Wear- -meter

A temp to dress

Introduction

The Wear-o-meter helps you decide what to wear, based on the weather. The outside temperature will measured by the NTC. The LEDs will then indicate the outside temperature. So you are able to decide what to wear.

Electronics

- Teensy 3.2
- LEDs
- NTC 10kΩ 2904
- 10x 100Ω Resistors
- 10kΩ Resistor
- Powerbank

Code

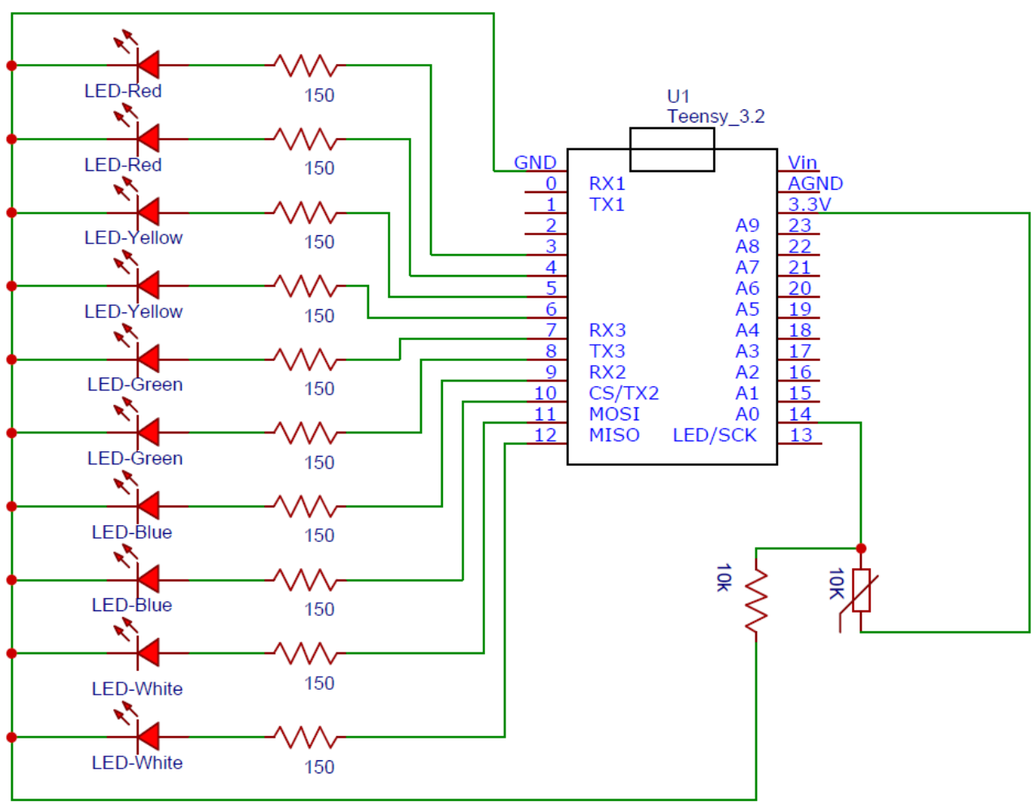
The Steinhart-Hart equation converts the "Internal Resistance of the Thermistor" to "Temperature in Kelvin".

```
double Thermistor(int RawADC) {
 double Temp;
 Temp = log(10000.0*((1024.0/RawADC-1)));

 //The Steinhart-Hart Thermistor Equation to convert the "Internal Resistance of the Thermistor" to "Temperature in Kelvin."
 Temp = 1 / (1.319834658e-03 + (2.119245803e-04 + (1.053148760e-07 * Temp * Temp ))* Temp );

 // Convert Kelvin to Celcius
 Temp = Temp - 273.15;
 return Temp;
}
```

The temperature difference will be shown by different lights popping on and off.

```
void loop() {
  //Read the voltage difference of the thermistor to determine the temperature
  Serial.println(int(Thermistor(analogRead(0))));

  //Temperature lower than -5 degrees Celsius
  if (int(Thermistor(analogRead(0))) <= -5) {
    digitalWrite(ledPin1, HIGH); //first white LED on
    digitalWrite(ledPin2, LOW); //second white LED off
    digitalWrite(ledPin3, LOW); //first blue LED off
    digitalWrite(ledPin4, LOW); //second blue LED off
    digitalWrite(ledPin5, LOW); //first green LED off
    digitalWrite(ledPin6, LOW); //second green LED off
    digitalWrite(ledPin7, LOW); //first yellow LED off
    digitalWrite(ledPin8, LOW); //second yellow LED off
    digitalWrite(ledPin9, LOW); //first red LED off
    digitalWrite(ledPin10, LOW); //second red LED off
  }
```

Schematic



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