

Project Initialization and Planning Phase

Date	15 March 2024
Team ID	SWTID1720171463
Project Title	Predicting The Energy Output Of Wind Turbine Based On Weather Condition
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	The main objective is to predict the energy output of wind turbine in any location based on weather condition.
Scope	The project enhances the prediction of energy output of wind turbine using machine learning
Problem Statement	
Description	The project aims to predict the energy output of a wind turbine based on weather conditions. This is valuable for energy companies and grid operators to better manage and optimize energy production. By analyzing historical data of weather conditions and energy output, machine learning models can be trained to predict the energy output of a wind turbine given current weather conditions.
Impact	This is valuable for energy companies and grid operators to better manage and optimize energy production
Proposed Solution	
Approach	Employing machine learning techniques to analyse and predict this model
Key Features	1. Time and Seasonal Adjustments: Incorporating the time of day and seasonal variations allows the model to account for daily and seasonal weather patterns, which can significantly affect energy output.

	<p>2.Maintenance and Operational Data: Including maintenance records and operational data can help the model adjust for variations in turbine performance due to wear and tear or recent repairs.</p> <p>3.Geographic Customization: The solution can be tailored to specific geographic locations, considering factors such as altitude and local terrain, which influence wind patterns and energy generation.</p>
--	--

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2 x NVIDIA V100 GPUs
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy
Development Environment	IDE, version control	Jupyter Notebook, Git
Data		
Data	Source, size, format	Kaggle dataset, 10,000 images