

**A Project Report
On
Smart Home Sense**

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DECLARATION

We *Samriddhi Gaur, B.Tech(ECE)-1st year, Roll no.- 16, Shivam Kumar, B.Tech(ECE)-1st year, Roll no.- 17, Shivansh Tripathi, B.Tech(ECE)-1st year, Roll no.- 18, Shivendu Gupta, B.Tech(ECE)-1st year, Roll no.- 19, Yogesh Kumar, B.Tech(ECE)-1st year, Roll no.- 20*, hereby declare that the work presented in this project report entitled “Smart Home Sense” is an authentic record of our own work carried out under supervision of Mr. Pawan Sharma.

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Shivam Kumar, Roll no.- 17

Shivansh Tripathi, Roll no.- 18

Shivendu Gupta, Roll no.- 19

Yogesh Kumar, Roll no.- 20

CERTIFICATE

This is to certify that the above statement made by the students are correct to the best of my knowledge and belief.

Date:

Place: Mathura

Name and Signature with Affiliation of Supervisor

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Chapter - 1

Introduction, Motivation and Objective

Introduction:

"Smart Home Sense" is an Arduino-based home automation system aimed at providing comfort, safety, and energy efficiency. With the help of sensors and a NodeMCU controller, it enables real-time monitoring and control of household appliances like lights, fans, and TV via a web dashboard.

Motivation:

With the increasing adoption of IoT in daily life, creating a budget-friendly and customizable smart home system can improve lifestyle convenience and energy usage. The motivation was to explore IoT capabilities and develop a user-friendly system suitable for real-world applications.

Objective:

- To design and implement a web-based smart home automation system.
- To control appliances using manual and automated (temperature-based) modes.
- To display real-time temperature and humidity data using DHT11 sensor.
- To create an attractive and responsive web interface with real-time updates.

Chapter - 2

Description and Work done

Components Used:

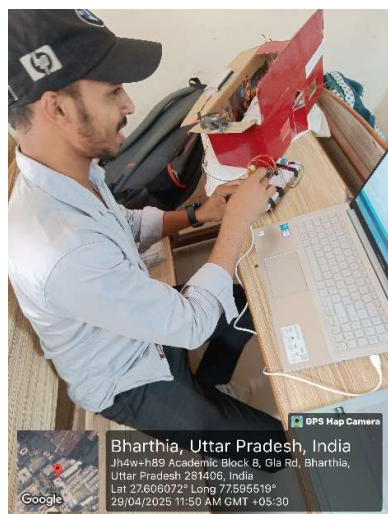
- Arduino/NodeMCU (ESP8266)
- DHT11 Temperature and Humidity Sensor
- 4-Channel Relay Module
- LEDs for appliance simulation
- Power Supply and Cables
- Web-based Dashboard (HTML, CSS, JavaScript with WebSocket)

Work Done:

- Integrated sensors and actuators with NodeMCU.
- Developed a web dashboard to control appliances and monitor conditions.
- Implemented real-time data exchange using WebSocket.
- Programmed auto-mode logic for fan control based on temperature.
- Tested and refined UI for mobile-friendly use.
- Implemented state-saving and feedback features for each appliance.

Chapter - 3

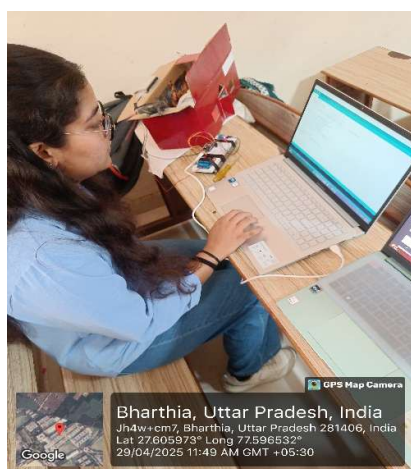
Geotagged Images of Students at the place of work



Geotagged Image 1



Geotagged Image 2



Geotagged Image 3



Geotagged Image 4

Chapter - 4

Findings and Conclusion

Findings:

- The system responded accurately to real-time data changes.
- Auto/manual toggle worked effectively for fan control.
- The dashboard was intuitive and mobile-accessible.
- Sensor readings updated every 250ms without significant lag.

Conclusion:

"Smart Home Sense" successfully demonstrates a practical implementation of IoT in home automation. The system is scalable and can be enhanced with features like remote access via Blynk, voice control, or AI integration in the future.

Bibliography/ References

- 1 [Arduino Official Documentation](#)
- 2 [ESP8266 NodeMCU Guide](#)
- 3 DHT11 Datasheet
- 4 WebSocket JavaScript API - MDN Docs
- 5 YouTube tutorials and GitHub repositories for smart home UI