

Controlling of remote devices on the Internet: customizing of computer technology

Computers control is a dominant area in the modern world. It ranges from control of a simple device attached to an isolated computer to controlling a complex robot over the Internet. Generally, computers control can be extended as a means of customizing computer technology for different needs.

This paper describes an approach to controlling devices attached to a remote computer. It is proposed to use the parallel port of a computer of a computer for connecting the device to be controlled. The local and the remote computers are connected to the Internet. Thus the TCP/IP is used as the basic communication protocol. Communication between a local client and the device connected to the remote machine is developed by setting up a Web server running on the remote machine. Java Servlet is used to develop the web server. The web server calls a C-native code controlling the device.

This approach allows us to control a device connected to a remote machine, from any machine connected to the Internet, without having to install the client software. One problem encountered was the calling of C native code via Servlet. However, it is achieved and, now controlling of the device can be done in a similar way as using of an ordinary web applications. The entire communication is done through web pages.

We have evaluated the framework presented using a simple electromagnetic door latch connected to the remote computer. However, the approach works irrespective of the complexity of the device. The complexity of the device is only a matter of writing C code. In a very simple manner, the system was also tested with a single machine by considering the local host at 172.0.0.1:8080.

The results were encouraging and showed great potential for future enhancements, too. In particular, since the approach exploits web technology, various multimedia supports (*e.g.* video camera) can be used to monitor and control the states of the device. Based on the result, two undergraduate projects, namely, intelligent computer control and design of special purpose control devices with low cost microprocessors are proposed as further work of the project. Therefore, the approach forms a basis for customizing computer technology for meeting different needs at the level of computer control.