Predicting The Energy Output Of Wind Turbine Based On Weather Condition Using IBM Cloud

- HRITIK MITRA(18BEI0156)
- RISHITHA TAMMA(18BCD7116)
- SOUMYA S. NAIR
- TRIPTI MISHRA (18BCE0888)

Introduction:

- We are going to deploy an application that will utilize multiple Watson AI Services including Cloud function, Watson Machine Learning,Weather Data.
- During the course of this project,we'll learn about combining Watson services, and how they can build customer satisfaction interactive portals for prediction on current conditions.

Problem Statement:

- Wind power generation differs from conventional thermal generation due to stochastic nature of wind.
- Wind power forecasting plays a key role in dealing with the challenges of balancing supply and demand in any electricity system.
- Accurate wind power forecasting reduces the need for additional balancing energy and reserve power to integrate wind power.
- In this system, the inlet condition of the wind farm is forecasted by the autoregressive model.

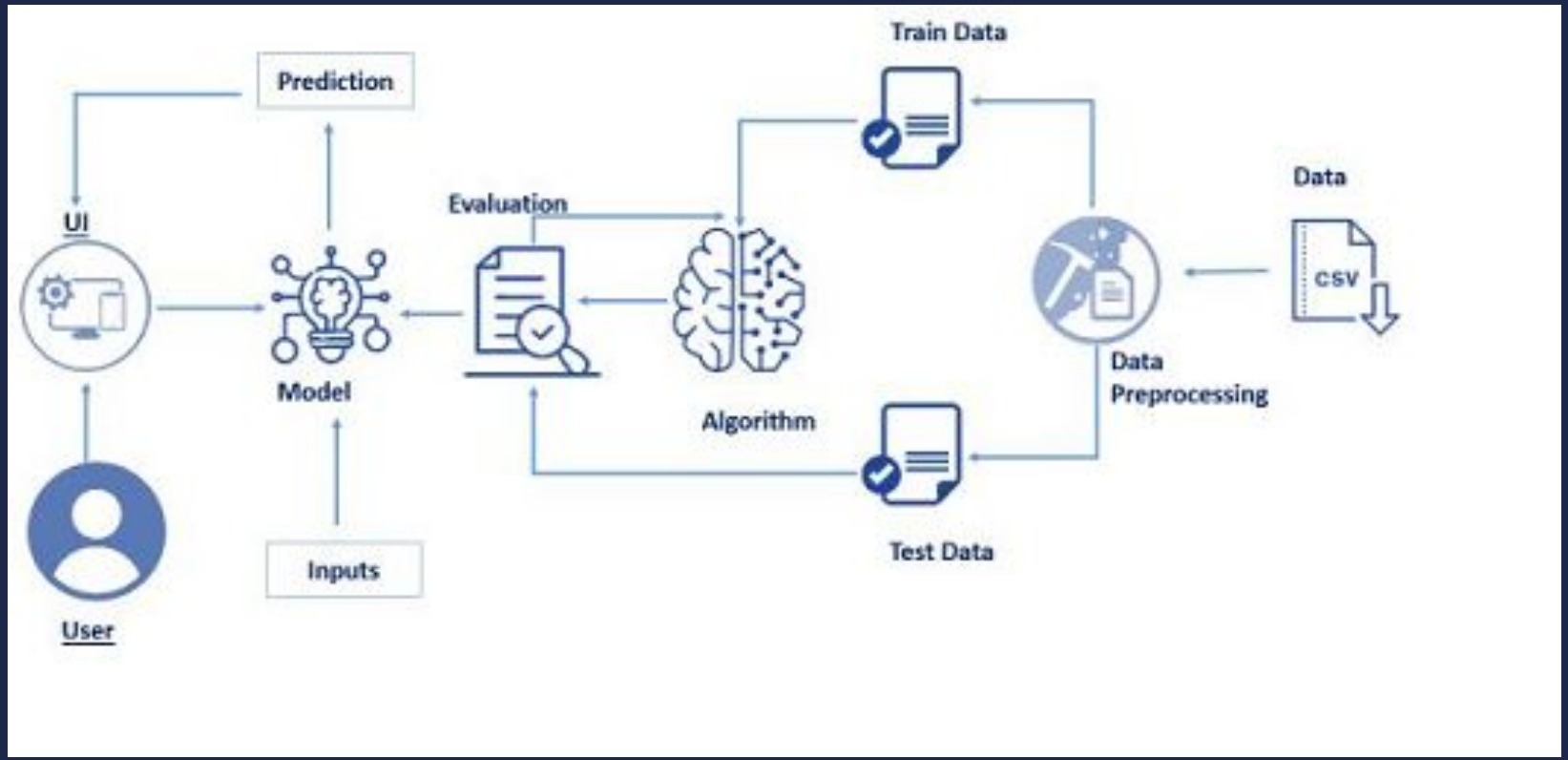
Hardware/Software Requirements

- Cloud tool used: IBM
- IDE: Jupyter notebook, Spyder, Anaconda navigator
- Dependencies Required: Keras, Tensorflow, OpenCv
- Programming language(Back-end): Python 3.7
- Front-end: Html/css
- Framework:Flask

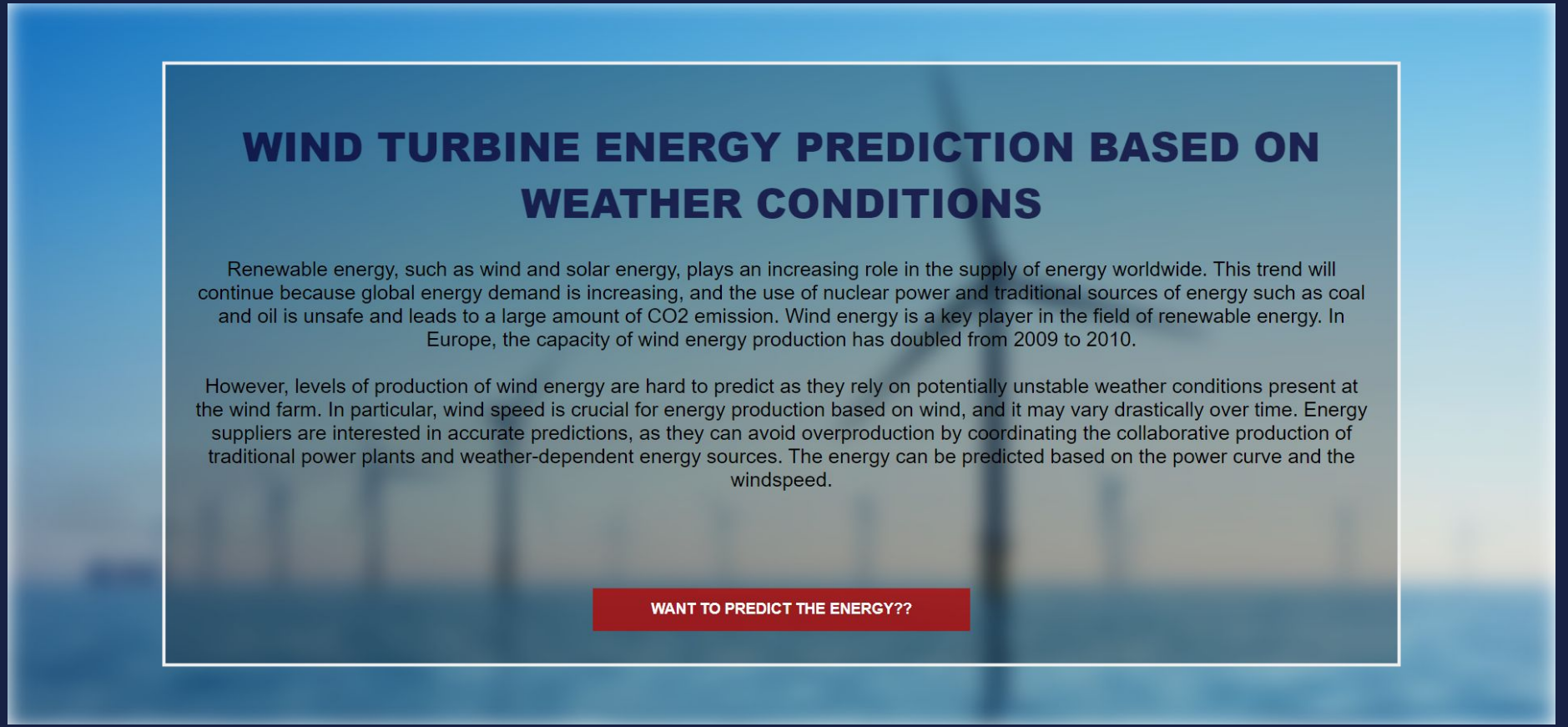
Advantages:

- Reduces man power.
- Easy to use and has a user friendly interface.
- The weather conditions analysis that are not manually answered are responded to by the web dashboard.
- Results can be improved by training data to our choice of parameter.
- Weather analysis of different cities need not to be monitored.
- Can be used in areas with less connectivity as well.
- Cost efficient.
- Accurate results.

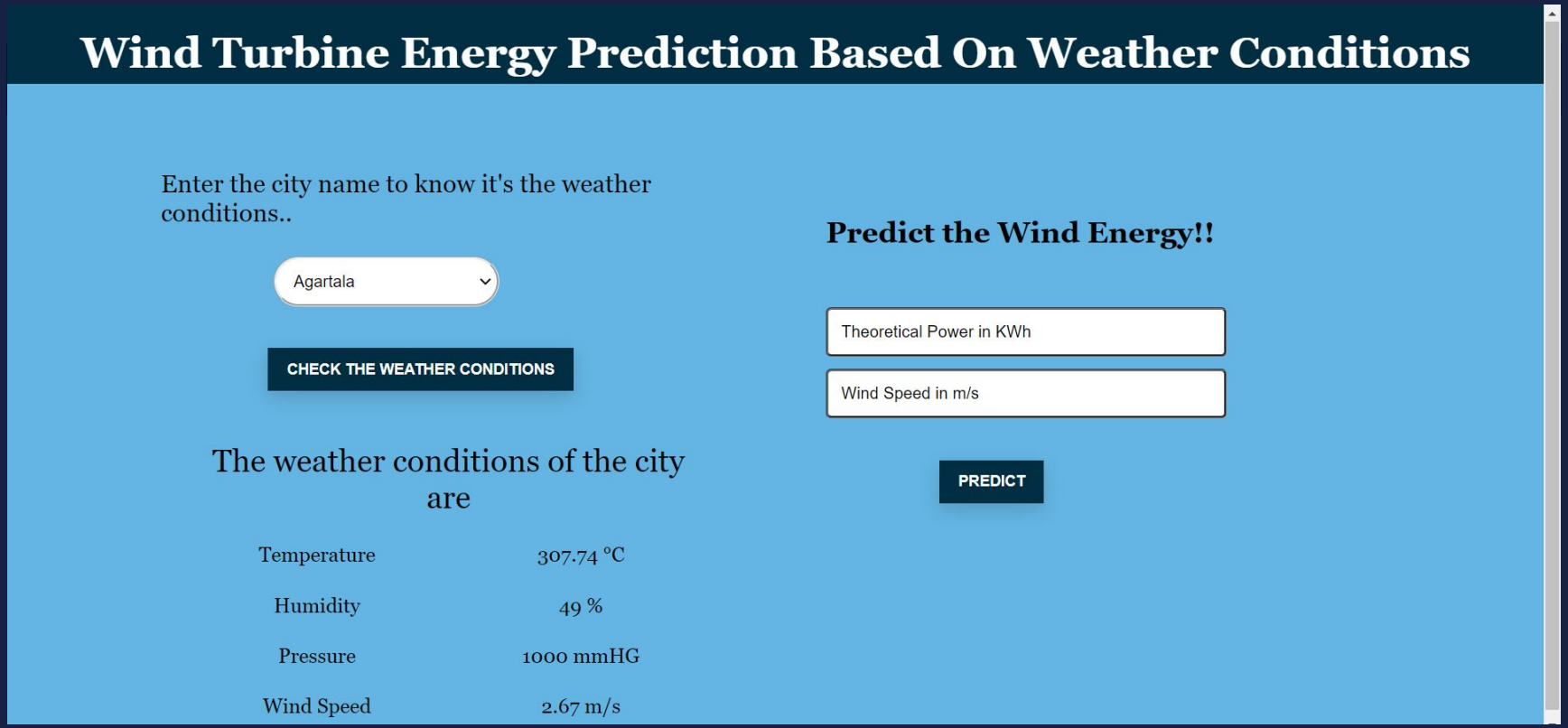
Block Diagram



UI screenshot:



UI screenshot:



THANK YOU