

ABSTRAK

Pengeringan ikan asin di Desa Labuhan masih dilakukan secara tradisional dan bergantung pada cuaca, sehingga menyebabkan kualitas ikan (kering, sedikit basah, dan basah) yang tidak seragam dan waktu pengeringan lama. Penelitian ini bertujuan merancang dan mengevaluasi sistem pengering ikan asin berbasis *Internet of Things* (IoT) dengan metode *Dynamic Rule-Based* untuk mengontrol suhu dan kelembapan secara otomatis. Sistem menggunakan ESP32, sensor DHT22, *heater*, kipas DC, serta monitoring melalui *Blynk*. Pengujian dilakukan secara eksperimental pada ikan gulama dengan beberapa skenario *set point* dan dibandingkan dengan metode tradisional. Evaluasi meliputi akurasi sensor (MAE), kestabilan suhu dan kelembapan, waktu pengeringan, dan kadar air. Hasil menunjukkan sensor memiliki akurasi baik dengan MAE suhu 0,1°C dan kelembapan 0,7%. Sistem mampu menjaga suhu pada 40–60°C dan menurunkan kelembapan secara stabil. Waktu pengeringan tercepat mencapai 6,5 jam, lebih cepat dibandingkan metode tradisional 32 jam. Kadar air ikan turun dari 50% menjadi 11–13%. Penelitian ini menunjukkan bahwa metode *Dynamic Rule-Based* efektif meningkatkan efisiensi dan kestabilan pengeringan, meskipun masih terbatas pada jenis ikan dan kondisi tertentu.

Kata kunci: *IoT*, *Dynamic Rule-Based*, Pengering Ikan Asin, DHT22, ESP32

ABSTRACT

Drying of salted fish in Labuhan Village is still done traditionally and depends on the weather, resulting in inconsistent fish quality (dry, slightly wet, and wet) and long drying times. This study aims to design and evaluate an Internet of Things (IoT)-based salted fish drying system with a Dynamic Rule-Based method to automatically control temperature and humidity. The system uses an ESP32, DHT22 sensor, heater, DC fan, and monitoring via Blynk. Experimental testing was conducted on gulama fish with several set point scenarios and compared with traditional methods. Evaluations included sensor accuracy (MAE), temperature and humidity stability, drying time, and moisture content. The results showed that the sensor had good accuracy with an MAE of 0.1°C for temperature and 0.7% for humidity. The system was able to maintain the temperature at 40–60°C and reduce humidity steadily. The fastest drying time reached 6.5 hours, faster than the 32-hour traditional method. The water content of the fish decreased from 50% to 11–13%. This study shows that the Dynamic Rule-Based method is effective in increasing drying efficiency and stability, although it is still limited to certain types of fish and conditions.

Keywords: IoT, Dynamic Rule-Based, Salted Fish Dryer, DHT22, ESP32