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Smart Water Pollution Management: IoT for Automatic Detection and Prevention

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Abstract: *Water quality monitoring is vital for public health and environmental sustainability, but traditional methods face challenges such as high costs, lack of portability, and limited real-time data access. This paper presents a solution using Arduino-based sensors integrated with IoT technology to enhance water quality monitoring. The system employs various sensors to measure parameters like Total Dissolved Solids (TDS), turbidity, water transparency, methane gas, and alcohol gas. Data from these sensors is transmitted to a NodeMCU microcontroller and uploaded to the Blynk cloud platform, allowing real-time monitoring and remote access via customizable dashboards. The proposed system is cost-effective, portable, and provides immediate data access, addressing the limitations of traditional methods. It enables timely detection of water quality issues, facilitating prompt responses to health and environmental threats. This innovative approach significantly advances water quality monitoring by leveraging IoT technologies to improve environmental management practices.*

Keywords: Water quality monitoring