

PREDICTION OF ELCTRICAL OUTPUT POWER OF COMBINED CYCLE POWER PLANT

Introduction The Combined Cycle Power Plant or combined cycle gas turbine, a gas turbine generator generates electricity and waste heat is used to make steam to generate additional electricity via a steam turbine. The gas turbine is one of the most efficient use for the conversion of gas fuels to mechanical power or electricity. The use of distillate liquid fuels, usually diesel, is also common as alternate fuels. More recently, as simple cycle efficiencies have improved and as natural gas prices have fallen, gas turbines have been more widely adopted for base load power generation, especially in combined cycle mode, where waste heat is recovered in waste heat boilers, and the steam used to produce additional electricity. The basic principle of the Combined Cycle is simple: burning gas in a gas turbine (GT) produces not only power, which can be converted to electric power by a coupled generator, but also fairly hot exhaust gases. Flueing these gases through a water-cooled heat exchanger produces steam, which can be turned into electric power with a coupled steam turbine and generator.

Ambient Temperature(AT):

25.35

Ambient Pressure(AP):

45.36

Exhaust Vacuum(V):

54.36

Relative Humidity(RH):

4

Predict

```
1 from flask import Flask, render_template, request # Flask is a application
2 # used to run server our application
3 # request is used to access the file which is uploaded by the user in our application
4 # render_template is used for rendering the html pages
5 import pickle # pickle is used for serializing and de-serializing Python object struc
6
7 model = pickle.load(open('C:/Users/raj/Desktop/Telegram Desktop/Desktop/Flask/Flask
8
9 app=flask(__name__)
10
11 @app.route('/') # rendering the html template
12 def home():
13     return render_template("index.html")
14 @app.route('/predict') # rendering the html template
15 def index():
16     return render_template("index.html")
17
18 @app.route('/data_predict', methods=['POST']) # route for our prediction
19 def predict():
20     AT = request.form['AT'] # requesting for age data
21     AP = request.form['AP'] # requesting for gender data
22     V = request.form['V'] # requesting for blood_sugar data
23     RH = request.form['RH'] # requesting for blood_sugar data
24     # converting data into float format
25     data = [[float(AT), float(AP), float(V), float(RH)]]
26     # Loading model which we saved
27     model = pickle.load(open('C:/Users/raj/Desktop/Telegram Desktop/Desktop/Fl
28     prediction= model.predict(data[0])
29     return render_template("index.html", prediction_text = "Prediction of electric o
30
31 if __name__ == '__main__':
32     app.run()
```

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Python 3.9.13 (main, Aug 25 2022, 23:51:58) [AMD64]

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Python 3.9.13 -- An enhanced Interactive Python.

In [1]:



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```
In [12]: import pandas as pd

In [13]: import numpy as np

In [14]: import matplotlib.pyplot as plt

In [15]: import seaborn as sns

In [16]: import pickle

In [17]: data=pd.read_csv('f:/notebook/dev/prediction/telabs02_gp.csv')

In [18]: data.head()
Out[18]:
```

	AT	V	AP	HH	PE
0	14.86	41.75	1024.07	73.17	463.26
1	25.16	62.96	1020.04	59.08	444.17
2	3.11	36.40	1012.16	62.14	468.96
3	25.88	57.22	1010.24	76.94	445.40
4	19.62	37.30	1009.23	66.62	472.80