ABSTRACT

Almost all humans cannot live without clean water, which is essential for consumption and daily activities, including sanitation. Islamic boarding schools (pondok pesantren) are vulnerable to skin diseases due to sanitation and the availability of clean water. The author developed a water quality monitoring system at Pondok Pesantren Al-Falah Sokaraja based on Internet of Things using the ESP32 microcontroller. The parameters used are pH and Total Dissolved Solids (TDS), and the data is processed using Thingspeak. The research results show that the pH sensor has an accuracy of 99.30% with an error of 0.67%, while the TDS sensor has an accuracy of 98.47% with an error of 1.53%. QoS testing shows delay and throughput with an index of 1, and packet loss with an index of 4. The overall system testing results indicate that the water at Pondok Pesantren Al-Falah meets the standard for safe and usable water.

Keywords: Delay, Internet of Things, Packet Loss, Thingspeak and Throughput.