

## **Abstract**

**Aquaponic is an agriculture system that combine hydroponic agriculture with aquaculture. The plant using in this research is hydroponic water spinach that implemented on Aquaponic NFT (Nutrient Film Technique) with cat fish also cultivated. Over the system of Aquaponic NFT, pH water on fish ponds so much important to be concern because water is a source of plant and fish can be growth. In addition to nutrient of pH, EC (Electrical Conductivity) also being some parameter to know nutrient in growth media. Both of this parameter will be compare to know that plans growing balanced. Also this system was build to know water condition based on thus parameter and will implemented with Fuzzy Inference System. This system would like to build with Arduino Uno, water pH sensor, and also TDS (Total Dissolved Solids) sensor that the decision-making for adding some pH solution based on Fuzzy Inference System. When pH value  $\leq 4$  then Arduino Uno can control some relay to activate peristaltic pump to rise the pH of water with some pH up solution. Otherwise of the pH is  $\geq 7$  then would be adding some pH down solution to fishpond with another peristaltic pump. The method for adding some solution pH takes 1ml of solution and takes 1 second repeatly until pH in fish pond was normal.**

**Keywords: Aquaponic, NFT (Nutrient Film Technique), EC (Electrical Conductivity), pH water, Fuzzy Inference System**