

ABSTRACT

Citarum river basin is one of the largest contributors to ocean pollution in Indonesia. The pollution, particularly garbage, has made the river basin shallower and it also has made the river flow more still so that it can cause flood to the nearby settlements in rainy season. Therefore, the garbage must always be monitored and then collected if the amount exceeds a particular threshold. To fulfill the purpose, this study aims to design a data transmission device for garbage interceptor monitoring system based on Internet of Things (IoT) dan LoRa. The system utilizes load cell sensors that is applied on the garbage interceptor's rope in the river. Then, the sensor readings are sent using an IoT platform using NodeMCU ESP8266 and LoRa RFM95 as the radio wave transmitter and receiver using 915 MHz frequency. Furthermore, the readings are visualized by Blynk and PuTTY. According to the test results, the device can transmit data through the IoT platform with 2054 ms delivery time, 5.02 MB/hour data usage, and the transmission can always be done anytime if there's an internet connection. The device can also transmit data through radio wave with delivery time of 4332 ms and maximum distance of 250 meters.

Keywords: *internet of things, LoRa, data transmission, radio wave, load cell*