**Design and Development of a Prototype for Temperature and Humidity Control in Tobacco Warehouses Using the Adaptive Neuro-Fuzzy Inference System (ANFIS)**

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# ABSTRACT

*The tobacco industry in Indonesia plays a significant role in the economy. However, the monitoring and controlling systems of storage warehouses, such as those at PT. Mangli Djaya Raya Warehouse in Jember, are still conducted manually without intelligent systems, making environmental condition assessments less accurate. This study aims to develop an Internet of Things (IoT)-based system utilizing the Adaptive Neuro-Fuzzy Inference System (ANFIS) to automatically control temperature and humidity. ANFIS combines artificial neural networks (ANN) and fuzzy logic with an architecture similar to the Sugeno fuzzy model. The DHT22 sensor is used to measure temperature and humidity after undergoing a calibration process to improve accuracy. The calibration results show a Mean Absolute Error (MAE) of 1.68% for temperature and 3.16% for humidity. The ANFIS method effectively controls fans based on temperature and humidity parameters, achieving a MAE of 9 %. Implementing this system enables more adaptive and intelligent decision-making in automatically activating or deactivating fans/exhaust to prevent potential issues in tobacco storage warehouses.*

*Keywords**: *Tobacco, Monitoring, Internet of Things, DHT22, Adaptive Neuro-Fuzzy Inference System (ANFIS).*