

ABSTRACT

Water is highly important as a mineral source for all forms of life on Earth. However, with the rapid development of time and the increasing population in a certain region, not everyone has access to safe drinking water. One important indicator used to assess water quality is TDS (Total Dissolved Solids). Safe drinking water typically has a TDS value below 300 ppm, with values below 150 ppm indicating good quality. A water ionizer is a device that utilizes electrolysis to produce alkaline water.

The electrolysis process in a water ionizer serves to reduce the amount of dissolved substances in water, thereby lowering the TDS value. Additionally, electrolysis can also increase the water temperature. To monitor the water conditions during the electrolysis process, sensors such as SEN0244 are used to measure the TDS value, while sensors like DS18B20 are used to measure the water temperature.

Internet of Things (IoT) technology is utilized to remotely monitor the water conditions. In this study, a monitoring system has been successfully implemented on the water ionizer, utilizing TDS and temperature sensors to monitor the water conditions during electrolysis. The use of IoT features facilitates observation and data collection.

During experiments using water samples from around Telkom University, different changes in TDS values and temperatures were observed for each sample. For example, water from the Sukabirus area had an initial TDS value of 230 ppm and a temperature of 33°C, with a final TDS value of 207 ppm and a temperature of 34°C. Tap water from Telkom University's cafeteria had an initial TDS value of 184 ppm and a temperature of 26°C, with a final TDS value of 199 ppm and a temperature of 27°C. Various other water samples also showed variations in TDS values and temperatures.

Furthermore, a relay is installed in this device for automation during the electrolysis process. For the temperature parameter, when the temperature reaches 40 degrees Celsius, the electrolysis process will stop. As for the time parameter, the electrolysis process will stop after running for 60 minutes. However, if the temperature has not reached its limit even after 60 minutes, the electrolysis process will continue. After the electrolysis process is completed, there will be a 10-second delay before the reset.

Keyword: IoT , electrolysis, water ionizer, alkaline, Total Dissolved Solids, temperature