LAB 1 - GOOGLE COLAB

De modificat doar Px si nr de la finalul .pdf

smx4=pd.read\_csv("/content/drive/MyDrive/Colab\_Notebooks/Log1-UPB-TEST-010-20190107.txt", delimiter = "\t")

with open('/content/drive/MyDrive/Colab\_Notebooks/data\_one\_day.pickle', 'wb') as handle:

    pickle.dump(smx4, handle)

smx4

t = np.arange(0, 24, 1/3600)

P\_smx4 = smx4['P']

P\_smx4

U\_smx4 = smx4['U1']

U\_smx4

plt.figure(figsize=(12, 6)) # Optional: make the plot bigger

plt.plot(t, P\_smx4)

plt.xlabel('Time [hours]')

plt.ylabel('Power P [watt]')

plt.title('Power vs Time')

plt.grid(True)

plt.show()

P\_smx4.describe()

def p\_medie(semnal, interval):

    n = len(semnal)

    media = np.zeros(n)  # Array to store the means, same size as input

    for i in range(0, n, interval):

        # Ensure we don't go out of bounds

        interval\_mean = np.mean(semnal[i:i + interval])

        media[i:i + interval] = interval\_mean

    return media

P4\_1h\_mean = p\_medie(P\_smx4, 3600)

plt.figure(figsize=(8, 2))

plt.xlim(0,25)

plt.plot(t, P4\_1h\_mean)

plt.xlabel('Time (hours)', fontsize=14, fontname='sans')

plt.xticks(fontsize=16)

plt.plot(t, P\_smx4)

plt.savefig('/content/drive/MyDrive/Colab\_Notebooks/Figures/figure.ending.in.07.pdf', format='pdf', dpi=1000)

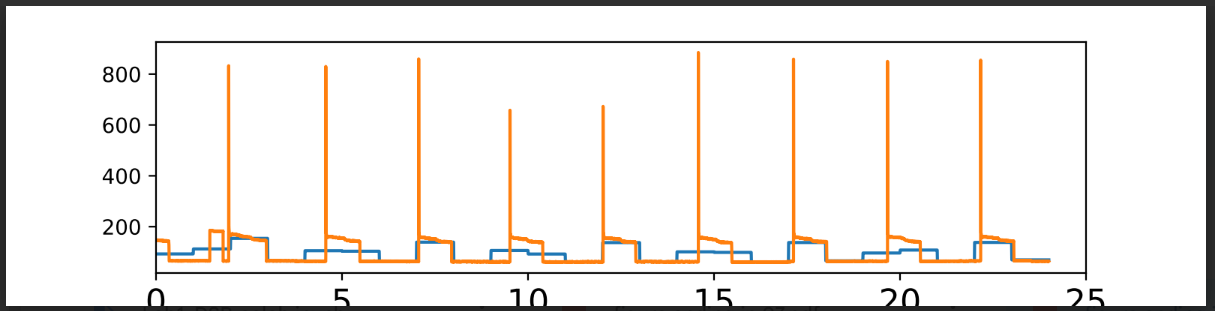


Figure ending in 4 & smx1

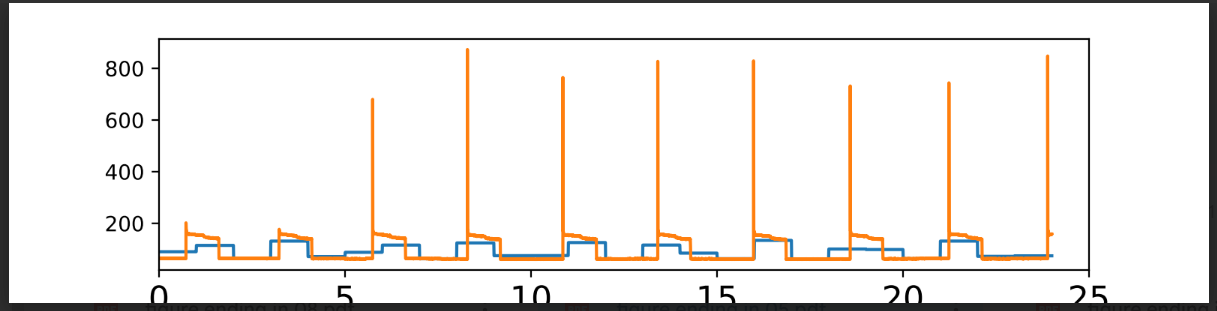


Figure ending in 5 & smx2

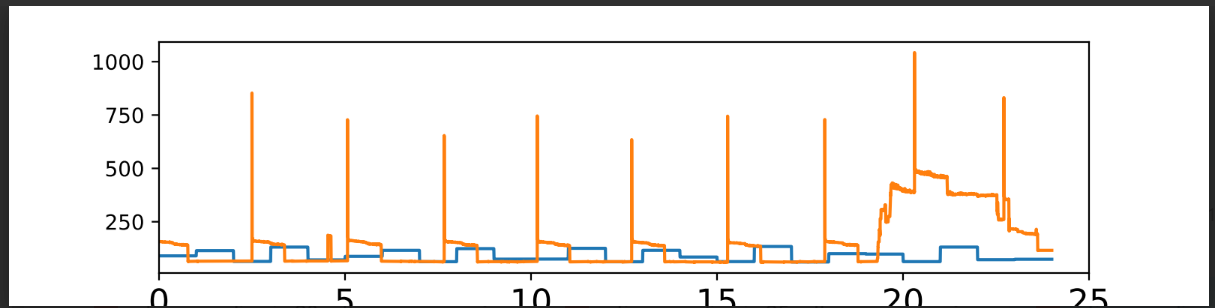


Figure ending in 6 & smx3

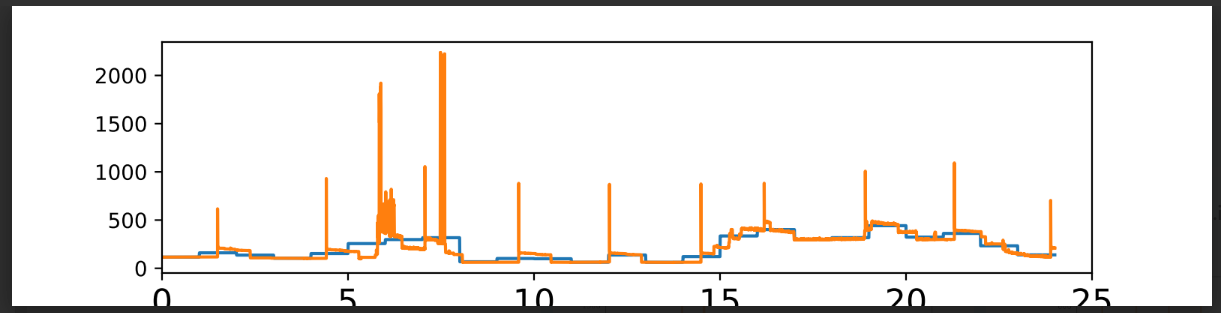


Figure ending in 7 & smx4

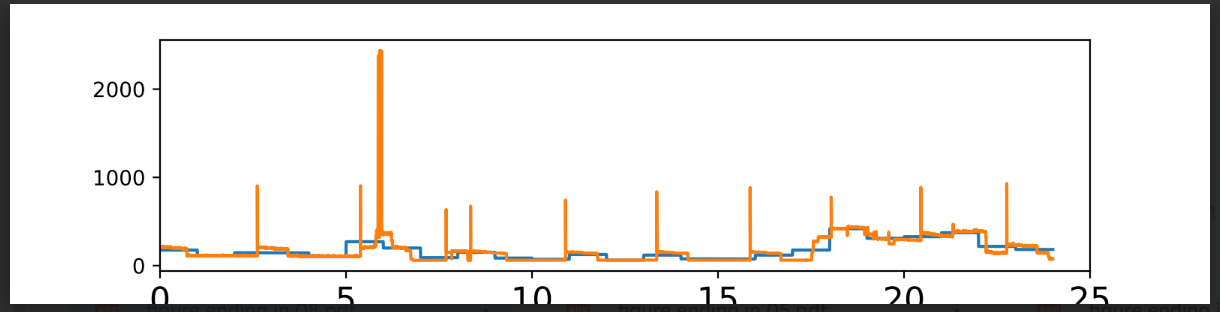


Figure ending in 8 & smx5

**Please import the files in the folder "date\_panou\_PQs) for the PMU and for the uPMU and create the average over 15-minute interval.** **-> create a time interval so you can create the plot P(t) and U(t)** **-> plot P(t) and U(t)** **-> save the plots and separte files**

from google.colab import drive

drive.mount('/content/drive')

from matplotlib import pyplot as plt

import numpy as np

import pandas as pd

import seaborn as sns

import os

from glob import glob

%matplotlib inline

folder\_path = '/content/drive/MyDrive/Colab\_Notebooks'

file\_list = glob(folder\_path + '/\*.txt')

all\_data = []

for file\_path in file\_list:

    try:

        df = pd.read\_csv(file\_path, delimiter='\t', low\_memory=False)

        all\_data.append(df)

    except Exception as e:

        print(f"Eroare la fișierul {file\_path}: {e}")

df\_all = pd.concat(all\_data, ignore\_index=True)

df\_all['Timestamp'] = pd.date\_range(start='2019-01-01', periods=len(df\_all), freq='S')

df\_all.set\_index('Timestamp', inplace=True)

P\_all = df\_all['P']

U\_all = df\_all['U1']

df\_15min = df\_all[['P', 'U1']].resample('15T').mean()

plt.figure(figsize=(12, 4))

plt.plot(df\_15min.index, df\_15min['P'], label='Power P')

plt.xlabel('Time')

plt.ylabel('P [W]')

plt.title('P(t) - Power averaged over 15 minutes')

plt.grid(True)

plt.legend()

plt.savefig('/content/drive/MyDrive/Colab\_Notebooks/Figures/P\_15min\_avg.png')

plt.figure(figsize=(12, 4))

plt.plot(df\_15min.index, df\_15min['U1'], label='Voltage U1', color='orange')

plt.xlabel('Time')

plt.ylabel('U1 [V]')

plt.title('U(t) - Voltage averaged over 15 minutes')

plt.grid(True)

plt.legend()

plt.savefig('/content/drive/MyDrive/Colab\_Notebooks/Figures/U1\_15min\_avg.png')

