

## **ABSTRACT**

*The development of population growth leads to infrastructure being developed which then has an impact on reduced green space. Limited land and the availability of water sources need to find a solution so that cultivation activities can continue to be carried out and produce production in the food sector. Aquaponics is a modern agricultural system that combines an integrated plant cultivation system with the cultivation of aquatic animals (fish). This research is a prototype that can be applied to an aquaponic system by monitoring and designing a control system using fuzzy logic control (FLC) to control pH. This system uses ESP 32 as a microcontroller connected to the internet so that for sending and displaying monitoring and controlling data using the Antares platform. In testing the pH sensor calibration has an average error of 2.55% and an accuracy of 97.45% then the Electrical Conductivity (EC) sensor has an average error of 2.92% and an accuracy of 97.08%, and testing the DS18B20 sensor has an average error of 2.02% and an accuracy of 97.78%. The results of the FLC test on the tool show that when the temperature is 26°C and the pH is 5.33, the result is that PUMP\_UP is active adding 50cc of buffer up, this is in accordance with the setting point and the rules entered.*

**Keywords:** *Aquaponics, Control, FLC, IoT, pH, Temperature.*