CASE STUDY

TEMPERATURE MONITORING

THERMAL TREATMENT OF PINE BARK

Restatement of the temperature monitoring system in a thermal treatment plant for pine bark.

CASE STUDY
CASE STUDY
CASE STUDY

OBJECTIVE

Monitoring and provision of temperature registers in real time of the multiple phases of the heat treatment process of isolated pine bark.

The data visualization in real time from several registration points, now reinforced with the latest head transmitter THU301-I, arranged by the infrastructed is performed in a dedicated instance of the Tekon IoT Platform, which allows the user to follow the thermal profile of the different stages of the process.

SOLUTION

TEMPERATURE TRANSMITTER

The temperature transmitter selected to remodel the temperature monitoring process was the THU301-I, an isolated head transmitter, which has an universal sensor input with support for the most commonly used temperature sensors (Thermocouple J, K, N, R, S, T; PT100).

EMBEDDED SYSTEM

The configuration of a communication module with the Node-RED framework directly connected to the customers internal network assumed the function of gateway to the monitoring system previously installed. Data from automation, with closed circuit communication, it is acquired and availabled in the cloud.

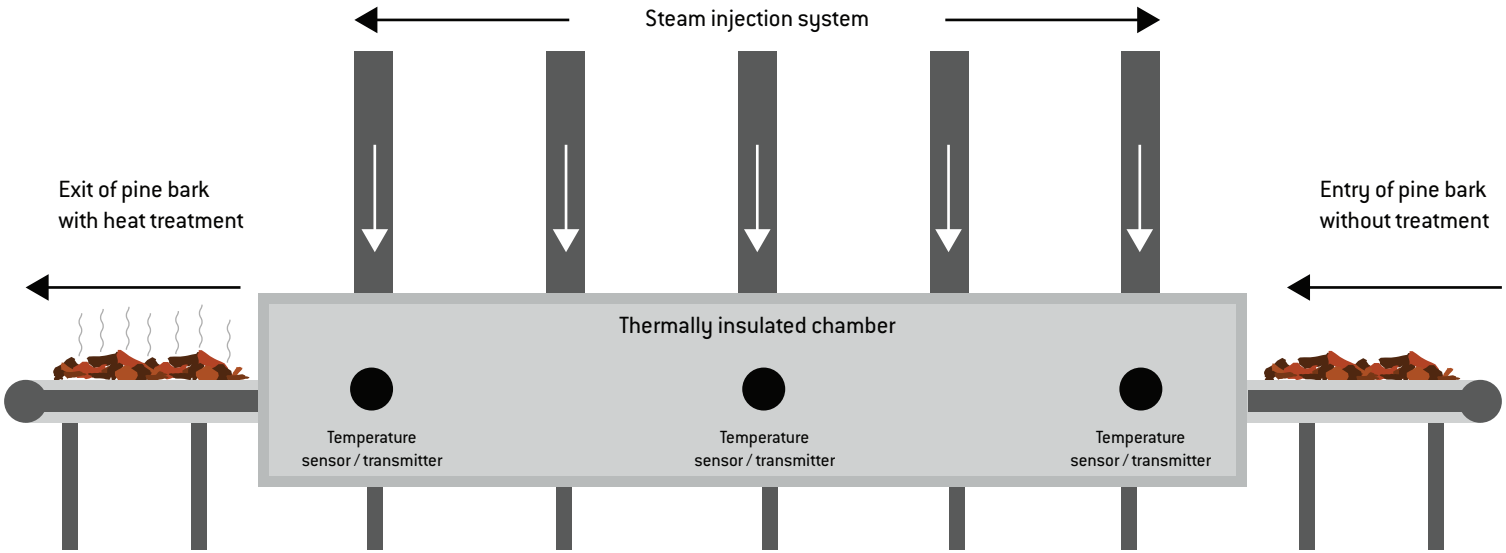
TEKON IOT PLATFORM

The data stored in the cloud is accessed through the Tekon IoT Platform. Accessible from any place or device, the data is presented in real time, where it is possible for the user to get a global view of the entire process and set alarms, assisting the early detection of problems in the equipment and/or process.

TECHNICAL DETAILS

The customers production process refers to the processing of pine bark. Briefly, the raw material undergoes a mechanical selection method, based on caliber, and goes on to a thermal sterilization stage at high temperatures, by a steam injection, carried out in a thermally insulated chamber. The raw material is placed on a carpet and slowly transported along the chamber where it is exposed to high temperatures that gradually rise, registering the greatest scale, at the end.

The process takes place surrounded by a robust and industrial environmental, where the temperature measurement method is performed using thermocouple K type temperature probles, fixes and embedded in the treatment stations and connected to temperature transmitters previously installed in heads, left outside the equipment that applies the heat treatment.

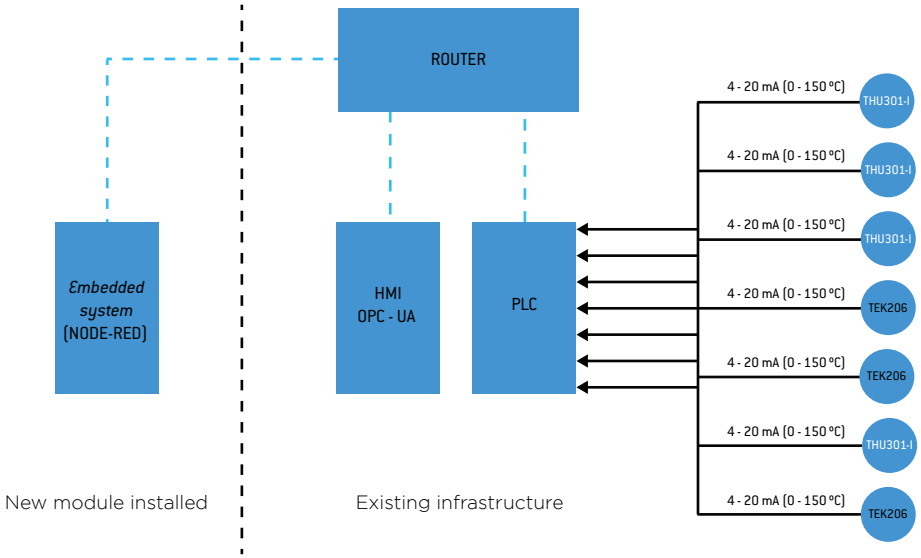


TECHNICAL DETAILS

The installed temperature sensors are connected to the internal automation circuit that collects the data and turns it available on a HMI (Human Machine Interface) installed to control the operation, on site.

The installation of the new communication module with the Node-RED framework assumes a spectator role in relation to automation, making it possible to record all data acquired from the transmitters.

In addiction to the defined flows, an execution flow was created to receive data via OPC-UA and send it to the Tekon IoT Platform, via RESTful API.



CONCLUSION

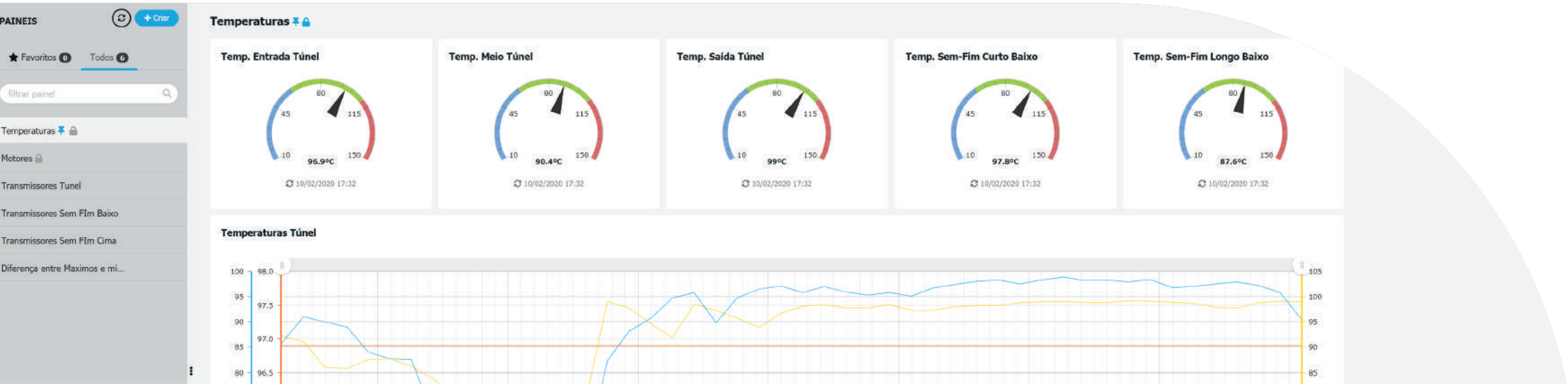
The application of a THU301-I + Tekon IoT Platform solution provides to the customer with continuous and real-time monitoring of the entire process, with industrial constants, of thermal treatment of pine bark. The quality assurance of the final product is promoted by the definition of an alarm system configured on the platform, an asset in the control and management of the entire process. The main advantages registered with this application:

• Early detection of equipment and process failures through alarms at Tekon IoT Platform;

• Possibility of exporting data by time window in an agile way, it allows sending production data together with product;

• Integration with automation without the need for changes or process disruption (OPC-UA client);

• Early identification of potential problems in temperature registers by permanent statistical treatment (average, maximum and minimum) in segmented time windows.



WIRELESS SENSORS TECHNOLOGY

TEKON ELECTRONICS
a brand of Bresimar Automação S.A.

Quinta do Simão
EN 109 - Esgueira
3800-230 Aveiro - Portugal

T. +351 234 303 320
M. +351 933 033 250

sales@tekonelectronics.com
www.tekonelectronics.com