



" Arduino Uno LED Blinking Experiment "

Objective The LED blinking experiment using Arduino Uno is a simple experiment aimed at learning how to control the LED's lighting by programming it using the Arduino language.

Materials:

- Arduino Uno board
- USB cable
- LED (any color)
- 220-330-ohm resistor
- Breadboard
- Jumper wires

Experimental Setup:

1. Circuit Setup:

- a. Insert the LED into the breadboard.
- b. Connect one leg of the LED (the longer one) to one end of the resistor.
- c. Connect the other end of the resistor to one of the Arduino's digital pins (e.g., pin 13).
- d. Connect the shorter leg of the LED directly to the Arduino's ground (GND) pin.
- e. Connect one end of the USB cable to the Arduino Uno and the other to your computer.

2. Arduino IDE:

- a. Install the Arduino IDE on your computer if you haven't already.
- b. Open the Arduino IDE.

3. Programming:

- a. Write a simple Arduino sketch to make the LED blink. Here's an example code:

```
cpp
const int ledpin1=13;
const int ledpin2=12;
const int ledpin3=11;

void setup() {
```

```

pinMode(ledpin1, OUTPUT); // Set digital pin 13 as an output
pinMode(ledpin2,OUTPUT) ; // Set digital pin 12 as an output
pinMode(ledpin3,OUTPUT) ; // Set digital pin 11 as an output
}

void loop() {
    digitalWrite(ledpin1, HIGH); // Turn the LED on
    delay(1000);      // Wait for 1 second
    digitalWrite(ledpin1, LOW); // Turn the LED off
    delay(500);       // Wait for 0.5 second
    digitalWrite(ledpin2, HIGH); // Turn the LED on
    delay(1000);      // Wait for 1 second
    digitalWrite(ledpin2, LOW); // Turn the LED off
    delay(500);       // Wait for 0.5 second
    digitalWrite(ledpin3, HIGH); // Turn the LED on
    delay(1000);      // Wait for 1 second
    digitalWrite(ledpin3, LOW); // Turn the LED off
    delay(500);       // Wait for 0.5 second
}

```

4. Upload the Code:

- a. Click the "Upload" button in the Arduino IDE to upload the code to your Arduino Uno.

5. Observation:

- a. You should observe the LED connected to pin 13 blinking on and off every second.

6. Experiment Variations:

- Try changing the delay times in the code to see how it affects the LED blinking rate.
- Experiment with different digital pins on the Arduino to control the LED.

This experiment is a basic introduction to working with Arduino Uno and programming in the Arduino IDE. You can build upon this knowledge to create more complex projects and experiments with Arduino.