

## ABSTRACT

*Solar energy is an energy that can be developed and has considerable opportunities in Indonesia. The utilization of solar energy can be used continuously because solar energy is pollutive and inexhaustible. A tool that can convert sunlight into electricity directly is Photovoltaic (PV), PV power forecasting is needed to determine the electrical power generated by PV so that there is no shortage or excess power so that the optimal power is produced to supply the load. Environmental parameters or weather station systems on PV are useful for observing the weather around the PV surface and environment because the power output generated by PV can be influenced due to environmental factors such as solar irradiation, wind speed, PV surface temperature, temperature and humidity of the PV environment.*

*To predict this power using machine learning calculations Decision Tree and SARIMA method for the previous 14 days of power output data are needed to be comparative data and predict PV power for the next day at the Deli Building point (P) Telkom University. The output results of the PV power can be influenced by environmental factors such as the weather around the PV. The weather forecast around the PV environment as well as the current and voltage on the PV can be monitored directly using the monitoring website. The parameters displayed on the website can know the value of weather parameters around the PV environment such as solar irradiation, wind speed, PV surface temperature, and PV environmental temperature and humidity.*

*Based on the results of design and testing, the data system produced by the prediction of power output and environmental parameters is good because for the prediction calculation, training data has been carried out and for the environmental parameter system, calibration has been carried out first, then the data can be displayed and monitored using the website application. Data collection is taken in real time and the design of the weather station system must be designed as well as possible and resistant to all weather so that it can read the measured parameters accurately.*

*Keywords: Machine Learning, Website, Photovoltaic, SARIMA, Decision Tree, Weather Station, Environment Parameters.*