

ABSTRACT

In the production process in the food and medicine processing industry with herbal ingredients, especially industries in Purbalingga Regency, of course it produces a lot of liquid waste which is often disposed of and channeled directly into rivers which are located close to residential areas, so that it has an impact on water pollution in the long term. long. Steps taken to reduce this impact require parameters to determine water quality, namely the value of pH and TDS. A neutral pH value is at a pH value of 6, if the pH value is less than 6 then the water has a low acid level, while water that has a value of more than 6 has a high alkaline level. TDS (Total Dissolved Solids) is the total solids content that dissolves in water. If the TDS value is more than 2000 mg/L according to the waste water quality standards, then the water is unfit for consumption because it has been mixed with substances obtained from waste. In order to be able to monitor the pH and TDS values of industrial waste, you can take advantage of Internet of Things technology which can be done remotely with LoRa (Long Range) communication. This research was conducted using the PH4502C sensor and Total Dissolved Solid sensor, NodeMCU ESP8266 as a microcontroller and LoRa Heltec SX1278 as a communication medium for sending data to the Thingspeak platform. From the results of testing the system from the pH sensor, it produces a pH value of 4.53 to 4.57 with an average accuracy of 86.25% and an average error value of 13.75%. Whereas the value of the TDS sensor produces a value of 1300mg/L to 2179mg/L. In the Quality of Service test it produces a Throughput of 7.2Kb/s, a packet loss of 0.2% and an average delay of 0.27829ms.

Keywords : liquid waste, Long Range, pH sensor, Total Dissolved Solid sensor, Internet of Things.