

Water Quality Monitoring by using IoT Water Sensors

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Editorial

Light, air quality, soil moisture, and other environmental factors must be controlled in vertical and other types of farming operations. In the case of water, real-time water quality monitoring systems that include for the following reasons, IoT sensors are an ideal form of technology to apply to the challenge of environmental controls. IoT-based systems monitor remotely, collecting data whether or not a person is physically present in the building. After sensors collect data, it is transmitted over the network and into the cloud, where it can be accessed on your computer. IoT water sensors continuously monitor rather than taking periodic, point-in-time measurements. The monitoring process is on-going and dynamic, providing you with near-real-time feedback on your desired measurements.

An IoT monitoring system can send monitoring alerts via text message. You define the quality parameters for any water quality characteristic you want to monitor, and the system will send an alert if a measurement falls outside the acceptable range. This gives you enough time to make a quick change, avoiding extensive plant damage. Water quality monitoring is made simple and efficient by IoT systems. Digital data collection shortens the time it takes to collect data; additionally, IoT platforms typically include advanced analytics programmes that can measure, catalogue, and analyse data faster than humans can. The cost of IoT near-real-time monitoring is low. Microprocessors have become more affordable in recent years, and

the fact that sensors are wireless makes installation relatively inexpensive as well. Implementing such a system is affordable for almost any business and typically yields a high return on investment. IoT water sensors can be used to track a variety of variables. The presence of certain factors in the growing environment may impede plant growth. Water quality measurement instruments (sensors) can be used to assess factors such as: PH level -Water with an excessively high pH level (an indicator of acidity) may be harmful to some plants, making it difficult for them to absorb nutrients from the soil; however, other plants are less affected by soil pH and can absorb higher levels of aluminium or magnesium in even very acidic water. Salinity- Nutrients used by plants for development are absorbed as ionic salts; however, some plants can withstand high salinity while others cannot. The salinity of irrigation water varies; this salinity is typically measured as the electrical conductivity (EC) of water because dissolved salts in water conduct electricity. The higher the EC level, the higher the concentration of salt. Electric conductivity sensors are used to measure salinity and nutrient levels in water and can be combined with other IoT sensors to measure light levels and environmental conditions like temperature, relative humidity, CO₂ levels, and particulate matter.

Oxidation-reduction potential (ORP): ORP is a measure of water's ability to break down contaminants. ORP sensors allow you to track and monitor the levels of critical disinfectants in your water system. ORP levels that are outside of an acceptable range (too high or too low) may have a negative impact on plant growth. ORP levels are also used to assess water sterility. Pathogens are killed by high ORP levels, resulting in sterile water conditions.

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