Integrated Process Control Framework

A visualization tool has been developed using Python. It allows us through an interactive layout to visualize the correlation of different parameters involved in the semiconductor industry.

After days of searching, we've found out that the Python library Plotly is the best package for visualization, as it allows an interactive use through an HTML file. This library was coupled with the python-igraph library which is responsible for showing the network in 3D.
As for the GUI, our choice landed on WxPython because it's an open-source, popular and well-documented library. Of course, because we couldn't deal with the algorithmic part of the visualization, the GUI can still be improved by filling the functions that we left as prototypes (for exemple in the setting function). However the UI allows to import data and to launch the visualization.

Hardware Requirements

- **Computer**

Software Prerequisites

- **Windows 10**
- **Python 3.6 (64 bits)**
- **The following Python libraries: Plotly, pandas, PIL,matplotlib, python-igraph, datetime, csv, wxPython, threading**

You can install those libraries by using the following command on the windows terminal after adding Python path to environment variables :

```
pip install <Library-Name>
```

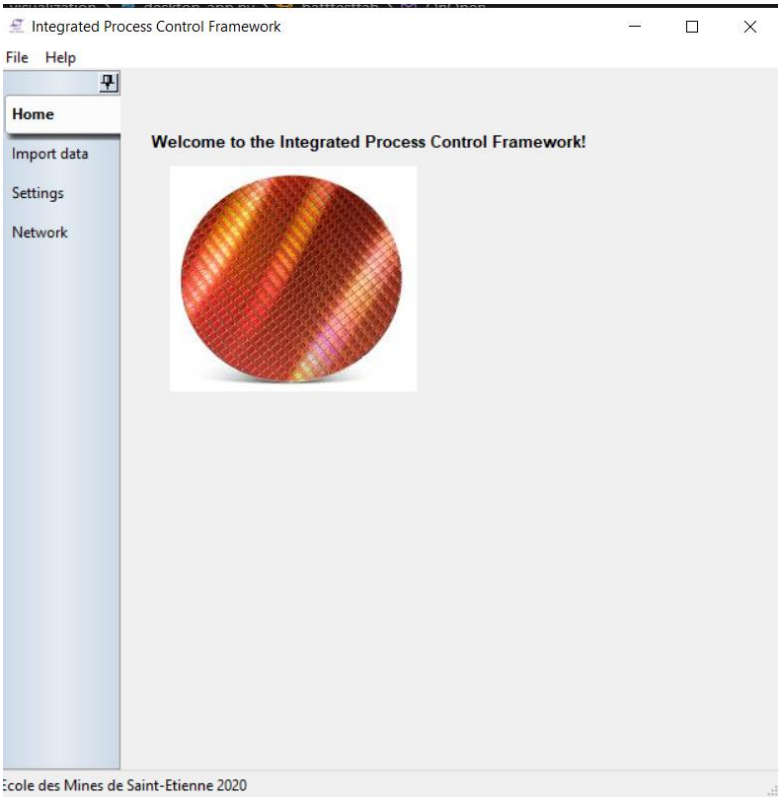
Usage Guide

1-Use anaconda to install the packages above

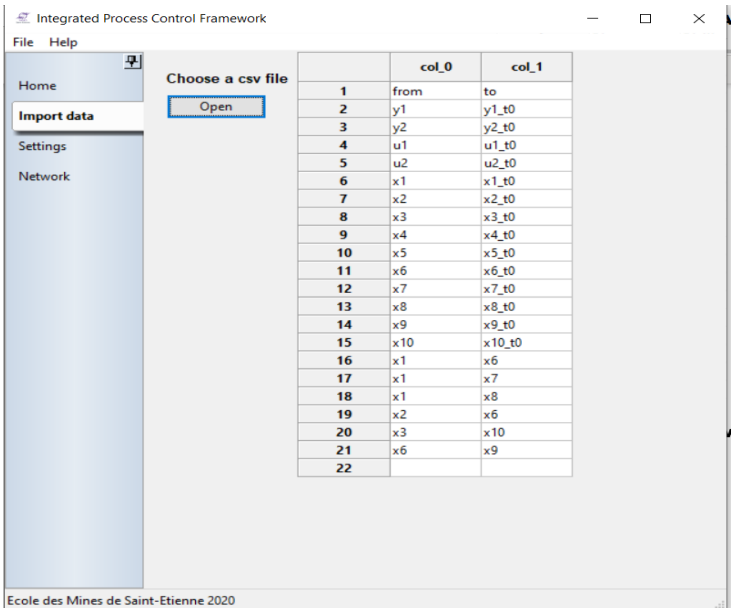
2-Go to the the folder of the software

3-Run "python3.6 run.py" in the command line

to pop-up the welcome frame

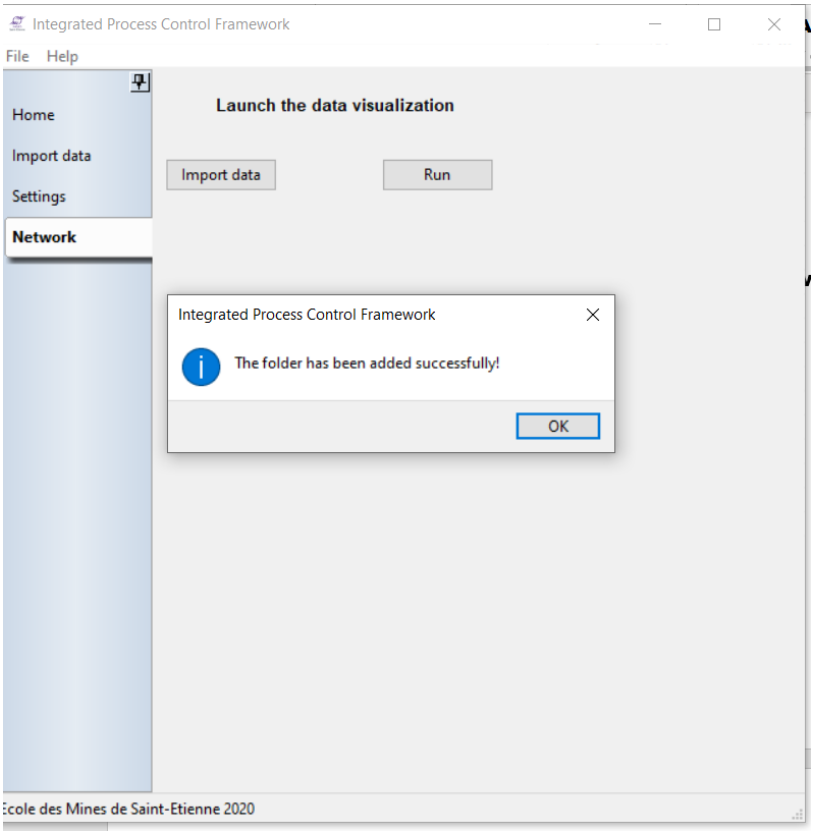


4-To view a csv file go to “Import data” tab and browse to the file



	col_0	col_1
1	from	to
2	y1	y1_t0
3	y2	y2_t0
4	u1	u1_t0
5	u2	u2_t0
6	x1	x1_t0
7	x2	x2_t0
8	x3	x3_t0
9	x4	x4_t0
10	x5	x5_t0
11	x6	x6_t0
12	x7	x7_t0
13	x8	x8_t0
14	x9	x9_t0
15	x10	x10_t0
16	x1	x6
17	x1	x7
18	x1	x8
19	x2	x6
20	x3	x10
21	x6	x9
22		

6-Import the folder data before launching the visualization



7- The html file will appear immediately and will be stored in the home directory of the project

You can select the edges or/and the vertices that you want to visualize by using the legend.