During the past months, the Eurostia team has been developing some key platform features focused on risk management, preventative maintenance and sustainability through the smartest possible use of facilities' own and natural resources. Namely, our team has succeeded in:

a. Anomaly Detection Algorithm Implementation

Anomaly detection is the process of identifying data points and patterns that do not conform to the normal behavior of a dataset. It is crucial to identify unusual behaviors and prevent an unforeseen downtime of a machine timely, accurately and effortlessly, ensuring longer lifespan and a minimum life cost.

Yodiwo has started developing anomaly detection algorithms able to timely detect data abnormalities. Literature investigation and possible experimentation with various algorithms was the first critical step towards this goal. A first approach was implemented using autoencoders. Users can thus dynamically detect anomalies on either univariate or multivariate time-series scenarios, and the results are presented accordingly in the corresponding widget. In the next steps, this implementation is expected to be enhanced and finalized, and more algorithm implementations are expected to be adopted as well.

b. Building Analytics per Zone

Another promising service provided is building analytics on energy data, which can correspond to the entire organization or to its facilities, buildings, floors, zones, and devices. Namely, platform analytics may include charts that represent information regarding average daily energy consumption per building or per level in general, tree topologies representing the whole infrastructure of an organization, heatmaps of daily incidents count, map presentations regarding the precise location of available buildings, historical trends on devices, energy consumption details connected to various KPIs and many more. Thanks to this analysis, data is organized in a user-friendly and actionable manner, alerting users to clear action points when it comes to predicting, preventing, and promptly fixing any facility performance issues.

c. Validation, Improvement & Enhancement of smart cooling/heating

Users are provided with a variety of automation that combine the highly distributed nature of collected IoT data with AI to leverage the inspection, monitoring, and digitalization of facilities. One such tool is the so-called Free Cooling (FC) and Free Heating (FH) Service. These free cooling and free heating mechanisms were evaluated in an actual building environment located in Athens (Greece), resulting in a significant decrease in energy consumption.

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