

ABSTRACT

Rice is the most important staple food for most of Indonesia's population. Rice is grain that has been separated from the husks. Anatomically called palea (part that is covered) and lemma (part that covers). One of the stages of processing the rice harvest, the grain is ground with a mortar or milled so that the husk of the grain is separated from its contents. This part of the content, which is white, reddish, purple, and black is called rice. The method proposed by the researchers to classify the quality and predict the shelf life of rice is to use machine learning gradient tree boosting based on the electronic nose dataset. From the results of this experiment, it produces a value that is quite relevant between the classification and prediction values. The application development method uses 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 the PHP (Hypertext Preprocessor) programming language for the interface and utilizing MySQL for data storage, program testing is carried out using Black Box testing to ensure that the program's functionality can be used properly. The experimental results produce 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 0.9225, while the regression results get R2 0.4268 and RMSE 5.2929.

Keywords: Rice, Electronic Nose Dataset, Machine Learning, Gradient Tree Boosting, Prototyping