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IOT based Remote Controlled Automated Irrigation System

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Abstract: *Proper water resource management is critical for long-term agriculture, especially in drought-prone areas. A modern solution to this problem is remote automatic water management, which effectively addresses issues such as over-irrigation, high energy costs, and complicated procedures. This innovative system uses IoT technology, microcontrollers, sensors, and wireless communication to automate water usage and allow for remote monitoring. Using humidity, temperature, and moisture sensors, the system continuously assesses the environment with a microcontroller like NodeMCU to determine when watering is required. This ensures that water is only used when necessary, promoting health and reducing waste. Users can monitor system performance in real time using mobile and web applications that also offer data analytics. Users can integrate this information into a cloud platform.*

Keywords: Automated Irrigation, IoT (Internet of Things), Microcontroller, NodeMCU, Real-time Data, Smart Agriculture, Soil Moisture Sensor, Sustainable Farming, Water Conservation, Wireless Communication

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