

ABSTRACT

This research aims to optimize the aquaponic system in Tarumajaya Village, Bandung Regency, which was established by the Physics Engineering Study Program as part of its community service activities. Currently, approximately 35 units of the aquaponic system have been built, but they still face issues such as a relatively high rate of fish mortality. According to the justification, these problems are caused by low oxygen levels, high ammonia levels, and suboptimal pH in the aquaponic system. Therefore, this research seeks to address these issues by designing and implementing an Internet of Things (IoT)-based monitoring and control system. This system focuses on monitoring dissolved oxygen levels, ammonia, nitrate, temperature, pH, and water turbidity. Additionally, an automation system is applied to maintain water quality, specifically controlling pH and water turbidity through automated filter media cleaning without manual intervention or Self-Maintenance.

Keywords : Aquaponic, IoT pH, Self-Maintenance