Experiment No. – 3(a)

Title: Interfacing of LM35 sensor using Arduino

Hardware Requirements: Arduino Board, LM 35 Temp. Sensor

Software Requirements: Arduino IDE

Theory:

LM35 is a temperature measuring device having an analog output voltage proportional to the temperature.

It provides output voltage in Centigrade (Celsius). It does not require any external calibration circuitry.
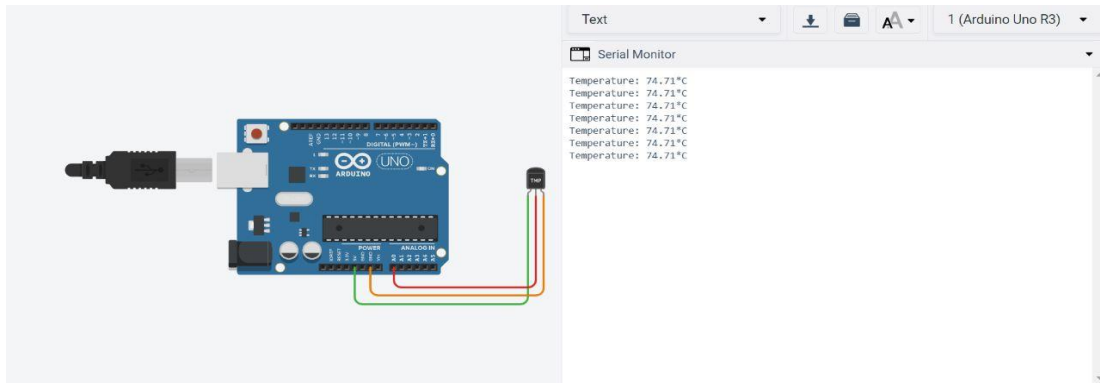
The sensitivity of LM35 is 10 mV/degree Celsius. As temperature increases, output voltage also increases.
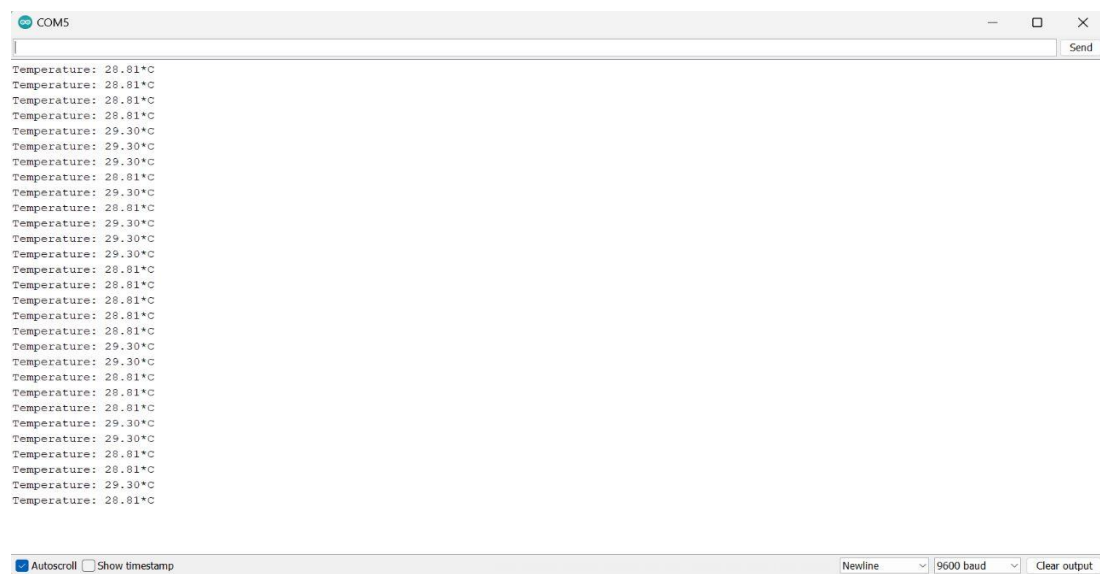
E.g. 250 mV means 25°C.

It is a 3-terminal sensor used to measure surrounding temperature ranging from -55 °C to 150 °C.

LM35 gives temperature output which is more precise than thermistor output.
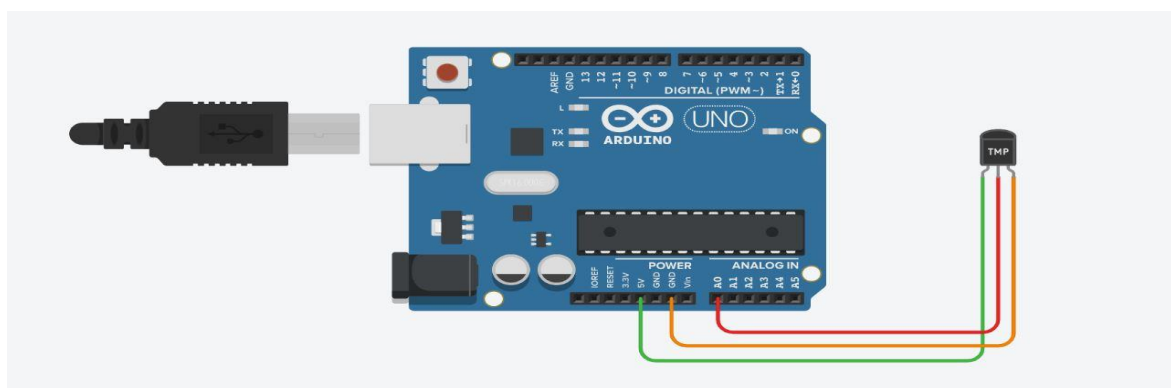
Output:

Procedure:

- Make the connection as per circuit diagram
- Open Arduino IDE
- Select the Arduino Board
- Select the Arduino Port
- Write code in Editor Window and save file
- Compile the code
- Upload the code

Conclusion:

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CODE:

```
// LM35 is connected to this PIN

#define sensorPin A0
void setup()
{
 // Init serial at 9600 baud
 Serial.begin(9600);
}

void loop()
{
 //Read Raw ADC Data
 int adcData = analogRead(sensorPin);

 // Convert that ADC Data into voltage
 float voltage = adcData * (5.0 / 1024.0);

 // Convert the voltage into temperature
 float temperature = voltage * 100;

 // Print the temperature data
 Serial.print("Temperature: ");
 Serial.print(temperature);
 Serial.println("*C");
 delay(800); // wait a second between readings
}
```