Analisis Pengujian Prototipe Alat Monitoring Kondisi Air Tambak Udang Vaname Menggunakan Metode Kalman Filter

Prototype Testing Analysis of Vaname Shrimp Water Condition Monitoring Tool Using Kalman Filter Method

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ABSTRACT

Indonesia is an agricultural country and most of Indonesia's population work as farmers and fishermen. The area of Indonesian waters is very large so that it has good potential in the fisheries sector, such as shrimp farming (Litopenaeus vannamei). The low production of shrimp aquaculture in Indonesia is caused by several factors, namely the weather in tropical countries which often changes which cannot be determined. Water quality control according to the vannamei shrimp's natural habitat can minimize the death of vannamei shrimp. With the increasing need for food and exports of vannamei shrimp, so that vannamei shrimp harvest failure often occurs and also contracted diseases because the quality of pond water does not meet the habitat criteria for these shrimp. So the researchers conducted research by creating a prototype pond water quality monitoring tool that can be accessed in real time. In this study, researchers used the Kalman Filter algorithm to improve the accuracy and precision of the sensors used. The parameters used are water pH, water temperature, and water salt content, so that it will help farmers in monitoring water quality. Based on the results of research using the Kalman filter method can increase the accuracy of temperature and salinity sensor values with an accuracy of 92.5% and 86.73% compared to readings from Arduino with an accuracy of 92.15% and 86.46%.

Keywords*: Indonesia, agricultural, Internet of Things, fisheries, shrimp, water quality, temperature, pH, salinity, Kalman filter, accuracy.*