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Industrialization of a communication system for power plants

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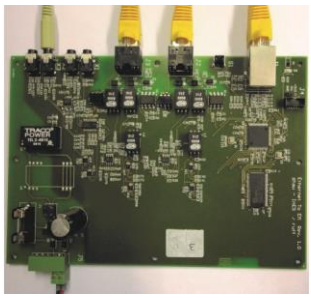
The progress in communications technology is tremendous. In earlier days we used analog telephone lines to connect to the Internet. Today we use the Internet as substitution for the analog telephone, since most analog lines are nowadays replaced by Ethernet based logical links, especially those lines which are purely used for data communications.

Power companies often use so called "Ear & Mouth" analog stand-by lines to control remote power switches or meters. However, telecommunication providers abandon those analog lines in favor of cheaper Ethernet connections. Since power specific equipment can not be changed immediately, an adapter from the E&M analog to Ethernet is required. This was the challenge of our bachelor's project.

In this work, we combined the hardware design from our student project and a basic software design from our predecessors with a WEB based user interface to configure analog line and Ethernet settings.

The implementation uses an ARM-Cortex based Microcontroller with integrated Ethernet MAC-PHY and audio codec to interface to the analog telephone line. The manufacturer of the Real-time Operating System also provides a Web server and a TCP/IP stack, which eased the implementation.

In addition, we designed a WEB-based test program to test all on board components.



E&M To Ethernet Board

Web Interface