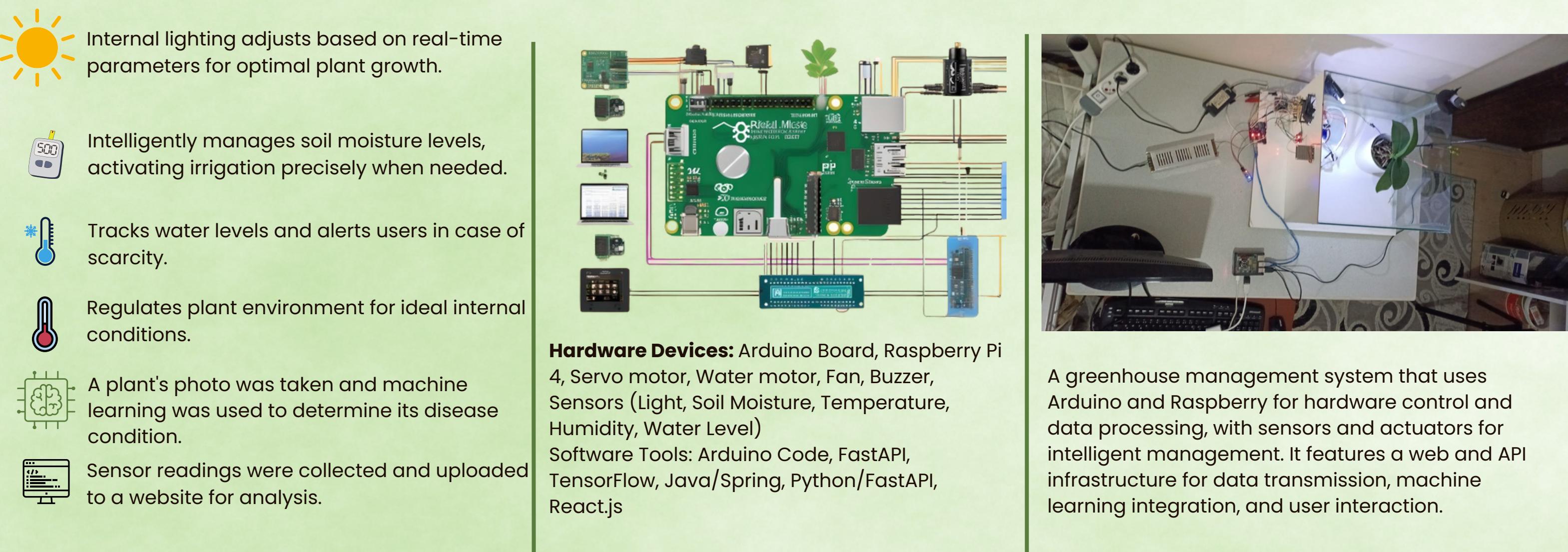


INTERNET OF THINGS

OTOSMART GREENHOUSE SYSTEM

Problem Statement: The agricultural sector faces challenges in optimizing resource usage and responding to environmental changes. Traditional farming methods often lack precision, leading to inefficient resource allocation and increased environmental impact.

Crucial Significance: Efficient greenhouse management is crucial for sustainable agriculture. Our project addresses these challenges by implementing an Autonomous Greenhouse System, optimizing resource usage, and contributing to sustainable farming practices.



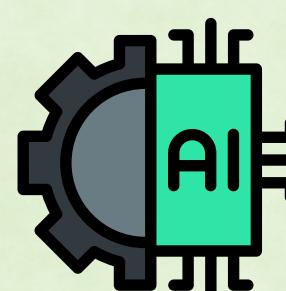
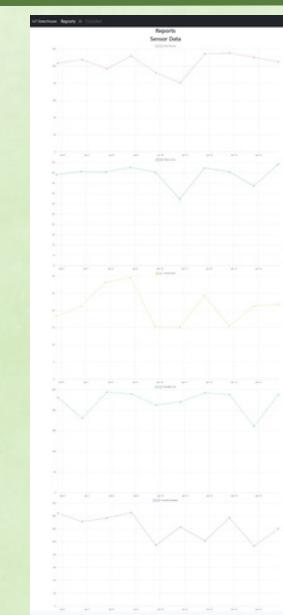
Communication Technologies:

Data Flow:

- Data Transmission:** Arduino periodically sends sensor data to the server using HTTP requests.
- Communication Hub:** Raspberry Pi facilitates Wi-Fi connectivity and uploads sensor data to a remote server.
- APIs:** API-1 (Java/Spring) and API-2 (Python/FastAPI) handle data transmission, machine learning, and client interaction.

Protocols and Wireless Modules:

- Protocols:** HTTP for data transmission, JWT for access control.
- Wireless Modules:** Wi-Fi for communication, ensuring efficient data transfer.



Machine Learning Integration:

Implementation: [Include a brief visual representation of the machine learning process]

- Algorithms Used:** TensorFlow-based machine learning model for potato disease detection.
- Training Process:** Pre-trained model trained on images of potato plant leaves.
- Contribution:** Machine learning provides insights into disease status, enhancing proactive disease management.

Findings:

- Optimal light control enhances photosynthesis and plant health.
- Precise soil moisture regulation improves plant development without excessive water usage.
- Water reservoir monitoring prevents water scarcity through timely alerts.
- Disease status monitoring enables early detection and proactive disease management.
- Overall, the project demonstrates positive outcomes across various facets of agricultural management.



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