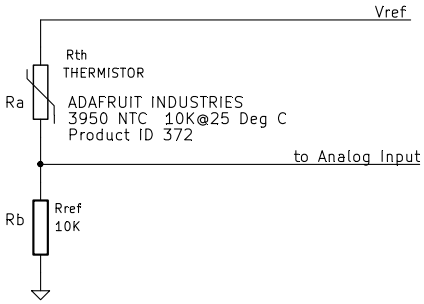

Connect Vref to a stable voltage reference AND
to the Analog Reference pin on the Arduino.
(e.g. You can use the 3.3V pin as the stable Voltage Reference)

Be sure to add the analogReference(EXTERNAL);
function to the Setup procedure of your sketch.

Basic Voltage Divider equation:

Voltage = (Vref * Rb) / (Ra + Rb)

ADC = (ADCfs * Rb) / (Ra + Rb)

ADCfs = 1023 for Arduino Analog Input

(ADC = Analog to Digital Converter)

BASIC THERMISTOR HOOKUP TO ARDUINO:

This circuit shows a simple hookup of a Thermistor, Reference Resistor, and Reference Voltage to an Arduino.

The Thermistor and Reference Resistor form a simple voltage divider that will output a voltage proportional to temperature. The Thermistor shown here is an NTC (Negative Temperature Coefficient) type, which means that as it gets WARMER, its resistance will DECREASE– consequently the output voltage to the Arduino analog input will INCREASE at the same time.

The ADC of the Arduino will return a number from 0 to 1023, increasing as the voltage increases. When the voltage finally equals the reference voltage, the ADC will return the value 1023, which is the maximum (full–scale) value.

The ADC returns an unsigned integer (whole number) value.

The Thermistor resistance changes non–linearly with temperature, but when used in a voltage divider circuit, the output voltage change with temperature is nearly linear over a surprisingly large range. This is illustrated in the companion spreadsheet for this project.

For precise temperature measurement, the use of a Lookup Table is recommended.

EasternStarGeek		
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