

## HARDWARE

1x Computer with Arduino IDE Software  
1x USB 2.0 Type A/B Data Cable  
1x Arduino Uno Board  
1x Solderless Breadboard  
Nx Jumper wires

1x Active Buzzer  
6x Tactile Switch with 6x 10KOhm Resistor  
1x SSD1306 OLED Module i2c 64x128 pixel

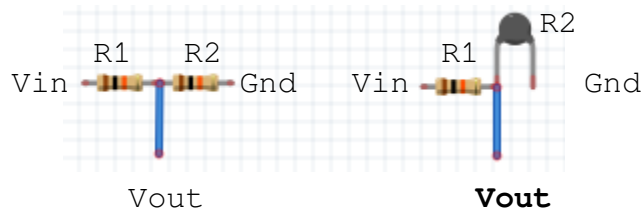
- Modular Design Extension -

1x 10Kohm Thermistor(Beta=3380) with 1x 10KOhm Resistor



Thermistor is a type of resistor where its resistance value will change when exposed to different temperature.

As we know from our earlier tutorial, when two fixed value resistors is placed in series, they can be used a Voltage divider. The Thermistor (a resistor) can also be used with another fixed value resistor as a Voltage divider



The Voltage (**Vout**) from the Voltage divider made from Thermistor and a fixed value resistor however varies based on temperature. This variable Voltage(**Vout**) can be fed to an analog Input Pin. With the reading from that Input Pin, we can calculate our temperature

Source code: **p\_daco\_thermistor**

Download from:

[https://github.com/teaksoon/p\\_daco/blob/main/2022\\_01\\_02\\_p\\_daco\\_source.zip](https://github.com/teaksoon/p_daco/blob/main/2022_01_02_p_daco_source.zip)

Upload PROGRAM, Open the Serial Monitor and listen



This PROGRAM make 7 readings from the Termistor Analog Pin every 1000ms, takes the middle reading to filter off spikes. The middle reading is then be used to calculate the temperature and displayed on the Serial Monitor Screen

This temperature reading/calculation with the Thermistor will be used for our DIGITAL ALARM CLOCK extra temperature display function at the later stage of this project

Many other Analog Sensors works similar to the Thermistor, for example the LDR(which works exactly the same, except that it is based on light intensity instead of temperature)