

ABSTRACT

The electrical load recognition system plays an important role in managing and saving electricity. The electrical load recognition system can obtain the relevant information of each electricity load. In electrical load recognition system, the identification of electrical loads can be classified as the identification of independent operation devices and the identification of multiple devices running simultaneously, namely the condition of the load running more than two.

In this study, the characteristics of various electrical load features in independent condition and the matching relationship between different features and different classification algorithms will be analyzed by doing a comparison between two classification algorithms, k-Nearest Neighbours and Multinomial Logistic Regression in terms of accuracy and speed of analysis process. The classification system will be used to identify unknown types, models and prerequisites of different electrical loads and classify them. The characteristics of the electrical load that will be analyzed include the magnitude of root mean square voltage and current, harmonic waves, power series, and power factor from a variety of different electrical load samples. The results of the research on the k-Nearest Neighbors method obtained an accuracy of 99.619% while the Multinomial Logistics Regression method obtained an accuracy of 91.125%.

Keywords: *Electrical Load, Classification, Machine Learning, k-Nearest Neighbours, Multinomial Logistic Regression*