

ABSTRACT

Undeniably, nowadays Air Conditioner (AC) has become a necessity of modern society. Air conditioning has been found in every corner of the room such as buildings even in most people's houses. The nature of air conditioners that are turned on for a long period of time as well as the large power usage of about 350-2220 watts causes the air conditioner to be one of the electronic devices that consume the greatest power. Therefore, it takes a system that can control the air conditioning settings so that the cost of using air conditioning becomes minimal by doing the right ac settings based on the pattern recognition of the habits of a person who is in a room.

In the Final Task, AC effort setting is done using JST backpropagation method to classify into four classes namely 1, 2, 3, and 4 that correspond with effort off, low, medium, and high types. As inputs from the system are the number of people in a room, indoor and outdoor temperatures, as well as the target temperature. The data generated is a dummy with a total dataset of 1488 data. The backpropagation algorithm training process is done by trial and error to get the best results. Furthermore, the comparison of test results is based on the parameters of the number of *epoch*, hidden layer value, and activation function.

From the test results obtained the best accuracy of 99.7% for test data 100% has been trained, and 96.8% for 100% test data has never been trained. The accuracy is obtained when using parameters with the number of epoch 2000, hidden layer value [10 10], and *logsig-purelin* activation function with the required average compute the time of 0.007 seconds. The energy efficiency obtained ranges from 37% -57%.

Keywords: AC, AC effort setting, energy minimization, artificial neural network, backpropagation