# AUGMENTED REALITY-BASED WATER LEVEL MONITORING AND CONTROL APPLICATION FOR IRRIGATION GATES

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## ABSTRACT

Manual irrigation sluice management has the potential to cause delays in decision-making, especially when water levels suddenly increase. Therefore, this study aims to develop an Internet of Things (IoT)-based irrigation sluice monitoring and control system equipped with Augmented Reality (AR) visualization. This system uses Wemos D1 R1 as the main controller, an ultrasonic sensor to measure water levels, a servo motor as the sluice gate actuator, and a buzzer and Telegram as early warning indicators. Water level data is sent to the Blynk platform and displayed in real time. It is then integrated into a Unity-based AR application to provide interactive visualizations. Test results show that the system is capable of monitoring water levels, controlling floodgates automatically and manually, providing early warnings via buzzers and Telegram notifications, and displaying real-time irrigation condition information via an AR application. This system is expected to make monitoring and controlling floodgates more effective, responsive, and user-friendly.

**Keywords**: Water monitoring, Control system, Irrigation, Augmented Reality, Internet of Things