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DESIGN & IMPLEMENTATION OF IoT BASED TEMPERATURE MONITORING SYSTEM USING ARDUINO UNO

Er. Manveer Kaur
M.Tech CSE, Department of Computer Sc. & Engg., St. Soldier Institute of Engg. & Technology, Near NIT, Jalandhar
immanvir123@gmail.com

Er. Sikanderpreet Singh
Assistant Professor, Department of Computer Sc. & Engg., St. Soldier Institute of Engg. & Technology, Near NIT, Jalandhar

Dr.(Prof.) Gurpreet Singh
Professor, Department of Computer Sc. & Engg., St. Soldier Institute of Engg. & Technology, Near NIT, Jalandhar
saini3077@gmail.com

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ABSTRACT
In this research, we are going to implement Temperature monitoring system by using IoT. All the current working models are good by many of laboratories are losing their work. By this research we can able to get exact value of measures present in our atmosphere More over this model in previous literature studies have been trained with other low longitude areas Temperature values and got deployed and makes it inaccurate for the recognition of Temperature values By this research we can able to get accurate values of weather at every time.. We will figure out how to utilize the LM35 sensor for estimating temperature with the IoT devices. By this work we are going to get the values to our mobiles and computers. So, we can able to know the exact values of temperature in the lab. It is easy to operate and able to understand easily. Live temperature or moistness worth is sent to a scrounge recipient through remote signal. The LM35 sensor detects temperature, and sends the data to computerized ARDUINO IDE 1.8.16 software of Arduino UNO, From Arduino UNO.
Keywords: IoT, LM35, UNO, IDE

I. INTRODUCTION

There are such a large number of inserted gadgets to associate with condition by interfacing web. The addition of these sorts of articles is accomplishing the advancement of microcontroller-based frameworks which are supplanting old convoluted electronic circuits. By utilizing IoT, we can control any electronic hardware in homes and businesses. Besides, we can peruse an information from any sensor and examine it graphically from anyplace on the planet.

Arduino is a microcontroller board which fills in as a little PC. Node MCU is a stage to build up a cooperation with required programming. Arduino UNO is miniaturized scale controller unit to get an information of moistness and temperature from LM35 sensor and procedure it and offer it to an ESP8266 module (wi-fi module).

II. PROPOSED SYSTEM

We will figure out how to utilize the LM35 sensor for estimating temperature and moistness with the IOT. By this work we are going to get the values to our mobiles and computers. So, we can able to know the exact values of temperature in the lab. It is easy to operate and able to understand easily. Live temperature or moistness worth is sent to a scrounge recipient through remote signal. The LM35 sensor detects temperature.

III. ARDUINO MCU BOARD

Arduino is another open source equipment and programming system. It needs to take consideration of an enormous innovation plan and network at moderate cost, which expands its utilization with cutting edge innovation. Arduino equipment is a motherboard for making cooperation among articles and reasonable PC programming IDE (Integrated Development Environment).

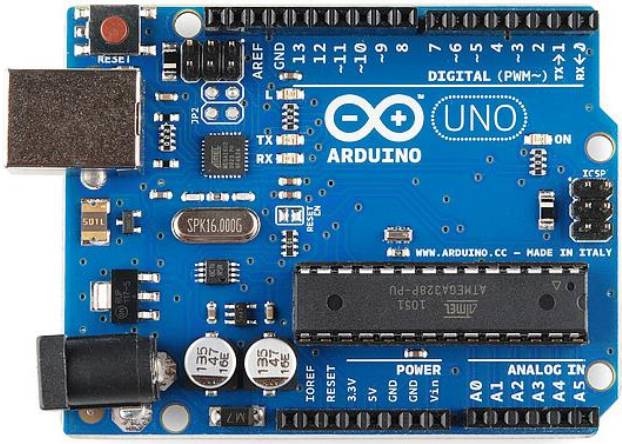


Fig. 1 Arduino Uno

IV. LM35 Sensor

This module includes a stickiness and temperature complex with an aligned computerized sign yield implies LM35 sensor module is a joined module for detecting mugginess and temperature which gives an adjusted advanced yield signal. LM35 gives us exact estimation of moistness and temperature and guarantees high unwavering quality and long-haul soundness. This sensor has a resistive sort mugginess estimation segment and NTC type temperature estimation segment with

an 8-piece microcontroller inbuilt which has a quick reaction and practical and accessible in 4-stick single line package. LM35 module deals with sequential correspondence for example single wire correspondence.

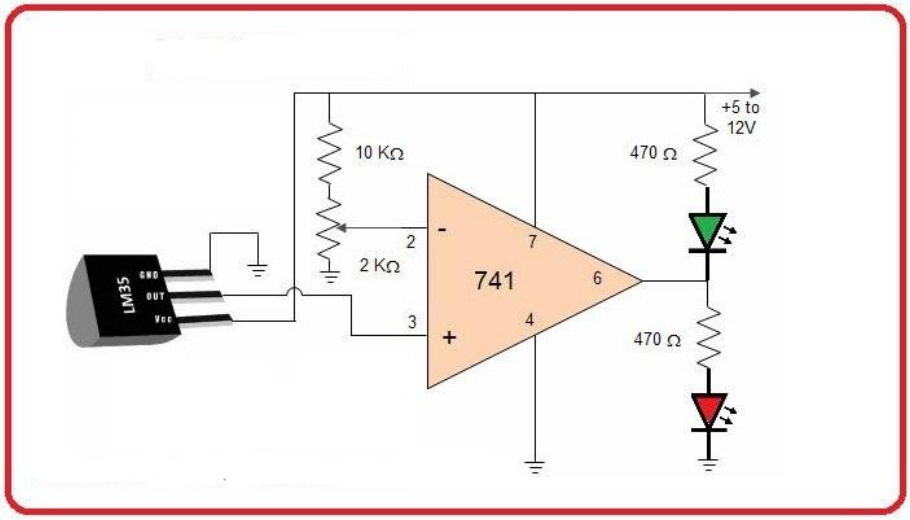
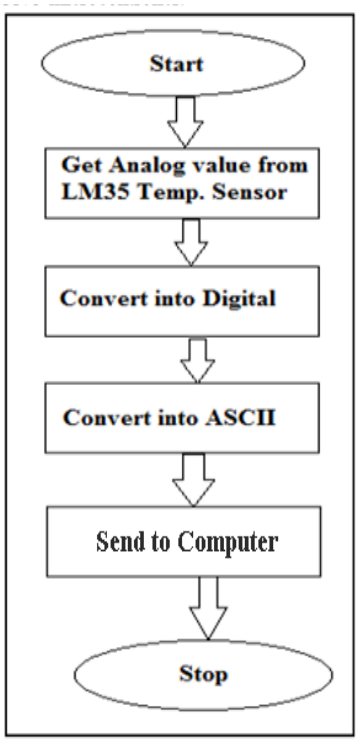


Fig. 2. Working of LM35 Temperature Sensor

V. FLOW CHART OF PROPOSED SYSTEM

The temperature condition at any instant as sensed by the LM35 is displayed on a computer. To do this the Arduino UNO is programmed to copy the output of the ADC (which is inbuilt ADC) and convert the result to ASCII then transferred to the LCD to be displayed. The flow chart in figure 5 shows the software algorithm of the Arduino UNO microcontroller.



VI. RESULTS AND DISCUSSION

TOOL USED

Arduino IDE 1.8.16

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board.

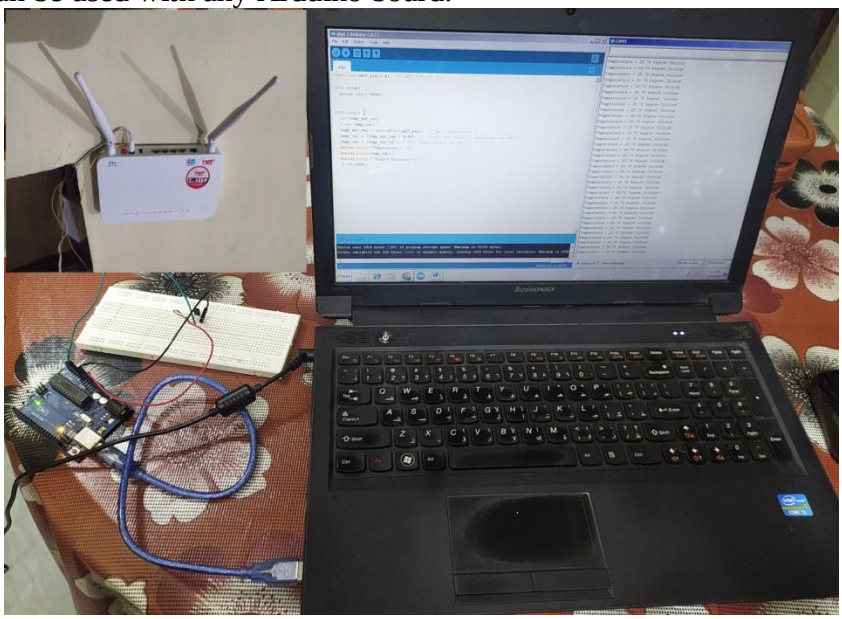


Fig. 3 Shows the algorithm codding fetch in the Arduino boards and measure temperature using IOT devices.

Table 1. Compare the accuracy of monitoring analog temperature and digital temperature using IoT.

Analog Temperature	Digital Temperature using IoT	Difference
27.02	28.79	1.77
28.21	29.28	1.07
28.22	29.77	1.55
29.01	30.26	1.25
29.00	30.74	1.74
30.58	31.23	0.65
30.25	31.72	1.47
31.20	32.21	1.01
31.25	32.72	1.47
31.65	32.21	0.56
30.66	31.72	1.06
30.23	31.23	1
28.25	30.74	2.49

27.69	28.79	1.1
27.00	29.28	2.28
28.05	29.77	1.72
29.04	30.74	1.7
30.22	31.23	1.01
30.26	31.72	1.46
30.24	31.72	1.48
31.87	32.21	0.34
29.23	30.74	1.51
29.02	30.26	1.24
28.31	29.77	1.46
30.24	31.23	0.99

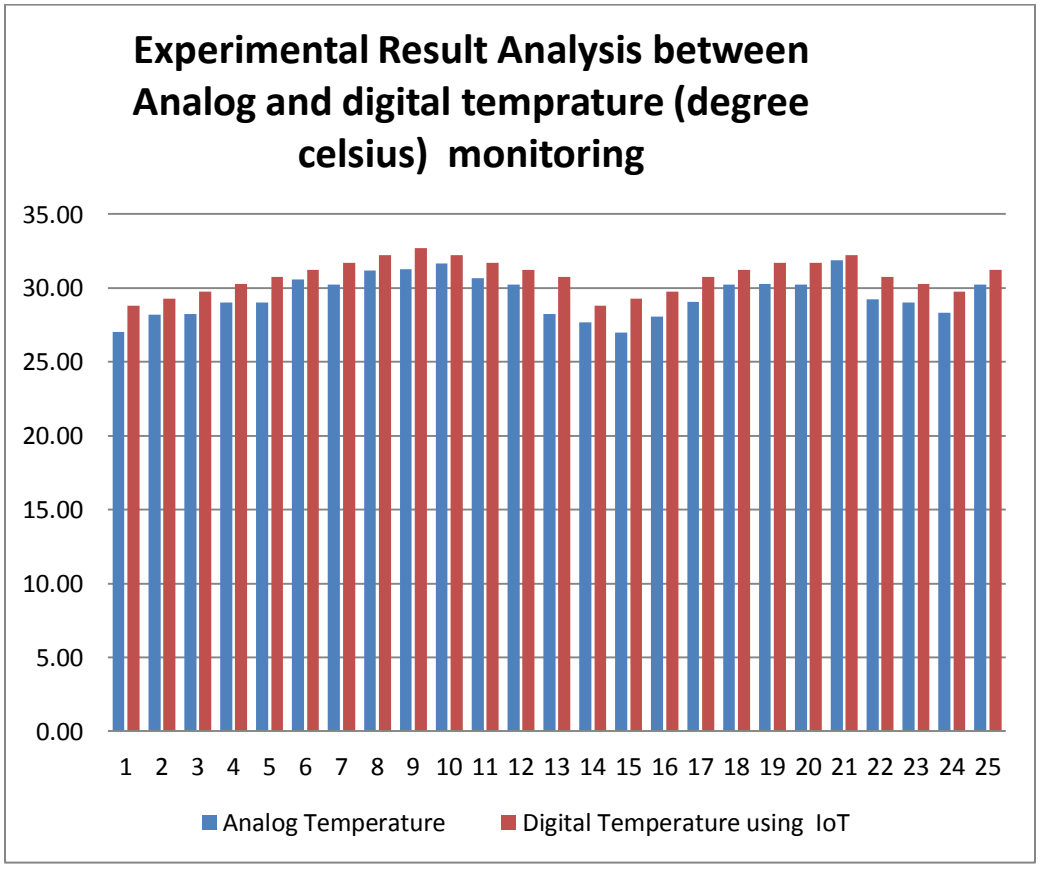


Fig. 5.8 Experimental result Analysis the accuracy of monitoring analog temperature and digital temperature using IoT.

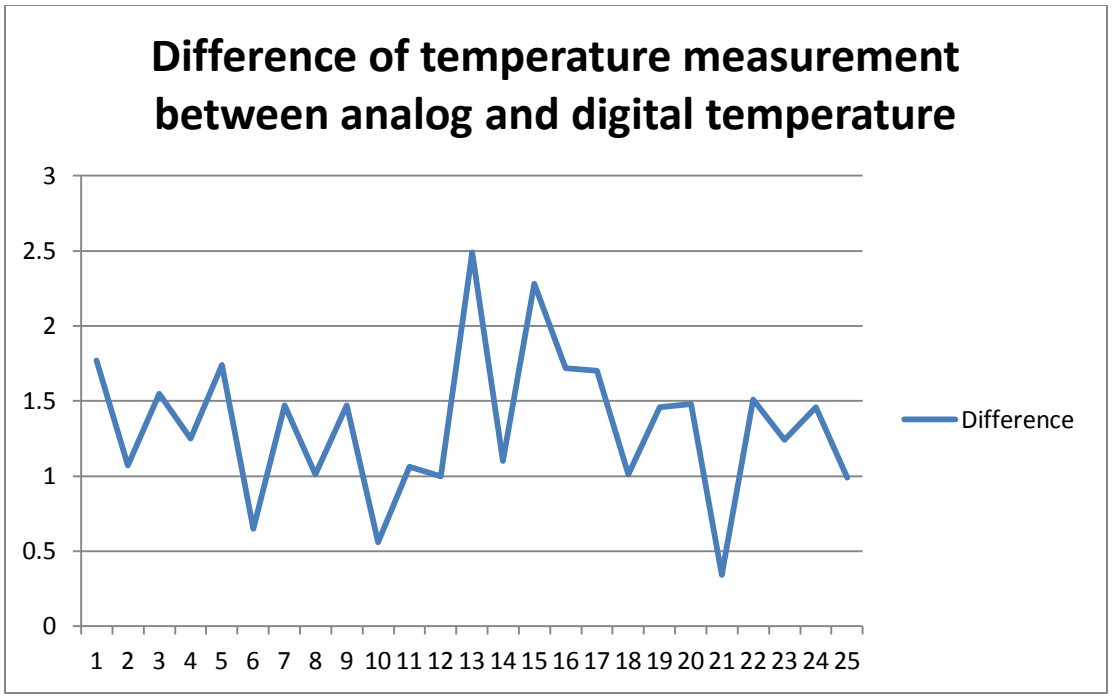


Fig. 5.9 Difference of temperature measurement between analog and digital temperature.

CONCLUSION

IoT-Based temperature identifying framework gives an effective and complete framework for observing agrarian parameters. The remedial move can be made. IoT-Based observing of field not just enables client to lessen the human work and time, yet it likewise allows client to examine exact changes in the environment and for making conceivable move. It is less expensive in cost and expends less power. This IoT-based framework can be reached out for controlling distinctive electronic and electrical device from any area in the world.

The scope of the project is a specific area it will be helpful to monitor the climate it can be installed anywhere. As the cost is low we can easily make changes in the system by adding new components. The system helps a user to select the best surrounding environment for living purpose and maintain good health by daily monitoring the climate of its area.

REFERENCES

[1]. Xiaomin Zhang, Hang Lu, Jiahao Li, Xushan Peng, "Design and Implementation of Intelligent Light Control System Based on Arduino", 2020 IEEE International Conference on Artificial Intelligence and Computer Applications (ICAICA).

[2]. M. Udin Harun Al Rasyid, Ferry Astika Saputra, Agus Prasetiyo, "I-ON Smart Controller:Portable Smart Home Solution Based on Arduino And Raspberry Pi", 2018 International Conference on Applied Science and Technology (ICAST).

[3]. Sujit Thakare, P.H.Bhagat, "Arduino-Based Smart Irrigation Using Sensors and ESP8266 WiFi Module", Proceedings of the Second International Conference on Intelligent Computing and Control Systems (ICICCS 2018), IEEE Xplore Compliant Part Number: CFP18K74-ART; ISBN:978-1-5386-2842-3.

[4]. Norakmar binti Arbain Sulaiman, Muhamad Dan Darrawi bin Sadli, "An IoT-based Smart Garden with Weather Station System", 2019 IEEE.

[5]. Chandra Prakash Meher, Adyasha Sahoo, Suraj Sharma, "IoT based Irrigation and Water Logging monitoring system using Arduino and Cloud Computing", 2019 International Conference on Vision Towards Emerging Trends in Communication and Networking (ViTECoN).

[6]. Jigar Parmar, Pranay Palav, "IOT Based Weather Intelligence", International Conference on Communication and Signal Processing, 6 April 2016.

[7]. Harshavardhan Goud ,A. Harshika, G. Akhil, D. Charishma, K. Bhupathi, "Real Time Based Temperature Control Using Arduino", International Journal of Innovations in Engineering and Technology (IJIET).

