ABSTRACT

For Indonesia, rice is a food commodity that has a strategic and important role. Considering the importance of rice, the government always strives to meet food needs and surplus rice as food reserves. The existing method related to the prediction of the shelf life of rice shows that the conventional method uses the direct method, the rice sample is tested by smelling the rice using the human sense of smell to predict the quality and how long the shelf life of rice is. The proposed method to classify the quality and predict the shelf life of rice is based on an electronic nose dataset using the nearest neighbors algorithm. Application development using SDLC Prototyping with the stages of gathering requirements, building prototyping, evaluating prototyping, coding the system, testing the system, and evaluating the system. The programming language used is python as a machine learning model development and PHP for the interface and utilizes MySQL as a data storage area, program testing is carried out using Black Box Testing to ensure that the program's functionality can be used properly. From the experimental results, it produces a value that is quite relevant between the classification and regression values. The results of the classification of rice quality get an accuracy score of 0.9915, while the regression results get R^2 0.9683 and RMSE 1.2443.

Keywords: Rice, Machine Learning, Electronic Nose Dataset, Nearest Neighbors