

## **ABSTRACT**

*Tea plants are subtropical plants that have long been known in human civilization. This plant is cultivated in the highlands, due to the need for cool air to support the planting of tea plants. Tea plants are not resistant to drought, and therefore require areas that have fairly high and even rainfall throughout the year. The climate for proper tea cultivation is with rainfall of not less than 2,000 mm / year. This plant requires needing bright sun. The daily temperature of the tea plant is **18° C - 25° C**. The humidity needed is between **70% - 90%**. The degree of soil acidity (soil pH) needed ranges between **4.5 - 5.5**.*

*The temperature and air humidity control system in the nursery of tea plants is one of the solutions to facilitate the tea farmers in the PPTK (Tea and Cinchona Research Center) Gambung West Java in conducting nurseries of tea plants especially in terms of maintaining the temperature and humidity value of the air to remain at temperature **18° C - 25° C** and humidity in the range of **70% - 90%**.*

*The control method used in this thesis research is fuzzy logic with the help of the hysteresis method which is directly applied to the system. Based on the results of testing the temperature and air humidity control system in the nursery of tea plants, the design of the control in the simulation and the programming algorithm is minimal from error with an average error value on the test results for the temperature sensor is **0.12** and the accuracy of the sensor reaches **99.59%**, humidity sensor is **0.5625** and sensor accuracy reaches **99.16%**, and water temperature sensor is **0.3745** and sensor accuracy reaches **98.68%**. The method of control (fuzzy logic control) applied to the system has a conformity value of **99.98%**.*

**Keywords :** *The temperature and air humidity control system, Hysteresis, Fuzzy Logic.*