CASE STUDY

Hotel Automation in the 5-star AQUARIUS Hotel Spa & Wellness

Investor
PRO-SAN M. Jagiełka i M. Wiszniewski Sp. j.

Integrator
SENSOR-ONLINE Sp. z o.o.

Manufacturer
Roger Sp. z o.o. sp. k.

Rooms
205

Users
80 (staff) plus a dynamically changing number of hotel guests

Key Features:
- Temperature management
- Room power supply control
- Facility visualisation
- Intuitive notification system
- Individual and zone access control

Success in the hotel industry depends on many factors. It is not only the location and the appearance or architecture of the hotel itself and the range of services, or attractions but above all the standard at which they are delivered. Even the best staff needs the support of proper technology to provide the highest standard of service to hotel guests. Technology that makes the day-to-day control and management of all relevant factors (e.g., temperature in individual rooms, lighting, access to rooms, or parking) easy and efficient, and provides the necessary information for effective administration in real-time. In cooperation with the hotel software, it creates a comprehensive set of solutions to effectively support the management of the hotel complex. The basis of these solutions is both reliable hardware, responsible for the measurement, collection of data, and control of connected devices, and software to process this data in accordance with the adopted rules and to provide their visualisation for the needs of supervising personnel.

SENSOR AUTOMATYKA DLA HOTELU

roger
Intelligence for Building

Introduction

AQUARIUS SPA is a five-star hotel located in the spa district of Kołobrzeg, near the sea, offering 205 comfortably furnished rooms. In addition to one of the largest spas in Poland (40 modern treatment rooms), there is a spacious Aquacenter. It consists of a 25-metre-long sports pool, a leisure pool with water attractions, a paddling pool for children, and a jacuzzi. The hotel is a family-friendly venue, offering facilities for the little ones. Both individual and business guests will find their way here. The hotel is oriented towards environmentally friendly measures.

Commissioned at the end of the first decade of the 21st century, in terms of room automation it was equipped with equipment and systems from Western suppliers. However, over time and with intensive use, problems began to emerge affecting the quality of the services offered, especially the thermal comfort of the guests in the rooms, which was the reason for more and more frequent complaints. In order to continue to meet guests' expectations and maintain the standard at the highest level, a decision was made by the owners to replace the hotel's automation system. Discussions for a new system lasted almost two years and culminated in February 2022 with the installation of the new system in two rooms for evaluation purposes.

Requirements

The new system's main objective was to implement a solution that would guarantee the stability of the heating and cooling system, allowing the temperature of the hotel rooms to be controlled depending on their status (occupancy). This solution was not only to meet the thermal comfort requirements of guests but also to have a significant impact on reducing energy consumption for heating and cooling, thereby reducing operating costs. In addition, integration with Betasi hotel software was required to facilitate the management of individual rooms through, for example, automatic switching of the operating mode (occupied or vacant), as well as the possibility of connecting other sensors to the system to monitor the status of the rooms. It was also necessary to use existing cabling and install the new system in an operating facility with as little disruption to guests as possible.

Solutions

The system adopted for implementation was the result of a long-term collaboration between Roger company, a leading supplier of access control systems in Poland, and SENSOR-ONLINE, a company specialising in the development and supply of hotel automation solutions. Work on the hardware for the hotel system has been going on continuously for more than ten years. The turn of the year 2010/2011 saw the start of work to adapt access control (AC) controllers for hotel applications. As a result, the first version of firmware was developed for the HRC102/402 series hotel controllers. In parallel, hotel accessories for the HRC controllers were developed, including HRT hotel readers and hotel panels (air-conditioning control, temperature sensor, function buttons, and relay output expander). The HRC hotel controllers and accompanying accessories were integrated into the proprietary SENSOR-ONLINE software. This created a hotel automation system offered and implemented by SENSOR-ONLINE in many hotels throughout Poland and abroad. The system is constantly being developed and supplemented with new functionalities desired by users, both in terms of controller capabilities and management software.

After the successful evaluation executed in the first two rooms, the hotel automation control and management system was extended to all hotel rooms. This amounts to a total of 205 rooms with access control, a smart card holder, a panel for temperature control, and a function keys panel for sending guest requests (Do not disturb, Please clean up, Need help with luggage, Room service) and staff communication with the reception desk (Room cleaned ready for sale, Fault – room to be switched off).

The system is based on the HRC102 hotel controllers, one per room, which can also operate offline once configured (standalone operation). This solution was adopted due to its resilience to potential communication problems with the server, as well as limiting the scope of potential failure (shutdown) to a single room. The individual controllers are connected to each other via an RS485 bus and then, via an RS/IP converter and internal network, to the server where the management software is hosted. All supported devices such as proximity reader, card holder for power switching, control panels, door, and window opening sensors, as well as heating, cooling, or power controls, are connected to each controller. Thanks to the memory of the controllers, interruptions in communication do not affect the completeness of the transmitted data, which is sent when communication is restored. Roger is also the manufacturer of mentioned readers, card holders, and control panels.

The entire operation of the system is supervised by software enabling the collection of all key information from the controllers in real time, its analysis, control according to the established rules, and visualisation on the screens of selected computers. Independently, selected information and messages are transmitted and received via API software interfaces to/from the Betasi hotel software, allowing them to be integrated and achieving synergy in the process of hotel management and operation.

As required, the implementation of the project took place in phases (individual wings and floors) on an operational site. The construction work (additional cables and box planting) was carried out by the investor's employees. The installation of the equipment, configuration, commissioning, and implementation was carried out by SENSOR-ONLINE in cooperation with the local installer. First, two demonstration rooms in February 2022 and then the entire installation in May 2022.

The system is currently being used by around 80 employees and all hotel guests.

AQUARIUS

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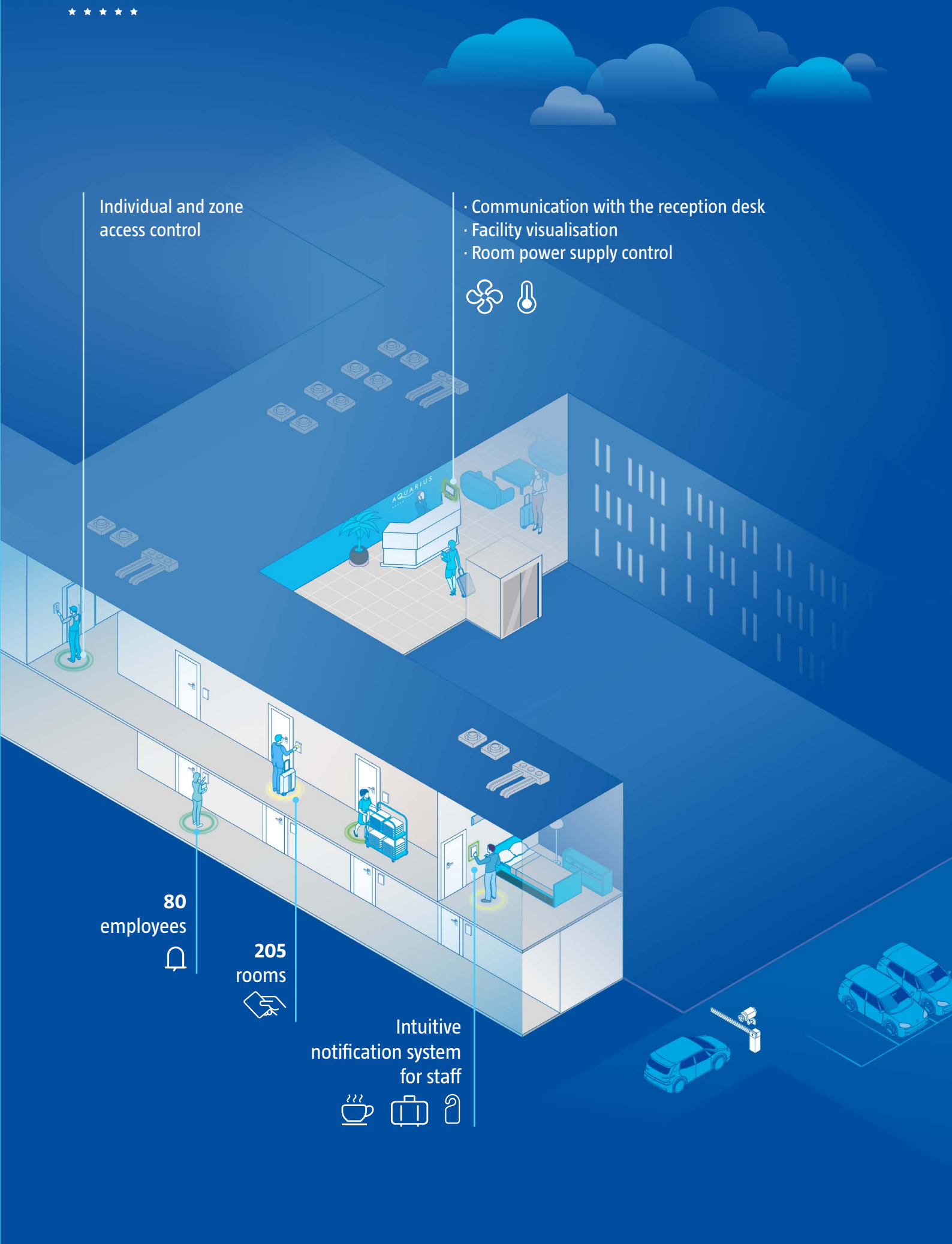
Individual and zone access control
· Communication with the reception desk
· Facility visualisation
· Room power supply control
80 employees
205 rooms
Intuitive notification system for staff

Benefits

The implemented solution has more than met expectations. Proper room management has been restored: individual and zoned access control, response to room occupancy status (via a link to the hotel software), and automatic switching of the room to the appropriate operating mode. Cooling or heating the room in advance while waiting for the guest's arrival has been implemented. Changing the room status allows its automatic temperature adjustment, thereby optimising costs related to heating and cooling. In addition, a clear visualisation provides a quick overview of the situation in the facility (room occupancy, temperature distribution, guest presence, status of windows and doors, response to guest requests via the function panel, and staff communication with the reception desk).

Two of the most important benefits gained compared to the previous system are the operational stability and optimisation of the energy costs. Additional features have improved the communication of visitors and staff with the reception desk, including additional visualisation, as well as the status display on the entrance reader panel of the guest's presence in the room, the opening of windows and doors, or the opening of the bar suggesting the need to refill it. The intelligent card holder eliminated the switching on of power in the rooms by inserting anything and also allowed the meaning of the function buttons on the panels to be changed depending on the user (e.g., disabled person – assistance needed; room – information on the status of the room – cleaned, failure, etc.) or even the control of a person's time in the room.

As a result, after implementation and full configuration, the entire system was able to operate in the background according to predefined rules, in cooperation with the hotel software, without the need for daily maintenance by staff. On top of this, the API allowed two-way communication to be implemented with the Betasi hotel software, bringing about the maximum synergy between both solutions.

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