



**Design of IOT-Based Flood Early Warning System  
and Automatic Dam Gate Control**

**UNDERGRADUATE THESIS**

**Submitted as on of The Requirements to Obtain  
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**FACULTY OF ENGINEERING**

**MECHANICAL ENGINEERING STUDY PROGRAM**

**PRESIDENT UNIVERSITY**

**2023**

# TURNITIN TEST RESULT

## Design of IOT-Based Flood Early Warning System and Automatic Dam Gate Control

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## **ABSTRACT**

Flooding is still a problem in big cities in Indonesia, one way that can be done to minimize the occurrence of floods that will come unexpectedly is to provide information earlier before a flood occurs. The research being conducted this time, “IoT Design of Website-Based Flood Early Warning Devices and Automatic Dam Gate Controllers. The design of this Flood Detection System is an IoT project based on the esp8266 microcontroller which is integrated with a web application and mySQL database. The working principle of this system is that a sensor that is installed perpendicularly at a certain height above the water level will emit ultrasonic waves with a speed of 340 m/s in the air. The waves will then hit the surface of the water and bounce back towards the sensor. In addition, the sluice at the dam will also process an ultrasonic sensor which functions as a distance meter when the water level reaches its highest point, and the servo motor as the sluice will carry out the command to raise the sluice automatically and simultaneously with the sound of a siren marking the water point. the characteristics of the HCSR-04 can detect flood water levels with an accuracy rate of 99.4% and servo motor 0. when the position of the dam is in a state of danger. Tests in the lab show that the system built can record water levels in real-time which can be monitored from the monitoring website, , the error rate that occurs on the sensor is at least 0.5% so that the performance of the equipment and system goes well.

**Keywords:** Internet of Things, Nodemcu Amica Esp 8266, HCSR-04, Dam Control, Flood Early Warning

## **ACKNOWLEDGEMENT**

First of all, I want to thank God in the most sincere way possible since this study would not be possible without His help and favor. By completing my thesis, I also came to the realization that I can succeed because of the support, inspiration, direction, and encouragement of the people around me. I would thus want to thank them for their support in helping me to complete my thesis.

- First and foremost, I want to thank my family, especially my parents, who have always supported me emotionally and physically, from the bottom of my heart. I appreciate your unceasing prayers and love.
- Second, I would like to thank my thesis advisor, Dr. Ir. Wahyono Sapto Widodo M. Eng.Pract and Drs. Nanang Ali Suitisna,M.Eng . Thank you for your help and advice. I am delighted to have you as my thesis advisor. Thank you for your helpful advice and recommendations, which considerably benefited me in finishing this thesis.
- Third, for each of my Mechanical Engineering study program instructors, whom I cannot name individually. I appreciate your time, effort, attention, patience, and support in ensuring we get the most out of our studies.
- Finally, I would want to thank all of the participants in this study for their efforts, willingness, and time, which enabled this thesis to be completed successfully.

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