ELIPSE E3 CONTROLS COOLING SYSTEM AT FRIATO MEAT PACKING PLANT

Room temperature reports are issued remotely and sent via e-mail to auditors at the Ministry of Agriculture's Federal Inspection Service (SIF) by Elipse Software's solution

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Friato

Established in 1993, in Pires do Rio (in the Brazilian Midwest), Friato is a vertical industrial complex comprising poultry feed factories, broiler farms, hatcheries, and a meat packing plant for slaughtering 300,000 chickens per day. The company produces around 200 tons of poultry and poultry products (cold and frozen) daily, which are sold both in Brazil and abroad, especially in the Middle East, Russia, Africa, and Asia.

With a staff of over 3,000 employees, Friato provides technical support and professional training to 120 rural producers; this partnership resulted in 450 industrial sheds that were built to keep more than 78 million poultries annually. Among the many accolades received by the company for this project is the title of Globo Rural magazine's Best Poultry Company in 2010.

Figure 1. Company plant's overview

Needs

Before adopting Elipse E3, the company had no automation system; instead, mercury thermometers were installed in all refrigerated warehouses at Friato. In order to control their temperature, an operator was appointed to check their values *in loco*, turn the ventilation on/off manually, and then go all the way up to the warehouse's ceiling to open or close the liquid valve that regulates the ammonium flow, which is responsible for the cooling process. This caused the temperature to oscillate too much, and it occasionally reached values that were deemed unacceptable by the Ministry of Labor.

To fix this situation, Friato adopted Elipse E3 as its supervisory and control platform in February 20015. With E3, the temperature in the warehouses is now monitored remotely, and the operators can issue commands to the cooling system from a single computer in the control center, instead of having to do so in person.

This project's application was installed and customized by Império Automação, a Brazilian company with extensive experience in cooling systems' automation.

Solution

The solution's architecture comprises a computer where Elipse E3 and a PLC are connected by a switch. The temperature read by the indicators is received by the PLC on a Modbus network, which in turn issues commands to the evaporators' valves and engines. Altogether, there are five rooms whose temperature is monitored, where the following processes take place: whole chicken's secondary packing, broiler chicken's secondary packing, pre-cooling, automatic cutting, and cutting and packing.

Figure 2. Application's initial screen

With E3, operators are able to monitor both macro and micro temperatures (that is: temperature from all rooms at once or only from a single room at the time). The alarms signaled by the system can also be visualized on the screen footers.

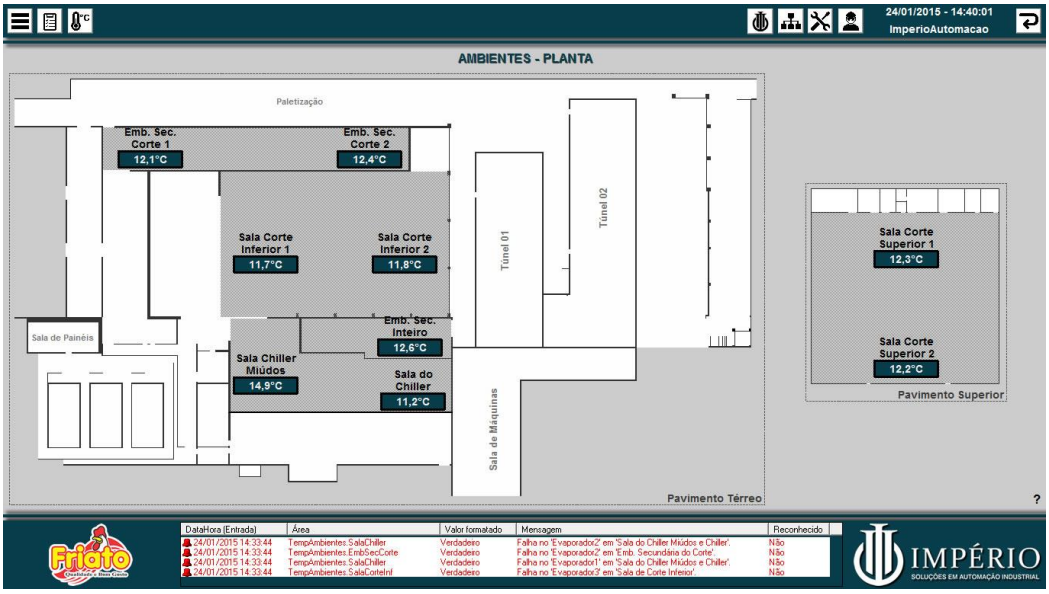

Figure 3. Control screen for the plant's temperatures

Each room has its own control screen, where fans' status are controlled with a color scale (green = automatic control; orange = manual control; red = defective). Active fans are indicated via animation. Valves with liquid can also be controlled via E3.

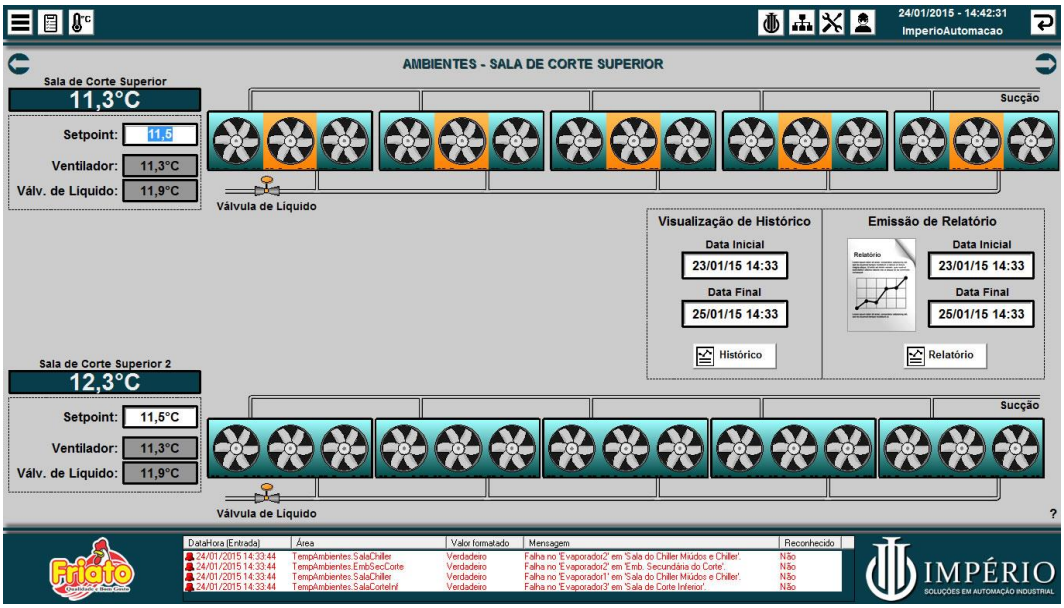

Figure 4. Temperature and evaporators control at cutting room

Room temperature can be set up via fans and valves to meet the setpoint's value as close as possible. In order to report temperature values to the regulatory agency, Elipse E3 generates spreadsheets within a user-defined interval with current and past events performed on the plant's cooling system.

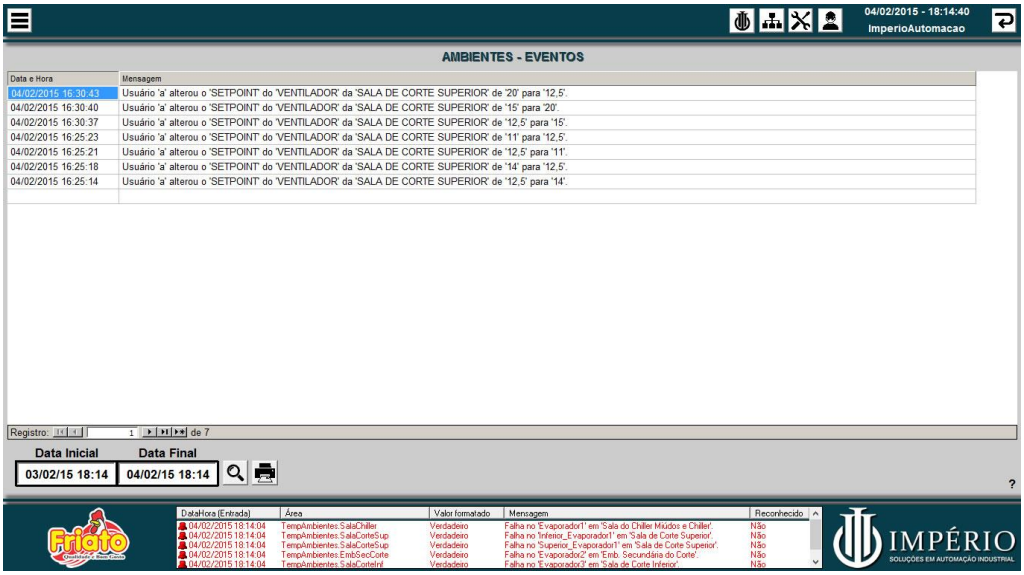

Figure 5. Events screen

In addition to event tables and historics, the software can also issue reports where temperatures can be graphically compared to each room's evaporators. These spreadsheets can either be exported to pdf format or printed, which is useful for auditing purposes.

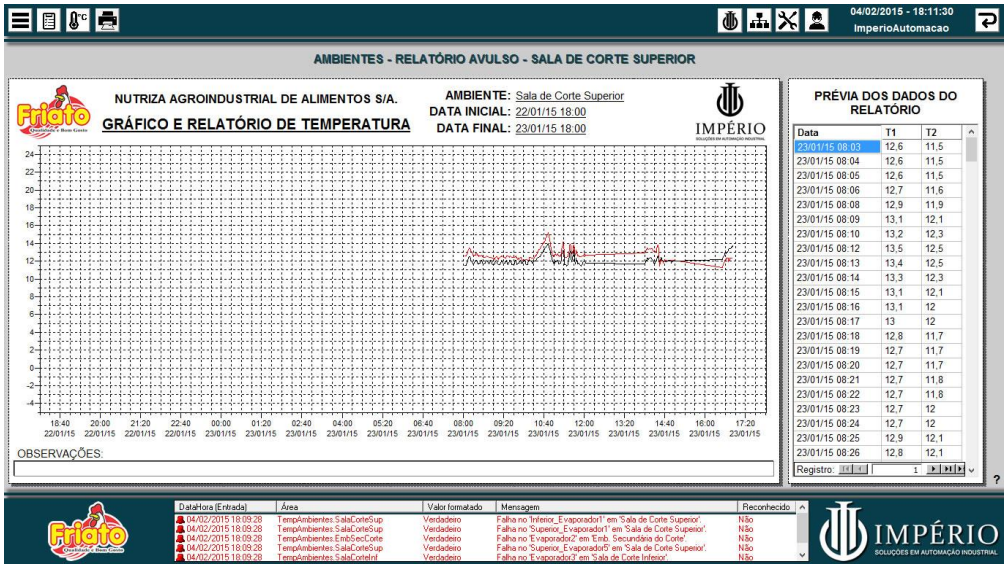

Figure 6. Report showing temperature variation in the cutting room

Benefits

According to Rômulo Pereira de Oliveira, Friato's electric maintenance and automation manager, the company has achieved a new level of control with Elipse E3, where it is now possible to monitor temperatures remotely, and send reports with the resulting data via email to the regulatory departments. According to him, the system was especially developed to this end, that is, to meet the standards established by the Ministry of Agriculture's Federal Inspection Service (SIF).

"Before we installed E3, room temperature had to be checked in person by an operator every 20 minutes; based on this information, they had to fill out the required documentation and send it to the regulatory agency. Now, with Elipse's solution, this is no longer the case. We can remotely generate all necessary data, as briefly, accurately, and precisely as required," says Oliveira.

Other benefits provided by E3:

- All temperatures detected in the plant can be controlled remotely;
- All alarms can be monitored;
- Events and historics can be controlled and filtered according to a user-defined period, and the resulting information can be printed and/or sent via email in pdf format;
- The temperature variation verified in each evaporator can be visualized via reports, which can also be printed and/or exported in pdf format;
- Event tables, historics, and reports (the documentation required by SIF to evaluate tax auditing) can be easily issued.

TECHNICAL INFORMATION

Client: Friato

Systems integrator: Império Automação Ltda.

Elipse package used: Elipse E3

Number of copies: 1

Platform: Windows 7

Number of I/O points: 84

I/O driver: M-Prot (Siemens)