

**Sistem Monitoring Kualitas Air Layak Konsumsi Berbasis
*Internet of Things (IoT) Menggunakan Metode Simple Additive
Weighting***

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ABSTRACT

Water is a resource needed for the development of living things. The society often does not supervise the water quality or standardize the safety of the drinking water that they consume. Good quality water has several conditions, such as pH (6.5 – 8.5), turbidity (25 Nephelometric Turbidity Units), and water temperature (± 3 °C air temperature). Therefore, in this research, Internet of Things (IoT) technology is used to develop a system that can monitor these three water quality parameters. Water samples were taken from five types of water sources: protected water well, unprotected water well, refill water, spring water, and mineral water in Manyak Payed District. The tests were carried out twice on 15 water samples. The calculation was performed using the Simple Additive Weighting (SAW) method. Based on the testing data from the 15 water samples, the first water quality is A3, which refers to the protected well water sample from Bukit Panjang Dua, and the fifteenth water quality is A7, which refers to the unprotected well water sample from Simpang Lhee. Additionally, two water samples received the same ranking: A5, which is the refilled water sample from Sampaimah, and A6, which is the refilled water sample from Ie Bintah. The test results on the system indicate a level of consistency of 60% on the water pH sensor, 73% on the water turbidity sensor, and 66% on the water temperature sensor. The mean absolute percentage error on the water pH sensor was 2.394%, and the mean absolute percentage error on the water temperature sensor was 0.462%.

Keyword : *Water Quality, Internet Of Things, PH of Water, Turbidity of Water, Water Temperature*

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ABSTRAK

Air merupakan sumber daya yang dibutuhkan untuk perkembangan makhluk hidup. Sering kali masyarakat tidak mengawasi kualitas air dan standarisasi tentang keamanan air minum yang mereka konsumsi. Air dapat dikatakan berkualitas untuk keperluan sehari-hari jika memenuhi beberapa syarat, termasuk diantaranya adalah pH air (6,5 – 8,5), kekeruhan air (*25 Nephelometric Turbidity Unit*) dan suhu air (± 3 °C suhu udara). Oleh karena itu dalam penelitian ini dengan teknologi *internet of thing* sistem dapat memonitor ketiga parameter kualitas air tersebut. Sampel air diambil dari 5 jenis sumber air yaitu air sumur terlindungi, air sumur tak terlindungi, air isi ulang, air ledeng, dan air minuman kemasan yang ada di Kecamatan Manyak Payed dan pengujian dilakukan sebanyak 2 kali terhadap 15 sampel air. Hasil perhitungan menggunakan metode *Simple Additive Weighting* (SAW) dengan data hasil pengujian dari 15 sampel air, maka didapatkan kualitas air pertama yaitu A3 = sampel air sumur terlindungi Desa Bukit Panjang Dua dan kualitas air kelima belas yaitu A7 = sampel air sumur tak terlindungi Desa Simpang Lhee serta dua sampel air yang mendapatkan perankingan yang sama yaitu A5 = sampel air isi ulang Desa Sampaimah dan A6 = sampel air isi ulang Desa Ie Bintah. Hasil pengujian pada sistem mendapatkan tingkat konsistensi pada sensor pH air sebesar 60%, tingkat konsistensi pada sensor kekeruhan air 73%, tingkat konsistensi pada sensor suhu air 66%, nilai persentase kesalahan rata-rata secara multak pada sensor pH air sebesar 2,394% dan mendapatkan nilai persentase kesalahan rata-rata secara multak pada sensor suhu air sebesar 0,462%.

Kata Kunci: Kualitas Air, *Internet Of Things*, PH Air, Kekeruhan Air, Suhu Air