INTERNATIONAL JOURNAL OF RESEARCH
In Advanced Engineering Technologies

Volume 3, Issue 4 NOV 2014

IOT BASED REALTIME TASK SCHEDULING IN INDUSTRIAL ENVIRONMENT

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ABSTRACT: In proposed system we overcome disadvantage of existing system by scheduling tasks of the systems on a single chip using internet connection between heterogeneous multi-core systems. In our system we use arm 7 micro controller which supports operating system acts as core unit performing multi tasking each task assigned with same priority. Here our application performs two tasks wireless camera having same priority.The devices connected to wireless camera and temperature sensor continuously transmits data to controller. The controller transmits data which is coming from wireless camera to server through internet by using http. http is a protocol through which users can upload files from their systems to server. once data is placed at server we can view the data at remote pc (with internet) on web page with unique ip address provided. we can view continuous streaming of video as well as temperature data.Along with the data acquisition we can also monitor the devices status and control the devices through wi-fi / ethernet.

Key words: *LPC2148 development board, wifi device, Smart phone, Sensors, Controlled devices.*

INTRODUCTION

Focusing on the use of home area networks to improve disabled people's autonomy at home, this paper presents a display design for accessible home control. In the past years, computational devices have turned faster, smaller, connected and cheaper. It brings the "intelligent house" vision, promised for decades, closer to reality. This pervasive, intelligent home, a luxury item for many people, could have a key role in assuring the autonomy of people with disabilities. In Brazil, assistive resources and their use are relatively recent as compared to the United States, for example, where specific laws were established in 1988. In Brazil, similar regulations have existed since 2004 and establish general standards and basic criteria to promote accessibility.

IV. The Hardware System

Micro controller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

ARM7TDMI: ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

Liquid-crystal display (**LCD**) is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.

THERMISTOR: Thermistors are a temperature sensing devise. It is used to sense the temperature. In this project by depends on the value of temperature the exhaust fan will run.

I. Design of Proposed Hardware System

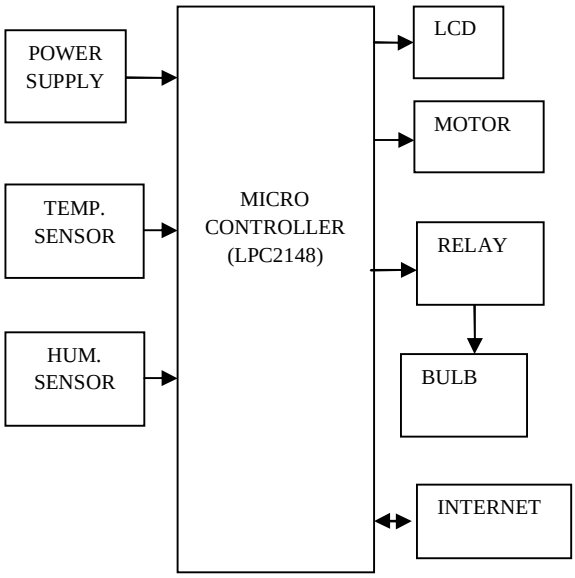


Fig.1.Block diagram

The design of entire system consisted of two part which are hardware and software. The hardware is designed by the rules of embedded system, and the steps of software consisted of three parts. The existing method by improving the security level by implantation of WIFI that will solve this problem. WIFI based wireless technology which consists of transmitter at the site location and receiver at control panel. Information received at the receiver will be send to the WIFI. So the people living at home with internet connection can see the received data. The system uses a compact circuitry built around LPC2148 (ARM7) microcontroller Programs are developed in Embedded C. Flash magic is used for loading programs into Microcontroller.

II. Board Hardware Resources Features

WIFI: Networking is playing vital role in current IT era where data distribution and access is critically important. As the use of communication between two or more entities increases the networking technologies need to be improved and refurbished over time. Similarly the transmission media, the heart of a network, has been changed with the time improving on the previous one. If you know a little bit about networking you surely have heard the term WIFI which is currently the dominant network technology. Wide spread of the WIFI technology made most of the offices, universities and buildings use the technology for establishment of local area networks (LANs).

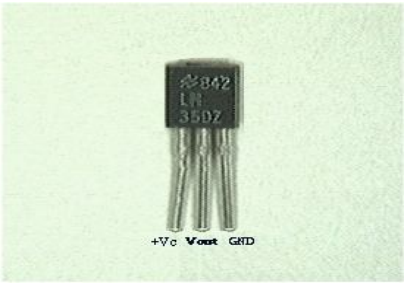
Fig.2. WAN Module

To understand what actually WIFI is, we need to know about IEEE first which is a short of Institute of Electrical and Electronics Engineers. IEEE is a part of International Organization for Standardization (ISO) whose standard IEEE 802.3 is defined for Local Area Network. The standard 802.3 commonly known as WIFI defines the communication standards for how data is transferred from one network device to another in a local area network. Since the limit for WIFI cable is few hundred meters WIFI is commonly deployed for networks lying in a single building to connect devices with close proximity. The same standard for WIFI enables manufactures from around the earth to manufacture WIFI products in accordance with the ISO standards that are feasible for all computing devices worldwide

THERMISTOR:

The LM35 is an integrated circuit sensor that can be used to measure temperature with an electrical output proportional to the temperature (in ºC)

The LM35 - An Integrated Circuit Temperature Sensor You can measure temperature more accurately than a using a thermistor. The sensor circuitry is sealed and not subject to oxidation, etc. The LM35 generates a higher output voltage than thermocouples and may not require that the output voltage be amplified.



It has an output voltage that is proportional to the Celsius temperature. The scale factor is .01V/ºC The LM35 does not require any external calibration or trimming and maintains an accuracy of +/-0.4 ºC at room temperature and +/- 0.8 ºC over a range of 0 ºC to +100 ºC. Another important characteristic of the LM35DZ is that it draws only 60 micro amps from its supply and possesses a low self-heating capability. The sensor self-heating causes less than 0.1 ^{o}C

III. CONCLUSION

This paper explores the online real-time task scheduling problem in heterogeneous multicore systems, and considers tasks with precedence constraints and nonpreemptive task execution.

We first propose a heterogeneous dual-core scheduling framework to provide fast admission control able to accept dynamic workload. A preemption point-based solution is presented as a way to configure task blocking time and context switch overhead in the coprocessor. The extendability of the framework to heterogeneous multicore systems is the demonstrated by using well-known dispatchers.Experimental results show the properties of the evaluated algorithms under different workloads and configurations.A case study is also presented to demonstrate practical applications of the framework.Future research should explore the online energy efficiency polices of heterogeneous multicore systems, the utilization bound of heterogeneous multicore systems and the communication architecture of heterogeneous multicore systems. Further research and development in these area may prove to be very important for future mobile system designs.

V. ACKNOWLEDGMENTS

The authors would like to thank Li-Pin Chang at the National Chiao-Tung University for commenting on part of the work. Thanks also go to Cheng-Te Bai at the National Taiwan University of Science and Technology for his contribution to part of the experimental design. This work is supported in part by a grant from the NSC program NSC 99-2221-E-011-116-MY3.

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