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INDUSTRY MONITORING AND CONTROLLING BASED ON EMBEDDED WEB SERVER 1Dr. P. A. Harsha Vardhini, 2K. Murali Chandra Babu, 3N. Koteswaramma 1Professor, 2Assistant Professor, 3Assistant professor 1Electronics and Communication Engineering 1Vignan Institute of technology and science, Hyderabad, India Abstract: Data acquisition is the sampling signals which measure physical conditions and converts into binary values which manipulated by a computer.

To processing the signals data acquisition system is used which cnverts analog to digital signals. Previously internet is limited to only computers but because of the advancement in technology especially in mobile communication, now internet is completely being accessed by latest phones like Smart phones.

The proposed method a new application is created to monitor the industry parameters like monitoring temperature, voltage and current from webpage. At industry side we have Ethernet module, micro controller, temperature sensor, LDR sensor and humidity. The communication between internet and micro controller is established using Ethernet module and ARM7 based LPC2148 32 bit controller.

Index terms: data acquisition, microcontroller, LDR sensor, ARM7 INTRODUCTION An embedded system ware and software which performs specific function like vending machine, printer and mobile phone and so on. Each embedded system has a processor and hardware to meet the requirements for an application. The firmware is the software is used to embedded in the hardware applications such as playing games, word processing, accounting, software development and so on.

Now a day's so many useful technologies are coming out to make our life style more

comfort, luxurious and secure. Especially internet technology brings up many applications and advantages for present and future generations. Present world mostly is being controlled by internet. Previously internet is limited to only computers but because of the advancement in technology especially in mobile communication, now internet is completely being accessed by latest phones like Smart phones. The system is totally designed using ETHERNET module and embedded systems technology.

ARM7TDMI is modern and well developed controller which monitor the parameters repeatedly and display it on the LCD. IMPLEMENTATION Figure 1 represents the proposed embedded design which consists of power supply unit, sensor module, microcontroller, ETHERNET, LCD. / Figure 1: Proposed model design The proposed design can be implementation in Hardware Firmware In Hardware implementation schematic can be drawn as per the application, the design can be tested on breadboard using various ICs and check whether design meets the required specifications and finally preparing the board and testing the design hardware. In firmware, where the programming can be done on microcontroller to control the operation of ICs present in hardware.

In the proposed model, Orcad design software is used for PCB design, the Keil µv3 software in which the source code can be written in C language and compile it. The Proload programmer has been used to dump the compile code into the ARM7TDMI ccontroller. Typical Application Setup / Figure 2: Typical application setup The microcontroller and Ethernet module is connected through Serial Peripheral Interface and Ethernet module and the PC are interconnected through LAN cable. The hardware schematic is developed for the application setup which is shown in below figure 3.

/ Figure 3: Board schematic of an application Required Tools Orcad Keil µVision4 Flash Magic Orcad is used to draw the schematic diagram. Keilµv4, Flashmagic are the two software tools used to program ARM7TDMI controller. Keil compiler is software used where the C programming can be written and compiled. After compilation, the C source code is converted into machine language file (.hex) which contains the original program in hexadecimal format and which is to be dumped into the ARM7TDMI controller.

/ Figure 4: Program compilation process If no errors and warnings displayed on the window then run the program, the system performs all the required tasks and behaves as expected the software developed. If not, the whole procedure should be repeated again. / Figure 5: Process of RUN on compiled code Flash magic Flash Magic is a PC tool where programming can be done for ARM7TDMI controller from NXP using Ethernet protocol.

The figure 6 & figure 7 b shows how the baud rate is selected for the controlle and how the registers erased before the device is programmed respectively. / Figure 6: Dumping of code into ARM7 Figure 7: Dumping process finished RESULTS Assemble the circuit on the PCB shown in Figure 8 After assembling the circuit on the PCB, check it for proper connections before switching on the power supply. For the communication between ARM7 and Ethernet module SPI protocol is used.

This protocol having five wired buses called SSEL0, MISO, MOSI, SCLK and RESET. After connecting an Internet connection to Ethernet module, now open any browser and type the IP address of the ETHERNET module. Whenever browser is opened it gives the current status of industry.

At industry side the following components are assembled Ethernet module, micro controller, temperature sensor, voltage sensing circuit to monitor the parameters. We have two options i.e. sensors and appliances. / Figure 8: Schematic of embedded application When we click on Sensors you can get sensor values and click on appliances we can control the AC loads also.

This micro controller will keep updating these parameters data on webpage. We can check these values from anywhere on our Smart phones or on PC by opening this webpage. CONCLUSION The temperature and humidity at the industry can be monitored by ARM7TDMI controller and the values are displayed on LCD screen. The proposed model is designed in hardware using Orcad and programmed it using keil software. The schematic diagram layout is developed on PCB.

Many parameters can be monitored by using proposed model. REFERENCES [1] http://www.sunrom.com/ [2] http://en.wikipedia.org/wiki/Bluetooth [3] http://www.howstuffworks.com/bluetooth.htm [4] datasheets.maximintegrated.com [5] www.keil.com/dd/docs/datashts/.../lpc2141_42_44_46_48. [6] en.wikipedia.org/wiki/TRIAC

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