

## **ABSTRACT**

*The use of electric power in a building depends on usage. The more equipment used, the greater the power will be used. Campus has a high level of electricity consumption both during working hours and non-working hours. As a result, the logistics team at Telkom University is having difficulty regulating usage regulations and causing energy waste and swelling of electricity bills every month. In this essay, a clustering system for the use of electric power will be made using machine learning with the K-Means clustering method. The clustering system is used for existing data into several groups. In testing this clustering system, I will compare the clustering of week 1 with week 2. From there, the clustering of active power data is obtained whether it is efficient or wasteful. The data that will be taken is 9720 data per 1 week. The Davies-Bouldin Index value obtained is 0.83 so that the accuracy level of the K-Means method used is quite good because the smaller the DBI value obtained (non-negative  $\geq 0$ ), the better the cluster obtained from the K-Means Clustering process. The data obtained will then be clustered into 3 color categories, namely the red group (excess use), yellow (less use), and green (normal use).*

**Keywords:** *Monitoring of Electric Power Usage, Elbow Method, K-Means Clustering*