# PROBLEM STATEMENT

The wind power generation is increasing rapidly and the availability of wind energy depends on the wind speed, which is a random variable. This highly depends on the weather condition at that place. In our project, we propose an intelligent technique for forecasting wind speed and power output of wind turbine from several hours up to specific hours ahead. We will carry out this problem on publicly available weather and energy data sets correlating and considering different features in our project. This will enable us to cut down on the production cost and collaborate on different energy source more efficiently. The energy output of the wind energy is obtained with the help of the following parameters

1)ActivePower,

2)AmbientTemperature,

3)BearingShaftTemperature,

4)Blade1PitchAngle,

5)Blade2PitchAngle,

6)Blade3PitchAngle

7)ControlBoxTemperature,

8)GearboxBearingTemperature,

9)GeneratorRPM,

10)GearboxOilTemperature,

11)GeneratorWinding1Temperature,

12)GeneratorWinding2Temperature,

13)HubTemperature,

14)MainBoxTemperature,

15)NacellePosition,

16)ReactivePower,

17)RotorRPM

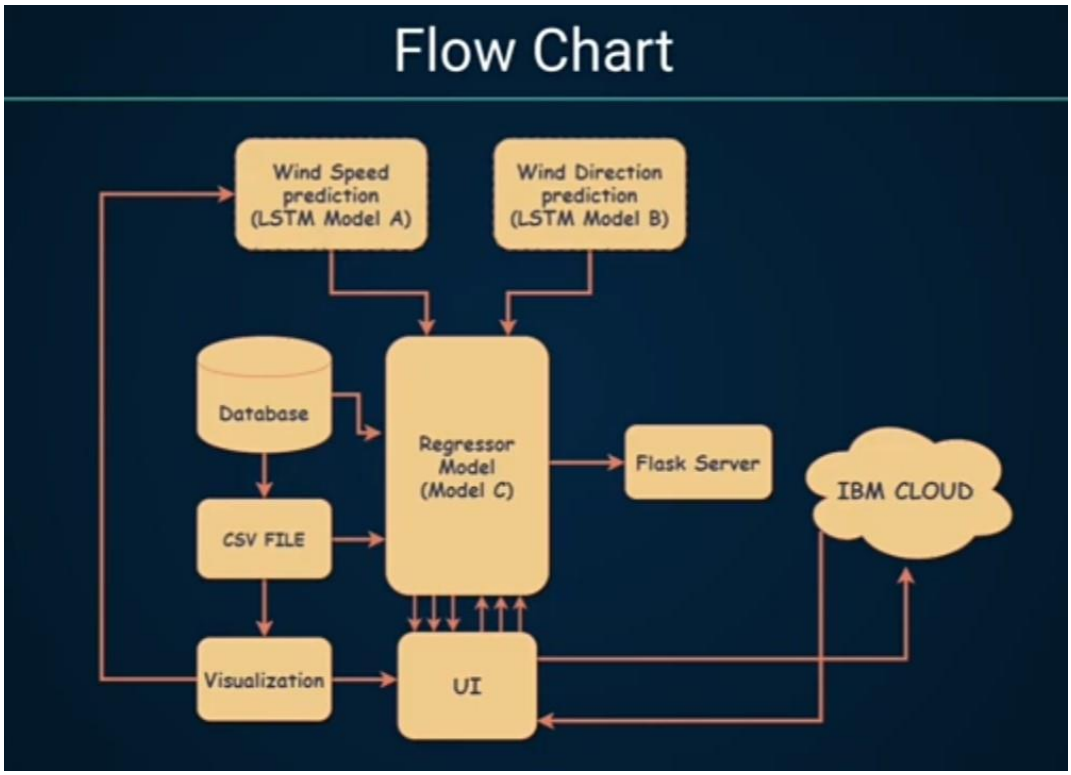
18)TurbineStatus,

19)WTG,

20)WindDirection,

21)Wind Speed.

# Model for Wind Power Generation Application




| Question | Description |
|---|---|
| **Who does the problem affect?** | The user who wants to browse the energy output of the wind which is formulated with the help of AI |
| **Why is it important to use?** | It is important and easy for a user to browse with the help of AI and analyse the WindSpeed, WindDirection and PowerOutput of the flow of the wind. |
| **What are the benefits?** | We have developed an application which can forecast the wind power of the future leveraging AI tools and powerful visualization |
| **How is it better than the others?** | Application with interactive UI with optimized model with higher accuracy to predict the energy output of the wind energy's accurate parameters. |
| **Where to use?** | The scenario where we want to browse the energy outputs of the wind turbine. |