LITERATURE SURVEY

PROJECT TITLE : Predicting the energy output of wind turbine based on weather conditions.

TEAM ID : PNT2022TMID39908.

1.TITLE : Predicting the energy output of wind farms based on weather data.

AUTHOR : katya Vladislavleva,Tobias Friedrich,

Frank Neumann,Markus Wagner.

The main goal of this paper is to use public datato check the feasibility of wind energy prediction by using an industrial-strength off-the-shelf non-linear modeling and feature selection tool. In our study,we investigate and predict the energy production of wind farm WOOLNORTH in Tasmania,Australia based on publicly available data. The energy production data is made publicly available by the Australian Energy Market Operate (AEMO) in real time to assist in maintaining the security of the power system. For the creation of our models and the prediction ,we associate the wind farm with the Australian weather station,located at the Cape

Grim,Tasmania. It data is available for free for a running observation time window of 72 hrs.

2.TITLE : Current methods and advances in forecasting of wind energy power generation.

AUTHORS : Aoife M.Foley,Paul G. Leahy, Antonino Marvuglia,Eamon J.McKeogh.

The goal of weather research is to focus on instantaneous weather phenomena as much as possible , the focus of climate research is on the average state over certain time and space scales. The content of weather research concerns the precise evolution process of the weather, and the content of the climate research concerns the balancing and conversion of energy.

3.TITLE : Forecasting method of monthly wind power generation based on climate model and long short-term memory neural network.

AUTHORS : Rui Yin, Dengxuan Li, Yifeng Wang, Weidong Chen.

This paper presents a monthly wind power generation forecasting method based on a climate model and LSTM neural network.The theoretical power generation is normalized by the installed capacity to obtain the utilization hours of each historical month. This data is input into the LSTM neural network model together with the meteorological information ,so as to establish a nonlinear mapping model between the meteorological elements and wind power monthly utilization hours. In view of the meteorological data predicted for the future and new installed capacity planning, the monthly wind power generation forecast results are output. The case study shows the effectiveness of the prediction method.

4.TITLE : Deep learning to predict the generation of a wind farm.

AUTHORS : J.M.Torres,R.M.Aguilar,K.V.Zuniga-Meneses

This paper considers the problem of improving the predicted generation of the made

wind park run by the ITER by using deep learning techniques,due to the increased relevance that said techniques have had in recent years.

5.TITLE : Wind power forecasting by the BP neural network with the support of Machine Learning.

AUTHORS : Weihua Tian, Yan Bao and Wei Liu.

The goal of the research is to increase the accuracy of wind power forecasts while maintaining the power systems stability and safety . 1st ,the wireless sensor network (WSN) is used to collect the meteorological data of wind power plants in real-time.

6.TITLE : Wind power generation based on Machine Learning and Deep Learning.

AUTHORS : Zahraa Tarck ,Mahmoud Y.Shams.Ahmed M.Elshewey,El-Sayed M.El-Kenawy, Abdelhameed Ibrahim, Abdelaziz A.Adellhamid, Mohamed A.El-Dosuky.

Wind forecasting data is used in this study to test the proposed optimized LSTM models efficiency. A new optimization technique is used to optimize the parameters of the LSTM network. To improve the exploration and exploitation and capabilities of the PSO optimizer, this optimization strategy utilizes both the PSO optimizer and SFS to generate stochastic groups of agents. The future of this study entails testing the suggested techniques on different datasets and assessing its applicability to the other prediction tasks.

7.TITLE : Wind power generation predicting using Machine Learning Algorithms.

AUTHORS : Ozlem Ece Yurek, Derya Birant.

Renewable energy production prediction is crucial to meet the increasing energy demand. Renewable energy becomes increasingly popular in the world and wind energy is one of the most significant resources of renewable energy . Energy needs can be predicted based on historical data and it is very important for

improving energy-saving strategies to plan and manage energy transmission,generation,anf distribution. Especially,wind energy has attracted worldwide attention to the generation of electricity. Machine learning techniques are presented to provide increasingly accurate predictions in the energy sector to know the consumption and production amount and habits.

8.TITLE : Wind power prediction using Machine Learning techniques

AUTHORS : Aneela Zameer, Farah Shahid,Muhammad Javed Iqbal.

This paper presents machine learning techniques for short -term wind speed prediction by exploiting their computational intelligence capabilities such as random forest regression(RFR),support vector regression(SVR),radial basis function neural networks(RBFNN),and long short-term(LSTM) on various wind farm datasets located in Pakistan.Initially,prediction are obtained by

employing baseline regressors,RFR and RBFNN in terms of error indices.

9.TITLE : Ultra-short-term wind speed prediction based on variational mode decomposition and optimized extreme learning machine.

AUTHORS : Lian Lian,Kan He

The main purpose of this paper is to improve the prediction accuracy of ultra short term wind speed. It is difficult to predict the ultra short term wind speed because of its unstable, non-stationary and non-linear. Aiming at the unstable and non-stationary characteristics of ultra short term wind speed,the variational mode decomposition algorithm is introduced to decompose the ultra short term wind speed data,and a series of stable and stationary components with different frequencies are obtained.

10.TITLE : A novel genetic LSTM model for wind power prediction.

AUTHORS : Farah Shahid,Asifu, Aneela Zameer,Muhammad Muneeb.

Variations of produced power in windmills may influences the appropriate integration in power driven grids which may disrupt the balance between the electricity demand and its production.
Consequently,accurate prediction is extemely preferred for planning reliable and effective execution of power systems and to guarantee the continuous supply.