

## **ABSTRACT**

COVID-19 is now a pandemic that is happening in many countries around the world. One of the affected countries is Indonesia, especially for people who are less able to meet their economic needs. Poor people seem to find it difficult to carry out health protocols properly because we know that the price of masks is quite expensive and hand washing facilities are inadequate or people are unable to buy hand sanitizer or disinfectant. Therefore, many people are easily infected because they live a life that does not comply with health protocols and is less hygienic.

The water ionizer is a good concept tool to be implemented to reduce cases of the COVID-19 pandemic. In this research, the concept of a water ionizer will be made to help produce disinfectant water. The most important process of this water ionizer concept is electrolysis. In the electrolysis process, several parameters will appear such as temperature, pH value and TDS value of water produced from water that will be made into disinfectant water. To speed up or slow down the production of a disinfectant solution, a series of 3 modes of electric current is needed by making a current regulator circuit, with current and voltage parameter values. Several electronic components such as ESP32, temperature sensor, pH sensor, TDS sensor and LCD will become a unit to form a disinfectant water maker. As for the current regulator component, several components such as switches, trimpots, and TIP3055 are needed.

With this research, the results obtained on monitoring the water ionizer system use 3 current modes which can speed up and slow down the electrolysis process to get a pH value below 6 by increasing and decreasing the current used. By using the high current mode, the average current is 0.195A and the time obtained in the electrolysis process is 3 hours with a final value of pH 5.8, TDS of 432 ppm, and solution temperature of 25.5°C. Meanwhile, with the low current mode with an average of 0.054A and the electrolysis process time is 5 hours 30 minutes with a final value of pH 5.6, TDS of 415 ppm, and a solution temperature of 26.6 °C.

**Keywords** : Monitoring, Water ionizer, pH sensor, Temperature sensor, TDS sensor, ESP32, Disinfectant, TIP3055, Current, Voltage, Trimpot.