

ABSTRACT

Along with the development of the times, the need for electricity is increasing, so it is necessary to make efforts to improve energy efficiency. There are several methods that can be done, namely with the on-off principle manually, and using the k-NN algorithm method. In this final project I use the k-NN algorithm method. The purpose of the method is to get a pattern of use of electrical equipment in a room based on user usage habits, so that with this data it can be seen the usage patterns such as the operation time of the equipment, when the equipment is not actively used.

With the k-NN algorithm method, the system classifies objects based on learning data which is the closest distance to the object. The system can automatically control the use of electric devices based on time-scheduled usage patterns and then integrated with IoT.

The design of an electrical energy efficiency system using the k-NN algorithm results in an accuracy value of 65.790% for the pattern of usage for 1 week and the pattern of usage for 1 month 2 weeks has an accuracy of 69.911%. The pattern of the use of electric tools shows that electric devices in the form of lights are the most long-term electrical appliance, for 11 hours day compared to a fan of only 9 hours day and dispensers only 4 hours day.

Keywords : Energy efficiency, IoT, k-nn algorithm