IOT DRIVEN VERTICAL FARMING USING DEEP LEARNING FOR CULTIVATION OF MEDICIANAL PLANTS

Scan me!

Supervisor

Rana Mudassar Rasool

Co-Supervisor

Qadeer Yasin

Projected By

Mehvish Kiani (BCS212010)

INTRODUCTION

- Vertical farming integrates IoT sensors and AI models to optimize cultivation.
- Focus on medicinal plants for healthcare and sustainable agriculture.
- Ensures controlled environment, reduced resource usage, and higher yield.

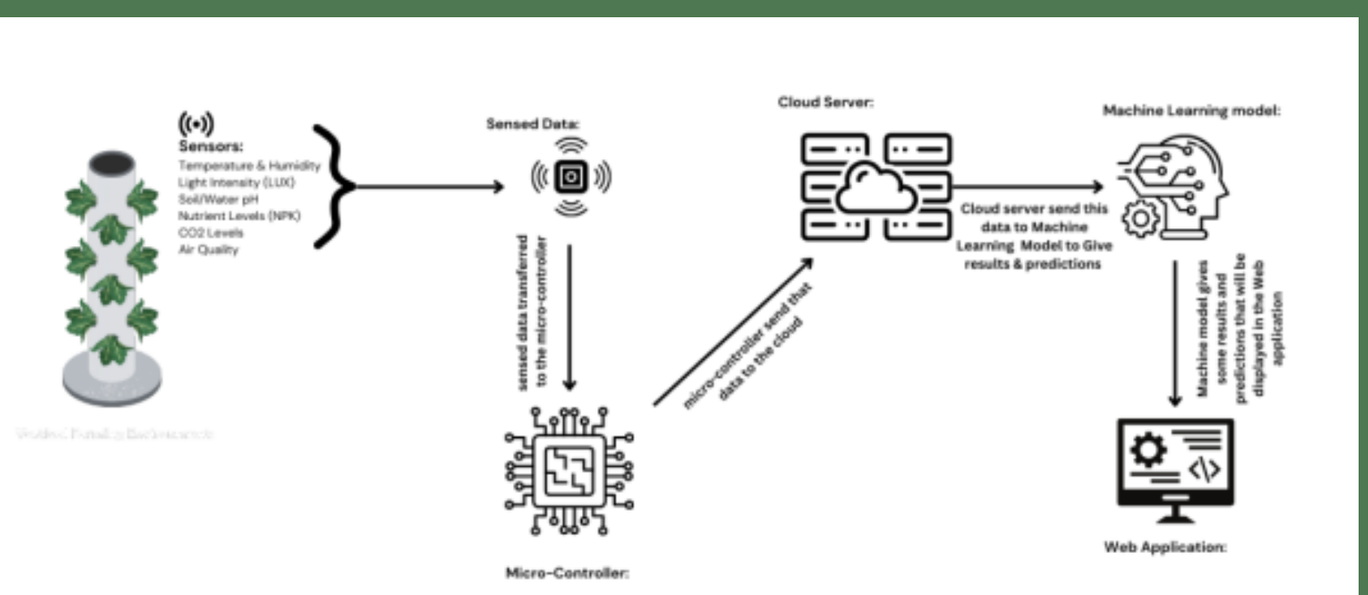
OBJECTIVE

- Automate plant growth monitoring using IoT.
- Apply Deep Learning for accurate growth stage prediction.
- Enhance crop quality and resource efficiency.
- Support sustainable agriculture practices.

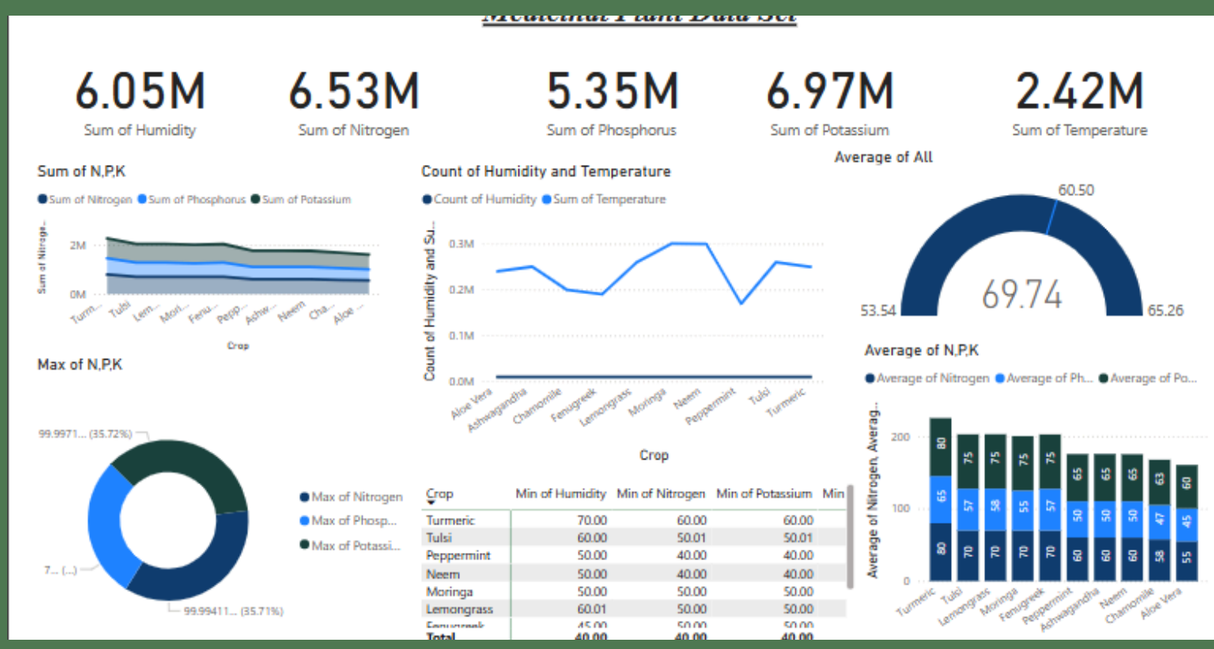
KEY FEATURES

- Real-time monitoring of temperature, humidity, pH, CO_2, light, nutrients.
- Automated decision-making for irrigation, lighting, and fertilization.
- Growth stage classification using CNN/RNN models.
- Dashboard for data visualization & analytics.

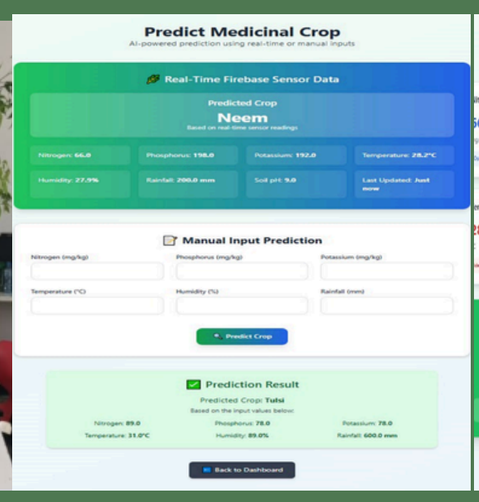
SYSTEM ARCHITECHTURE

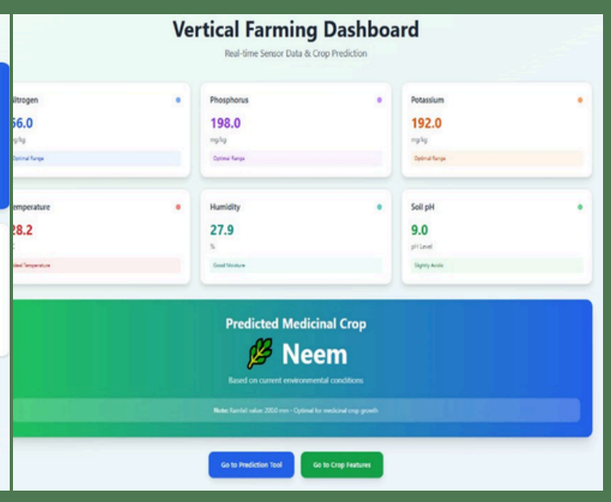


DASHBOARD MEDICINAL PLANT DATASET



PROJECT IMAGES





RESULTS / ACHIEVEMENTS

- Real-time crop monitoring with IoT.
- Growth stage prediction accuracy >90%.
- Live farmer dashboard for monitoring.
- Integrated IoT + AI + Automation for smart farming.

Tools & Technologies

HARDWARE

- DHT11
- pH Sensor
- LDR
- CO_2 Sensor

SOFTWARE

- Python
- TensorFlow
- scikit-learn
- Flask

CONCLUSION

IoT-driven vertical farming with deep learning ensures sustainable, efficient, and scalable cultivation of medicinal plants, promoting precision agriculture and healthcare benefits.