

## ABSTRACT

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*Rice is a very strategic food commodity because it is the staple food ingredient for most of Indonesia's population. In the conventional method or the direct method, rice testing will be carried out by taking rice samples, and the rice will enter the storage stage. During the storage period, will carry out periodic checks to determine the rice's quality and duration shelf life of rice. The method proposed to classify the quality and predict rice's shelf life is to use a machine-learning artificial neural network based on the electronic nose dataset. Application development uses SDLC Prototyping to gather needs, make prototypes, evaluate prototyping, coding systems, testing systems, and evaluating systems. The programming language used is python as a machine learning model development and PHP for its interface and utilizing MySQL as a data storage area. Program testing is carried out using Black Box Testing to ensure can use program functionality properly. From the experimental results, the value is quite relevant between the classification and regression. The results of the classification of rice quality get an accuracy score of 0.9795, while the regression results get R2 0.7726 and RMSE 3.3335.*

*Keywords: Rice, Electronic Nose Dataset, Machine Learning, Neural Network*