

Abstract

The subject of the thesis was the development of an EtherCAT communication based system. With EtherCAT protocol, I was able to learn about a new, modern communication type, the Ethernet-based fieldbus communication. Networks based on this communication protocol group are robust, easy to set up and connect to all the devices of the network, only an Ethernet cable is required. Nowadays networks with these features are even more in demand.

I've completed my thesis at ProDSP Technologies Zrt. The company develops many products, in which there's a need for realtime data transfer between separate devices. These products have to perform typical tasks like synchronised measuring, transmitting the measured data and manage control tasks.

The goal of my assignment was to develop and build such an EtherCAT based measurement and datacollector system, which is not only able to measure, but with EtherCAT communication protocol, it can control the Slaves of the network. The system was able to store the collected data in a file, and in the same time display it, while retaining it's realtime capabilities.

To create this system, I us many devices made specifically for EtherCAT communication. The network management was developed and done on PC with specialized software.

From this prototype other, more specific and more complicated EtherCAT systems can be created faster, with less development time. It provides an appropriate basis for future development.