

ABSTRACT

In Indonesia, chicken farmers are experiencing a crisis caused by extreme global climate change and affecting the production of chicken meat. Poultry species are very susceptible to sudden changes in temperature. An automatic system is needed to regulate the temperature and humidity of the cage. Smart farming or smart poultry farm is a cultivation concept by utilizing advances in the development of digital information and communication technology. This concept is expected to increase livestock production and quality.

This study focuses on modeling an automatic temperature control system on a smart poultry farm. By using the Backpropagation Artificial Neural Network (ANN) control method, with this control method the system is expected to be able to adapt to the temperature of the cage environment.

In this study, testing was carried out using an ANN model of 4 nodes, 8 nodes, and 12 nodes of hidden layer neurons with variations of iterations of 100, 1000, and 5000 times for 2, 4, 7, and 14 speed levels. In this test, the output value of the system is similar to the target output, namely at 2 types of output speed with the 5000th iteration using 12 neurons in the hidden layer with an accuracy of 93.3%.

Key words : ANN, Artificial Neural Network, Backpropagation, Temperature and Humidity Control, Smart poultry farm.