

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

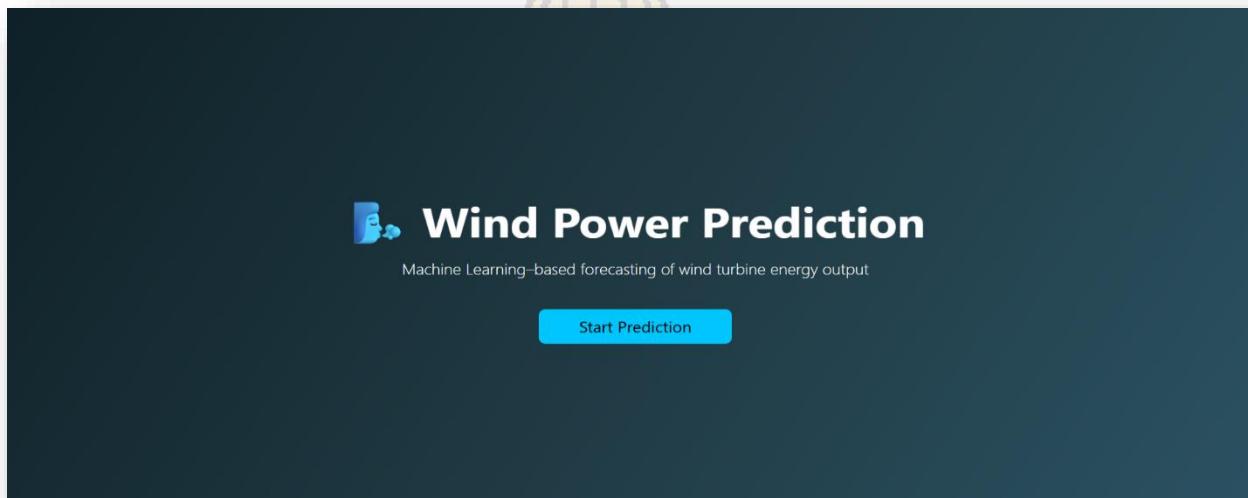
DATE	28-02-2026
TEAM ID	LTVIP2026TMIDS90651
PROJECT NAME	Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management
MAXIMUM MARKS	5 MARKS

Chapter 7

Functional and Performance Testing

7.1 - Functional and Performance Testing:

Home Screen:



Prediction Screen:

The image shows the prediction screen of the "Wind Energy Prediction Dashboard". The background features a yellow graphic of a person's head and shoulders with hands raised, forming a 'V' shape. The title "Wind Energy Prediction Dashboard" is at the top. On the left, there is a section for "Live Weather Data" with a "Fetch Weather" button. On the right, there is a section for "Power Output Prediction" with input fields for "Wind Speed (m/s)", "Hour (0-23)", "Month (1-12)", and "Day of Year (1-365)". A large blue "Predict Energy Output" button is at the bottom right. The overall interface is user-friendly and designed for mobile devices.

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Output Screen:

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)

2.06

Hour (0–23)

20

Month (1–12)

2

Day of Year (1–365)

46

Predict Energy Output

Wind Energy Prediction Dashboard

Live Weather Data

Enter City Name

Fetch Weather

Power Output Prediction

Wind Speed (m/s)

Hour (0–23)

Month (1–12)

Day of Year (1–365)

Predict Energy Output

The energy predicted is **0.18 KWh**