

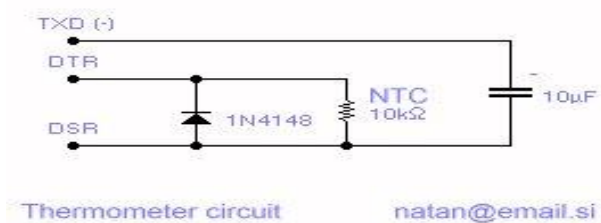
BOTTLE CAP PC THERMOMETER

Based on a circuit I found in this website, I built a very simple thermometer. The major thing I added to the original design is a nice case.

Materials:

- 1 Diode
- 1 Thermistor
- 1 Capacitor
- 1 Serial cable (or plug)
- 2 Plastic bottle caps (one slightly bigger than the other)

The Circuit



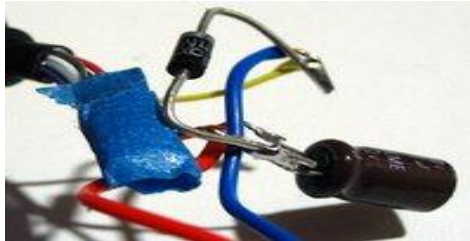
Digital Thermometer Circuit Schematics

I salvaged all the parts from old electronics (found in garbage) so they were free.

All the parts are very easy to find except for the thermistor. I did not get precisely a thermistor but a very close approximation to it.

In fact, I'm not very sure of what it is that I used.

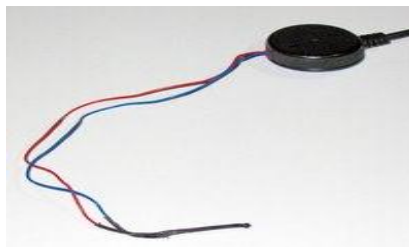
I just soldered the components together, no need of PCB.



My Thermistor

I got the thermistor from a broken drinking water dispenser /cooler.

The relationship between the temperature and resistance in an usual thermistor is mostly linear. For my thermistor, the lower bound for the linear region of the resistance-temperature relation is 11°C . Below this point, its resistance goes to infinity (is doesn't allow any current to pass). I suppose this is used to stop cooling the water when it gets at the desired 11°C temperature. I haven't yet found an upper bound for the linear region.



Anyways, the only problem is that it can't measure temperatures below 11°C .

The Case

To build a nice looking case, I simply used two plastic bottle cap (from a Propel and Powerade bottles) that my girlfriend brought me from the recycling bin at her job (a gym).



These two caps happen to fit perfectly one inside the other. So I simply cut a hole for the cable and drilled another for the probe (MT). I placed the circuit (properly insulated with tape, of course) inside, closed it and the thermometer was done.



The Software

In order to run use the thermometer you need a small program. I used the original digital thermometer program but it wouldn't be hard to right a new one or to improve the existing one.



Source: <http://www.carlitoscontraptions.com/2006/09/bottle-cap-pc-thermometer/>