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Green House Automation Using IoT

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Abstract- *The system proposed in this paper is an advanced solution for monitoring the weather conditions in greenhouse and make the information visible anywhere in the world. The technology behind this is Internet of Things (IoT), which is an advanced and efficient solution for connecting the things to the internet and to connect the entire world of things in a network. Here things might be whatever like electronic gadgets, sensors and automotive electronic equipment. The system deals with monitoring and controlling the environmental conditions like temperature, relative humidity, with sensors and sends the information to the web page and then plot the sensor data as graphical statistics. The data updated from the implemented system can be accessible in the internet from anywhere in the world.*

Keywords: Internet of Things (IoT) Embedded Computing System; Arduino UNO; DHT 11; Zigbee.

1. INTRODUCTION

The Internet of Things (IoTs) can be described as connecting everyday objects like a smart phones, Internet TVs, sensors and actuators to the internet where the devices are intelligently linked together enabling new forms of communications between things and peoples and between things themselves. This is a low cost and flexible monitoring & controlling system using an atmega 328 microcontroller. It allows the people to directly check the parameters online without the need of forecasting agency to accessing and controlling parameters. Here the different parameters are controlled automatically using microcontroller based internet application. The proposed system does not require a dedicated server PC with respect to similar system and offers the communication protocol to monitor and control the greenhouse environment with more than just the switching functionalit

Now anyone from anytime and anywhere can have connectivity for anything and it is expected that these connections will extend and create an entirely advanced dynamic network of IoTs. The development of the Internet of Things will revolutionize a number of sector, form automation, transportation, energy, healthcare, financial services to nanotechnology. IoT technology can be applied to create a new concept and wide development space for monitoring controlling Pharmaceutical sector provide intelligence, comfort and improve the quality of measurement and analysis. Hence, this will contribute to overall cost reduction and energy saving application.

2. LITERATURE REVIEW

"Internet of Things with the Arduino Yun" by Marco Schwartz. IoT is currently growing trend in technology space, and the arduino uno is the perfect board to get started with building of IoT projects. [1]

"Smart Sensing Technology for Agriculture & Environmental Monitoring" by Subhas Mukhopadhyay .Environment Monitoring using Bluetooth technology is less costly. User also can control various parameters using bluetooth but the disadvantage of Bluetooth based systems is that Limited range. [2]

"Interface System Planning for GSM" by Jukka Lempiainen.GSM based monitoring & controlling various parameters is easy & beneficial than Bluetooth but the disadvantage of those system is Different AT commands. [3]

So in our project we are going to do IoT based monitoring & controlling with the help of wireless sensors. Now anyone from anytime and anywhere can have connectivity for anything and it is expected that these connections will extend and create an entirely advanced dynamic network of IoTs.

3. PROBLEM DEFINATION

Now a days in every sector as we can see there is automation but it is based on Bluetooth Technology the disadvantage of that systems is Limited range. Another one is GSM based, the disadvantage of those system is Different AT commands. Now anyone from anytime and anywhere can have connectivity for anything and it is expected that these connections will extend and create an entirely advanced dynamic network of IoTs.

The development of the Internet of Things will revolutionize a number of sector, form automation, transportation, energy, healthcare, financial services to nanotechnology. The Internet, What is it? How has it developed? Where is it? Who is using it? What can it do? How reliable is it? What's driving it? These questions will be answered leading to an insight into what is and will likely be possible. Some of the details for implementing Internet TCP/IP end point connections, with comparisons to more traditional methods will be looked at and related to examples for weather monitoring systems and sensors. System uses temperature, humidity as well as rain sensor to monitor weather and provide live reporting of the weather statistics. The system constantly monitors temperature using temperature sensor, humidity using humidity sensor and also for. The system constantly transmits this data to the microcontroller, which now processes this data and keeps on transmitting it to the online web server over a wifi connection. This data is live updated to be viewed on the online server system. Also system allows user to set alerts for particular instances, the system provides alerts to user if the weather parameters cross those values.

4. BLOCK DIAGRAM

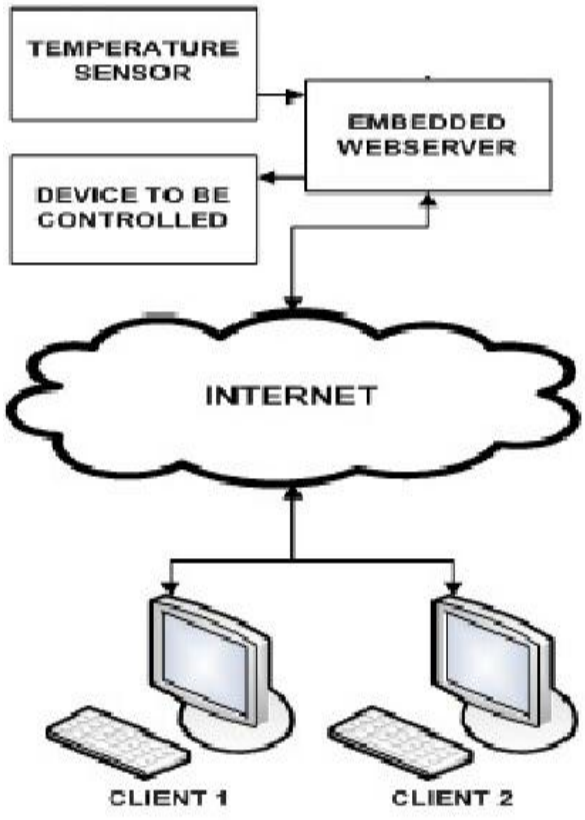


Fig1- System Architecture of The Proposed Embedded Web Server

5. CONCEPTUAL ARCHITECTURE

This proposed architecture is divided into 3 parts: Remote environment; Aurdino UNO & home internet connectivity shown in figure. A vision that is being implemented by many in the world is an extensive range of everyday objects connected and communicating cheaply with each other across a global network - "the Internet of Things." The electronic devices in our world generate enormous amounts of data and thanks to the Internet the possibilities for interaction between devices is almost endless. These

devices can be data sources (sensors), end user devices (displays, databases), and even a data source and sink (an actuator, smart phone). Using the Internet for weather monitoring raises new issues and there are remaining implementation limitations. Internet communications are scalable and can be used to connect to everything in a weather monitoring network.

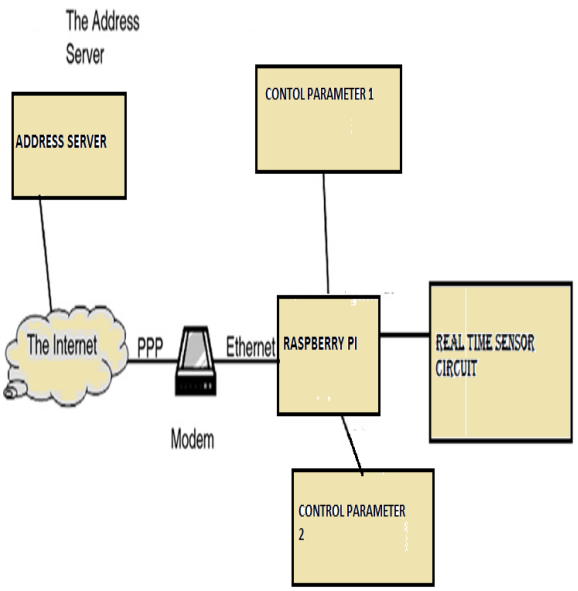
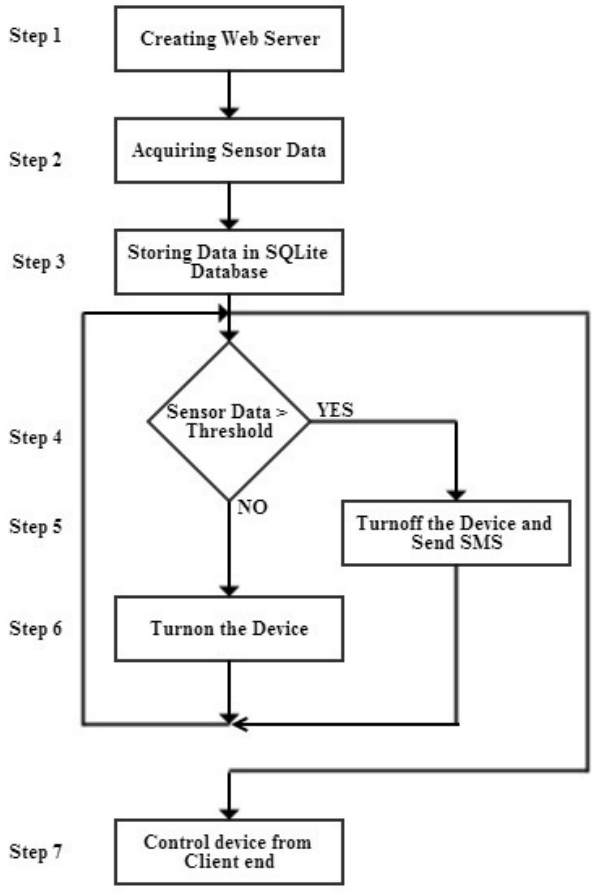


Fig2. Conceptual Architecture

We collected real time sensor information using sensors. Temperature sensor, Humidity sensor senses real tome information of temperature, humidity. These signals are sent to Aurdino UNO using analog to digital converter ADC. Controller manipulates this information and according to given program and conditions it switches relays using ULN2803. These relays are connected to output parameters respectively sprinkler, artificial cooler.

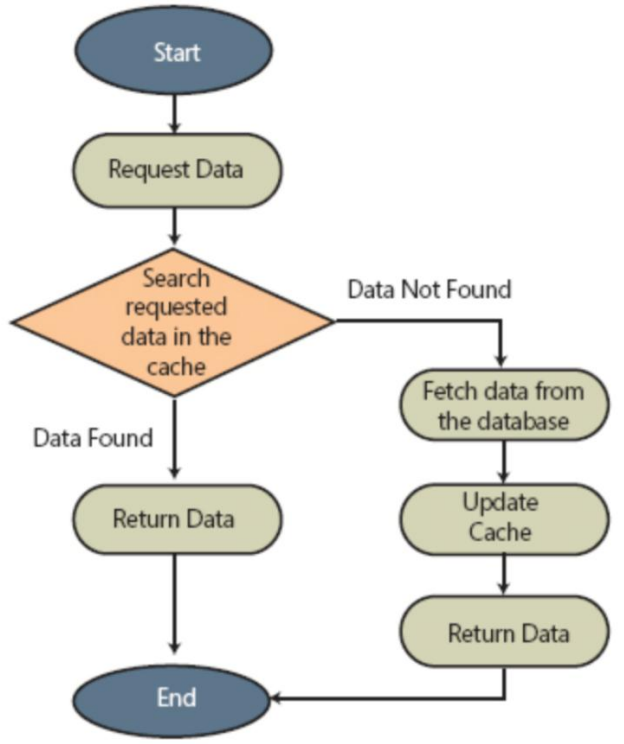
The website is burnt into Aurdino UNO, information collected by the sensors is sent on website. Also from website we can control the output parameters by switching relays off and on. Some of the details for implementing Internet TCP/IP end point connections, with comparisons to more traditional methods will be looked at and related to examples for weather monitoring systems and sensors. A global network of networks consisting of millions of private, public, academic, business, and government networks, that are linked by a broad array of communications and network technologies, all using the standard Internet protocol suite (TCP/IP). Now a days in every sector as we can see there is automation but it is based on Bluetooth Technology the disadvantage of that systems is Limited range. Another one is GSM based, the disadvantage of those system is Different AT commands. Some of the details for implementing Internet TCP/IP end point connections, with comparisons to more traditional methods will be looked at and related to examples for weather monitoring systems and sensors. Using the Internet for weather monitoring raises new issues and there are remaining implementation limitations. Internet communications are scalable and can be used to connect to everything in a weather monitoring network, from a single sensor to a display, to a comlete global data network. This not only applies to data connectivity, but also to the network management and maintenance of systems. "the Internet of Things." The electronic devices in our world generate enormous amounts of data and thanks to the Internet the possibilities for interaction between devices is almost endless. These devices can be data sources (sensors), end user devices (displays, databases), and even a data source and sink (an actuator, smart phone).

6.DESIGN IMPLEMENTATION FLOW CHART for WEBSERVER



Above flowchart shows design and implementation of web server. The first step is creating the web server address. We acquire the sensory data using that web server address. The data that we have acquired, stored in database. If output of sensor goes above threshold level then control action take place. That is the device will turn off and it will send SMS. If output of sensor does not go above threshold level then it again turn on the device.

7.DESIGN IMPLEMENTATION FLOW CHART for CLIENT



The data can be accessed by client anywhere by using the address of web server. The client can request to server to access the data. If data is found then data is given to client and data is automatically refreshed within a few seconds. If data is not found then it is fetched from database.

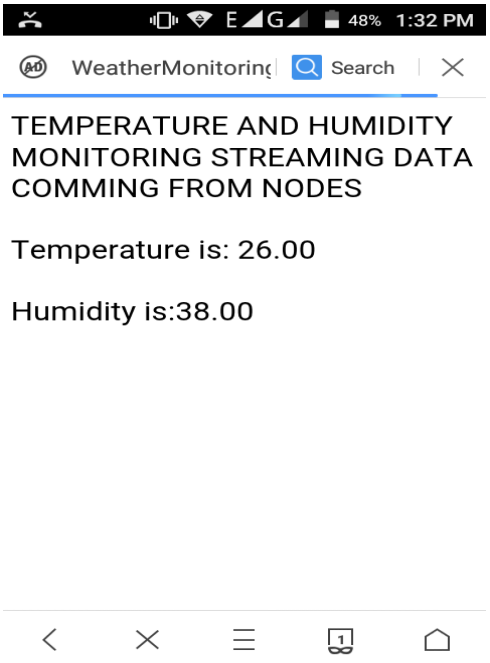
8. ADVANTAGES

Circuit is portable and could be used anywhere. Also automatic controlling of circuit reduce manpower. Cost is less to create a embedded web server hence rather than buying a real costly web server a embedded web server is a cost efficient solution. Internet communications are scalable and can be used to connect to everything in a weather monitoring

network, from a single sensor to a display, to a complete global data network. .

9. RESULT

We are monitoring the weather conditions in the greenhouse and make the information visible anywhere in the world. The technology behind this is Internet of Things (IoT), which is an advanced and efficient solution for connecting the things to the internet and to connect the entire world of things in a network.



10. CONCLUSION

To implement this need to deploy the sensor devices in the greenhouse for collecting the data and analysis. By deploying sensor devices in the industry, we can bring the environment into real life i.e. it can interact with other objects through the network. Then the collected data and analysis results will be available to the end user through the Wi-Fi. The smart way to monitor parameters and an efficient, low cost embedded system is presented with different models in this paper. In the proposed architecture functions of different modules were discussed. The temperature and humidity monitoring system with Internet of Things (IoT) concept experimentally tested for monitoring two parameters. It also sent the sensor parameters to the cloud (Google Spread Sheets). This data will be helpful for future analysis and it can be easily shared to other end users.

11. FUTURE SCOPE

We can interface more sensors and control processes. We have use to two sensors. Also to make it very simple it can be used just as just a monitoring system. We can provide SMS alerts.

12. REFERENCES

[1] Satoh. F, Itakura. M. "*Cloud-based Infrastructure for Managing and Environmental Resources*", SRII Global Conference, pp.325-334, 201.

[2] Kurschl. W, Beer W. "*Combining cloud computing and wireless sensor networks*", International Conference on Information Integration and Web-based Applications and Services, pp.512-518, 2009.

[3] Montgomery. K, Chiang. K, "*A New Paradigm for Integrated Environmental Monitoring*", ACM International Conference Proceeding Series, 2010.

[4] Wei. Q, Jin. N, Lou X, Ma. R, Xu. J, "*Software design for water environment remote monitoring system based on mobile devices*", Applied Mechanics and Materials, pp. 2027-2032, 201.

[5] Patinge S, Suryawanshi Y, Kakde S. Design of ARM based data acquisition and control using GSM and TCP/IP Network. 2013 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC); 2013.

[6] M Poongothai. ARM embedded web server based on DAC system. 2011 IEEE International Conference on Process Automation, Control and Computing (PACC)

[7] Lin T, Zhao H, et al. An embedded web server for equipments. 7th International Symposium on Parallel Architectures, Algorithms and Networks; 2004 May 10–12. p. 345–50. 4. Raskovic D, Revuri V, Giessel D. Embedded web server for wireless sensor networks. 41st Southeastern Symposium on System Theory; 2009 Mar; Tullahoma. p. 19–23.

[8] Choi M-J, Ju H-T. An efficient embedded web server for web-based network element management. Network Operations and Management Symposium, 2000. NOMS 2000. 2000 IEEE/IFIP; 2000 Apr; Honolulu. p. 187–200.