

ABSTRACT

Air is a vital element that plays an important role in the survival of living beings. Currently, it is becoming increasingly difficult to obtain clean air, even though the need for clean air is growing as the world's population increases. The air quality report released by IQAir ranked Jakarta as the 7th out of 10 capitals with the highest levels of air pollution in the world in 2023. September 2024 data indicates that the air pollution index in the Jakarta area reached a figure of 160, categorizing it as unhealthy. The air quality in Indonesia can be determined from the measurement results of the Air Pollution Standard Index (ISPU). The application of ISPU classification requires a method that can measure the level of air pollutants. Gradient Boosting and Adaptive Boosting with GridSearchCV were used in the research as alternative methods to classify ISPU in DKI Jakarta. The results of this study show that the Gradient Boosting algorithms achieved an accuracy of 89,20%, while the Adaptive Boosting algorithm achieved an accuracy of 74,52%. Based on the results obtained in this study, the application of Gradient Boosting and Adaptive Boosting with GridSearchCV is capable of working effectively in classifying ISPU in DKI Jakarta.

Keywords: Air Pollution Standard Index, Classification, DKI Jakarta, Gradient Boosting, Adaptive Boosting