

ABSTRAK

Pemantauan air limbah menurut Permen LHK No. 80 tahun 2019 harus dilakukan secara *real time*. Untuk memenuhi kebutuhan tersebut, pada tugas akhir ini dirancang sistem *monitoring* pembuangan air limbah rumah tangga dengan memanfaatkan aplikasi Blynk sebagai *platform monitoring* secara *real time*. Sistem ini dibuat mampu memantau kadar mutu air limbah menggunakan 3 (tiga) sensor, yaitu sensor untuk mengukur derajat keasaman air (pH), sensor untuk mengukur zat padat terlarut (TDS-*Total Dissolve Solid*) dan sensor untuk mengukur kekeruhan air (*Turbidity*). Pengukuran dan pengiriman data dilakukan secara nirkabel oleh ESP32 ke *cloud platform* Blynk. Dari hasil pengujian kalibrasi sensor didapatkan bahwa sensor keasaman air (pH) yang digunakan mempunyai selisih bacaan sebesar 0.223% , sensor zat padat terlarut (TDS-*Total Dissolved Solid*) mempunyai selisih bacaan sebesar 5.63% dan sensor kekeruhan air mempunyai standar devias ± 0.128378 . *Prototype* sistem *monitoring* diuji coba pada IPAL Komunal Lengkong Wetan selama 5 hari dan bekerja 24 jam. Berdasarkan pengukuran tersebut didapati nilai kekeruhan air (*Turbidity*) melewati ambang batas 25 NTU. Dari pengujian pada IPAL Komunal Lengkong Wetan didapati bahwa alat dapat bekerja dengan baik selama pengujian, dimana data dimonitor secara *remote* dan *real time* menggunakan *platform* Blynk pada *device smartphone*.

Kata kunci: Baku mutu air limbah, *Internet of Thing* (IoT), Blynk *Cloud platform*, IPAL Komunal.

ABSTRACT

Wastewater monitoring according to Permen LHK No. 80 2019 must be done in real time. To meet these needs, in this final project, a monitoring system for household wastewater disposal is designed by utilizing the Blynk application as a monitoring platform in real time. This system is made capable of monitoring wastewater quality levels using 3 (three) sensors, namely sensors for measuring water acidity (pH), sensors for measuring dissolved solids (TDS-Total Dissolve Solid) and sensors for measuring water turbidity. Measurement and data transmission are done wirelessly by ESP32 to the Blynk cloud platform. From the results of sensor calibration testing, it is found that the water acidity sensor (pH) used has a reading difference of 0.223%, the dissolved solid sensor (TDS-Total Dissolved Solid) has a reading difference of 5.63% and the water turbidity sensor has a standard deviation of ± 0.128378 . The prototype monitoring system was tested at the Lengkong Wetan Communal WWTP for 5 days and worked 24 hours. Based on these measurements, it is found that the value of water turbidity (Turbidity) exceeds the threshold of 25 NTU. From the test at IPAL Komunal Lengkong Wetan, it was found that the device can work well during the test, where the data is monitored remotely and in real time using the Blynk platform on a smartphone device.

Keywords: *Wastewater quality standard, Internet of Thing (IoT), Blynk Cloud platform, IPAL Komunal.*