

CHAPTER 6

CONCLUSION

The following conclusion can be derived from the Implementation of Fuzzy Logic Methods in nutrient Control in Hydroponic Plants is.

1. TDS sensor can detect the ppm value in nutrient water quite accurately and the ultrasonic sensor can detect the water level in the reservoir very well.
2. Fuzzy logic can be implemented on a micro-controller with several stages such as determining the membership of each input which will then enter the Fuzzyfication process, then the Rulebase stage or the stage of comparing the two inputs to take the minimum value, and the final stage is the Defuzzyfication of the Sugeno model to take the final value. which is used as a delay to set the pump.
3. From the data in the testing table, it can be concluded that the system can run continuously as expected. The tool is made using a pump through a relay by controlling nutrients to the optimal point (777.33 ppm to 1050 ppm) with a time of 7 minutes 16 seconds and the water level (19.23 cm to 15 cm) with a time of 3 minutes 14 seconds. The two pumps will also stop when the water condition in the reservoir is full, to prevent water from overflowing everywhere.

Suggestions for further research are to add a WiFi module so that the device can be controlled remotely with real-time data and can be implemented into mobile applications and the last one uses a better TDS sensor to get more accurate data.