Ohm Meter

Purpose

- Use the analog inputs on a PIC,
- Develop a volt, Ohm, temperature sensor with a PIC

Requirements

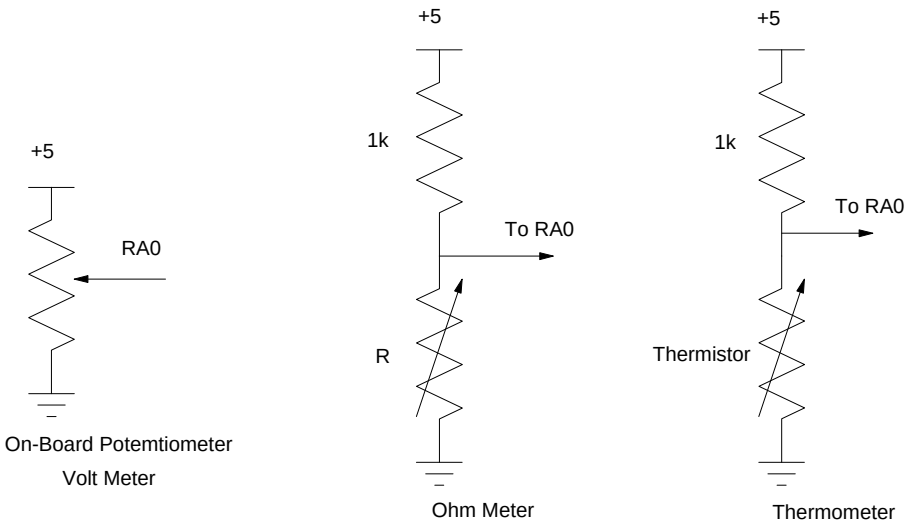
Develop a multimeter which displays:

- The voltage seen on RA0
- The corresponding resistance, and
- The corresponding temperature in degrees C and degrees F

Hardware

- PIC EVB
- Thermistor (should be in your lab kit)
- 1k resistor

Circuit Diagram: (note: the +5V to the stepper motor should be from the CADET board)



(note: remove the jumper from potentiometers and the jumper to PORTA LEDs for the Ohm meter and the thermometer. These will load RA0 otherwise and affect your results.)

Procedure:

1) Download the LAB3.C program, compile it, and download it. This program should display some messages on the LCD.

2) Modify the code so that it displays

```
Raw A/D
Volts:
Ohms:
Celcius:
```

3) Verify that as you adjust the voltage on RA0, the raw A/D value changes from 0x000 to 0x3FF. Modify the code so that the raw A/D valus is in decimal format (a subroutine will be useful here.)

4) Convert the raw A/D value to voltage and display the voltage as 0.000 to 5.000V . Verify the accuracy of your volt meter:

V (actual)					
V (meas)					

5) Assume this voltage was generated with a voltage divider. Modify the code so that, knowing V, you compute and display R. Verify your ohm-meter works:

R (actual)					
R (meas)					

Results:

Did you meet the requirements? Justify your answer.

Conclusion

What do you conclude about life, the universe, and anything from this lab? Expand upon this with something from the lab.