DIGITAL TWIN SYSTEM OF A SMART GREENHOUSE

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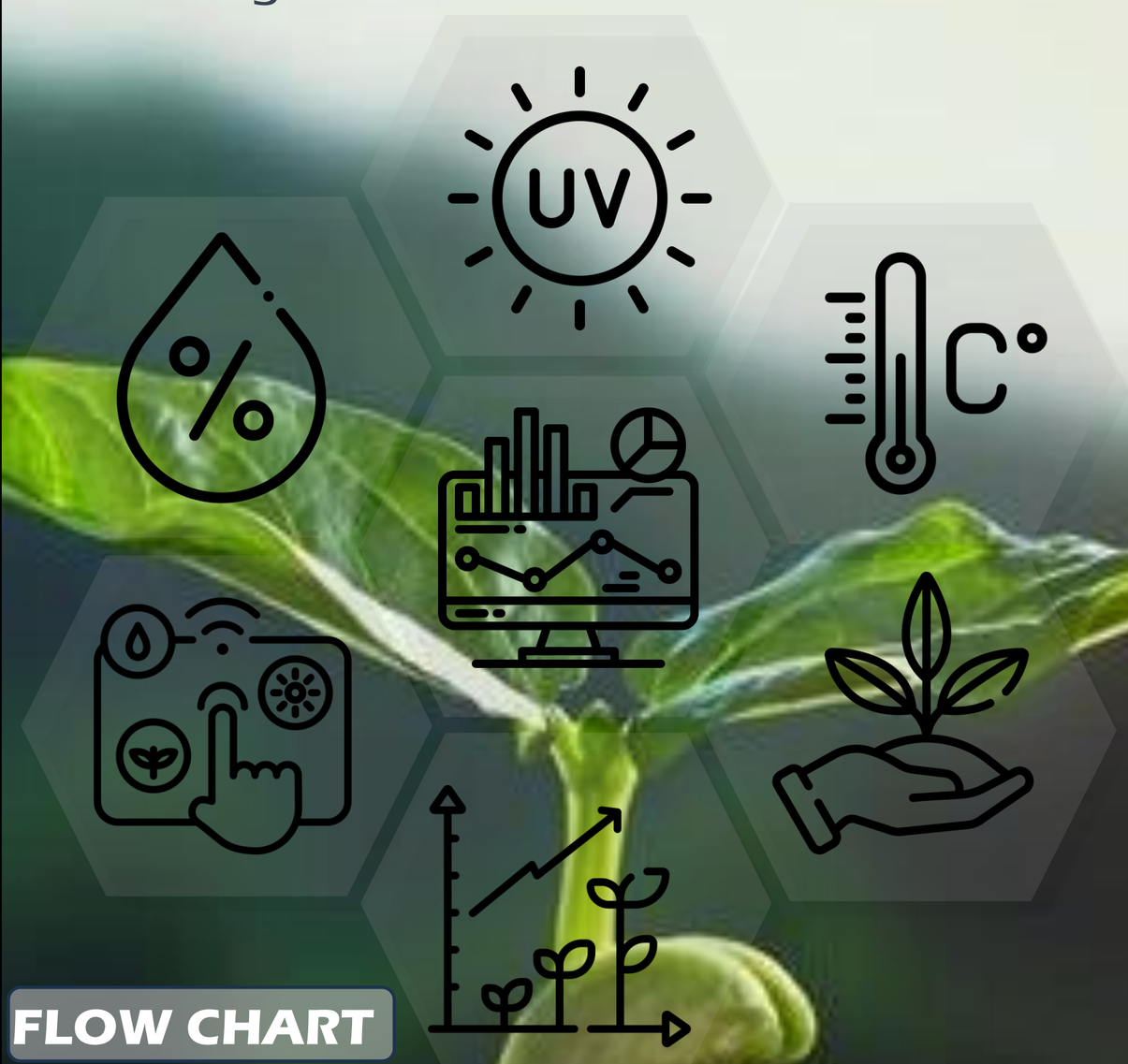
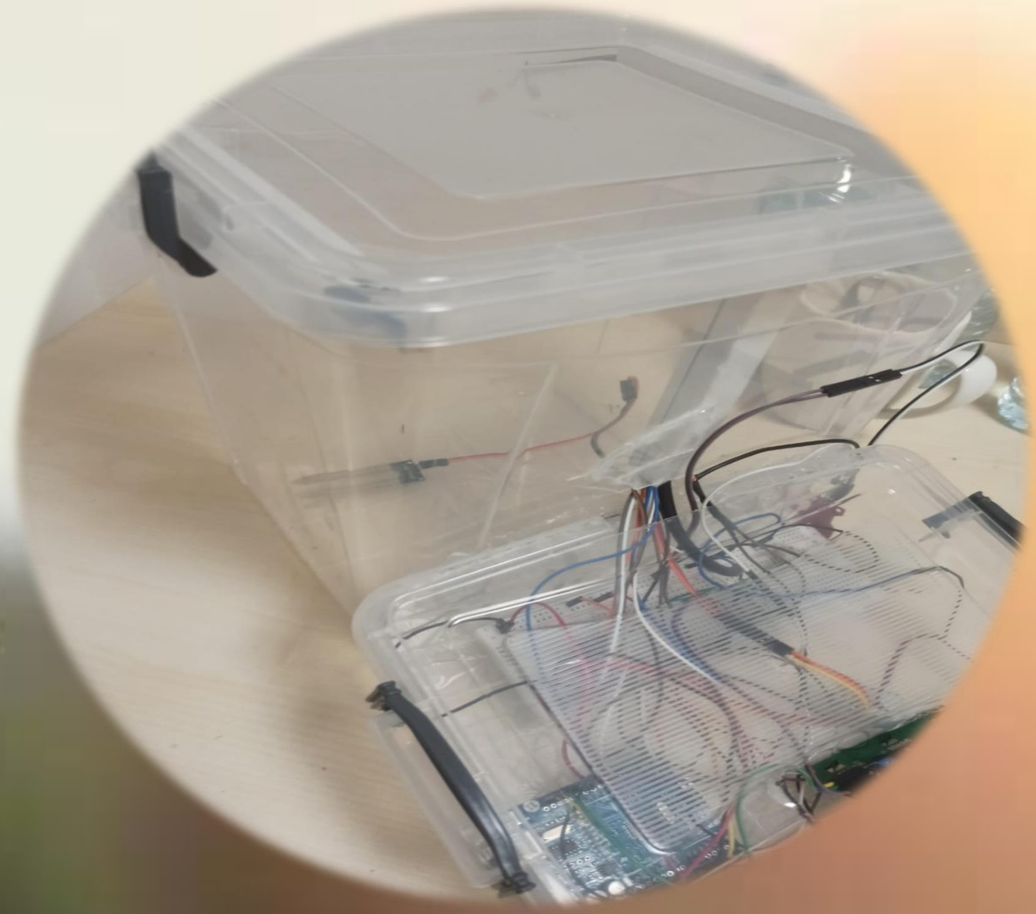
ABSTRACT

The Digital Twin of Smart Greenhouse is designed to monitor and control various environmental parameters to create an optimal growing environment for plants. The system utilizes Arduino Uno R3 along with sensors and actuators to collect data and control greenhouse elements.





FLOW CHART

MAIN COMPONENTS

Aduino Uno, Sensors, LCD, GUI, Actuators.

CONTROL WITH PYTHON

The Python interface is a crucial element of the project, offering users a visual representation of greenhouse conditions. clock for accurate time information. Clear indicators of the status (on/off) of the motor, heater, LED, and pump in automatic mode. Time-varying graphs for UV value, CO value, and ambient humidity. Digital display of UV level, CO level, water level, temperature, ambient humidity, and soil moisture with accompanying icons for clarity. Real-time clock for accurate time information.

Conclusion

The Digital Twin of Smart Greenhouse successfully creates an automated and controlled environment, ensuring optimal conditions for plant growth. The integration of sensors, actuators, and a user-friendly interface makes it an efficient solution for greenhouse management.

References:

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