Digital Thermometer Using arduino uno

Description

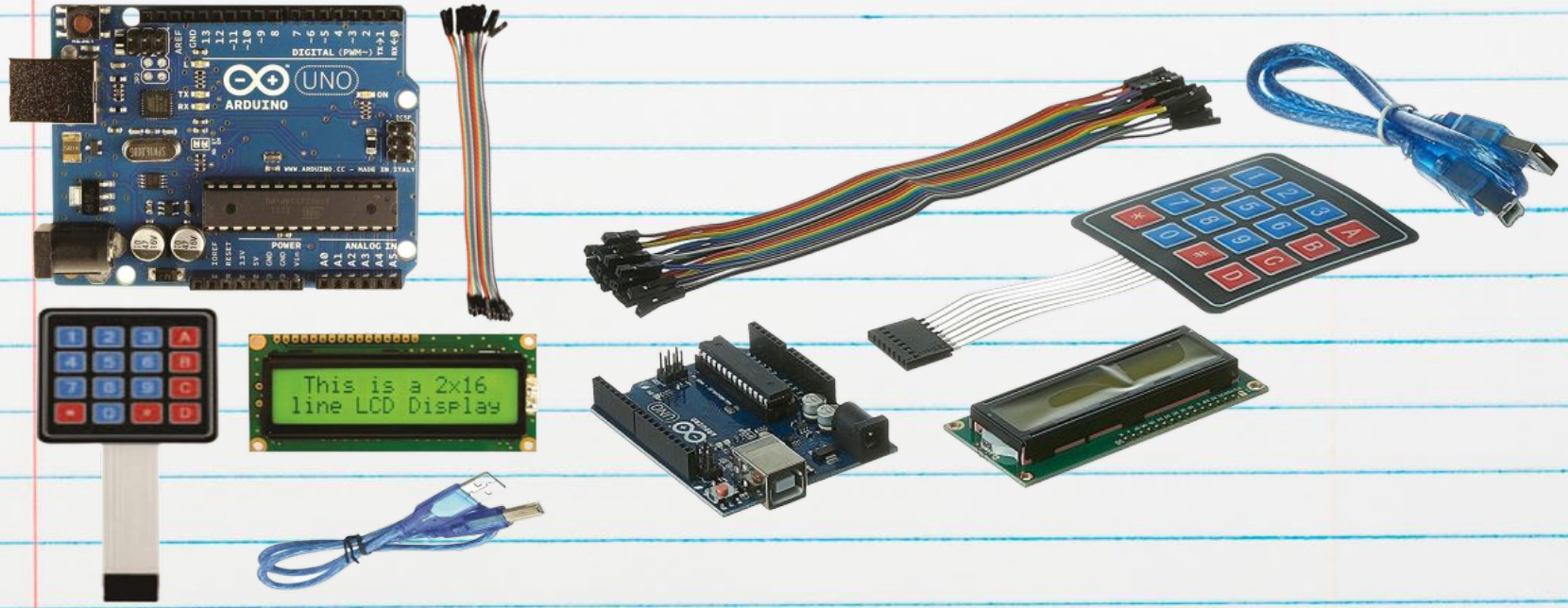
- The project is a temperature sensor made with an Arduino UNO and LM35 sensor and a few other components. The main aim of the project is to detect the temperature of the surroundings and display it on the LCD.

- The working of the project starts with the LM35 sensor that senses the change in temperature of the surrounding, and uses that temperature difference to produce a voltage signal which is processed by the Arduino to give a digital output displaying the temperature of the given surrounding.

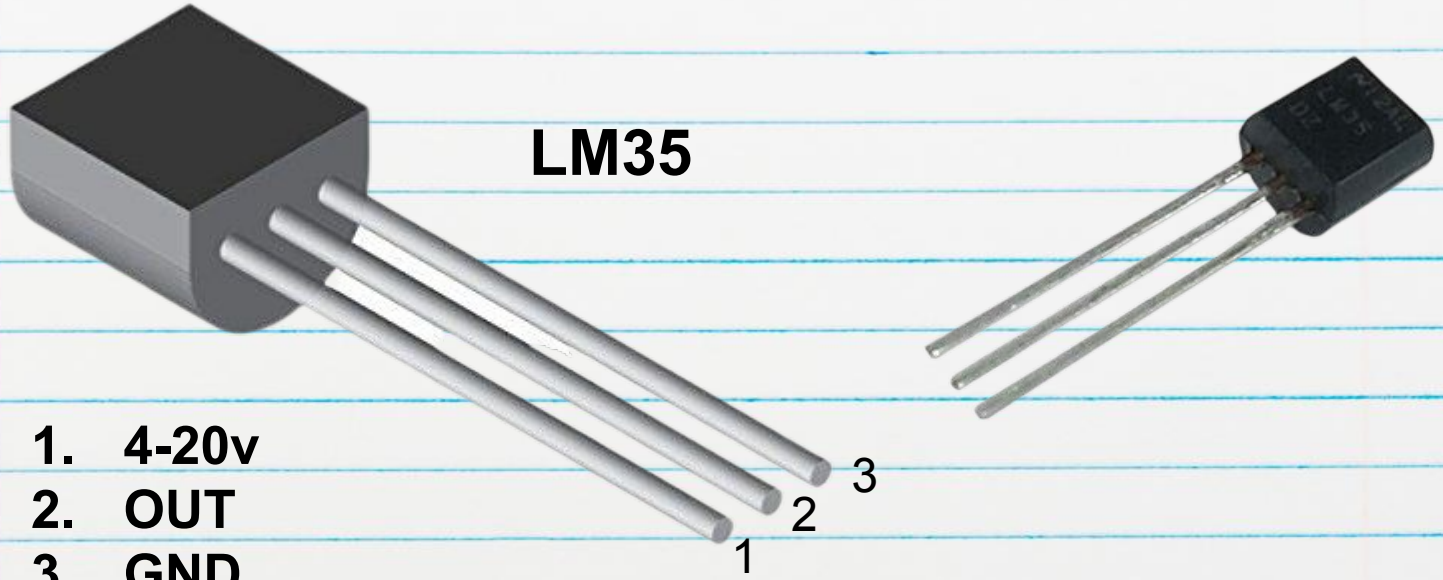
COMPONENTS

S.NO	COMPONENTS	QUANTITY	PRICE
1	Arduino UNO Kit	1	₹685/-
2	Temperature Sensor(LM35)	1	₹100/-
3	LCD 16*2 Display	1	In kit
4	Jumper Wires	15	₹148/-
5	Bread Board	1	₹100/-
6	Potentiometer(10K)	1	₹199/-
	TOTAL		₹1,232/-
	TOTAL(incl. Delivery charges)		₹1,372/-

Arduino UNO Kit

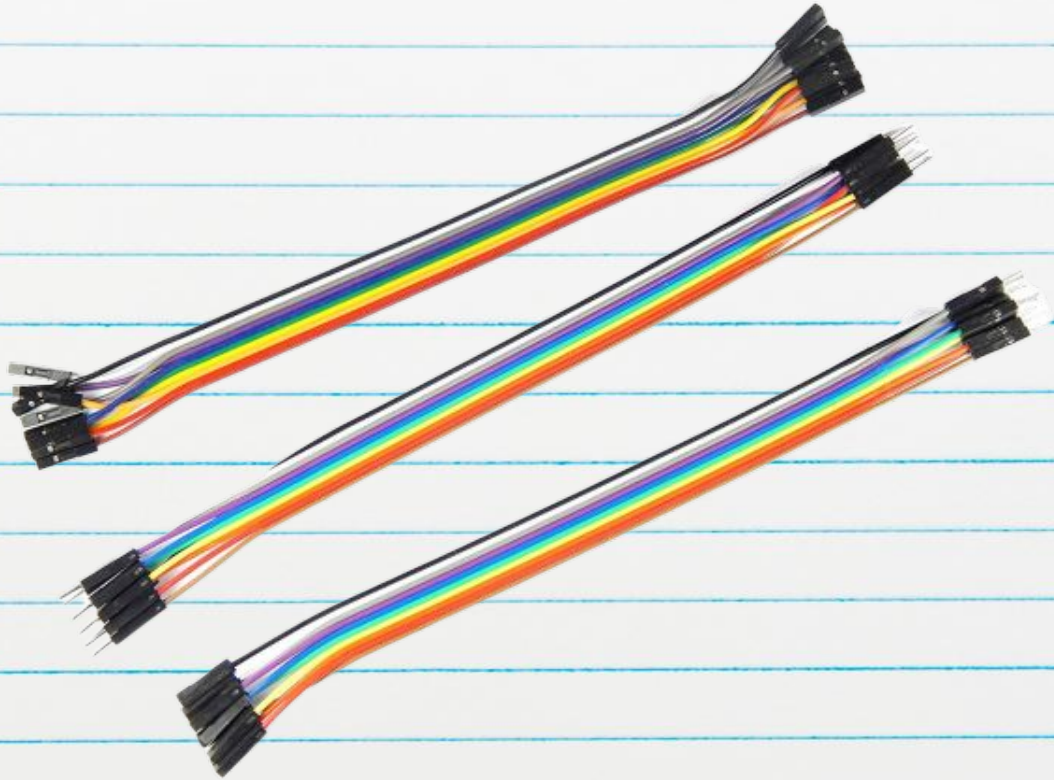


Temperature Sensor

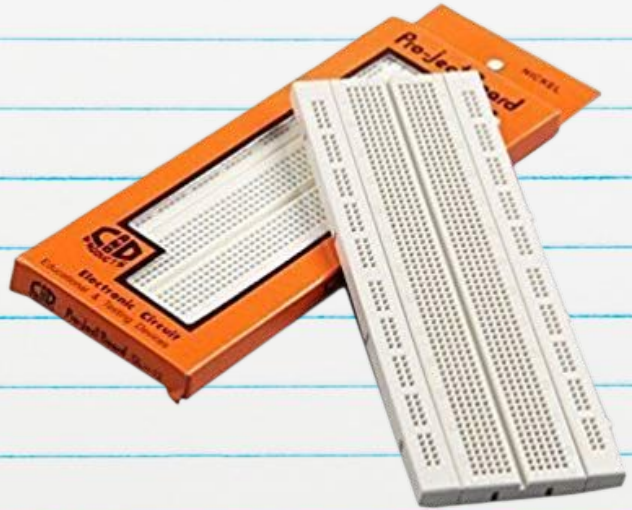


1. 4-20v
2. OUT
3. GND

Jumper Wires

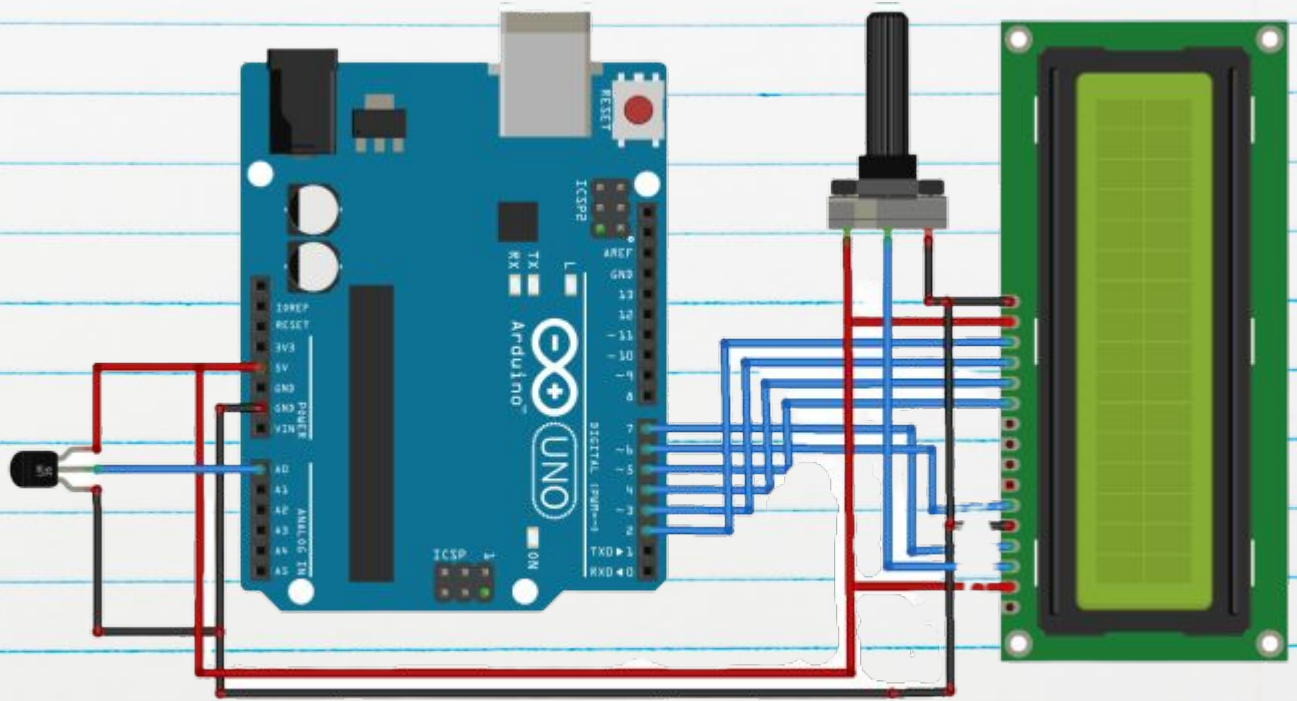


Bread Board

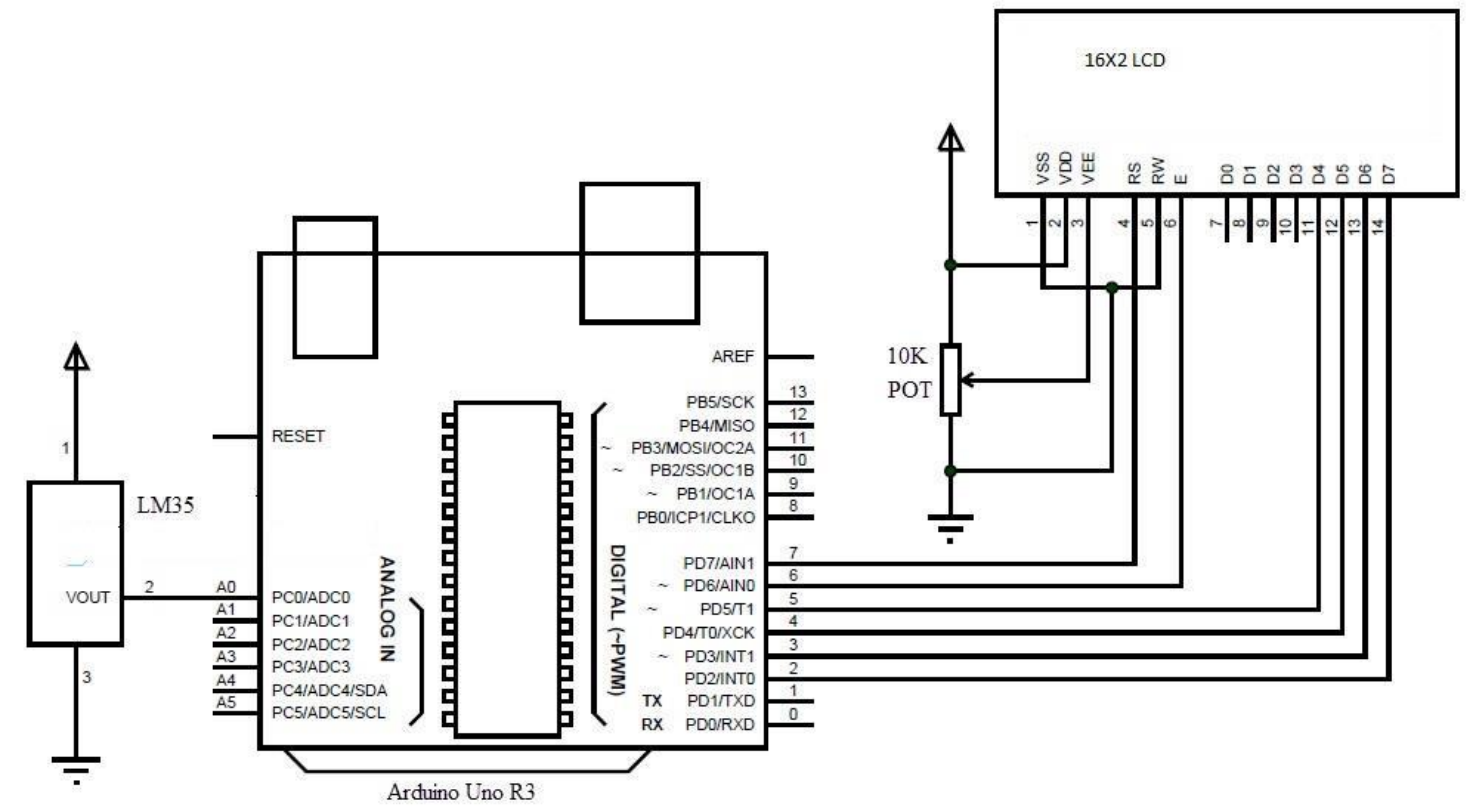


Potentiometer

Circuit Diagram



Circuit Diagram



Analysis

The connections to be made are given below:

- Connect LCD PIN 1 to Ground and PIN 2 to Supply respectively.
- Connect LCD PIN 3 to the 10K Potentiometer and connect rest of the terminals to the ground.
- Connect LCD PIN 15 to Ground and PIN 16 to Supply respectively.
- Connect LCD PINS D4,D5,D6 and D7 to PINS 5 - 2 of the Arduino.
- Connect LCD PIN 4(RS) to PIN 7 of the Arduino.

- Connect LCD PIN 5(RW) to Ground.
- Connect LCD PIN 6(E) to PIN 6 of the Arduino.
- Attach the LM35 to the Bread Board.
- Take the output of the LM35 i.e. PIN 2 of the LM35 and connect it to the Analog Input A0 of the Arduino.

Observation

Celsius scale thermometer displays the ambient temperature through a LCD display.

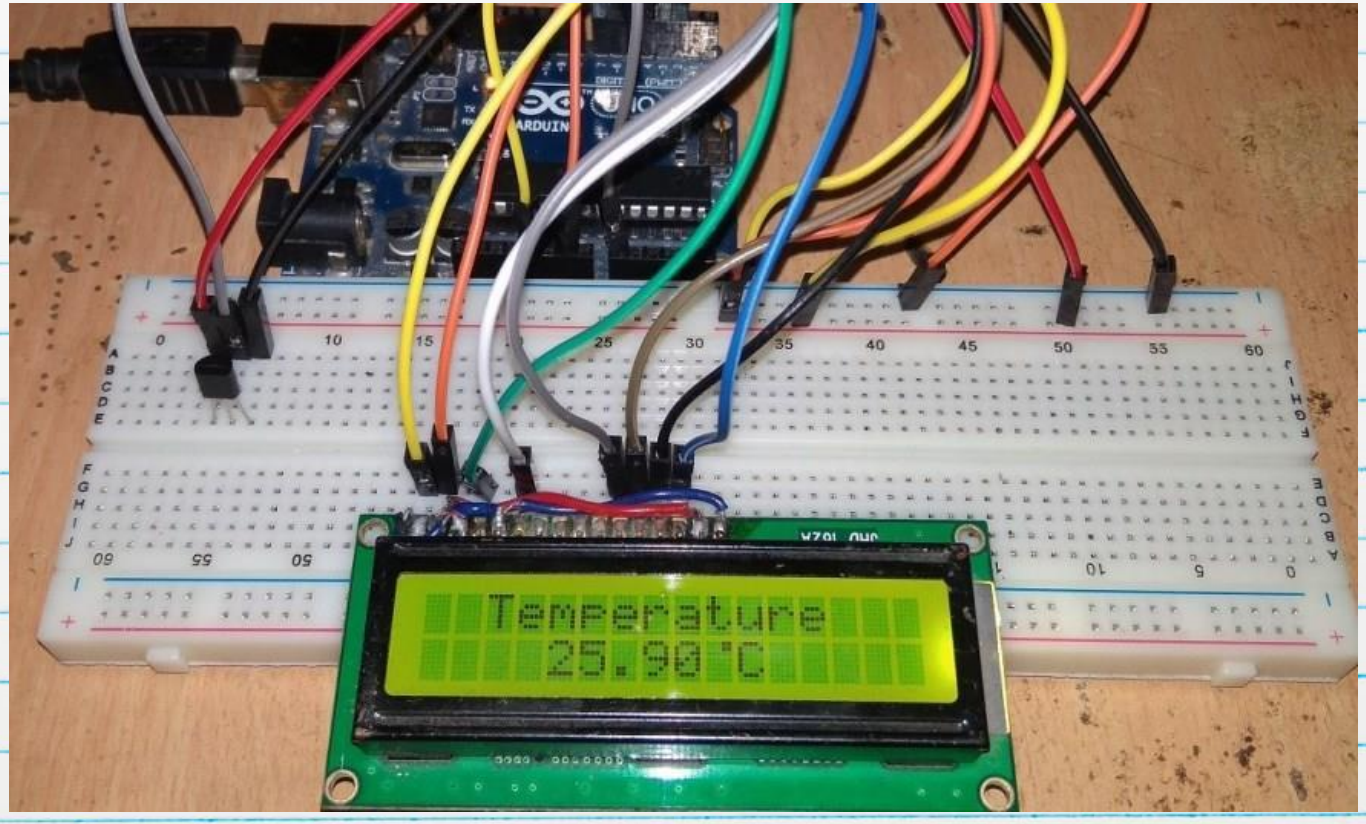
➔ It consists of two Sections :-

- One is that which senses the temperature. This is a temperature sensor LM35.
- The other section Converts the temperature value into a suitable number in Celsius scale.

Conclusion

1. Measure temperature between -50 °C to 155 °C.
2. It can sense every .01°C temperature change and display it.
3. The unit (°C) can be replaced with °F that can use to measure viral fever.
4. It can respond immediately after the temperature change.
5. It can also provide a digital input to a computer.

Snapshot



REFERENCES

https://create.arduino.cc/projecthub/arduino-based-digital-temperature-sensor