ABSTRACT

Electrical energy is energy that has become a primary need for modern humans today. As electricity consumption increases, of course, it needs to be balanced with efficient use and savings in order to reduce expenditure costs. The current waste of electricity usage is still less noticed by users due to the lack of monitoring of the use of electrical devices that are being used.

In this research, a system is designed to identify the load/electrical device that is being used, by using a machine learning model with the XGBoost (extreme gradient boosted) algorithm. System products can be applied in monitoring the use of electrical devices that are in operation so that they can find out indications of waste or excessive electricity consumption due to user negligence.

Data collection and testing of electrical devices was carried out using 4 electronic devices, namely a blender, water heater, fan and hair dryer. This research integrates EMG25, Current Transformer MSQ-30, electrical devices, USB Module RS-485 and Raspberry Pi3 for data processing, system model formation, and system testing.

This final project produces a system model from the XGBoost algorithm with an accuracy of 88.21% and is proven to be able to identify electrical devices that are operating correctly based on the characteristics of the current harmonic data on each device.

Keywords: *XGBoost, dataset, identification, electrical load, current harmonics*