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(57) Abstract :
IoT-based monitoring and management of hydroponics systems to guarantee ideal plant growth. Real-time data from sensors such as pH, TDS, temperature, and humidity is sent to a cloud platform using an Arduino or NodeMCU. Based on sensor data, automated control systems modify environmental factors, fertilizer levels, and water flow. Through a web interface or mobile app, users can remotely monitor and control the system. Higher crop yields are guaranteed, efficiency is increased, and less manual labor is required with this IoT-based strategy.

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