Ideation Phase

Literature Survey on The Selected Project & Information Gathering

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| Date | 07 October 2022 |
| Team ID | PNT2022TMID17876 |
| Project Name | **Project –** Predicting the energy output of wind turbine based on weather condition |
| Maximum Marks | 4 Marks |

Literature Survey:

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| **S.no** | **Title** | **Author** | **Description** | **Advantages** | **Disadvantages** |
| 1. | Predicting Linearised Wind Resource  Grids using Neural Networks | Helen Sheehan, Elizabeth Traiger | Grid-Kernel Neural Network approach has been developed .  WAsP is an  Industry standard software for modelling the air flow. | Successfully predicts the orographic speed  and direction changes. | GKNN produced poor predictions at 100 m AGL |
| 2. | Renewabe Energy Prediction through Machine Learning Algorithms | Luisa Fernand Jimenez Alvarez | Multi layer perceptron with 100 hidden layers, one random state and max iterations of 1000 | algorithm was able to portray the most accuracy in MSE and MAE | MLP accuracy resulted insufficient, hence unable to formulate the optimal decision intended. |

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| 3. | Energy conversion and management | Inci Okumus | adaptive neuro fuzzy inference system and an Artificial neural network for  1 h ahead wind speed forecasts using statistical prediction methods | For lesser forecast prediction the error will be less | accuracy goes down after 6 hour and MAPE rises upto 15% |
| 4. | Exploiting deep learning fro wind power forecasting based on big data analytics | Sana Mujeeb | Wavelet Packet Transform (WPT) - used to decompose the past wind power signals.  EDCNN - employed to forecast wind  power. | EDCNN is developed to accurately predict the day-ahead hourly wind power | Cannot distinguish between day time and night time to determine the current wind condition |
| 5. | Bayesian CNN-BiLSTM and Based Probabilistic Forecasting Wind Power  Outputs | Mingzh | Bayesian CNN method, which allows for a more accurate probabilistic forecasting of wind speed and wind direction. | CNN is less prone to overfitting issues.  In a Bayesian Neural Network (BNN), reduce uncertainties modelled process | The accuracy of Seq2Seq model is lower for the forcasted mean  Values |
| 6. | Seasonal Analysis and Prediction of Wind Energy Using  Random Forests | Yujie Lin, Kruger | Artificial Neural Network - nonlinear modeling and  Random Forest performs process on the random subset at each node. | The random forest method produced  more accurate models for the same model structure. | Random forest quite slow to create predictions once they are trained |