Introduction

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

Arduino Board and Pin Description
Experiment 1:

Interface a temperature sensor with Arduino board. And note down the temperature readings in Celsius.

The sensor LM35 has a linear $+10 \text{ mV/}^\circ\text{C}$ Scale Factor (about room temperature). In this circuit, you’ll learn how to integrate the temperature sensor with your Arduino Uno and use the Arduino IDE’s serial monitor to display the temperature.

Temperature sensor overview:

Experiment 2:

Design a Traffic Light Controller using Arduino, LEDs and resistors. Write a code and analyse using given circuit diagram.
Experiment 3:
Develop a circuit using Arduino, IR OBSTACLE SENSOR and LED to detect the object across IR Sensor. Write a code for the experiment.

IR Photo detector module: