Hochschule Zittau/Görlitz
UNIVERSITY OF APPLIED SCIENCES

Expertise

Master Thesis B.Eng. Jan Korejtko

Master Thesis deals with an Universal Ethernet to SPI communication module for transmission of control messages and upgrade microcontroller software. Work was done at DI-ELCOM s.r.o. in Plzen to enable communication of different electronic parts of a tram vehicle.

A lot of grammar mistakes catched into my eyes while first reading. "Fakulty of …" instead of "Faculty of", "Technical university" instead of "Technical University", "Diplom thesis" instead of "Master Thesis" only on the cover of this work. "Task of diplom thesis" instead of "Task of Master Thesis","communication module for transmition" instead of "communication module for transmission" or "Bc." instead of "B.Eng." "solutionsand" instead of "solutions and" only on the title page. "For this reason I chose to write my dissertation" on page 8 and so on …

During this work hard- and software was developed to enable a service computer (e.g. laptop) to communicate via Ethernet with different electronic components of a tram vehicle, which are connected via Serial Peripheral Interface (SPI). Main task in hardware development was the realization of a circuit, which is able to manage the conversion between Ethernet and SPI. For this purpose an Atmega 168/8 Microcontroller and a Microchip ENC28J60 Ethernetcontroller were used. Software for the Atmega 168/8 Microcontroller was developed in C-Language e.g. for communication with the ENC28J60 Ethernetcontroller. In addition software in C# was developed for the service computer to send commands and get status information over TCP/IP.

Electrical functionality was shown by measuring impuls diagram by an oscillograph. Functional verification has been performed by several tests on PESA 121N trams in Warsaw (Poland). Problems with stress peaks of the electric machine of the tram were solved by using special protected cables.

Student got the task to correct all grammar mistakes in his written work. This was done by the student. Final mark is:

mark: 2 (two)

Stefan Bischoff

Prof. Dr. Stefan Bischoff
Hochschule Zittau/Görlitz