Sensor Network Implementation of using Embedded Web Sever

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Abstract: Architecture generation is the first step in the design of software systems. Most of the qualities that the final software system possesses are usually decided at the architecture development stage itself. Thus, if the final system should be usable, testable, secure, high performance, mobile and adaptable, then these qualities or non-functional requirements should be engineered into the architecture itself. In particular, adaptability is emerging as an important attribute required by almost all software systems. The machinery and tools in the remote site surveillance and connects intelligence information machinery and tools at Internet. We need the server which uses different embedded operating system to become private use. With the progress of information-oriented society, many device with advanced technologies invented by many companies. However, the current firmware technologies have many problems to meet such high level of new technologies. In this paper, we have successfully ported linux on an embedded system, which is based on intel StrongARM SA-1110 processor, then written several network modules for internet-based network devices.

1. INTRODUCTION

The embedded system is that the function of device are executed independently without the functional supports of another system. Many electronic devices or household appliances which are used in our usual lives have micro-processors, that is embedded processor as well as basic circuits. We can call that embedded system has a specified program which operates the micro-processor and special functions by then embedded system is used in various parts as like industry electric home appliances, office work, parts and so on. Mobile phone, PDA, home network unit, traffic information and control system, spaceship control, they can be more concrete examples.

A micro embedded did the task to be simply the sequent at the past. The necessity of an embedded operating system did not exist in the reason, We satisfy the complication of the system and operating system have been desired for the officer of the process. The necessity of the process of real-time processing increased also with fast response time to users, The porting follows and have been composed of an real-time embedded operating system.

We can control the control unit with the sensor to be established in the building, An embedded web server to use the resource of the at least is appearing a networking facility of interaction. An embedded web server input and output device or Web server which makes information plain connect easily, The office an embedded Web server family building and stretch at whole area of the back of the factory.

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2. REAL-TIME WEB SEVER IMPLEMENTATION

2.1. real-time system

An real-time system says the system which the system outputs the result within the time to be determined. We should not deliver the time which given task is determined.

We do the execution system because we have the element which an embedded system is an execution enemy. An real-time system becomes the grouping to three kind according to the degree of a fault permission.

First, We fulfill the condition of all task and must be executed in a hardness real-time. We can bring about the result which trifling fault is fatal in a total system, must do the design of this system about the case to a hardness execution system.

Second, We can not satisfy the condition of the task in a ductility execution. We do not lead to fatal system fault though we do. The result of the task delivers the termination time limit and says meaningful case though they say that *SUB is performed.

Last, A hardness execution medium hardness and form of a ductility. The case to finish the task delivers the termination time limit and is meaningless case A system degree of coupling according to him implies fatal case.

2.2. real-time operating system

The characteristic which an embedded system has which is an execution enemy because we fulfill the

element can do the execution operating system An real-time operating system the root and trunk of an embedded system is namely the operating system to become. RTOS needs the distinction to a certain extent with an embedded OS. Namely, The purpose to achieve given task is not We are the system to put the key point in the problem of the out-put though we order the termination of the task termination. Also The processing does the response time of an each task to the execution.

The number to deal all task to the spot is but not to exist in a multitasking environment. We must give the dispatching about an each task for the fear to deliver the termination time limit. A Fig 1 expression does general development environment which uses Linux

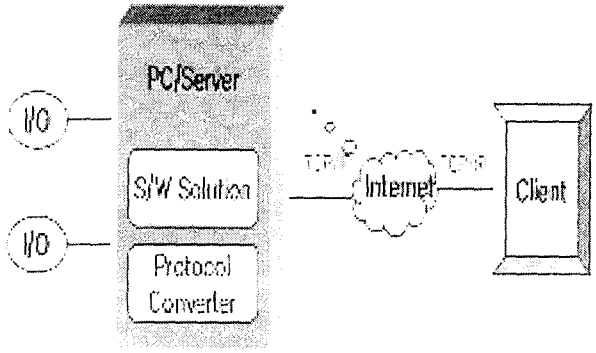

Fig 1 Protocol Conversion Web-Server

2.3. Structure of web sever

We divide the form of representative embedded web sever greatly into four kind form.

The First, Protocol Conversion Web-Server.

situation which comes in through I/O which PC of the center stores the information at PC/ Server. We are Web-Server form by Software in the method which the user offers the information at a connection o'clock

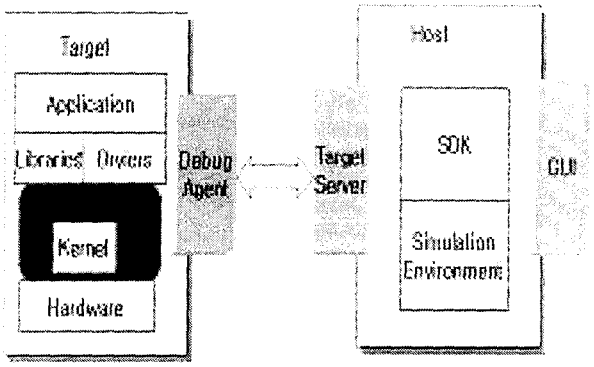

Fig 2 Embedded Linux Development Environment

The second, Distributed Web-Server

We are connected currently by the way of PC or workstation. The web server sends the information of the at least to be desired to PC through RS-232 communication fort. PC collects the information of the web server and sends at HTML. A thing not to request a memory size in this mode with the operation ability because we crawl advantage We have economic spatial defect use PC. We use the web server to the example PC for the information of simple sensor. The charge will be the toe non efficient so that it occupies expensive and big space Web-Server of the form needs the control of the variance form with the information to write The surveillance of the back of Home Networking part or building because we crawl or used for Machine Monitoring in a control field.

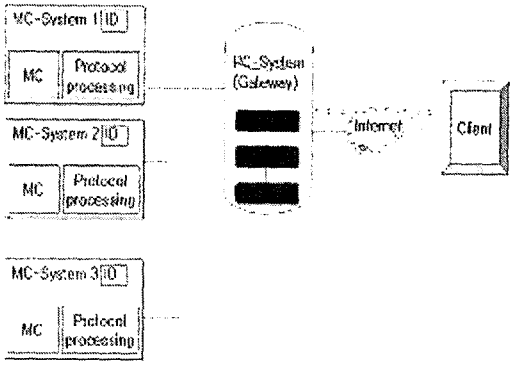

Fig 3 Distributed Web-Server

The third, Protocol-on-Chip

TCP, UDP, IP, DHCP, ARP, ICMP on the TCP/IP protocol stack and Mac protocol web server of one's brother who contains the ethernet internally at one chip TCP/IP protocol period comes to be long and a development hour comes to be long We implement this in the system of the user compared with the method of the hitherto to implement with the software We make Internet fast and can feel keenly a software development costs.

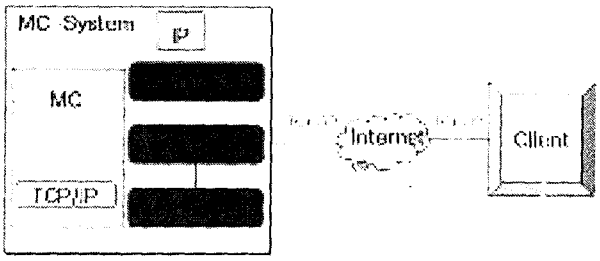

Fig 4 Protocol-on-chip

3. PEER-TO-PEER

3.1. Peer-to-Peer concepts

P2P (Peer-to-Peer) computing can define by Application and Network solution to support direct resources exchange between each PC doing not depend entirely on cooperation file server. "Peer' that can be active by Client/Server both therefore all becomes and this has advantage that can be expensive taking out of fair rod in existing infrastructure and reduce necessity of upgrade that is disturbed in performance as well as become draft for various new Application

Manageable	No
Coherent	No
Extensible	Yes
Fault-Tolerant	Yes
Secure	No
Lawsuit-Proof	Yes
Scalable	Maybe

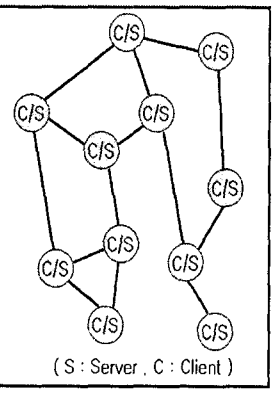

Fig 5 Hybrid P2P System

Manageable	No
Coherent	Partially
Extensible	Yes
Fault-Tolerant	Yes
Secure	No
Lawsuit-Proof	Yes
Scalable	Apparentty

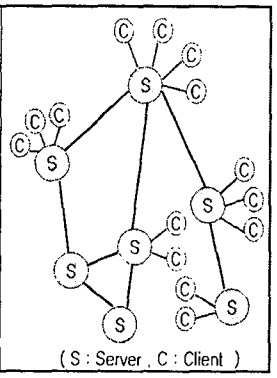

Fig 6 Pure P2P System

3.2. Peer-to-Peers' characteristic

P2P is no been server altogether in client-server structure, or have the most essential characteristic that client's role is solidified more.

P2P Application searches the nearest "Peer" that can offer necessary resources instead of do Link automatically with server that is done center Tuesday for Network infra-structure. As a result, mean distance of Network interaction can reduce greatly and reduces Network whole traffic quantity.

Because there is information to different many clients under P2P computing model, Rideondeonsi of very high level is possible into very low expense than existent model.

P2P Application can use to improve of arranged desktop. In the case of corporation environment, can offer protection about Software breakup and consol. virus that update gradually by PC in PC.

In this way, P2P has various kinds characteristic to optimization of server, network optimization, flexibility of infrastructure, and desktop management.

4. IMPLEMENTED

The web server to be implemented in a purity software. We draw data for the thing to implement overall demo to the remote through Internet and We put the point even though we organized the frame to control this.

Fig 7 we dig board which the grasp can do a building information. Fig. 8 operating system web server install at the board.

We can do the operation is smooth the communication to the execution We porting RTLinux to operate to be an execution operating system in Linux based.

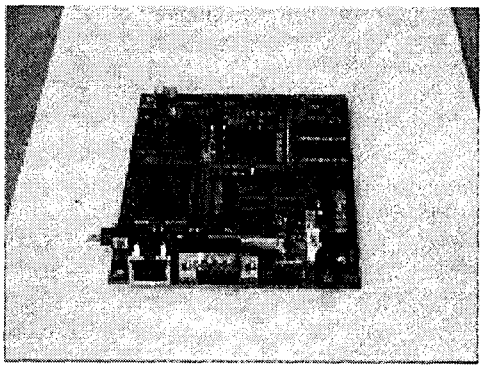

Fig 7 Cam Board which the Building Inside Grasps

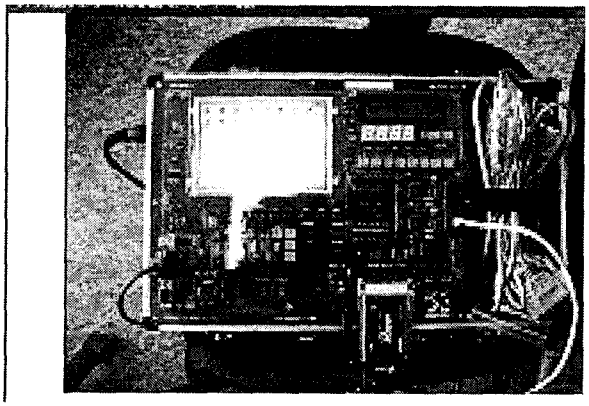

Fig 8 Taget Borde which the Web Sever is implemented

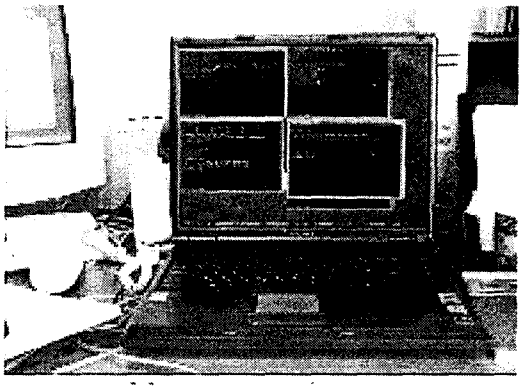

Fig 9 computer communication with the board

We deliver a control signal to request in the client at a building model, number of CONNECTOR monitoring and We check the situation information of a building model and play the role to deliver at the client also.

The case of the web server to be constructed form of Distributed Web Server We store the situation of an outside machinery and tools which i/o connected the web server I to Web page format We are the server which is connected through Internet to offer his information to the manager.

Fig 10 The course we express in general computer which we do an web sever connection and do the control.

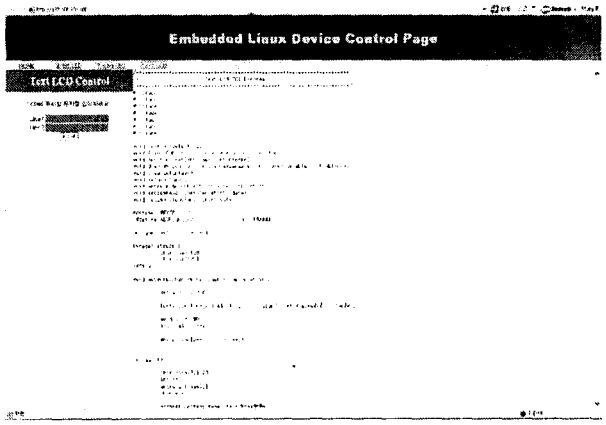

Fig 10 Web Server Control

5. CONCLUSION

A micro embedded did the task to be simply the sequent at the past. The necessity of an embedded operating system did not exist in the reason, We satisfy the complication of the system and operating system have been desired for the officer of the process.

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