

# PUBLIC LIGHTS NS KONCEPT

## BUSINESS CHALLENGE

According to Northeast Group, LLC, there are more than 300 million street lighting poles in the world. This infrastructure consumes an enormous amount of power, which leads to higher levels of greenhouse emissions by creating electricity. Nowadays, many businesses are trying to fight against the environmental footprint of such infrastructure by utilizing technological innovations.

Our partner from Serbia, NS Koncept d.o.o. is a company of professionals focusing on automation of industrial and thermo-energetic processes. Their innovations are used in many cities with different solutions; one of them is the smart city lighting system developed in the city of Kraljevo.

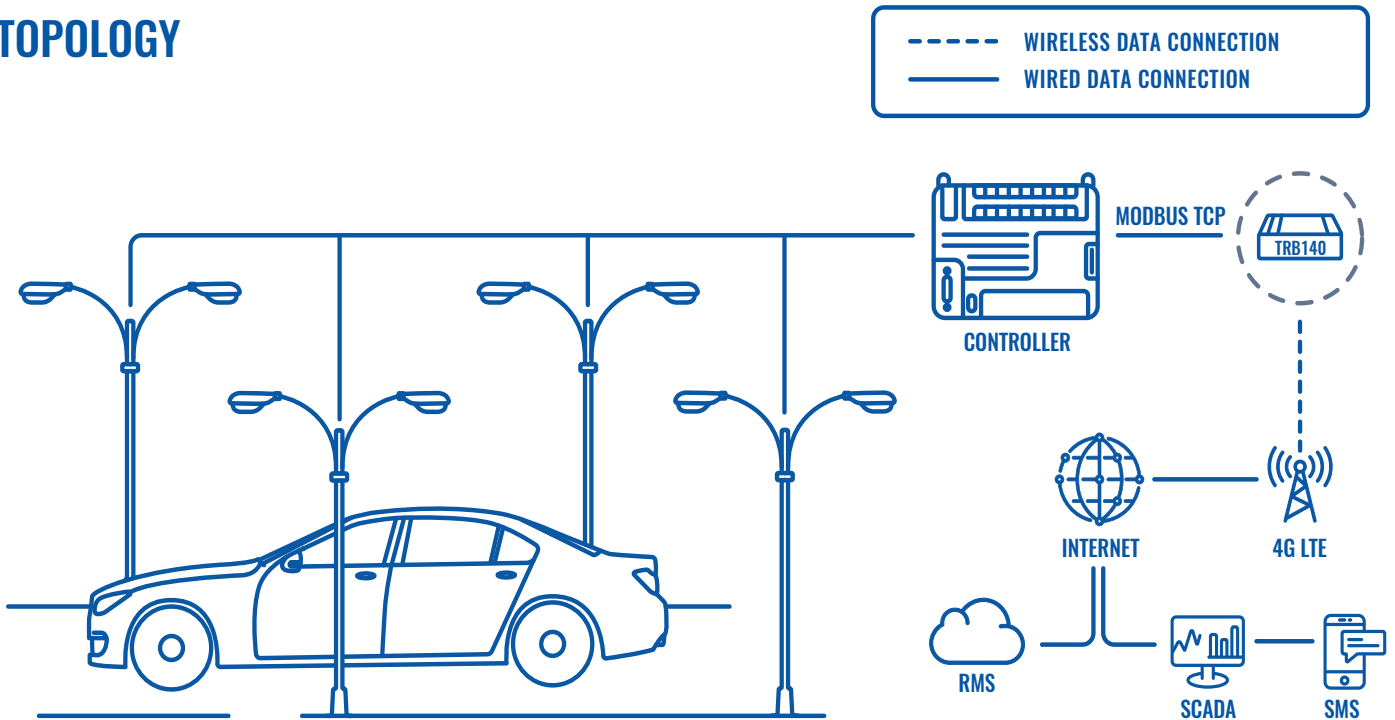
Our partner created a solution to decrease electricity consumption by adopting new technologies. Their main challenge was to connect the whole system and control it remotely, requiring reliable connectivity in all areas, no matter what strength the cellular signal is. In this particular case, NS Koncept d.o.o. has entrusted Teltonika Networks to solve connectivity challenges.

## PARTNER - KONCEPT

NS Koncept d.o.o. is a company founded in 2001 in Novi Sad, Serbia.

This engineering company has significant experience in the market of industrial automation, consisting of young professional engineers and sharing their knowledge with their clients, building trust, and long-term partnerships. Innovative solutions developed by NS Koncept d.o.o. are well known across Serbia.

## TOPOLOGY



## SOLUTION

The solution's main task was to save electricity consumption. Company NS Koncept d.o.o. did this by using PLC's, which calculates the time for turning light on or off (sunset and sunrise) based on GPS coordinates and real-time clock. After that, according to that calculation, the controller takes full control of the city lights. Each PLC can cover one or more streets, depending on the number of lighting poles and the distance between them. The whole solution is monitored and controlled from the server room with a SCADA system, which collects data and makes SMS alarms if some error occurs. For this communication, TRB140 cellular IoT gateway is used as an intermediary between PLCs and SCADA using Modbus TCP. SCADA system is connected to L2 VPN tunnel with specific APN settings for the SIM card. For this particular case, our partner has chosen TRB140 because it offered the most relevant features for the use case: 4G LTE Cat4, full support for Modbus TCP, and 1 x RJ45 Ethernet. Also, the operation of TRB140 and the whole system is continuously monitored via Teltonika Networks RMS – a cloud-based Remote Management System.

## BENEFITS

- Modbus - TRB140 supports Modbus TCP protocol, which is a must for communication between PLC and SCADA system
- Backward compatibility - TRB140 is a 4G LTE CAT4 gateway which supports 3G and 2G also, which means that, if the 4G signal is down, it automatically switches to 3G or 2G
- Remote Management – TRB140 is compatible with Teltonika Remote Management System, which enables the solution operator to conveniently manage the whole solution from any location, even without Public IP.

## WHY TELTONIKA?

Size, reliability, functionality, and signal coverage were the main factors for NS Koncept d.o.o. for choosing the communications hardware by Teltonika Networks. TRB140 has proven to be the most valuable choice, since it offered easy installation, superb remote monitoring capabilities and solved all the problems that our partner was facing, including remote area terrain topology, which created GSM signal „shadows“.

