Distributed one-wire temperartue measurements using embedded systems

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Abstrak

In this paper, I describe a recently developed experimental setup for monitoring temperature, which can be accessed via Ethernet network. The experiment consists of three primary elements communicating with each other: i) an embedded system acting as a server. It consists of an embedded Ethernet controller and a 1-Wire sensor for temperature measurement which is called TINI and ii) a second embedded 1-Wire temperature measurement system which is build on the ATMEL AVR micro-controller and iii) a PC based client computer, for monitoring the overall process. The AVR embedded system whose programs were written in the C programming language, sends data to the TINI using serial communications, while the TINI, which executes Java programs communicates to PC using the TCP/IP protocol. The client computer plots the data sent to it through TINI and provides a visual display of a sequence of temperature measurement data, which were detected by sensors with 1-Wire technology on either of the two embedded systems.