ABSTRACT

Flooding is a recurring issue that continues to threaten the area surrounding the Citarum River, particularly in Dayeuhkolot, Bandung Regency, West Java. During the rainy season, the rising water level frequently leads to widespread inundation, resulting in damaged infrastructure, disrupted daily activities, and heightened health risks. The absence of a reliable and timely warning system often exacerbates the impact of such disasters.

In response to these challenges, this study proposes the design of a water level monitoring system based on the Internet of Things (IoT), aimed at providing early warnings for potential flooding events. The system utilizes ultrasonic distance sensors to detect real-time changes in the surface water level. Data collected from the sensors is automatically transmitted to an online platform that can be accessed via the internet. This information is visualized through a user-friendly dashboard interface, which includes an alert feature that activates when the water level surpasses a predetermined threshold. Furthermore, the system integrates instant messaging notifications to ensure rapid information dissemination to both local residents and relevant authorities.

Testing conducted in a simulated environment demonstrates that the system delivers accurate monitoring capabilities and responds promptly to fluctuating water conditions. It is expected that this solution can enhance community preparedness in Dayeuhkolot and support more effective flood risk mitigation strategies.

Keywords*:* *flood, early warning system, Internet of Things, water level monitoring, ultrasonic sensor, Dayeuhkolot, disaster mitigation*