

## **ABSTRACT**

Water is one of the important needs for human life in activities such as washing clothes, bathing, the agricultural sector and especially the need for body fluids. Bandung Regency in particular, there is still a lot of clean water pollution for consumption, which occurs due to industrial waste, nitrate pollution from the agricultural sector and the relationship between septic tanks and dug wells or groundwater that is too close can cause E. Coli bacteria.

Based on the problem of water pollution, it is necessary to design a water treatment system using the electrolysis method. The electrolysis method will result in the transfer of electrical energy from a source into chemical energy and will react non-spontaneously. The focus of this system is in the cathode bath by testing the pH parameters and the nutrient content in the water. This tool is equipped with an LCD that can be monitored for the results of data on pH values and nutrient content in water in this study.

The results of this study used 2 test sensors, namely the pH sensor and the TDS sensor in the test equipment. After testing, the pH sensor has an accuracy rate of 99.42% and the TDS sensor has an accuracy rate of 95.125%. Overall system results in water samples in the Sukabirus area to achieve an output of pH 9 for 3 hours 28 minutes for high mode and 5 hours 20 minutes for low mode. Meanwhile, for the Sukapura area to achieve a pH output of 9 for 2 hours 56 minutes for high mode and 4 hours 56 minutes for low mode. Meanwhile, the TDS value for the Sukabirus area has a value of 206 PPM and for the Sukapura area it has a value of 124 PPM.

**Keywords:** Water, Electrolysis, Water treatment systems, Water pH.