

Development And Advancement of Humidifier

Kharat Navnath*, Pachpute Mayuri, Khot Aarti, Kharde Akanksha, Dr. Anap Harshali

HSBPVT GOI Faculty of Pharmacy Kashti, Shrigonda, Dist- Ahilyanagar Maharashtra.

ABSTRACT

The Development and advancement of Humidifier is a completely new concept and purely AI -Based system. In which have two compartments for internal part installation. This is a precise instrument and have new ideology as well as methodology. These also have new Sensors for Automation smooth working. Humidifier maintain the Humidity in the room as well as into the different conditions in the critical area our soldiers are Protecting the country as well as ours. Due we developing this instrument for Health Care System. This are principal is when Switching the instrument electricity passing and Activate the Different parts and they activate total computerized compartments and shows its Data. In which also Set up the Hygrometer sensor for the Auto detection of the moisture content in soil as well as room. When increased the moisture content as normal level they automatically dehumidifie the room area. Also it's have auto regulator system.

Keywords: AI -Based, Auto Humidification, Sensors, Power Unit, Removable Mask system, High Mist Formation, Auto -Dehumidification DHT.

INTRODUCTION

Development and Advancement of different materials used in humidifier construction, performance, Mechanism, durability And Their Functions.

Investigate how humidifiers influence indoor air quality, including their effect on dust levels, VOCs (volatile organic compounds), and other airborne pollutants. Study the direct effects of humidifiers on respiratory health, skin conditions, and general well-being, including potential benefits and any risks associated with improper use. To Development of the Humidifier for the Critical Sector into the Defense Sectors. (Soldiers). Innovations in humidifier technology can enhance user experience and functionality. Researching advancements such as smart controls and automation can lead to more effective and user-friendly products Energy consumption and environmental sustainability become increasingly important, researching energy-efficient designs and environmental impacts of humidifiers helps in developing more eco-friendly solutions and reducing operational costs. Identifying best practices for maintaining and cleaning humidifiers helps prevent issues like mold and bacterial growth, ensuring the devices remain safe and effective over time

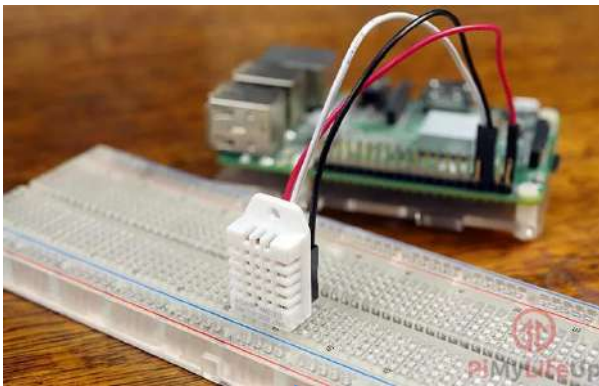
In which used different sensors the project senses temperature and humidity from your room

Or environment and either checks whether or not it is within comfortable range. The DHT-11 Sensor senses closed room temperature and humidity and sends the data to the Microcontroller. The FC28 hygrometer and the DHT11 sensors are being used to calculate soil moisture and temperature respectively. The details Read by the sensor and then sent to the microcontroller board. The Board then processes, maps and displays data by code on the LCD panel, The computer employs Arduino Uno with Raspberry Pi, sensor package HTU 211D, and Wi-Fi module ESP8266 . The experimental Data show the ambient live environment temperature and humidity of any Plant using Raspberry Pi with Arduino Uno, and the soil moisture. This research incorporates the environmental observance results, Such as humidity and temperature measurements using sensors. The Information collected could be used to generate habits such as distantly Dominant cooling evinces, heating devices or long-term statics that will Help track the same Controller system to calculate the device Temperature and humidity, pressure, and size.

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Methodology:

Sr. No	New Methodology	Old Methodology
1	Computerized	Not Computerized
2	Mechanically Equipped	Mechanically Equipped
3	Auto-timer	Not Auto-timer
4	Separate Loading/unloading	No Separate Loading/unloading
5	Auto Cleaning	No Auto Cleaning
6	Auto regulator	No Auto regulator
7	Removable mask system	No Removable mask system
8	Memory Processor & Integrated Circuit.	Not Present



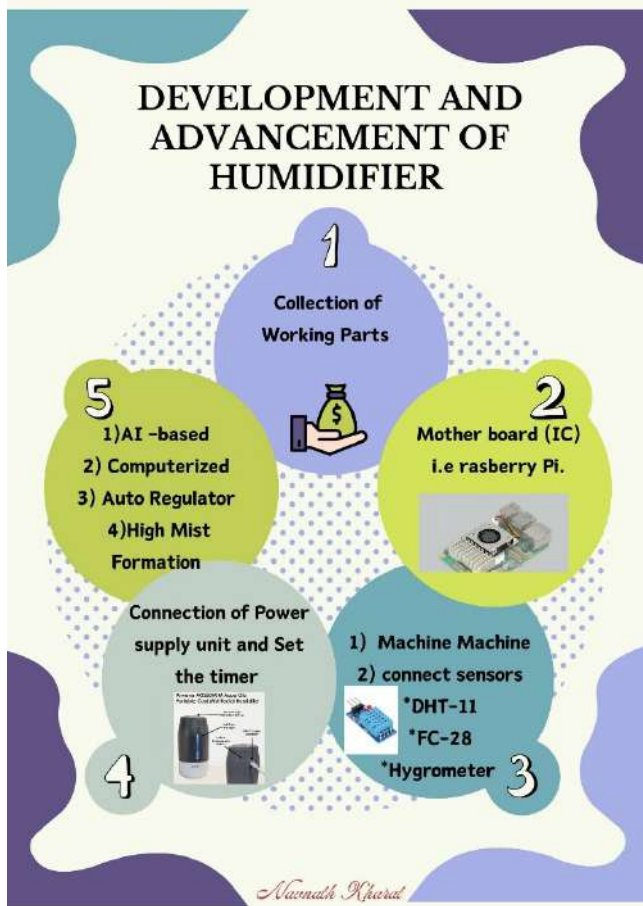
Humidifier



Application:

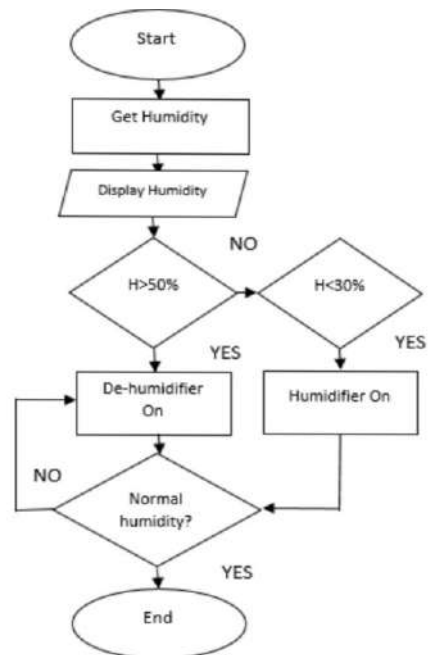
Sr.No	Application Area	Benefits
1	Home	Prevents dry skin, respiratory issues, and protects furniture.
2	Office	Enhances comfort, reduces dry throat and eyes, and boosts productivity.
3	Hospital's	Aids respiratory treatments, improves patient comfort.
4	Manufacturing	Reduces static, maintains product quality.
5	Data center	Prevents static, protects equipment.
6	Green Houses	Promotes plant growth by maintaining moisture.
7	Museums	Protects artworks from cracking and damage.
8	Libraries/Archives	Preserves books and documents.
9	Hotels	Improves guest comfort and air quality.
10	Music studio	Maintains instrument quality and longevity.
11	Airports	Enhances air quality and passenger comfort.

Process of Developing of Instruments:



Sr.no	Sensors Name /Apparatus	Sensors Application
1	DHT -11	Meaning Humidity
2.	FC-2428	Calculating the Mist Formation
3.	Hygrometer	Measuring the amt.of moisture content in soil.
4.	12v battery	Power supply
5.	Instrument body	Thermos type
6.	Auto clock	Timer
7.	Processor	For processing

Applied Parts application & System Flow Cart.



Figures 2: System Flowchart

Evaluation Parameter for Humidifier:

Sr. No	Parameter	Description
1	Type of Humidifier	Type of humidifier (evaporative, ultrasonic, steam vapor, impeller)
2	Humidity Output	Measured in gallons per day; ensures it meets space needs.

3	Coverage Area	Recommended room size for effective humidity distribution
4	Noise level	Sound level during operation, important for quiet spaces.
5	Ease of Use	Features like controls, settings, and refill mechanisms.
6	Maintenance Requirements	Frequency of cleaning and filter replacement.
7	Energy Efficiency	Power consumption ratings to minimize energy costs.
8	Safety Features	Auto shut-off and certifications for safe operation.
9	Build Quality	Materials and overall durability of the unit.

CONCLUSION

This is an most Precise instrument that contains all Automatically working system and this are playing crucial role in Health Care Sector. The main purpose of development and advancement of Humidifier is to

make ease and save the time in the life and give proper humidification as well as to clear the respiratory issues and this totally AI based Technology.

Result

Sr. No	Benefits	Description
1	Improved Air Quality	Adds moisture to the air, making it easier to breathe.
2	Skin and Respiratory Benefits	Alleviates dry skin, nasal congestion, and throat irritation.
3	Reduced Static Electricity	Decreases static in the home, beneficial for electronics and comfort.
4	Better Sleep	Improves sleep quality by reducing dryness and congestion.
5	Preservation of Wood Furniture	Maintains humidity levels, protecting wood from cracking

REFERENCE

- R. Dwi Teguh, S. Didik Eko, P. Laksono, D. Pringgo Jamaluddin, Anif. The design of an embedded system for controlling humidity and temperature room, Journal of Physics: Conference Series, no. 1, vol. 776, 2016. <https://doi.org/10.1088/1742-6596/776/1/012096>
- P. Wal. Automatic Humidity and Temperature Control Device for Desert Cooler July 27th.
- P. Bhadani and V. Vashisht. Soil moisture, temperature and humidity measurement using Arduino, 9th.
- International Conference Cloud Computing, Data Science & Engineering (Confluence), pp. 567-571 2019.L. Barik. IoT based Temperature and humidity controlling using Arduino and Raspberry Pi, International Journal of Advanced Computer Science and Applications, vol. 10, no.9, pp. 494-502, 2019. <https://doi.org/10.1039/C9FO90008J>
- C. H. Chavan, and V. Karande. Wireless Monitoring of Soil Moisture, Temperature and Humidity using Zigbee in Agriculture, International Journal of Engineering Trends and Technology (IJETT)-Volume 11 Number 10 – May 2014.
- A. Najmurokhman, K. Kusnandar, D. Udin, A. Ahmad and Fajar. Design and Implementation of Temperature and Humidity Control System in Oyster Mushroom Cultivation using Fuzzy Logic Controller, 2019 International Conference on Computer, Control, Informatics and its Applications: Emerging Trends in Big Data and Artificial Intelligence, IC3INA 2019, pp. 146 - 150, 2019.
- S. Harika, V. Srikanth, and P. Vikram. Fire Accident Detection System in Industries, Indian J. Sci. Technol., vol. 10, no. 4, pp. 1–5, 2017.
- S. Kaushik, Y. Chouhan, N. Sharma, S. Nagendra and, Shreyansh. Automatic Fan Speed Control using Temperature and Humidity Sensor and Arduino, International Journal of Advance Research, vol. 4, issue no.2, pp. 453 -457, 2018. <https://doi.org/10.17485/ijst/2017/v10i4/110670>.
- Q. Wu, W. Cai, X. Wang et.al. An Model for Dynamic Humidity Control of Liquid Desiccant Dehumidification system, IEEE International



- Conference on Control and Automation, ICCA, pp. 535-540, July 2016.
10. R. Rahim, I.K. Sudarsana, R. Manikandan et. Al. Humidity and temperature prototype for education with internet of things, International Journal of Pure and Applied Mathematics, 16 Special Issue B, Vol. 119, 2019.
 11. S. Kaushik, Y. Chouhan, N. Sharma et. Al. Automatic Fan Speed Control using Temperature and Humidity Sensor and Arduino, International Journal of Advance Research, Issue 2, Vol.4, 2018.
 12. S. Wang and B. Zhang. Design of humidity and temperature sensor based on FBG, Proceedings - 2016 IEEE International Symposium on Computer, Consumer and Control, IS3C 2016, pp. 646-647, 2016.
 13. A. Alon and J. Susa. Wireless Hand Gesture Recognition for an Automatic Fan Speed Control System: Rule-Based Approach, 16th IEEE International Colloquium on Signal Processing & Its Applications (CSPA), 2020.

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