

**WEB CAM USING FOR REAL-TIME TASKS MONITORING IN
CONTROL WEB 2000 SYSTEM**

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Abstract: The paper describes using Web Cam for on-line monitoring chosen real-time application on Intranet or Internet. There is applied SCADA/MMI system Control Web 2000 for real-time data access, which part is HTTPD component. That is fulfilling HTTP server for real-time data access. These sever enables data and views of particular equipment on Internet or Intranet. HTTPD component of this system is applied as a bridge between real-time applications, on-line visualisation by Web Cam and Internet or Intranet environment.

Key words: Control Web 2000, HTTP server, visualization, Web Cam.

1 Introduction

Internet Network connected still more computers over the whole world and enable access to many services still for more people (Internet users). Except fundamental tools as WW, E-mail, discussion groups etc. we have possibility to access for real-time applications using Internet by IE.

Internet is the most popular mainly for user-friendly interface and easy operation. Today is offer by helping WWW huge number of information - by it's web presentation tender the famous world companies, science institutions, schools and also millions private person.

Developing of Internet brings by itself quick develop and simultaneously wide range component standardization. These entire components working on Internet can be used also for creating internal firm information systems. From the point of technological view aren't differences between Internet and internal firm information system. So grow up name intranet — internal firms network using Internet technology.

Intranet usually doesn't cover whole world, generally particular intranet servers are connected considerably faster links than Internet servers. Another fact is, that on intranet is

transferred private data and therefore for their protection is implemented firewall computer, which defense illegal entries from outside, or even sometimes intranet is from internet absolutely disconnected [Control Web system CD Manual].

Principle described above is related without exception also on *Control Web 2000 system*. Distributed and modular application, their visualization and control through WWW can be executed on any IP network.

2 Control Web 2000 system and Internet – brief overview

It is SCADA/MMI system for monitoring, control and visualization real-time applications and systems as well as InTouch, Promotic etc. This system includes HTTPD component, which is completely representative HTTP server and by mounting way enables selected entities at Internet. Data flow direction could be changed by this component, this means from user to Intranet or Internet real-time application.

This SCADA/MMI system enables, as other similar system, security by means of access levels. From whence it follows HTTPD component protection. There are three fundamental security levels. First level is fully in programmer's hands, he defines variables, channels or devices, which is wanted to access Internet helping by HTTPD component mounting. Second level enables password setting for HTTPD component in the frame of whole application in Control Web 2000 system. Third security level is suitable variable distribution and devices on two HTTP servers, which first will be used for Internet and second for Intranet. It means, that private data will ensure server, which will have no IP address accessible for Internet, this protection is conceived by LAN firewall. HTTP server dedicated to Internet will enable access data for whole I-network.

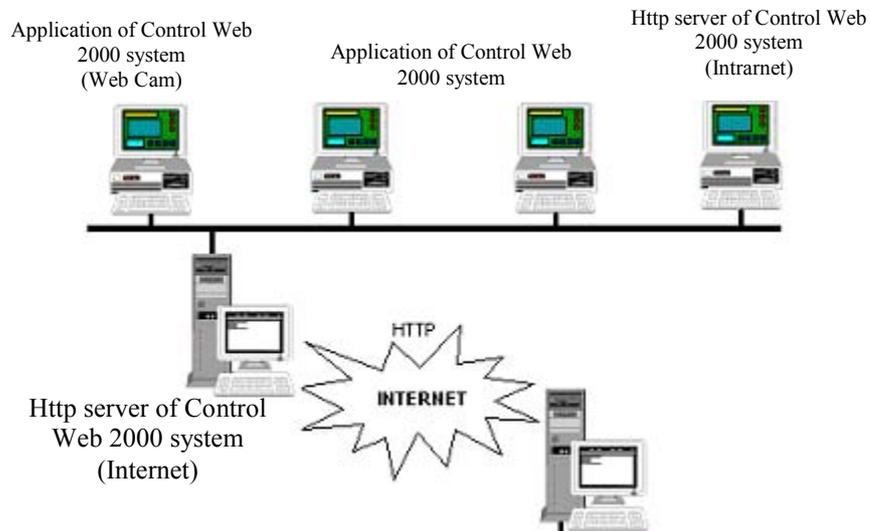


Fig. 1 Connection of particular network applications

Control Web 2000 system allows real-time visualization helping by real-time data measurement. This animation is possible to realize also Internet by automatic refreshing of web page. But this animation demonstrates flip screen. This is description of application, which works on client site without Control Web 2000 software support. („thin client“).

Another facility is using minimal support of Control Web 2000 system and creating modular application. Whereon data are transferred by TCP/IP protocol, but animation isn't so flipped. There are several ways of connection these modular applications (by TCP/IP driver of Control Web 2000 system, Remote, Attach). Particular types of connection have different properties. Detailed characteristics of these properties aren't theme of this contribution, but you can see below conclusion literature. This paper is dealing with possibility of using Web Cam for on-line monitoring of real-time task on Internet.

3 Web Cam Screen Transfer via Internet

During the testing of screen transfer via Intranet or Internet has been trying a lot of software, which solve screen transfer by different ways. Generally, there are tree ways.

First eventuality is storing current screen on disk drive at jpg file format. The end-point client uploads this screen into html server's page. Here we have synchronization problems. Refreshing of html page on client site is providing by command at the html page.

Second eventuality is using remote screen server. PC, which connected web cam, is communicating with remote server and link on this server is located at our HTTP server.

Third way, by the means of author of this paper the most suitable is in the frame of local network selection the computer, which has connected by USB interface with web cam. Then is suitable storing data into folder on the HTTP server (dynamical web pages) and therefore HTTP server contain link for these HTML web pages.

Here is the main role for Control Web 2000 system and his HTTPD component (full scope http server). This server enables real-time data access on Internet containing in it's root directory including also other html page generated by web cam software located on other PC in LAN. This software is rather demanding for CPU, but occupies another PC (without HTTP server).

We are able configure particular real-time application and on-line monitor them helping by Web Cam, through Intranet or Internet.

4 Web Cam and Control Web 2000 System Connection

One of requirements was also possibility of Web Cam moving. For that is using also Control Web 2000 system. Here we have also possibilities for creating modular application. Another important demand is possibility of access standard PC ports (USB, COM, LPT etc.). LPT driver for Control Web 2000 system was implemented, by helping him we can set up data bits from LPT D0 to D7 (PIN 2-8) and read discrete signals from 5 controlling pins. Next, one module was created for power amplification of signals for direct-current motor control.

Application in Control Web 2000 system, dedicated for motor control was created as independent module. Reason is possibility of using this module direct on http server, where is running web cam application, or using on PC, where is running only application and through LAN is sending and storing html page on HTTP server. At the first way we are using local modules and at second we are using remote modules. These modules have possibility of communication through TCP/IP driver for LAN network acquired from Control Web 2000 system. More details about remote modules co-operation you can see on web page [<http://www.mii.cz/>].

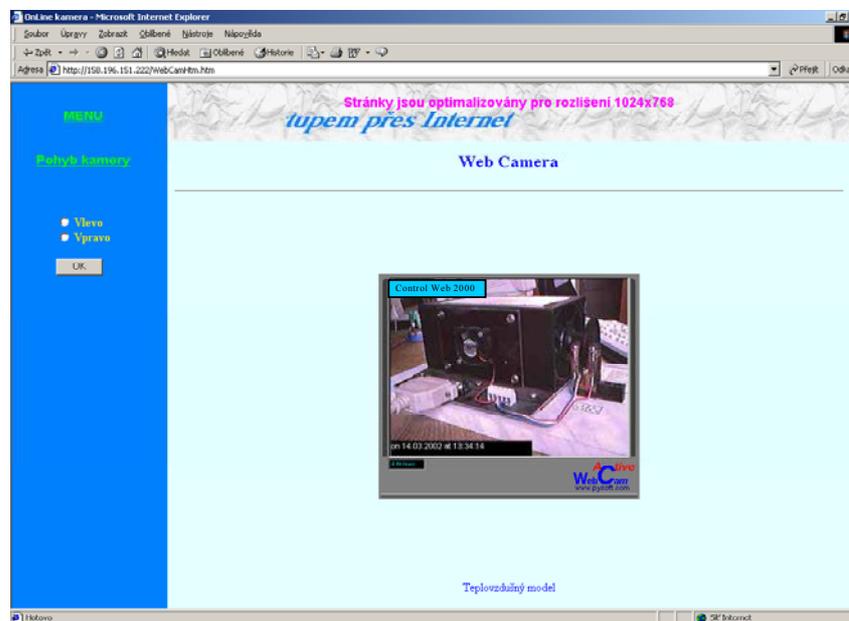


Fig. 2 Application window using Web Cam services

5 Conclusion

Application at Control Web 2000 system enabling on-line visualisation helping by web cam was implemented. In the frame of this application was proved several configuration of distributed task connections and it was developed optimal variant for distribution tasks on particular computer at LAN. For on-line visualisation access helping by web cam for real-time tasks we don't need to install another support software on client-site. If module for web cam service is running, then providing data for HTTP server and it is possibility of visualisation of chosen real-time application. On available applications was verified design and implementation on-line visualisation helping by Web Cam in Control

Web 2000 system. This application was proved on LAN network of faculty of mechanical engineering.

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