MATERIALS AND EQUIPMENT

The following materials and equipment were used to complete the experiment:

1. NodeMCU ESP8266
2. LM35 Temperature Sensor
3. MicroUSB cable
4. Laptop
5. Connecting Wires
6. Breadboard
7. Arduino IDE (Software)
8. Internet Connection
9. ThingSpeak Account

PROCEDURE

The following steps were followed to complete the experiment:

1. Connect NodeMCU ESP8266 with laptop using MicroUSB cable, and then install ESP8266 specific software packages using board manager in arduino software.
2. Go to File → Preferences.. Then paste the link in Additional Board Manager URL's: ***https://arduino.esp8266.com/stable/package_esp8266com_index.json***
3. Install ESP8266 software packages using the Arduino IDE's board manager.
4. Select NodeMCU1.0 ESP-12E module in the tools section of the Arduino IDE.
5. Connect LM35 sensor to NodeMCU (3V to 1st pin, A0 to 2nd pin, GND to 3rd pin).
6. Set up a ThingSpeak account and create a channel.
7. Download and install ThingSpeak libraries in the Arduino IDE.
8. Write Arduino program for NodeMCU ESP8266 to read LM35 data and send it to ThingSpeak.
9. Upload the program to NodeMCU.
10. Create a ThingSpeak IoT web dashboard for temperature monitoring.
11. Share the temperature sensor data globally through ThingSpeak.
12. Install device driver software if the port is not available.