

TEMPERATURE AND HUMIDITY MONITORING AND ALERT MANAGEMENT SYSTEM

Sophiya Kunjumon
Information Technology
Xavier Institute of Engineering
Mumbai

Kenneth Pinto
Electronics and Telecommunication
Xavier Institute of Engineering
Mumbai
Phone: 9619909318

Jude Saldanha
Electronics and Telecommunication
Xavier Institute of Engineering
Mumbai

Abstract— In the Temperature and Humidity Sensor Project, a solution is provided to monitor and get an alert of increase in temperature or humidity. This project is based on an Arduino and Ethernet Shield which communicates with DHT22 temperature sensor. The Data Center at an organization can receive information about temperature and humidity from anywhere in the world by using the Blynk application and an Internet connection on their phone. This creates a uniform interface which can be accessed locally or remotely using smart phones or laptops. The DHT22 sensor is calibrated according to the dimensions. If the temperature or humidity increases above a specified value, an alert via an email will be sent to the email ID specified in the program. The Arduino Ethernet Shield connects the Arduino to the internet in mere minutes. The Ethernet shield module is plugged onto the Arduino board, and it connects it to the network with an RJ45 cable.

Keywords — Temperature sensor, Humidity, Arduino, Ethernet Shield, DHT22 sensor, Blynk.

INTRODUCTION

The Temperature and Humidity Monitoring Project has been made to check the accuracy of temperature at a data center. The control and monitoring of the room temperature is done using a DHT22 sensor that is based on Arduino Uno. Thus, designed to make it easier to regulate and monitor the temperature and humidity of the data center. This smart project focuses on automation which relates to comfort instead of manual work.

Proposed System:

Interface:

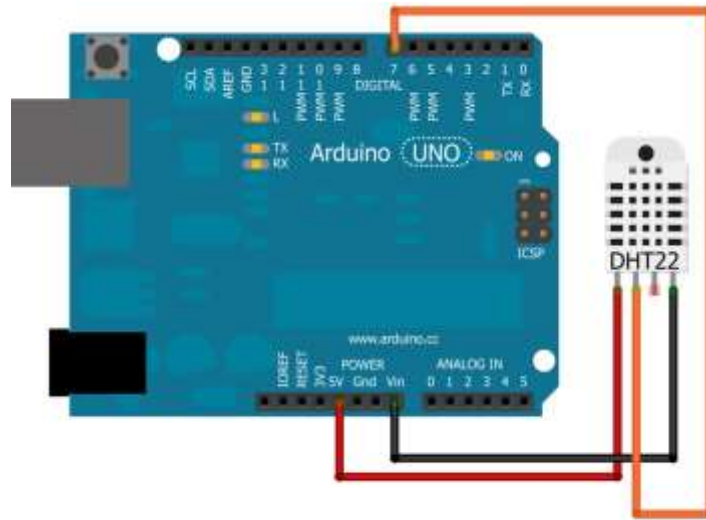
The Temperature and Humidity Sensor Project will be controlled using an application named Blynk (Available for Android or IOS) using Arduino, an Ethernet Shield and its libraries. User can securely login over Blynk to control and monitor the room temperature and humidity. The code involves:

The Arduino sketch.

The Arduino sketch handles the communications by setting up the network. The sketch runs the program and communicates one line at a time over the server. Users can login remotely on this web server.

Use of DHT22 Sensor:

DHT22 capacitive humidity sensing digital temperature and humidity module is one that contains the compound that has been calibrated digitally to signal output of the temperature and humidity sensors. The sensor includes a capacitive sensor, wet components and a high-precision temperature measurement devices, and connected with a high-performance 8-bit microcontroller. The product has excellent quality, fast response, strong anti-jamming capability, and high cost. It is definitely long-lasting and has great endurance.



Implemented Output:



FIG 3. OUTPUT OF THE SYSTEM.

ACKNOWLEDGMENT

Our project “Temperature and Humidity Sensor Project” is a challenging and demanding project. This research was supported/partially supported by Bharat Petroleum Corporation Ltd. We thank our Project Guide from by Bharat Petroleum Corporation Ltd who provided insight and expertise that greatly assisted the research, although they may not agree with all of the

interpretations/conclusions of this paper. We thank Mr. Abhimanyu Waghmare for assistance, and thank Mr. Ravindra Patil -Sr. Software Engineer for comments that greatly improved the manuscript. We would also like to show our gratitude to Mr. Atul Patil for sharing his pearls of wisdom with us during the course of this research. We are also immensely grateful to the above for their comments on an earlier version of the manuscript, although any errors are our own and should not tarnish the reputations of these esteemed persons.

CONCLUSION

It is evident from this project work that Temperature and Humidity Sensor Project can be cheaply made from low-cost locally available components and be used to monitor and control the temperature and humidity at the data center. And better still, the components required are so small and few that they can be packaged into a small container. The designed project was tested a number of times and certified to achieve the aim of the project. This Temperature and Humidity Sensor Project can also be done using the esp8266 or various other sensors. Hence, this system is scalable and flexible.

REFERENCES:

- [1] Lopez, Jess Christopher B., and Harreez M. Villaruz. "Low-cost weather monitoring system with online logging and data visualization." *Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment and Management (HNICEM), 2015 International Conference on. IEEE, 2015.*
- [2] Billies, Richard. "DIY Smart Home Sensors." (2016).
- [3] Matijevic, Milan, and Vladimir Cvjetkovic. "Overview of architectures with Arduino boards as building blocks for data acquisition and control systems." *2016 13th International Conference on Remote Engineering and Virtual Instrumentation (REV). IEEE, 2016.*
- [4] Cata, Marian. "Transmission and storage of data from a smart environment, in the context of Internet of Things." *Scientific Bulletin "Mircea cel Batran" Naval Academy 18.1 (2015): 304.*
- [5] Gertz, Emily, and Patrick Di Justo. *Environmental monitoring with Arduino: building simple devices to collect data about the world around us.* " O'Reilly Media, Inc.", 2012.
- [6] Arduino. [Online]. Available: <https://en.wikipedia.org/wiki/Arduino>
- [7] Arduino™ Sketches Tools and Techniques for Programming Wizardry, 2015