CASE STUDY

ENERGY MONITORING

PHOTOVOLTAIC PANEL SYSTEM

Integration of energy production data from a photovoltaic panel system.

OBJECTIVE

Perform the integration of data, coming from the native solution, of the photovoltaic panel system on the Tekon IoT Platform, to monitor energy indicators.

The final commitment aims to gather information from the entire infrastructure, in order to centralize the monitoring process, allow a related data analysis and optimize energy consumption.

SOLUTION

PHOTOVOLTAIC SOLUTION
Set of photovoltaic panels with a dedicated monitoring system, installed by third parties.

APLICATION
Communication with third-party systems and the further processing of data is performed by a support application, developed by Tekon Electronics. On this intermediate point in the entire developed solution, the connection between the REST APIs for collecting and sending data to the cloud is implemented.

TEKON IOT PLATFORM
The data collected and stored in the cloud are accessed through the Tekon IoT Platform. Accessible from anywhere or any device, the information is presented in real time, where it is possible for user to obtain a global view of the entire process of production and energy consumption.
The implementation of alarms and advanced data analysis return points of relevance to the adoption of greater energy sustainability.

TECHNICAL DETAILS

Tekon Electronics implemented a fast integration solution, from the data of a photovoltaic panel system, in a fully operational instance of the Tekon IoT Platform and to be used as a real-time monitoring point for many processes. The purpose of this integration would be to gather all the essential information of the unit, in a single point, excluding the tool dedicated exclusively to the analysis of data from the photovoltaic system.

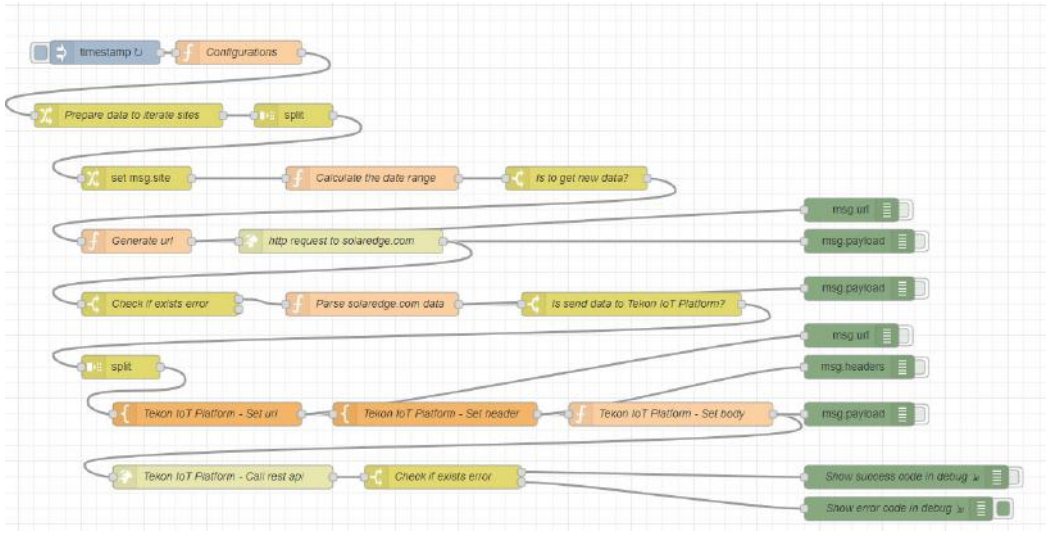
The infrastructure and energy collection points were divided in a similar way - Building A, Building B and Building C. For each of these sectors, the data tool original of the installer of photovoltaic equipment, called Solar Edge, provides, among others, the following variables:

- **FeedIn** – amount of energy sent to the grid;
- **Production** – amount of energy produced;
- **Purchased** – amount of energy purchased from the public service provider;
- **Consumption** – amount of energy consumed by each building;
- **SelfConsumption** – amount of energy produced that has been consumed;

TECHNICAL DETAILS

In the case of an integration of third-party equipment, the integration methodology supported by the Tekon IoT Platform implies the use of a REST API, with GET and POST methods that collect information from the native cloud of the Solar Edge system and make it available in the cloud, where the Tekon IoT Platform is hosted

The transposition of the data is not carried out directly between the tools. It was necessary to develop an interface and data processing application, responsible for the communication between the Solar Edge REST API and the Tekon IoT Platform REST API.



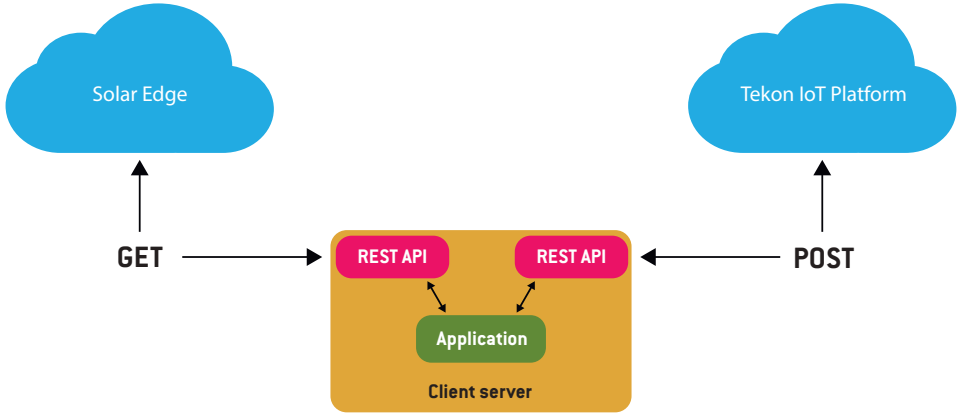
TECHNICAL DETAILS

The replication of information between cloud services was ensured with an independent intermediary system, hosted on the internal network, responsible for exchanging information and checking errors in the communication processes. The relationship between registered variables allowed to find a new measurable point, related to the energy efficiency of each building, in which it is possible to have an indicator that points out the percentage of self-sufficiency achieved in each data record.

The establishment of a new variable, resulting from the combination of collected values, required the indexing of a new entry of values in the support application and transposition to the associated datasource.

Regarding the Tekon IoT Platform, the user with editing permissions, created three new datasources earmarked to group the information from each of the energy collection points. In the initial page, was added a new dashboard exclusively dedicated to the graphic representation of the transposed values, with the most appropriate widgets for the visualization of each variable. With this graphic structure, it is possible to have a real-time view of energy production and consumption in real time.

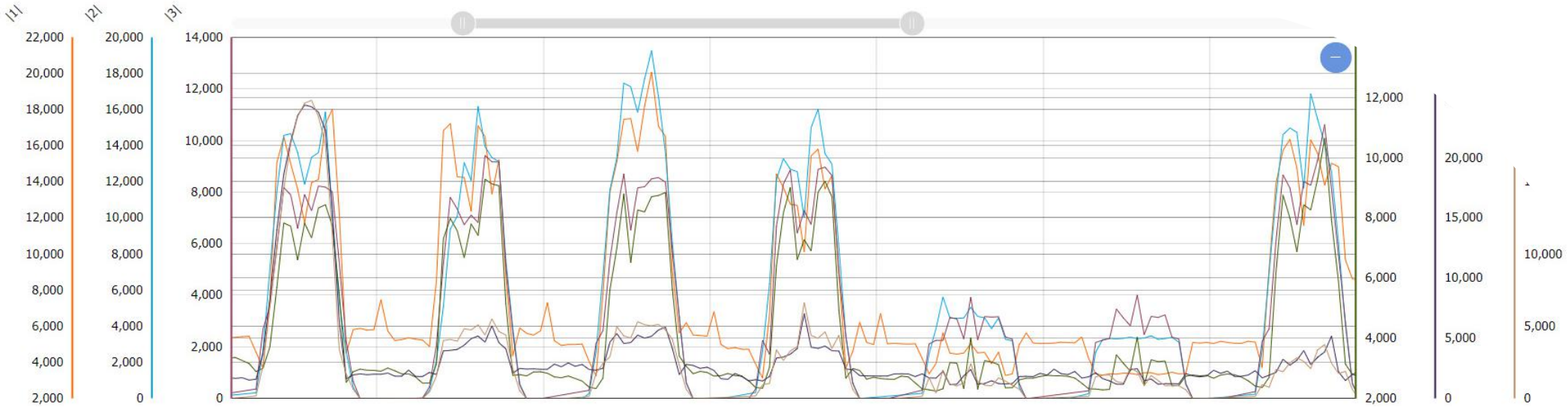
With all the Tekon IoT Platform features available, the customer can now outline a set of alarms, in order to optimize energy consumption according to the energy values produced, to achieve high levels of energy performance.



CONCLUSION

Tekon Electronics quick integration, allowed the customer to have all the information of its infrastructure, centralized in a single interface, streamlining the monitoring process in each sector.

Advanced data analysis will allow to find trends in energy consumption and production, in order to optimize processes so that they fit consumption needs efficiently, with the moments of greatest self-sufficiency.



WIRELESS SENSORS TECHNOLOGY

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