

Project Design Phase-I Proposed Solution Template

Date	15 November 2022
Team ID	PNT2022TMID05596
Project Name	Predicting The Energy Output Of Wind Turbine Based On Weather Condition
Maximum Marks	2 Marks

Proposed Solution:

These solution template relates the current situation to a desired result of this project and also describe the benefits acquire when desired result is achieved.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<ul style="list-style-type: none"> ❖ In today's power grid, the spread of wind energy has been booming ❖ For a wind farm which converts the wind power to electrical energy, a big challenge is to accurately predict the wind power in spite of climatic fluctuations. ❖ Only accurate estimates of upcoming energy productions can compensate for the growing integration of wind turbines into the electricity system.
2.	Idea / Solution description	<ul style="list-style-type: none"> ❖ Wind power is calculated based on: weather conditions (wind speed, wind direction, pressure, temperature, dewpoint, relative humidity) ❖ The technique incorporated in our project is deep learning. ❖ Bi-LSTM (Bidirectional Long Short Term Memory), a special kind of Recurrent Neural Network (RNN) is a deep learning model which makes use of multiple hidden layers to train the model and provide accurate results. ❖ The trained models are rendered and made available on the web server.
3.	Novelty / Uniqueness	<ul style="list-style-type: none"> ❖ Compatible with all devices. ❖ Our Deep Wind has 3 different modules: <ul style="list-style-type: none"> o User defined values Prediction o Future Forecasting o City based Prediction. ❖ Provides an interactive interface with a simple visualization tool.
4.	Social Impact / Customer Satisfaction	<ul style="list-style-type: none"> ❖ Help power monitoring at different scales of analysis [from the big areas to small]. ❖ Quick results.
5.	Business Model (Revenue Model)	This model can be developed by minimum cost at the same time it will provide the peak performance, higher accuracy and the result will be more effective than traditional techniques.
6.	Scalability of the Solution	Customers need not spend a lot of time and effort in sensors based prediction websites to forecast the forest fire.