

**FORECASTING OF THE SOLAR PV SYSTEMS
MAINTAINANCE SCORE BASED ON THE FACTORS
AFFECTING ON SOLAR PLANT**

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Abstract

Predicting the sola plantation output based on it's maintenance output will generated more profitability to both industrial and residential consumers. The importance of this has increased due to it's direct production to the customers profitability. Managing the correct maintenance patterns would reduce the maintenance cost while under performance brings low production due to dust, voltage fluctuations, shadows etc. understanding the correct maintenance patterns would save unwanted maintenance schedules as well as high labor cost. In this study, several machine learning techniques were used to predict the sola plantation maintenance using the factors affecting sola power production. The techniques namely k-nearest neighbor regression, Artificial neural network (ANN), Decision tree, Random Forest, Linear Regression and Bayesian Applied Regression, The algorithms were applied on the preprocessed sola production data captured from the device magic data capturing tool, SolarEdge production monitoring tool and predicted whether data. Once applied the algorithms, the best model was selected comparing RMSE and MAPE. KNN was identified to be the best fitting models used for all the maintenance patterns. The analysis was done using azure machine learning and then the predicted values are then visualized through Power BI dashboards to present to the engineering teams. These predictions visualized through dashboards allows the maintainers team to take correct decisions at the right time while monitoring the progress of the actions. Moreover, the finalized data model allows the maintainers team to gain the cutting edge over the competitors while increasing the productions.