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MOTOR-CAR'S IoT INVESTMENT WILL PAY BACK IN 20 MONTHS

CUSTOMER: MOTOR-CAR BRATISLAVA

CORE BUSINESS: Services

① Requirements

✳ Get a real-time overview of electricity consumption

✳ Avoid penalisation by the electric power distributor for exceeding the reserved capacity

✳ Reduce overall electricity consumption by identifying points of inefficiency

② Solution

✳ Designing an IoT-based technical solution

✳ Installation of sensors collecting real-time power consumption data from individual switch cabinets

✳ Deployment of a database and an analytical and reporting software

✳ Building of complete hardware infrastructure (servers, cabling, communication devices)

> This Soitron's IoT project is a perfect example of a relationship where both the customer and the contractor are courageous, not afraid of new solutions and trusting each other.

③ Results

✳ Ability to actively manage the total electricity consumption and avoid exceeding the reserved capacity and penalties

✳ Saving on variable monthly costs

✳ Creating conditions for saving on fixed costs by reducing the maximum reserved capacity from an electric power distributor

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Background

Companies are used to perceiving energy as an unavoidable cost item that is constantly growing due to rising energy prices or company growth. They do not study it in detail, because to monitor consumption of different systems over time, evaluate peaks or modify the actual consumption is not an easy task and in the past it was virtually impossible. As a result, companies are often penalised for exceeding the so-called 'reserved capacity' or pay too high fixed fees for a capacity they do not actually use.

This was also the case of Motor-Car - a company with 38 sales points in 12 locations around Slovakia representing a number of renowned car brands including Mercedes-Benz, Maybach, Jeep and Honda. Over the last two decades, the company has expanded the number its sales points and added new activities that have increased its energy demands. For example, new electric car charging stations or car washes were added. The consumption also increased due to modernisation of company premises and improving the employee comfort.

In the Motor-Car headquarters alone, with the floor area of more than 10,000 m², monthly cost of electricity climbed to tens of thousands of euros. However, the consumption was not the only problem. Sometimes, some affiliated branches exceeded their reserved capacity, as a result of which they were charged by distribution companies to pay a penalty of several thousand euros. Other times they were hitting the technology ceiling - they needed more electricity, but the distributor was unable to provide them with any higher reserved capacity. This was also true for the company headquarters in Bratislava at Tuhovská cesta.

> Two years ago, we thought that such a reserved capacity was too high for us, but in reality we had no way of knowing it exactly. For us to continue growing, we needed to know where and when we consume electricity so that we can propose appropriate measures.

JOSEF BALÍK
Motor-Car Director for IT, Asset Management and Procurement

Solution

To identify the most veracious electricity consumers and to get an overview of the electricity consumption development over time, the most logical thing to do was to use IoT (Internet of Things). This concept is being developed by a number of technological players, including specialized energy solution suppliers. However, Motor-Car was not interested in any proprietary solution by a "brand" supplier. Since the company planned to expand their IoT system to include also metering of things such as liquid levels in retention tanks, the company wanted to maintain their freedom of choice.

"We realized that sooner or later we would have to develop our own solution. From my past experience, I knew Soitron as a company that sees potential in IoT, listens to customer needs and is able to design a tailor-made solution," J. Balík explains the reasons for their choice of supplier.

Sailing into uncharted waters

The solution implementation was not easy and a number of issues had to be resolved. Soitron had past experience with water flow and temperature metering, but electricity metering is much more complex. *"Moreover, it is a big difference to implement IoT in a company built from ground up compared to a company that has been operating on the site for more than two decades and had its buildings built in several stages,"* says Slávka Šikurová, Soitron's Sales Director.

Some electrical wiring in Motor-Car was outdated and had insufficient capacity. Another problem was to find suitable sensors that would meet technical requirements, but at the same time had suitable dimensions for fitting into cabinets of different sizes. However, in cooperation with the customer and external partners, such as certified electricians, Soitron gradually - sometimes through trial and

error - found a way to resolve all issues and difficulties. The result is a well-functioning solution collecting data from individual sensors and sending them to an SQL database. From there the data is processed by Microsoft Power BI and reported in real-time to an overview dashboard which allows the electricity consumption to be monitored from multiple locations. As part of the pilot project, Soitron built a complete infrastructure, including servers and cabling ready for further expansion of the IoT solution - be it additional sensors at the Motor-Car's headquarters or connection of other branches. The system was designed to accommodate also other planned energy sources, such as solar panels, which will be then included in the calculations.

Benefits

Based on real-time information on consumption trends, the Motor-Car headquarters is now able to actively manage individual power consuming systems. If the automatic

signalling system indicates that in the defined time interval the total power consumption is nearing the maximum reserved capacity threshold, the company can, for example, reduce cooling to 30 % for a few minutes and thus prevent a penalty of several thousand euro from the distribution company.

Compared to the alternative of building a new transformer station for the Motor-Car headquarters, the Soitron's IoT solution cost a fraction of the price and the investment will pay back in 18 to 20 months. Despite increased energy prices, Motor-Car manages to save about EUR 1800 per month on electricity consumption, representing more than 5 % of the bill.

Once the measurements were up and running, they identified a number of inefficiencies. *"We have found, for example, that some air-conditioning systems were running unnecessarily around the clock, even at night. We changed their settings so that at certain times these systems run at a reduced power,"* says J. Balík.
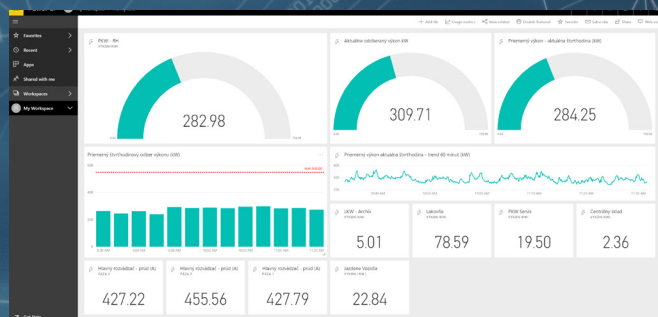
The main dashboard showing data in real-time.
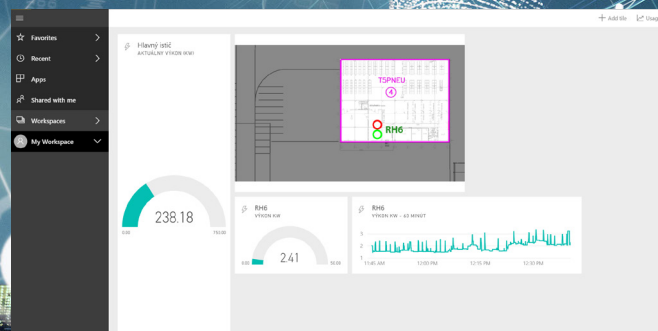
A detailed view of a selected location with real-time data.
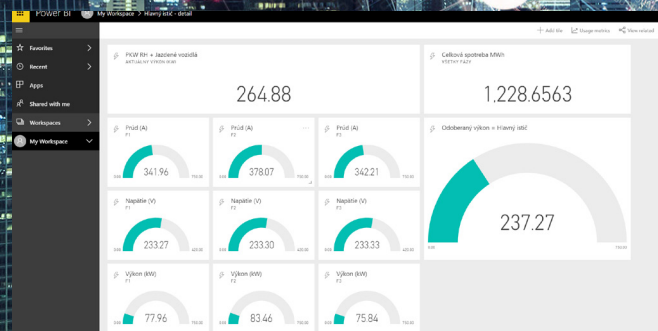
Total consumption view with a detail view of real-time measurement data.

> It is a big difference to implement IoT in a company built from ground up compared to a company that has been operating on the site for more than two decades and had its buildings built in several stages.

SLÁVKA ŠIKUROVÁ
Soitron, Sales Director

Further savings will be achieved if the company manages to reduce their maximum reserved capacity through similar measures and by having a detailed overview of the power consumption. J. Balík estimates that the original capacity of 550 kilowatts in 15-minute intervals could be reduced to 350 kilowatts in spring and autumn and 450 kilowatts in the winter, thanks to which the company would save thousands of euros on fixed charges. However, data for such a decision will only be obtained from a longer-term operation.

"Electricity is just a beginning for us," sais J. Balík from Motor-Car. It is a huge cost for the company and that's why, after building and fine-tuning the main system at the headquarters, we are planning to deploy the solution to our affiliated branches as well. Based on our positive experience with electricity, we would also like to meter other energies in the future - gas, drinking and service water, but also to monitor levels of liquids in retention tanks. *"In the history of our company we have experienced several accidents that cost us tens of thousands of euros. That is why we know that the IoT's potential for savings is enormous,"* adds J. Balík.

MCG
Motor-Car Group

Motor-Car Group

In its modern history, the Motor-Car Group began operations in 1990. The company operates in Slovakia, Czech Republic and Hungary in 48 sales points representing renowned car brands such as: Mercedes-Benz, Maybach, Smart, Lancia, Jeep, Kia, Honda, Chevrolet, Opel, Hyundai, Alfa Romeo and Toyota.

The company's philosophy is based on providing high-quality products in combination with high-quality services, with the greatest emphasis on customer satisfaction.

www.motor-car.sk

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Soitron is a Central European integrator operating in the IT market for more than 27 years. The company's philosophy is to constantly move forward and that is why it is a leader in implementing unique technologies and innovative solutions. It offers its clients products and services in the field of robotisation and process automation, internet of things (IoT) IT infrastructure, communication and cloud solutions, IT security, IT services and outsourcing, IT advisory and applications or IT department digitalisation. Its product portfolio includes intelligent police car solutions, known under the brand Mosy.

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