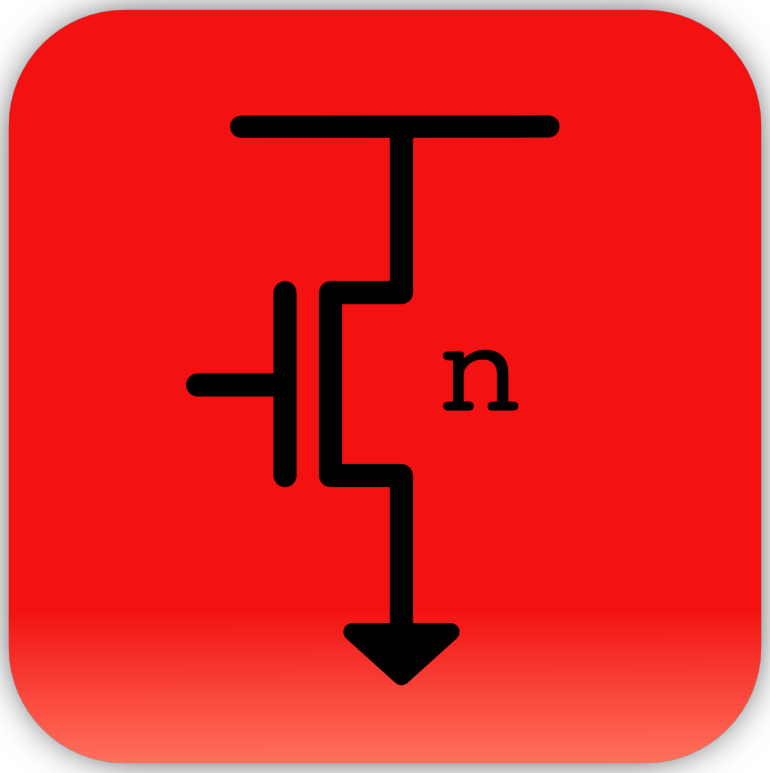


NerdKits

Schematics for
“The NerdKits Guide” Projects

Schematics for The NerdKits Guide Projects
by Humberto Evans & Michael F. Robbins
rev 836-10590nt2mc9f3rb8p7jzs

A Brief Word about Schematics

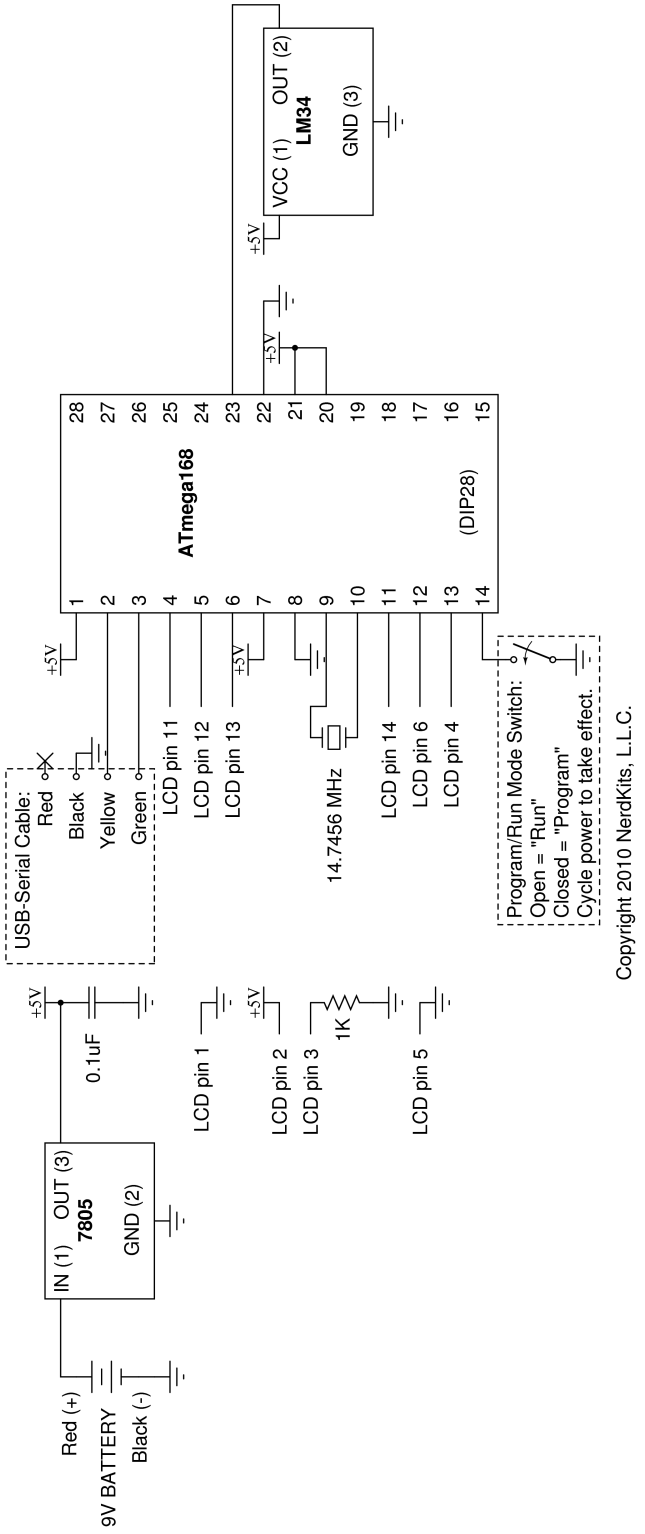
One way that electronics hobbyists and electrical engineers alike communicate about circuits is with schematics, which are simple diagrams indicating how various components are connected. The basic notation is quite simple, with lines indicating various components connected with wires.

However, while schematics can provide a concise description of a circuit, they are missing some fundamental pieces of information. If you were to build the circuit, schematics are sometimes missing information about component footprints or pinouts – perhaps indicating what pin #1 is connected to, but not indicating where pin #1 physically is on the package. On the other side, if you want to understand how the circuit works, schematics often require a great deal of cross-referencing with datasheets. For microcontroller circuits in particular, there's a tremendous amount of information in the code, and the schematic is just one small piece of the puzzle.

Schematics can be a useful tool to understanding a circuit, but we want you to understand that in the world of microcontrollers, they are generally most useful in the context of other information, like datasheets, pinouts, and source code and comments. We encourage you to understand the circuit, as opposed to just recreating it from these schematics. As always, if you have questions, our forums are a fantastic resource.

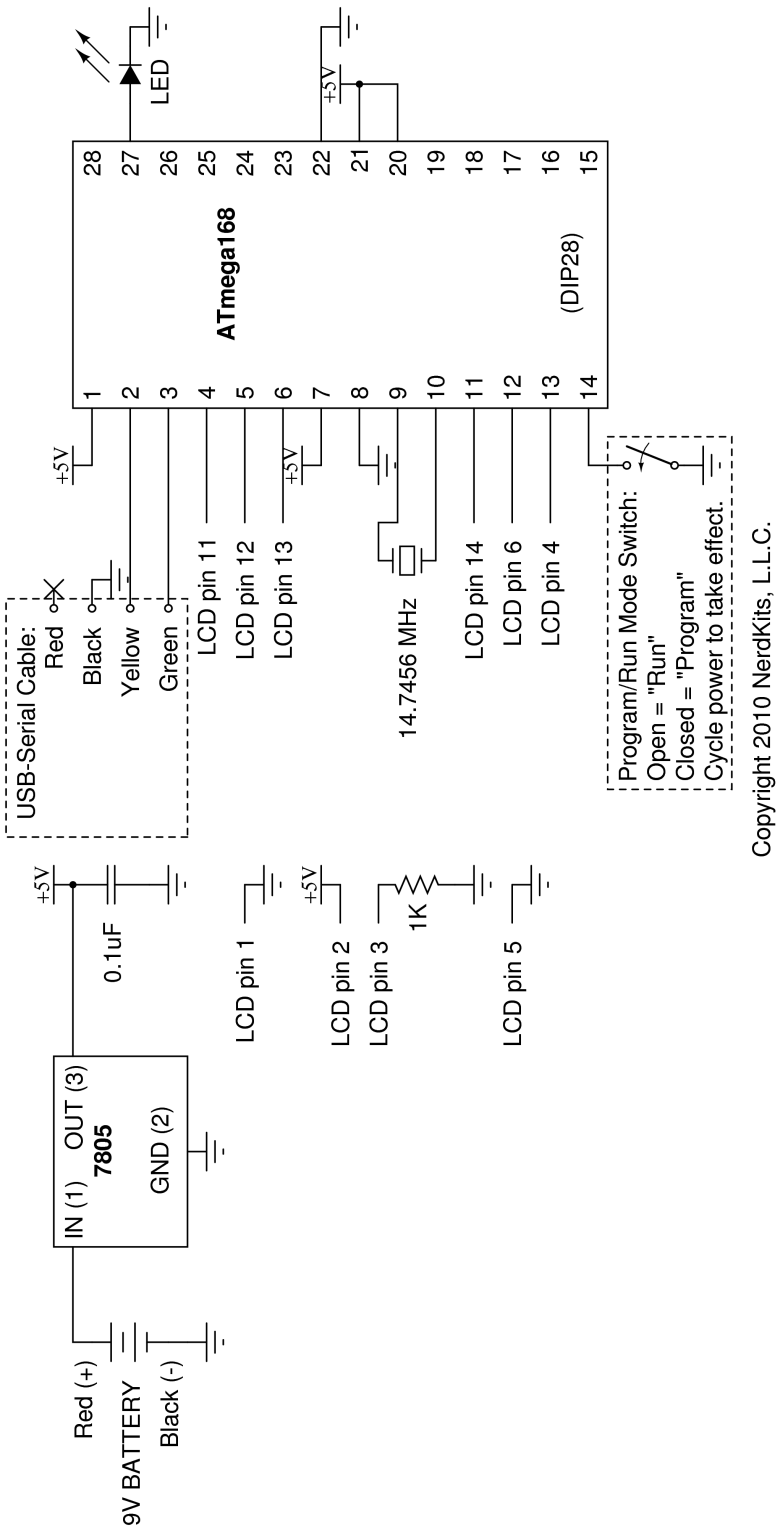
Temperature Sensor Project

The LM34 temperature sensor IC is used to provide an analog voltage proportional to the temperature in degrees Fahrenheit.



Blinking an LED

A single LED is connected to PC4.



DIP Switch Arithmetic

Six DIP switches are connected to PC0 through PC4 with internal pull-up resistors.