Project Design Phase
Solution Architecture

Date	15 February 2026
Team ID	LTVIP2026TMIDS80318
Project Name	Weather-Based Prediction of Wind Turbine Energy Output: A Next-Generation Approach to Renewable Energy Management
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture defines how the proposed system addresses the problem by mapping business requirements to technical components. The architecture of the proposed system integrates real-time weather data, machine learning-based prediction, and a web-based user interface to provide accurate wind energy output forecasts. Its goals are to:

- Predict wind turbine energy output using weather parameters.
- Provide real-time weather information for user-selected cities.
- Offer an easy-to-use web interface for interaction.
- Enable scalability for future enhancements such as advanced models and additional data sources.

Example - Solution Architecture Diagram:

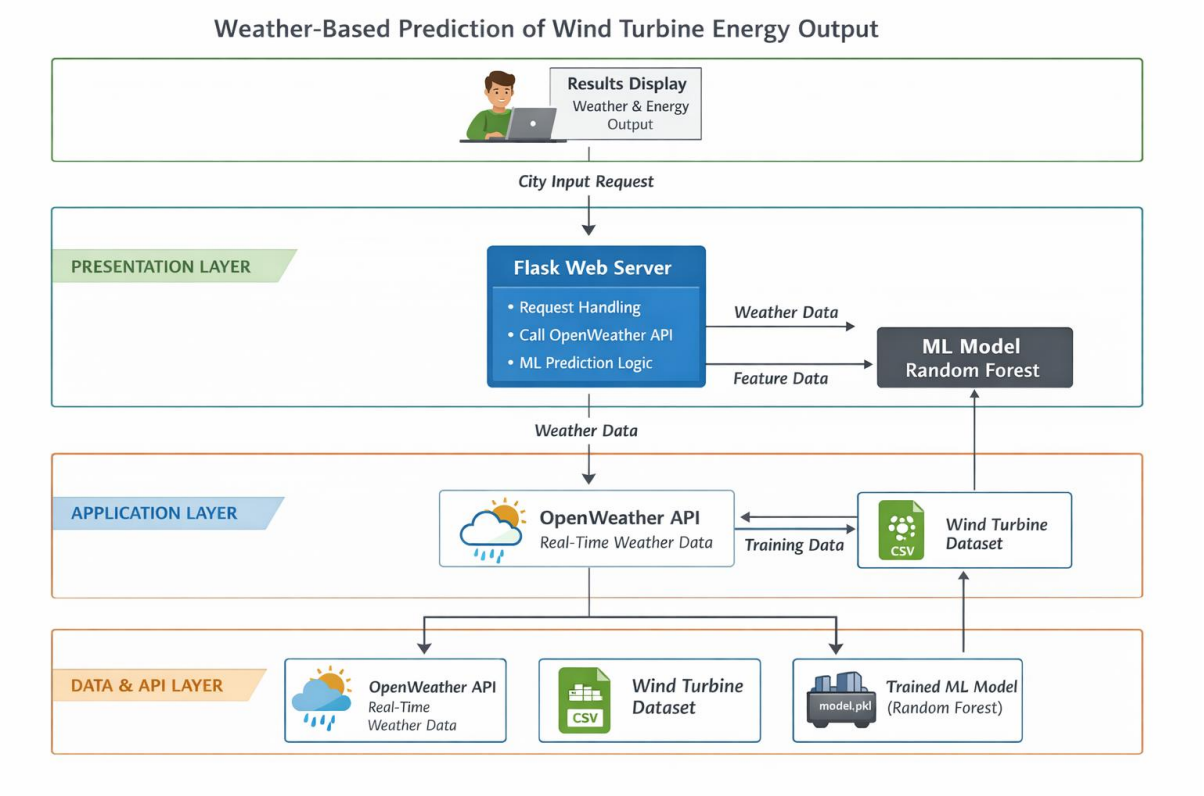

Figure 1: Architecture and data flow of the Weather-Based Wind Turbine Energy Prediction System