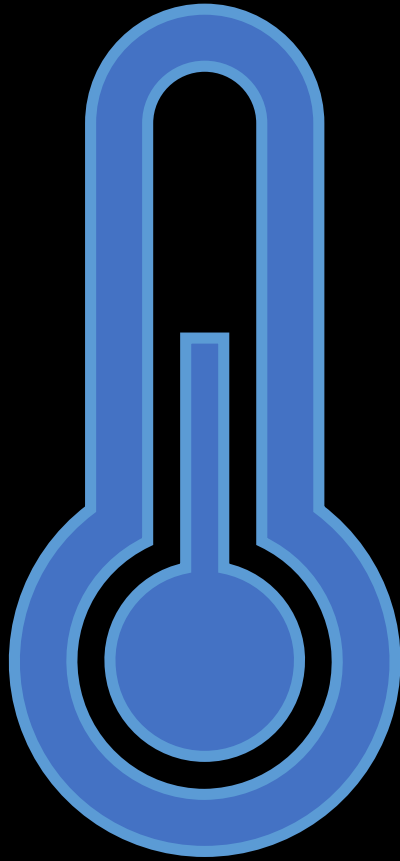


Digital Temperature Sensor

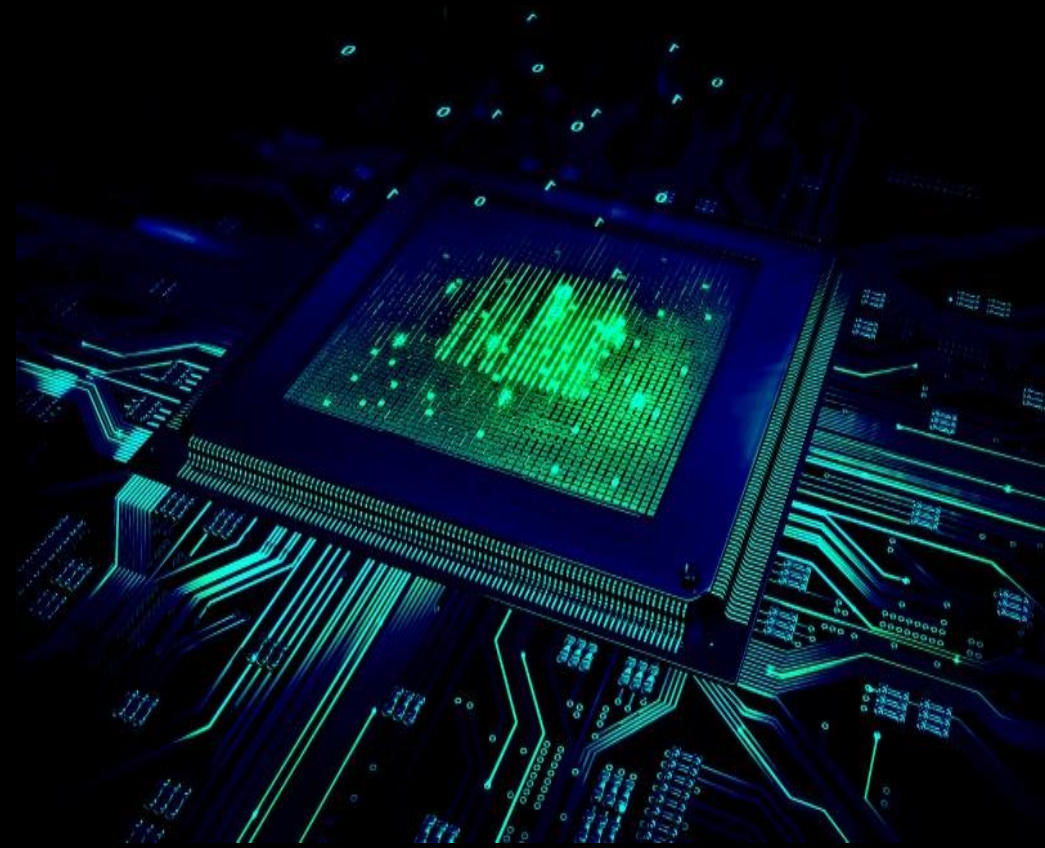


What are temperature sensors used to measure?

- Determine the temperature
- Check the process
- Preventative reliability

What is **Digital** temperature sensor ?

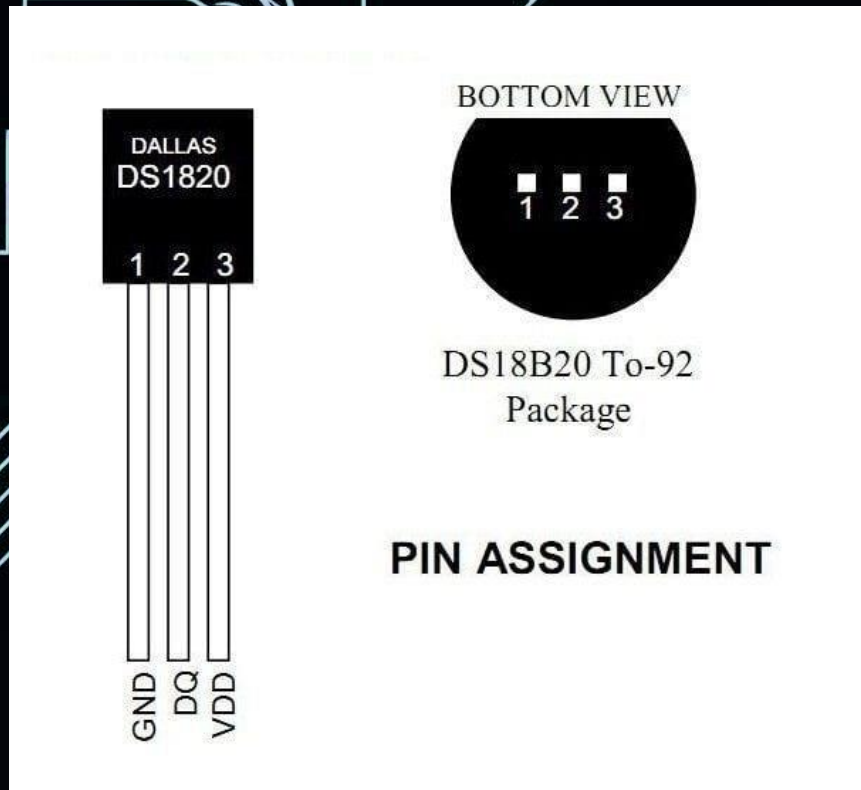
- Data conversion and transmission takes place digitally
- Components:
 - Sensor
 - Cable
 - Transmitter
- Directly converted into digital temperature



How to Measure Temperature

- Voltage difference of the diode terminals
- Voltage increases when the temperature rises

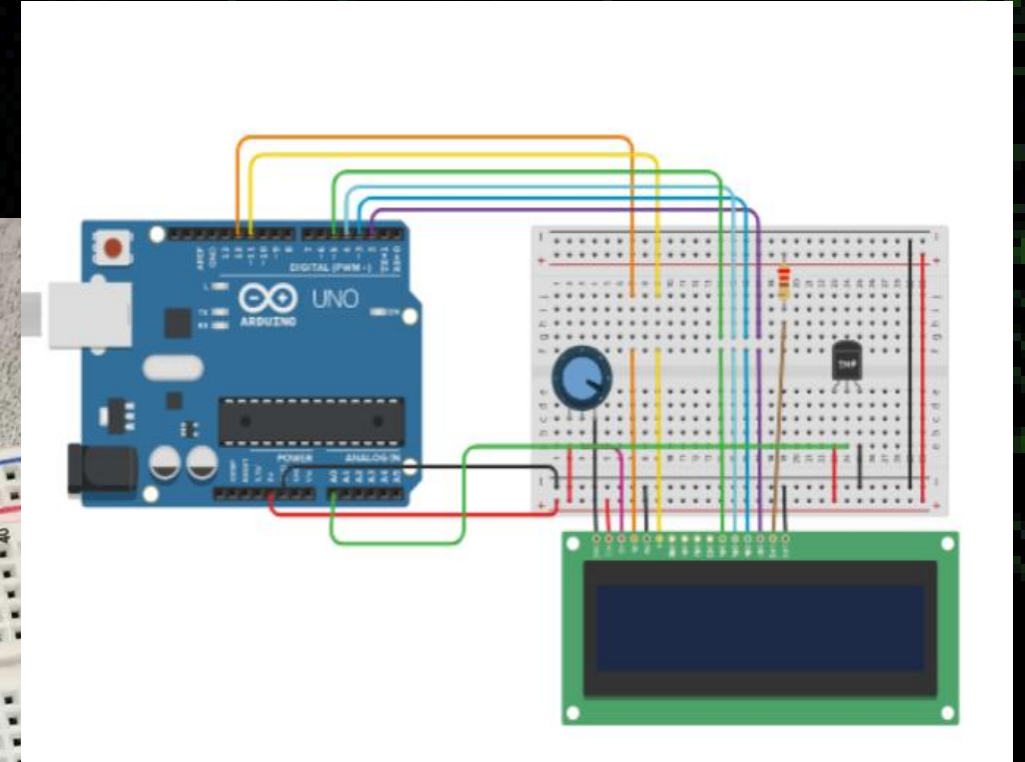
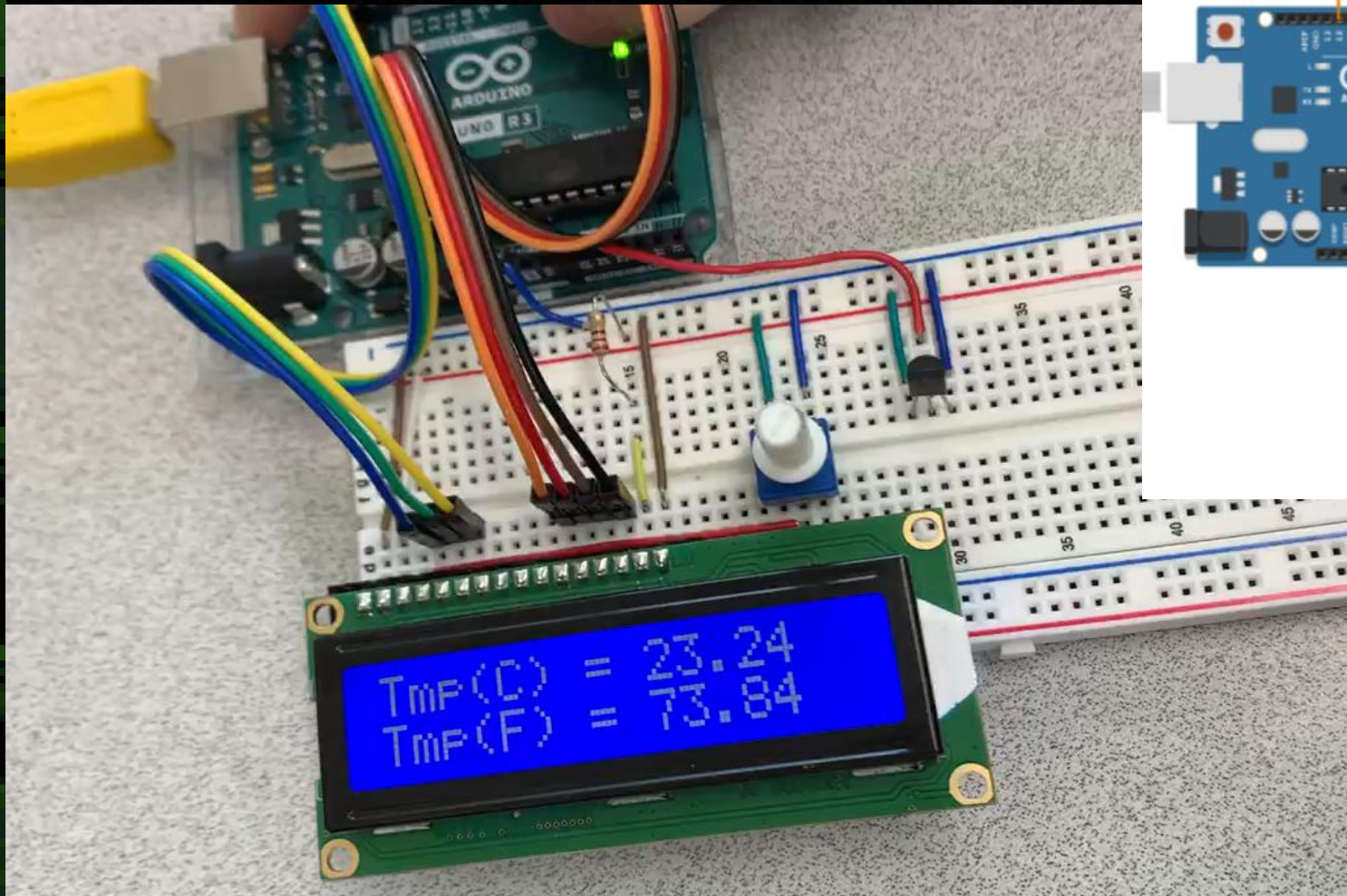




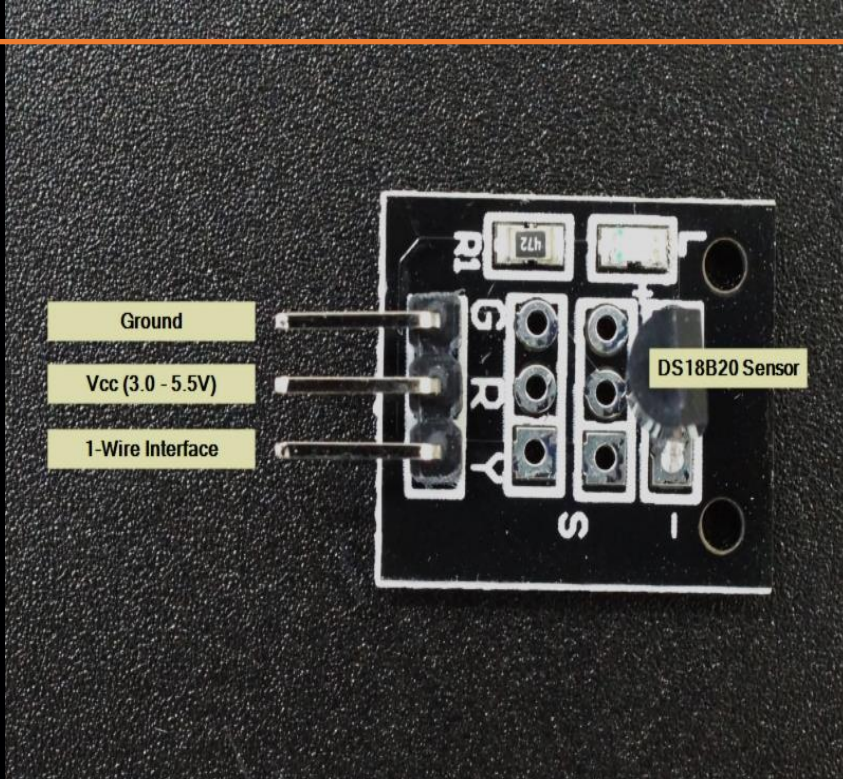
- **Unique 1-Wire Interface**
- **Multidrop Capability**
- **Power supply range :**
3.0V to 5.5V
- **Operating range temperature :**
-55°C to 125°C
- **Accuracy :**
+/-0.5 °C
(-10°C to 85°C)
- **Parasitic Power Mode**

Sensor Features (DS18B20)

Demonstration

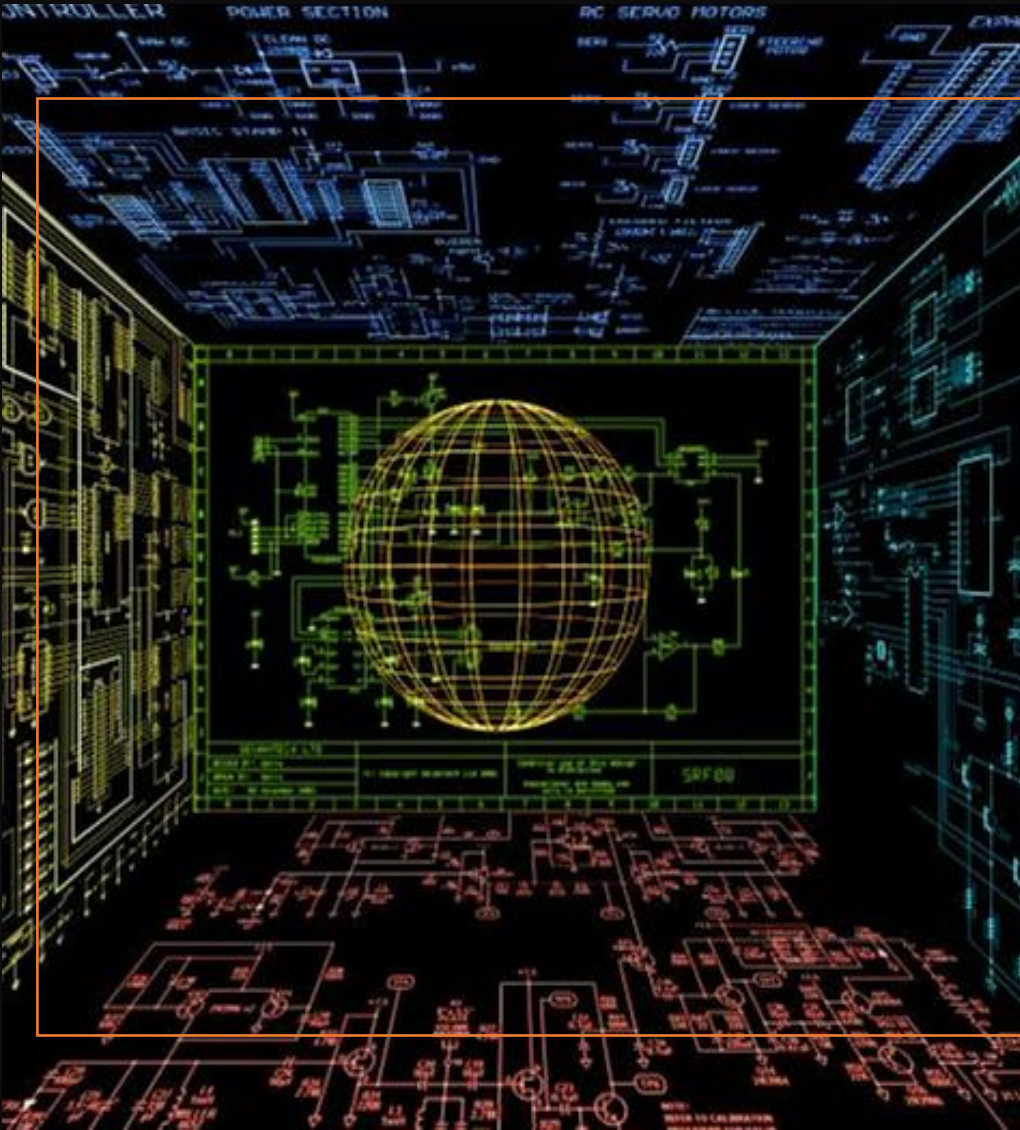


Advantages



- High Accuracy
- Low Power Consumption
- Reduce Component Count
- Low Cost

CONCLUSION



- Common applications
 - Medical applications
 - Within our homes
 - Vehicles
 - Renewable energy
 - Glass manufacturing
 - Chemical industries
 - Integrated circuits
- Small Size
- Low Hardware Overhead
- Strong Anti-interference Ability
- High precision

Thanks for Listening !

References

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- <https://www.electronicdesign.com/technologies/boards/article/21756038/digital-temperature-sensors>
- <https://www.elprocus.com/temperature-sensors-types-working-operation/>

QUESTION ?

