

ABSTRACT

Flood is a problematic disaster that brings Kabupaten Bandung always on alert. In March 2021 itself, the disaster affected 120.000 people, including children. When the rainfall intensity is high enough and has a long duration, the water from the Citarum river overflows and causes havoc to the nearby area. Sub-districts such as Bojongsoang, Baleendah, and Dayeuhkolot are the regulars that had to experience this throughout the years. The flood has damaged existing infrastructure and threatened the safety of the lives of residents physically and mentally. However, in practice controlling the water in rivers and reservoirs is still done manually. This condition has resulted in longer and unprecise decision-making because officers need to be present at the control and coordinate with others. It is wise and proper to use technology to improve the solution based on these facts. Technology such as the Internet of Things and reservoir control systems can potentially mitigate the risk or solve this problem completely. To support this solution in the physical world, research of combining IoT and the reservoir control system is conducted. Fuzzy logic-based control is also used as a suitable and reliable solution for the system since it can adapt to various operating and uncertain conditions. To prove this concept, testing the fuzzy logic controller is conducted based on the created fuzzy rules. There are nine fuzzy rules that determine the outputs, based on the water level measurement from the inputs. The fuzzy inference system works according to the created rules. From the second test, the IoT system measures 30 heights of water and tests the fuzzy inference system. The measured heights are calculated and fuzzified to decide what the outputs are. The outputs fall into the nine rules category and they fit with the designed rules.

Keywords— *fuzzy logic, spillway control simulation, intelligent system, prototype method*