



RN4020 ADC 0 and ADC 1 measures voltage V_t and V_r .
 Temperature sensed can be calculated by value of thermistor $RT1$.

$$V_r = V_b \cdot R_3 / (R_2 + R_3) \quad \text{or} \quad V_b = V_r \cdot (R_2 + R_3) / R_3.$$

$$\text{Similarly, } V_t = V_b \cdot R_1 / (R_1 + R_t).$$

Use algebra to solve for $R_t = V_t \cdot R_1 / (V_b - V_t)$

Unfortunately, V_b varies depending on battery is being charge or discharge.

$$R_t = R_1 \cdot R_3 / ((V_r / V_t) \cdot (R_2 + R_3) - R_3)$$

A more accurate temperature based on value of the thermistor is to use curve fitting rather than using Hart Stein Hart equation

Title		
Temperature Sensor Biased by Battery		
Size	Document Number	Rev
A	<Doc>	1
Date:	Friday, November 12, 2021	Sheet 1 of 1