Circuit Documentation

Summary of the Circuit

This circuit is designed to control a red LED using an Arduino UNO. The LED is connected to the Arduino through a 220 Ohm resistor. The Arduino is programmed to blink the LED on and off at one-second intervals.

Component List

1. **LED: Two Pin (red)**
    - **Description**: A standard red LED with two pins: anode and cathode.
    - **Purpose**: To emit light when powered.
2. **Arduino UNO**
    - **Description**: A microcontroller board based on the ATmega328P.
    - **Purpose**: To control the LED by providing the necessary logic and power.
3. **Resistor**
    - **Description**: A 220 Ohm resistor.
    - **Purpose**: To limit the current flowing through the LED, preventing it from burning out.

Wiring Details

LED: Two Pin (red)

- **Cathode**: Connected to the Resistor's pin2.
- **Anode**: Connected to the Arduino UNO's GND pin.

Arduino UNO

- **GND**: Connected to the LED's anode.
- **D13**: Connected to the Resistor's pin1.

Resistor

- **Pin1**: Connected to the Arduino UNO's D13 pin.
- **Pin2**: Connected to the LED's cathode.

Documented Code

The following code is uploaded to the Arduino UNO to control the LED:

```
void setup() {
  pinMode(LED_BUILTIN, OUTPUT);
}
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);
  delay(1000);
  digitalWrite(LED_BUILTIN, LOW);
  delay(1000);
}
```

Code Explanation

- **setup() Function**: This function runs once when the program starts. It sets the built-in LED pin (D13) as an output.
- **loop() Function**: This function runs continuously after setup(). It turns the LED on for one second, then off for one second, creating a blinking effect.

This code utilizes the built-in LED pin (D13) on the Arduino UNO to control the external LED connected to the same pin. The delay(1000) function is used to create a one-second interval between turning the LED on and off.

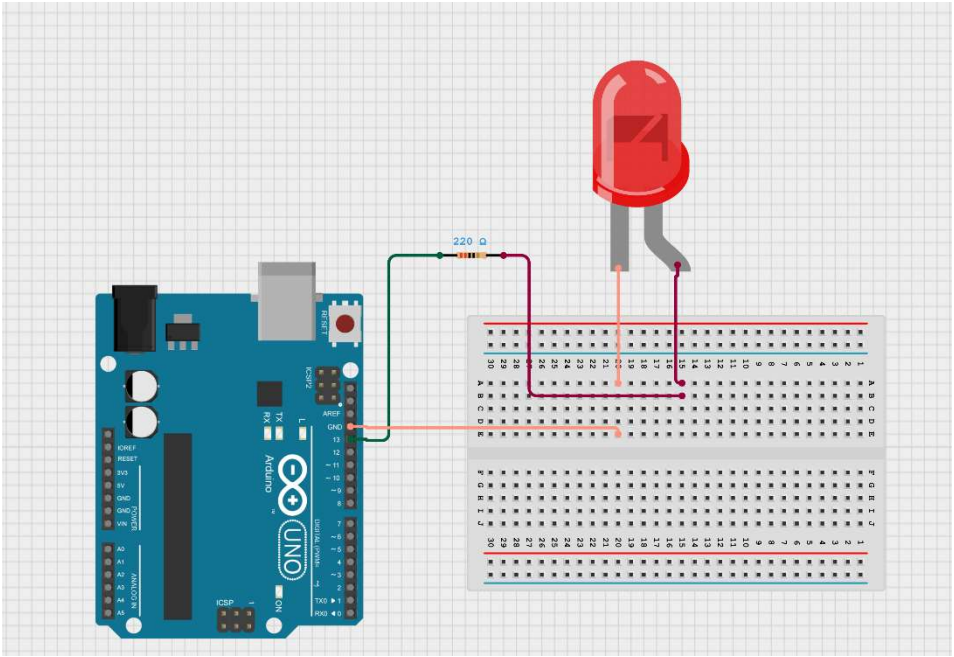

Fig 1