

Aim of the Experiment:

Accessing digital Input/Output pins of Arduino UNO board and blinking of LED.

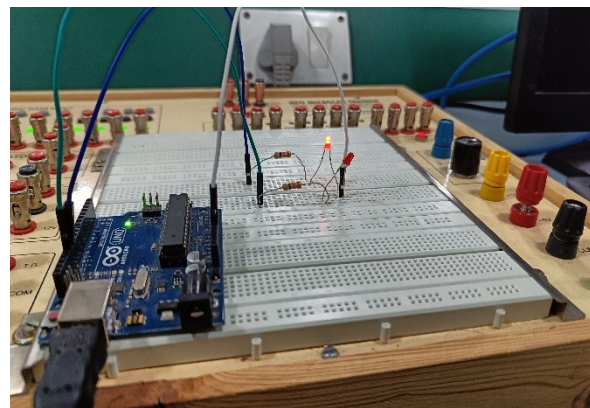
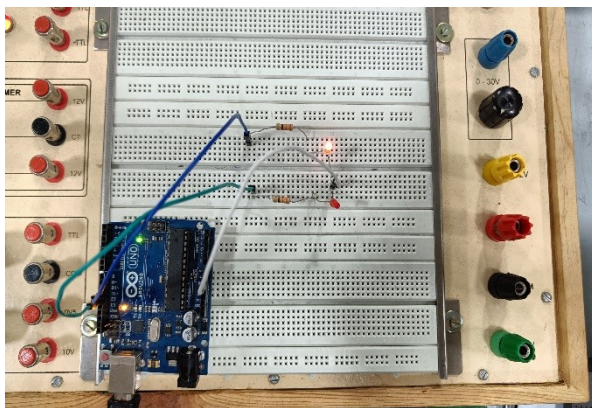
Components Required:

1. Arduino UNO
2. LED
3. Register
4. USB cable
5. Breadboard
6. Jump wires

Theory:

The **Arduino Uno** is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The board has 14 digital I/O pins (six capable of PWM output), 6 analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type B USB cable. It can be powered by the USB cable or by an external 9-volt battery, though it accepts voltages between 7 and 20 volts. The word "uno" means "one" in Italian and was chosen to mark the initial release of Arduino Software.

Circuit connection:



Sketch code:

```
int LED1=12;
int LED2=13;
int LED3=11;
void setup() {
  // put your setup code here, to run once:
  pinMode(LED1,OUTPUT);
  pinMode(LED2,OUTPUT);
  pinMode(LED3,OUTPUT);
}
void loop() {
  // put your main code here, to run repeatedly:
  digitalWrite(LED1,LOW);
  digitalWrite(LED2,LOW);
  digitalWrite(LED3,HIGH);
  delay(500);
  digitalWrite(LED1,LOW);
  digitalWrite(LED2,HIGH);
  digitalWrite(LED3,LOW);
  delay(500);
  digitalWrite(LED1,HIGH);
  digitalWrite(LED2,LOW);
  digitalWrite(LED3,LOW);
  delay(500);
}
```

Conclusion:

Through this experiment, we have demonstrated the basic principles of digital I/O operations, including configuring pins as inputs or outputs, setting their states, and controlling external devices such as LEDs.

The experiment explored Arduino UNO's digital Input/Output pins, focusing on LED blinking. It highlighted fundamental microcontroller programming principles, including pin configuration and signal control.

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