital pin.

Connect the negative leg of the buzzer to the ground (GND) on the Arduino.

Set up the Arduino IDE on your computer and open a new sketch.

Write the program code to implement the traffic light system. Use the provided Arduino code in the previous response as a reference.

Upload the program to the Arduino board.

Observe the LED and buzzer behavior according to the traffic light system implemented by the program.

Program

```
int red = 9;
int yellow = 8;
int green = 7;

void setup(){

    pinMode(red, OUTPUT);
    pinMode(yellow, OUTPUT);
    pinMode(green, OUTPUT);

}

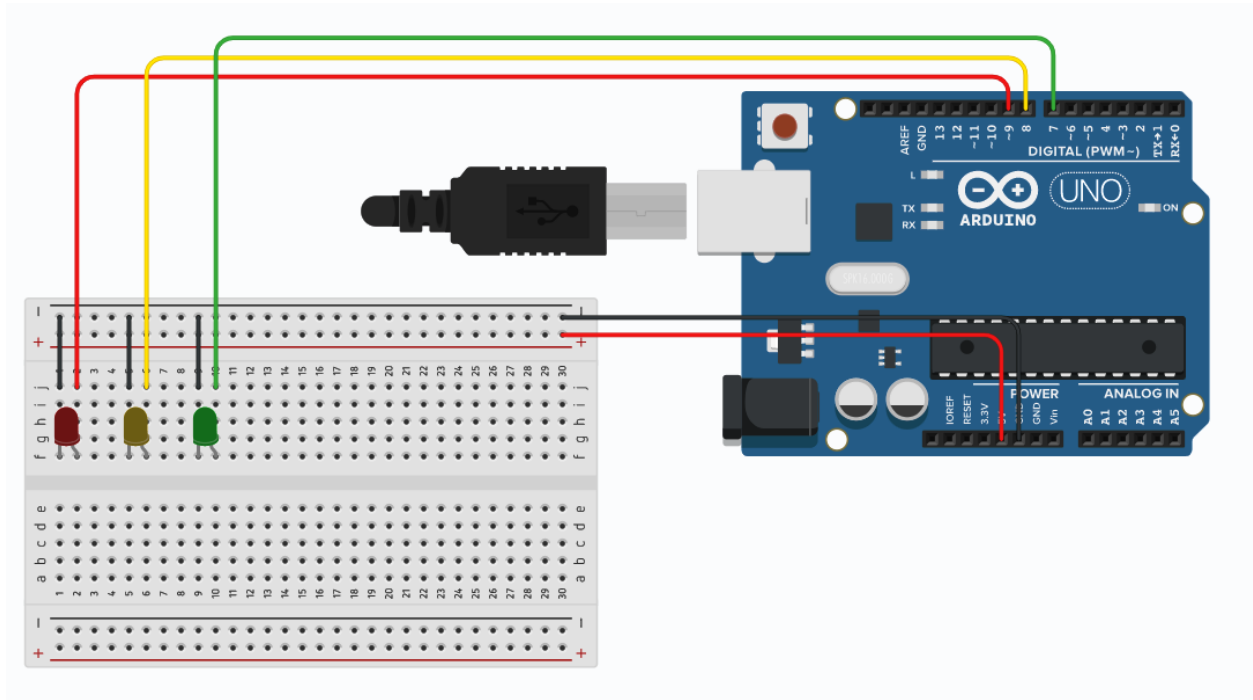
void loop(){
    digitalWrite(red, HIGH);
    delay(15000);
    digitalWrite(red, LOW);

    digitalWrite(yellow, HIGH);
    delay(1000);
    digitalWrite(yellow, LOW);
    delay(500);

    digitalWrite(green, HIGH);
    delay(10000);
    digitalWrite(green, LOW);
```

}

Circuit Diagram



Result:

Upon successful execution of the program, the Arduino board will control the LEDs to simulate a traffic light sequence.