

# INDUSTRY PARAMETERS MONITORING AND CONTROLLING SYSTEM BASED ON EMBEDDED WEB SERVER

<sup>1</sup>P.A.HarshaVardhini, <sup>2</sup>Y.Muralimohanbabu, <sup>3</sup>A.Krishna Veni

<sup>1</sup>Department of ECE, V.I.T.S, Deshmukhi, Telangana.

<sup>2</sup>Department of ECE, SITAMS, Chittoor, Andhra Pradesh.

<sup>3</sup>Department of ECE, MRCEW, Medchal, Telangana.

**Abstract:** 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 smart phones. The proposed method is new application created to monitor the industry parameters like monitoring temperature, voltage and current from webpage. The implementation of industry parameters monitoring and controlling system based on embedded web server is implemented without any interference between different modules in the design. Design is done to meet all the specifications and requirements. Hardware is realized using software tools like Keil µvision Simulator and Orcad Lite.

**Index terms:** Data acquisition, microcontroller, LDR sensor, ARM7

## 1. INTRODUCTION

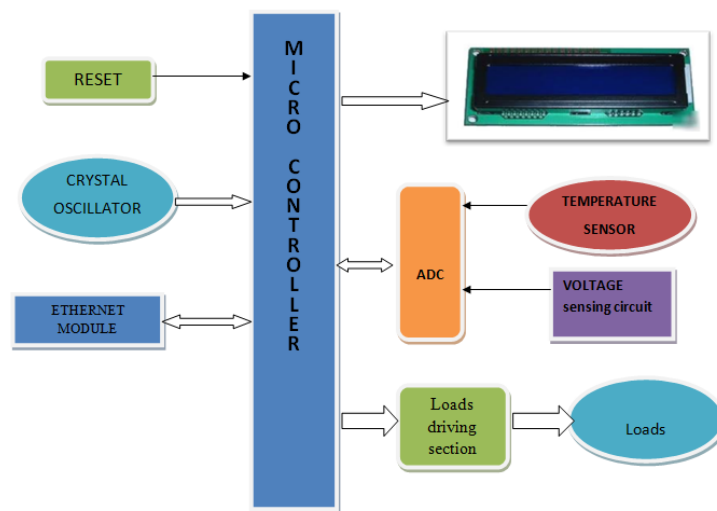
An embedded system is outlined as a computer that will select targeted job. Appliances like the air-conditioner, VCD player, DVD player, printer, fax machine, movable etc. are examples of embedded systems. Each of those appliances can have a processor and special hardware to satisfy the precise demand of the applying together with the embedded computer code that's dead by the processor for meeting that specific requirement. The embedded software is also called "firm ware". The desktop/laptop computer is a general purpose computer. You can use it for a range of applications like taking part in games, data 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 web technology brings up several applications and benefits for 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 software application and the hardware implementation help the microcontroller (ARM7TDMI) to monitor all the parameters continuously and display it on the LCD.

The system is completely designed victimization LAN module and embedded systems technology. ARM7TDMI is an advanced version of the microprocessors and forms the heart of the system.

## 2. IMPLEMENTATION

The block diagram of the design is as shown in Figure 1. It consists of power supply unit, sensor module, microcontroller, ETHERNET, LCD.

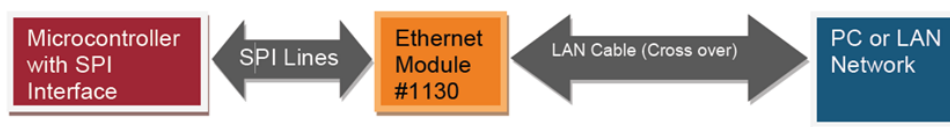


**Figure1: Block diagram of proposed model**

The implementation of the design can be divided in two parts.  
 –Hardware implementation  
 – Firmware implementation

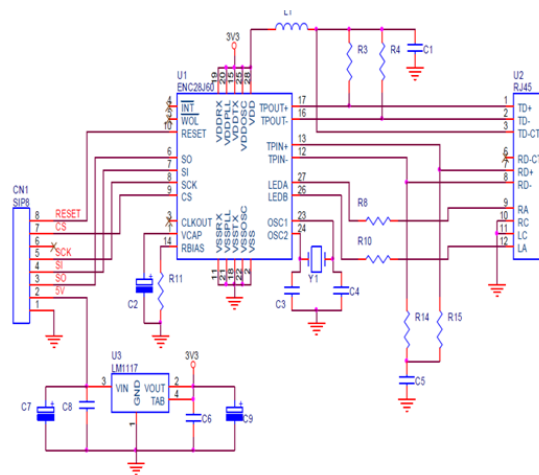
The computer code half deals in programming the microcontroller in order that it will management the operation of the IC’s employed in the implementation.

**Typical Application Setup**



**Figure 2: Typical application setup**

The microcontroller and area unit network [LAN] module is connected through Serial Peripheral Interface and LAN module and therefore the computer are interconnected through LAN cable.  
 The hardware schematic is developed for the application setup which is shown in figure 3.

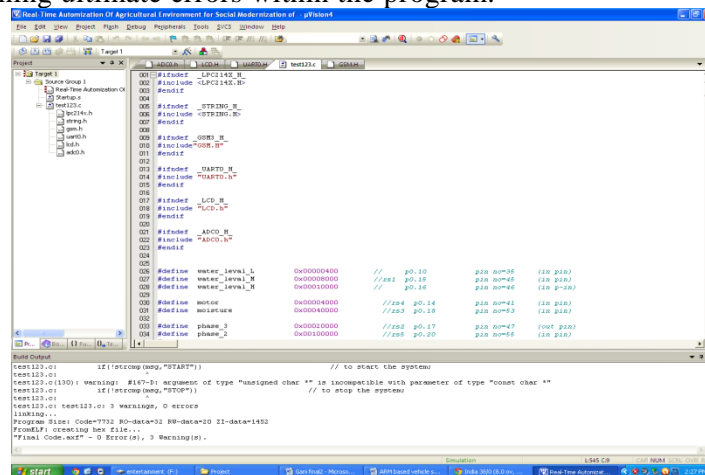


**Figure 3: Board schematic of an application**

**Software Tools Required**

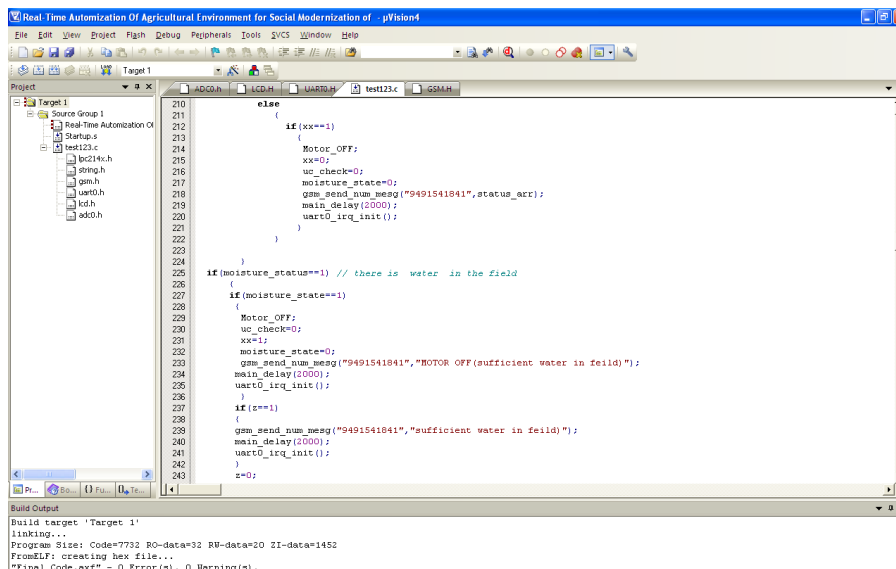
- Orcad
- KeilµVision4
- Flash Magic

Orcad is employed for drawing the schematic diagram, it's mentioned higher than. Keilµv4, Flashmagic area unit the 2 computer code tools want to program microcontroller. Keil compiler is computer code used wherever the machine language code is written and compiled. The compilation of the C program converts it into machine language file (.hex). This is the sole language the microcontroller can perceive, because it contains the original program code converted into a hexadecimal format. During this step there are a unit some warnings concerning ultimate errors within the program.



**Figure 4: compilation of program**

If there aren't any errors and warnings then run the program, the system performs all the required tasks and behaves as expected the software developed. If not, the entire procedure can have to be compelled to be continual once more.



**Flash magic**

Flash Magic could be a computer tool for programming flash primarily based microcontrollers from NXP employing a serial or LAN protocol whereas within the target hardware. The figures 6 &7 below show how the baud rate is selected for the microcontroller, how are the registers erased before the device is programmed.

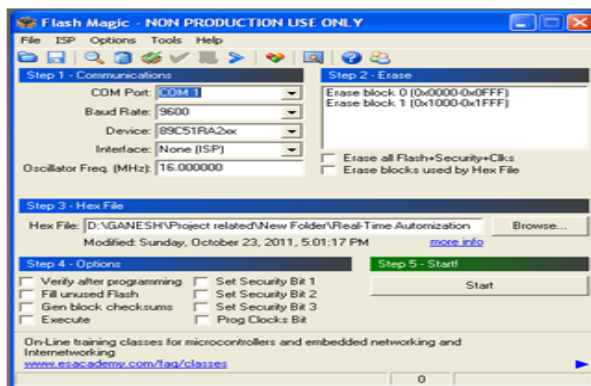


Figure 6: Dumping of code into ARM7

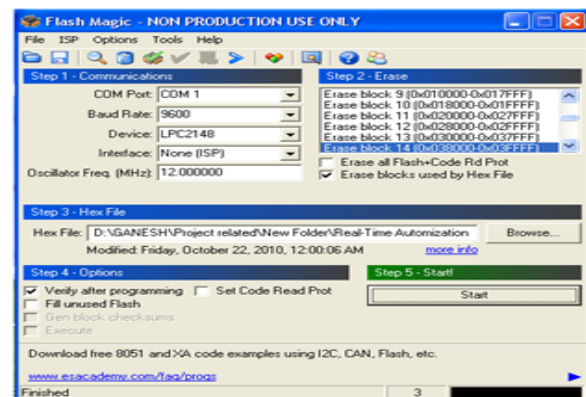


Figure 7: Dumping process finished

**3. RESULTS**

Assemble the circuit on the PCB as 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, we are using SPI protocol. This protocol having five wired buses called SSEL0, MISO, MOSI, SCLK and RESET. After connecting the Internet connection to the Ethernet module. We have to open any browser and type the IP address of the ETHERNET module. Whenever we open this application it gives the current status of industry. At industry side Ethernet module, micro controller, temperature sensor, voltage sensing circuit are there.

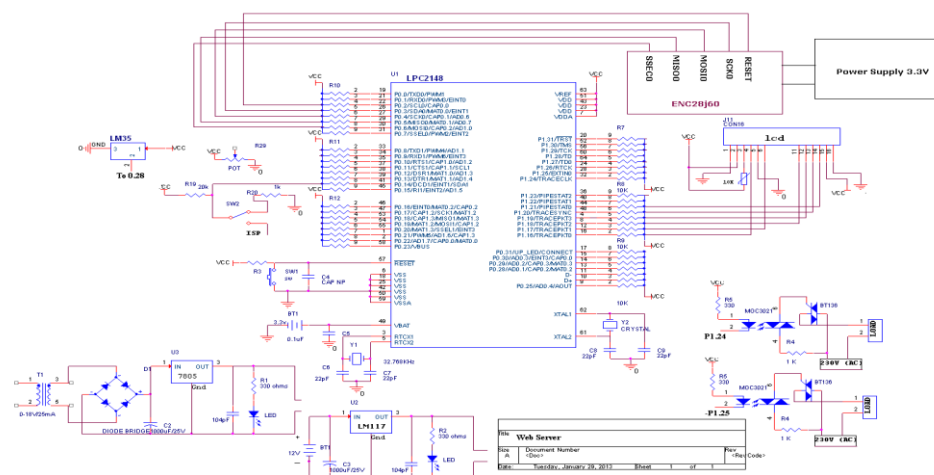


Figure 8: schematic of embedded application

When we click on Sensors you'll be able to get device values and click on appliances we will management the AC hundreds additionally. This micro controller will keep updating these parameters data on webpage. We can check these values from anyplace on our good phones or on computer by gap this webpage.

#### 4. CONCLUSION

The implementation of industry parameters monitoring and controlling system based on embedded web server is done successfully. The communication is properly done without any interference between different modules in the design. Design is done to meet all the specifications and requirements. .

#### REFERENCES

- [1] <http://www.sunrom.com/>
- [2] <http://en.wikipedia.org/wiki/Bluetooth>
- [3] <http://www.howstuffworks.com/bluetooth.htm>
- [4] [Datasheets.maximintegrated.com](http://datasheets.maximintegrated.com)
- [5] [www.keil.com/dd/docs/datashts/.../lpc2141\\_42\\_44\\_46\\_48](http://www.keil.com/dd/docs/datashts/.../lpc2141_42_44_46_48)
- [6] [en.wikipedia.org/wiki/TRIAC](http://en.wikipedia.org/wiki/TRIAC)