**Project Design Phase-I Solution Architecture**

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| Date | 19 September 2023 |
| Team ID | NM2023TMID05031 |
| Project Name | Solar Panel Forecasting |
| Maximum Marks | 4 Marks |

**Proposed solution:-**

The proposed solution for a solar panel forecasting project typically involves using a combination of weather data, historical solar generation data, and machine learning algorithms to predict future solar energy production.

This can be broken down into several steps:

**1)Data Collection:**

Gather historical solar panel production data, weather data, and other relevant information. This data will be used for training and testing the forecasting model.

**2)Feature Engineering:**

Extract relevant features from the data, such as temperature, cloud cover, time of day, and seasonality patterns. These features will be used as input variables for the forecasting model.

**3)Machine Learning Model Selection:**

Choose an appropriate machine learning model for the task. Common choices include time series forecasting methods, regression models, and neural networks.

**4)Training and Validation:**

Train the selected model using historical data and validate its performance on a separate dataset to ensure accuracy and reliability**.**

**5)Real-Time Data Integration:**

Implement a system for collecting real-time weather data and integrating it into the forecasting model to make up-to-the-minute predictions**.**

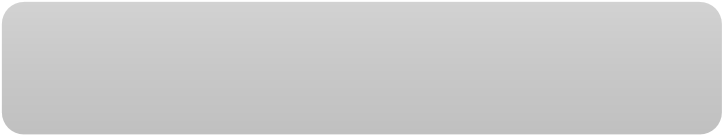
**6)Deployment:**

Deploy the forecasting model into the solar panel system to continuously provide predictions of solar energy generation**.**

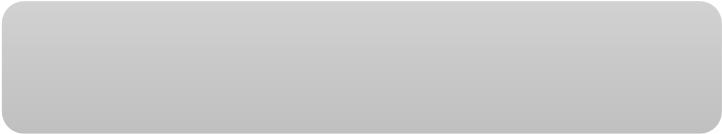
**7)Monitoring and Maintenance:**

Continuously monitor the model's performance and retrain it periodically to account for changing conditions.

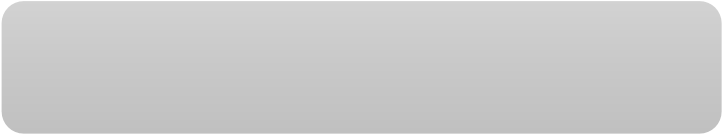
**Solution Architure:**



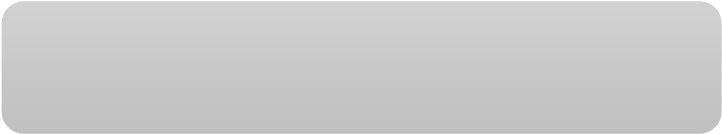
Data sources



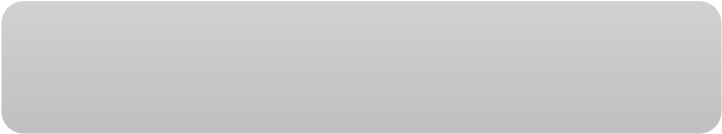
Data Collection



Feature Engineering

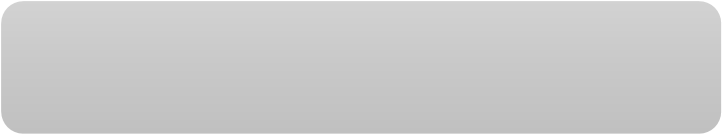


Machine Learning Model Selection



Training and

Validation

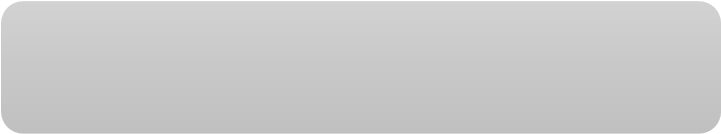


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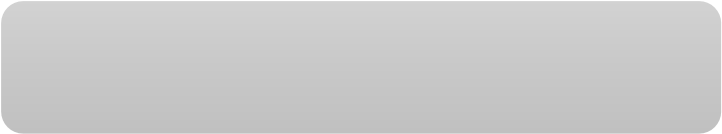
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Time Data Integration



Deployment



Monitoring and

Maintenance

