

ABSTRACT

River water monitoring system is one of the efforts as a contribution to control the pollution and/or damage of the Citarum watershed in Indonesia based on Presidential Decree Number 15 of 2018. Monitoring of Citarum River water quality is essential because it is to know its condition. Despite that, regular monitoring requires water samples to be taken to the laboratory to be tested. Therefore it is not real-time and wasteful of energy. In this thesis, a design of IoT-based river water quality monitoring-system using LPWAN communication technology will be proposed so that monitoring points on the Citarum watershed can be monitored in real-time and the results of monitoring data will be stored in the server for data logging. A test about communication range is performed with four nodes and one gateway with LoRa transceiver paired with Arduino boards, as LPWAN communication method, to be able to exchange information in terms of hardware and implement network mesh topologies to widen monitoring points in terms of software. It is shown from the test result that the communication range for the transmission between node to node or node to gateway reaches a maximum of 500 m close on the surface of the water before experiencing loss signal.

Keywords: *monitoring river water, Internet of Things, LPWAN, LoRa, Arduino.*