

**AUTOMATIC WATER FLOW MONITORING AND CONTROLLING WEIR
STRUCTURE BASED ON INTERNET OF THINGS (IOT's)**

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ABSTRACT

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Weir structure is a small barricade placed across the canal to direct water in parallel direction or another (Mohanani, 2012), purposive to measuring water discharge. Currently, inadequate water supply and the inconvenience on customary manual operation of weir-gate structure are one of the concerns. This study aimed to design, fabricate, automate and evaluate an automated weir system with smart controlling system based on IoT's.

Completely randomized design (CRD), Analysis of Variance and Least Significant Difference (LSD) were used to analyze and compare the treatments.

A configured $0.45 \text{ m} \times 0.50 \text{ m} \times 1.05 \text{ m}$ weir reading well served as the receiver of data from the observation well that was positioned on the field. The weir with 2 cm crest and at 10 cm, 20 cm and 30 cm height of gate opening have an average discharge of $0.0038 \text{ m}^3/\text{s}$, $0.0056 \text{ m}^3/\text{s}$ and $0.0080 \text{ m}^3/\text{s}$, respectively. Different height of gate openings significantly affects each other according to discharge measurement to the field at 0.05 level of significance. Therein, with calibration and effective field operation of the automated system, water discharges at higher gate opening, and therefore satisfies the field requirement at 5 cm water level with 30 cm as the most suitable height.

Key Words: automatic weir structure; water flow; internet of things (IoT's); weir

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