ABSTRACT

Utilization of the home page as plant maintenance media is commonly done even become a hobby among the society. However, the constraints of time and distance become one of the problems that arise in the plant maintenance. In this era of technology, the use of automation control system is expected to provide benefits in terms of efficiency, accuracy, and security when compared to manual workmanship. Support internet also makes things easier.

In this final task, we designed an embedded system by utilizing the concept of the Internet of Things to monitor and perform routine maintenance that must be met at the time the user can not do it. This system is called "Aquaponic Automatic" or can be called as "APA". This section focuses on embedded gateway duty to receive and process the orders given by the client through the Internet connection of a smartphone. By utilizing cloud services for storage, also weather forecast engine and weather shield for weather information in the area around the system that will be compared using fuzzy logic to make decisions automatically for watering. Processed the information will be passed into a command for embedded devices that serve as controlling the valve for watering and cameras for monitoring.

This system can receive and process orders from clients through the smartphone with an average response time of 1017.4 ms for command watering, 899.6 ms for monitoring orders and 461.9 ms to stop the activity. It also can process weather data from cloud services and weather shield for decision making automatic watering with an average value of 55.25 feasibility.

Keywords: plant watering, microcontroller, embedded gateway, fuzzy logic, cloud service, Internet of Things.