

# PREDICTION AND ANOMALY DETECTION OF ELECTRICITY CONSUMPTION AT THE UIN SYARIF HIDAYATULLAH BUILDINGS

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***Abstract***— Prediction of building electricity consumption has been studied in recent years. Many approaches have been proposed aiming at accurate and robust prediction of the energy consumption. In this report, we highlight methods to make buildings and college campus more efficient in using electricity through statistical modeling. We focus on four main buildings at the Syarif Hidayatullah State Islamic University Jakarta and collect each building's kWh energy consumption on a monthly basis. Three methods are applied to the time series data, SARIMA model, Artificial Neural Network (ANN) model, and Hidden Markov Model (HMM). The results reveal that for the energy prediction problem solved here, ANN outperforms the other methods with the smallest MAPE values.

***Keywords***—*Artificial Neural Network, Energy prediction, Hidden Markov Model, SARIMA, Stochastic Model, UIN*