

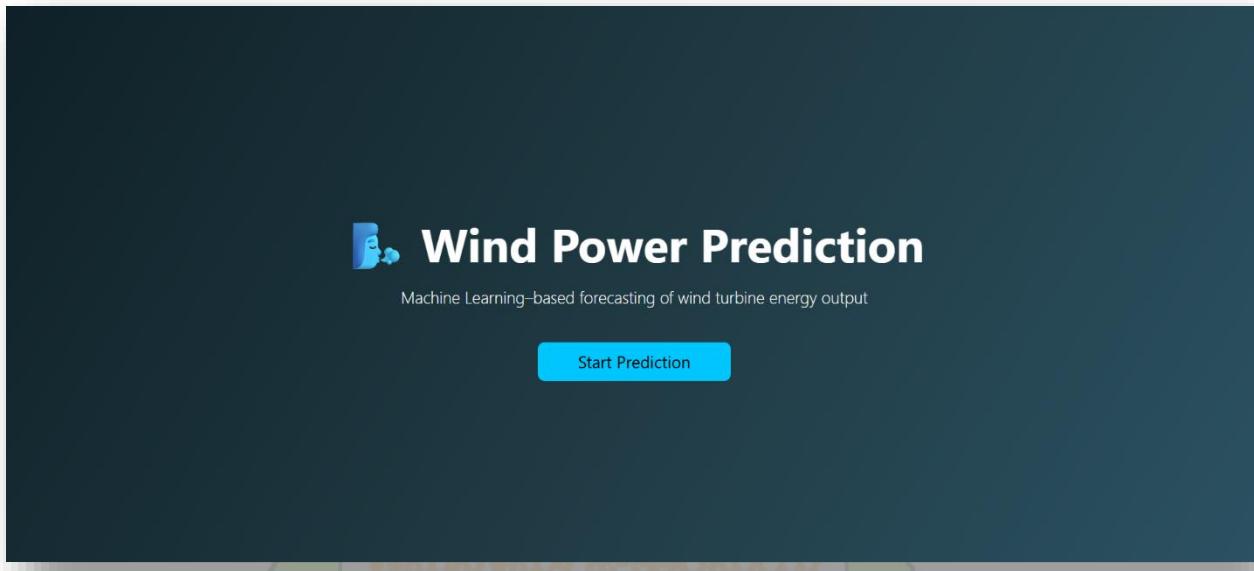
Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management

Chapter 8

Results

8.1 - Output Screens:

Home Page:



Prediction page:

A screenshot of the prediction page. The background features a stylized graphic of a wind turbine with yellow and green blades against a light blue sky. The main title "Wind Energy Prediction Dashboard" is centered at the top in a blue font. Below the title, the page is divided into two main sections. On the left, under the heading "Live Weather Data", there is a text input field labeled "Enter City Name" and a green button labeled "Fetch Weather". On the right, under the heading "Power Output Prediction", there are four input fields: "Wind Speed (m/s)", "Hour (0-23)", "Month (1-12)", and "Day of Year (1-365)". At the bottom right of this section is a blue button labeled "Predict Energy Output".

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Input for  Live Weather Data:

 Wind Energy Prediction Dashboard

 Live Weather Data

Tirupati

Fetch Weather

 Power Output Prediction

Wind Speed (m/s)

Hour (0–23)

Month (1–12)

Day of Year (1–365)

Predict Energy Output

Output:

 Wind Energy Prediction Dashboard

 Live Weather Data

Enter City Name

Fetch Weather

Temperature: **297.72°C**

Humidity: **65%**

Pressure: **1014 mmHg**

Wind Speed: **2.06 m/s**

 Power Output Prediction

Wind Speed (m/s)

Hour (0–23)

Month (1–12)

Day of Year (1–365)

Predict Energy Output

ESTD-2001

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Input for ⚡ Power Output Prediction:

The screenshot shows the 'Wind Energy Prediction Dashboard'. On the left, under 'Live Weather Data', there is a field to 'Enter City Name' and a green 'Fetch Weather' button. Below this, it displays current conditions: Temperature: 297.72°C, Humidity: 65%, Pressure: 1014 mmHg, and Wind Speed: 2.06 m/s. On the right, under 'Power Output Prediction', there are four input fields: 'Wind Speed (m/s)' with value 2.06, 'Hour (0-23)' with value 20, 'Month (1-12)' with value 2, and 'Day of Year (1-365)' with value 46. A blue 'Predict Energy Output' button is at the bottom.

Output:

The screenshot shows the 'Wind Energy Prediction Dashboard' with the same layout as the input screen. The 'Live Weather Data' section is identical. In the 'Power Output Prediction' section, the input fields are empty. Below the input fields, a green box displays the result: 'The energy predicted is 0.18 KWh'.