

***Analysis of Preventive Maintenance on the Design of Tobacco Drying Shed  
Automation (Case Study of PT. Mangli Djaya Raya)***

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**ABSTRACT**

*Tobacco is one of the most valuable cash crops in many countries. Drying is an essential process in tobacco cultivation, and it usually requires manual labor to ensure proper drying conditions. However, the traditional drying method is time-consuming and labor-intensive, which can lead to significant losses in yield and quality. Therefore, this research aims to develop an automated system for tobacco drying using Wemos D1 Mini microcontroller and DHT22 and TSL2561 sensors. The proposed system consists of a Wemos D1 Mini microcontroller, DHT22 sensor, and TSL2561 sensor. The DHT22 sensor is used to measure temperature, while the TSL2561 sensor is used to measure the light intensity. The Wemos D1 Mini microcontroller is used to control the system based on the readings from the sensors. The system is designed to automatically adjust the ventilation and heating system inside the tobacco drying roof based on the humidity and light intensity readings. The system's performance is evaluated based on the drying time and quality of the tobacco produced. Moreover, the automated system provides a more consistent and controlled drying environment, which leads to better quality tobacco production. In conclusion, the proposed automated system for tobacco drying using Wemos D1 Mini microcontroller and DHT22 and TSL2561 sensors provides an efficient and effective solution to the traditional manual drying method. The system's ability to monitor and control the drying environment based on real-time data from the sensors results in a more consistent and higher quality tobacco production. This study also conducted a preventive maintenance analysis on the proposed tobacco drying automatic system. The results of the analysis show that the MTTR of the automatic drying tobacco system is around 61 minutes, while the MTBF is around 2099 minutes. From the results of this analysis it can be concluded that the system has a relatively fast recovery time and has a longer working time before failure occurs. Therefore, preventive maintenance can be performed on the system every 2099 minutes to prevent failures and maintain system performance.*

***Keywords:*** Automation, Tobacco Drying, Wemos D1 Mini Microcontroller, DHT22 Sensor, TSL2561 Sensor, Mean Time To Repair, Mean Time Between Failures.