ABSTRACT

The usage of internet for passing information grows rapidly for last ten years. The popular one is website. Complex website commonly is saved on personal computer's web server with high specification. Using personal computer for handling small website like weather station in which informations are acquired in real time is not an efficient way. Embedded system is one of better solutions for this problem. It have many advantages in instalation and operation because it pays less cost.

In this final project, it had been builded an embedded web server that served information requested through website from clients. The information data were acquired directly from sensor. It used Avr Atmega32 microcontroller for central processing unit and also ethernet controller ene28j60. Ethernet controller IC handled communication via internet using TCP/IP protocol. Microcontroller got data from sensor then its were formed to data pakets in correspond with the protocol to be used. On layer transport, TCP protocol was used for serving requested website pages from computer clients. The another layer transport is UDP, that used for serving data logger application. Weather was represented in temperature, humidity, and wind velocity informations.

System was tested by requesting website pages simultaneously for a certain numbers. For testing datalogger application that used UDP protocol, web server was operated for 24 hours, in which weather data sample was acquired in every 3 minutes. The system ran relatively stable and there were no error communication in both protocols. Temperature sensor data had 1.5 % in error, and humidity one had 5 % in error.

Keywords: Embedded system, TCP/IP, weather