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CS207
LAB 5

Part 1

Current measured in a circuit = 0.368 mA
Current calculation = 5 / (10 000 + 560 + 2200) = 0.0003918495
Resistance measured:
R1 = 552 Ohms
R2 = 9 820 Ohms
R3 = 2 160 Ohms
Current calculation with a measured resistance = 5 / (9820+ 552 + 2160) = 0.0003989786;
Difference between a calculated current and a read is:
0.0003989786 - 0.000368 = 0.0000309786 Amperes
Current difference is: 30.9786 Micro Amperes

Voltage drop 1 read = 4.81V and Arduino Pin (A1) read = 4.78V
Calculated value 0.0003989786 Amp * 12200 Ohm = 4.86753892 V
Difference is: 4.86753892 - 4.81 = 0.05753892 V
Difference between calculated volts and direct readings is five hundreds of volt.

Voltage drop 2 read = 0.86V and Arduino Pin (A1) read = 0.84V
Calculated value 0.0003989786 Amp * 2200 Ohms = 0.87775292 V
Difference is: 0.87775292 - 0.86 = 0.01775292V
Difference between calculated volts and direct readings is one hundreds of volt.

Part 2

When motor turns on it draws energy from the main circuit that drives a temperature sensor as well. Because all of the calculations was done when motor is off it has a slight effect at the supplied energy to temperature sensor positive terminal. Because of this our readings jumps a little when motor is plugged comparably with no motor load at the power rale.

Part 3

Code is posted in Github
yushchyr/ CS207/CS207_LAB_5/LAB_5.ino
https://github.com/yushchyr/CS207/tree/master/CS207_LAB_5