

ABSTRACT

In Indonesia, there is a lot of use of solar panels (photovoltaic) due to their economical use, for example, on toll roads, housing, and even the BMKG. To prepare for the increasing demand for photovoltaic power in the future, this research is needed, namely photovoltaic power prediction to determine the photovoltaic power that can be generated in a certain period. In this study, the solar panel used as an experiment is a 10 watt solar panel.

In this study, predictions were made using the ARIMA (Autoregressive Integrated Moving Average) model because the ARIMA model is one of the quality methods in predicting with certain variability conditions and no one has used this model to predict photovoltaic power in the form of a system using the Python programming language which later will provide output in the form of predictions.

In this study, we succeeded in predicting photovoltaic power output for the next 5 days using the ARIMA (Autoregressive Integrated Moving Average) prediction model. The prediction results used are certainly not 100% accurate where the prediction system has an error value. The error value is seen using MAPE (Mean Absolute Percentage Error) with an error value of 9.3%, RMSE (Root Mean Square Error) with a value of 910.1 and MSE (Mean Square Error) with a value of 710010.7. It can be said that the prediction system using the ARIMA model can be used to predict photovoltaic power for the next 5 days with a low error value so that it can prepare for increased photovoltaic power needs in the future.

Keywords: Solar panels (photovoltaic), prediction/forecasting, ARIMA (Autoregressive Integrated Moving Average), python