

ABSTRACT

In this time almost all of the sluice in the river or in the irrigation in Indonesia still uses manual sluice, that uses human power to operate it. It is barely automatic sluice in Indonesia, especially in the village or in the inland area. In the operation of the manual sluice, sluice is opened or closed by human manually based on the level of the water that human see. Off course it is not effective and efficient because human always makes a mistake. And if there is a mistake the result will be not good.

This final task will makes a prototype of the simple automatic sluice that can control the height level of the sluice based on the level of the water. The level of the water will be measured by ultrasonic sensor. The result from the sensor will be read by microcontroller Atmega128 for the process to control the opening level of the sluice with fuzzy logic method. With fuzzy logic method, it can control the height level of the sluice based on the water level and some parameter that is determined according to the needs. For example, when the water level in an area is high, then the main sluice will be controlled to be closed to hold the water supply meanwhile the other sluice will controlled to be opened to waste the water to back to the normal level. In this final task, a simple prototype will be made using 3 servos motor to open or close the sluice and a simple diorama also will be made form arcliric.

With using this automatic sluice that based on the water level, off course this sluice will be more effective because it works in real time based the condition of the water's height level. Beside that, a wireless communication will be added to see the condition of the sluice and the water's level from another place. With this automatic sluice off course will minimalize the risk from flood or another risk. Problem like flood or a submerged rice field is a common problem in the river or irrigation with manual sluice.

Key words: sluice, ultrasonic sensor, fuzzy logic, servo motor, microcontroller Atmega128, wireless