

## **The smallest handheld automatic one-chip AVR-based DC voltmeter Project Number A3780**

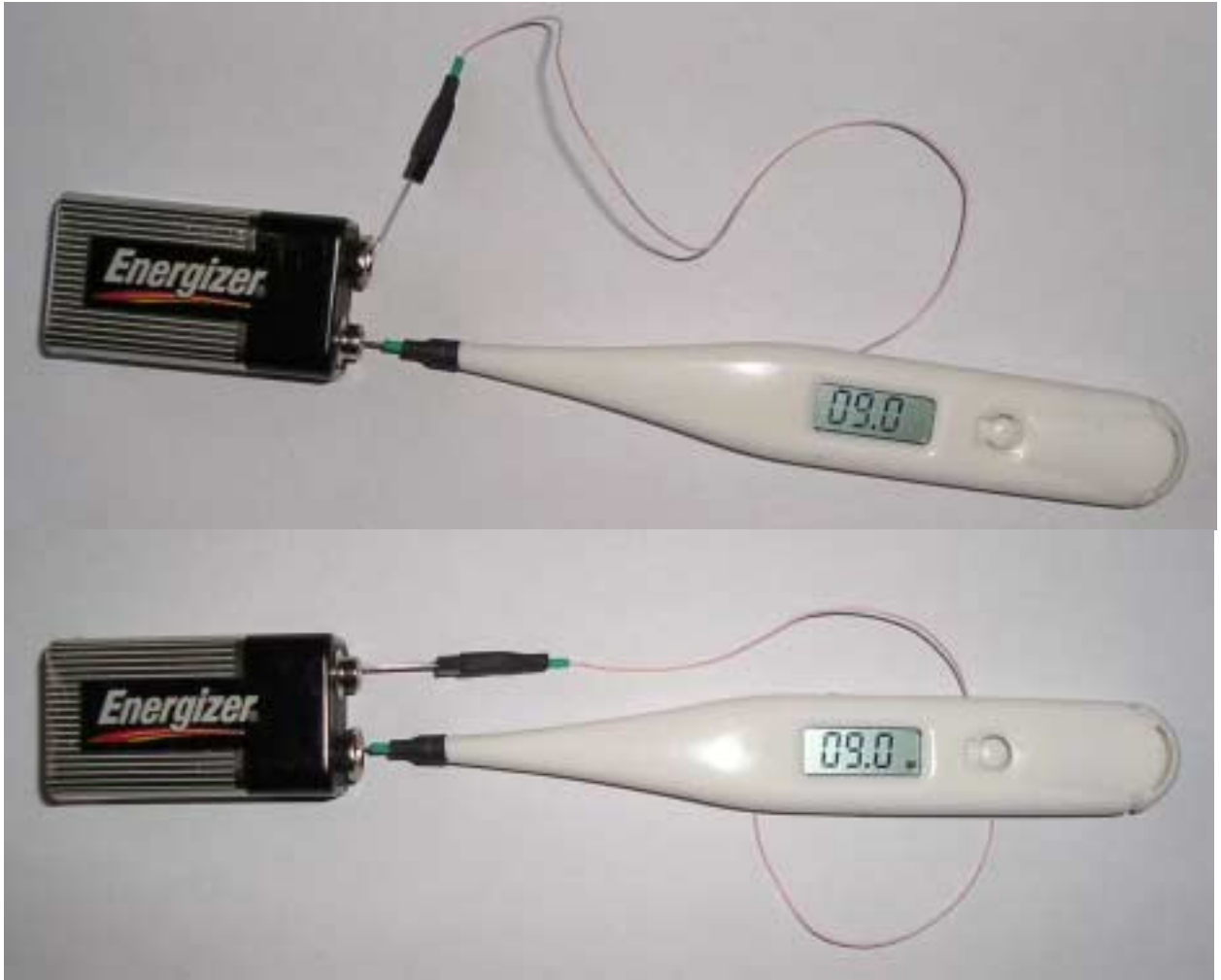
### **Abstract:**

Have you ever tried to repair anything in your car? Have you tried to debug your original circuit? If yes, then you are sure to have a device called multimeter. Usually this thing is about half a kilo heavy and you would normally have to hold it with your both hands. However, it is a very useful and sometimes indispensable device. Working with it everyday, you might have dreamt that one day it could be at least half as heavy. So what would you say if you had a multimeter that is no bigger than a pencil and resembles a little electronic thermometer?

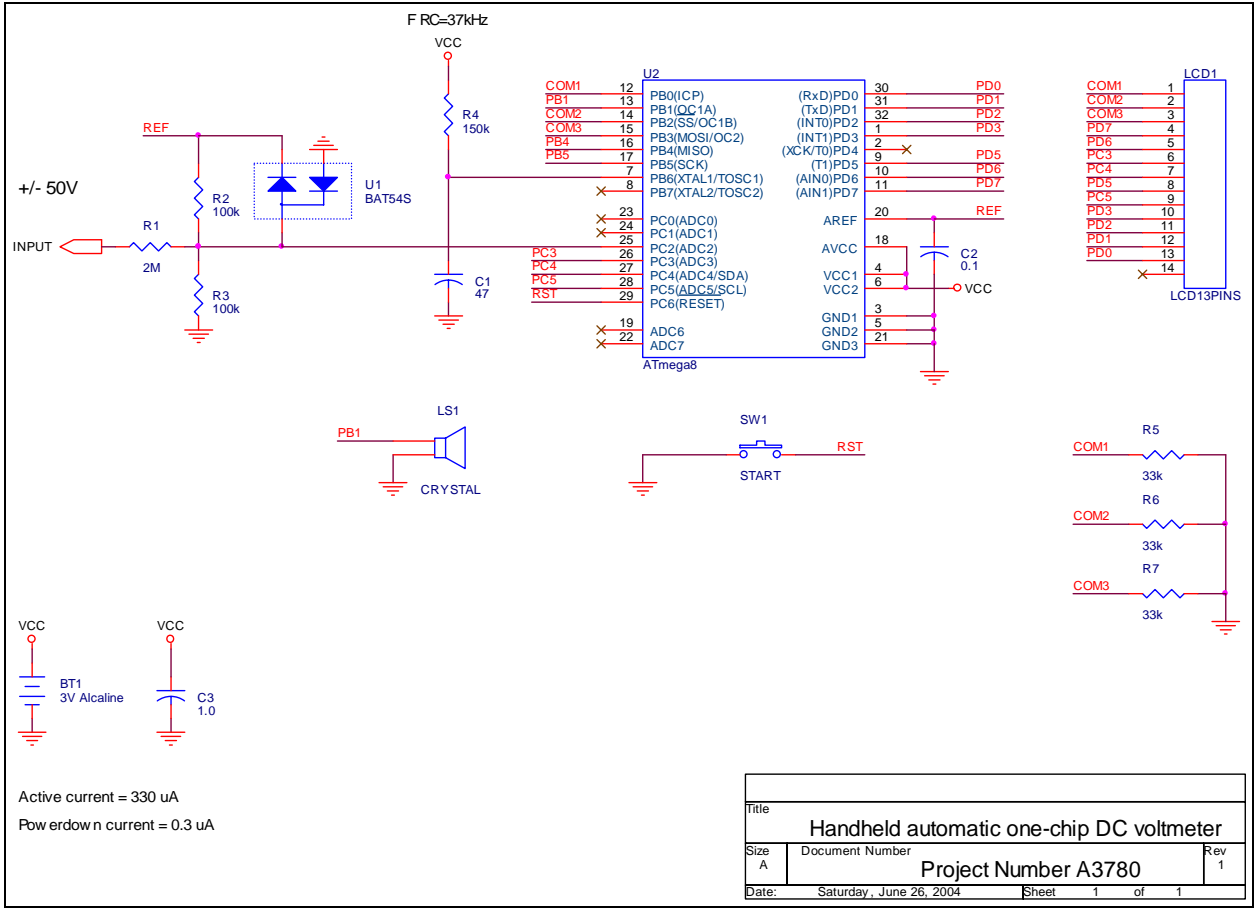
In a nutshell, what I offer is a hand-held device that is used to measure DC voltage within the range of  $\pm 50$  Volts. Have you ever held a digital medical thermometer in your hand? This pocket shape perfectly suits voltage measurement, especially if you like small microchip design. And how about automatic power down if the process of measurement is interrupted for more than 1 minute? One more practical feature is a sound short-circuit detector onboard; this is required when checking wires and bulbs. So if you want to get your dream device, go to the nearest drugstore and buy the cheapest digital medical thermometer and change the PCB inside. Now the only thing you need is 1 chip from Atmel – Atmega8L-8MI – very small and cheap but with great potential.

Finally, such a multimeter is an essential device for repairing cars, household appliances, debugging and adjusting electronic circuits. Powering is only 2 alkaline micro cells (watch size). No need to change the battery too often because power consumption is very low (only 300uA), especially in the power down mode (less than 300nA). It is both practical and convenient.

### **GENERAL VIEW**



**SCHEMATIC DIAGRAM**



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