

WIRELESS PARKING AVAILABILITY DATA TRANSMISSION

SUMMARY

2019 research performed in the United States found that only 5% of workers used public transport for their daily trips and the rest were using personal vehicles. Due to the high volume of cars on the streets, up to 30% of traffic is composed of daily commuters. They are left wandering about, trying to find a free parking spot. People looking for available parking also pollute the environment with car exhaust fumes. So, is there a way to address this issue and reduce adverse effects?

CHALLENGE

A smart parking display system is one of the most promising solutions to reduce the negative effects caused by difficulty finding available parking. Once drivers receive clear information about parking space availability, they can immediately take appropriate action instead of wandering about finding a parking area. However, such a solution has several prerequisites to be met.

Drivers need to see the available parking spaces displayed somewhere easy to see. Also, parking spaces need constant monitoring to know if they are taken. That way, vehicles can follow the directions and find an unoccupied parking space without adding traffic congestion.

Then comes the question of connectivity. The display needs to receive information from parking sensors. However, a spot that is easy to see for drivers might be further away from the sensors. For example, the display board is located near a three-story parking lot entrance. Then a wired connection between the two becomes problematic, highly expensive or near impossible to implement.

PARTNERS



Novatronic Ltd offers component purchasing and mechanical assembly services. They mainly focus on small to medium electronics assembly and provide incredible customization options for their clients. They produce electronics for both electronic designers, looking to prototype their builds and large businesses with more extensive manufacturing lines.



Nedap is one of the leading specialists in long-range identification systems. With over 30 years of experience with RFID technology, their goal is to secure the flow of vehicles in cities and streamline transportation, increasing overall safety.

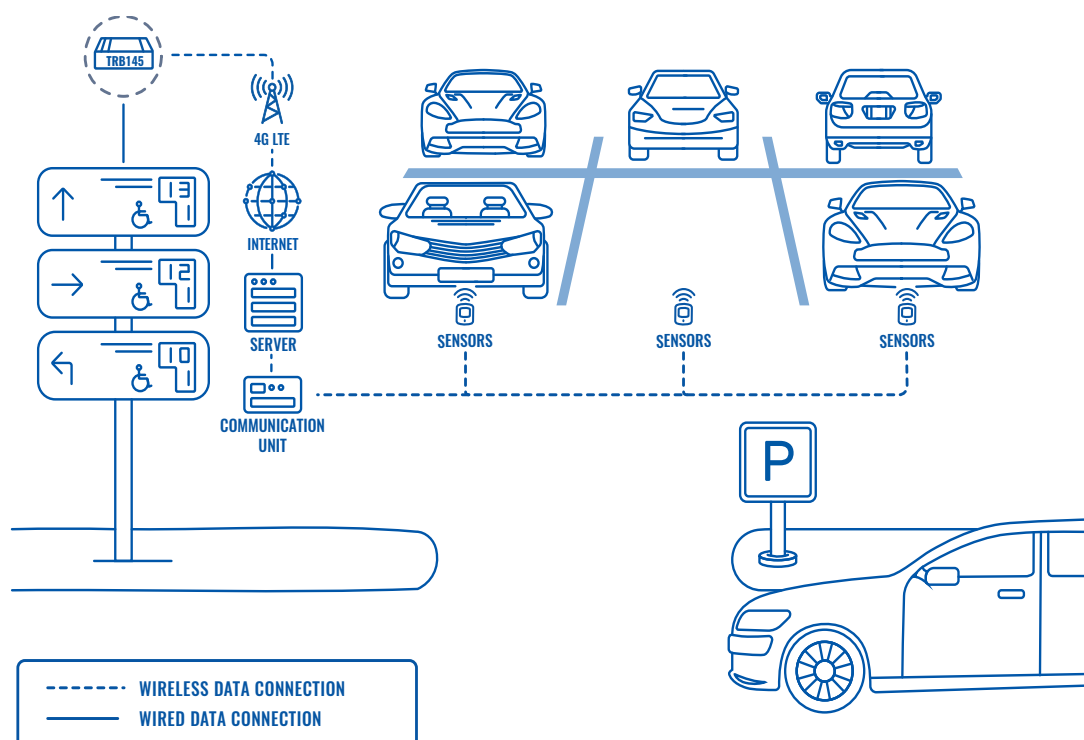
SOLUTION

Novatronic, with the help of Nedap and connectivity solution from Teltonika Networks, created a system to display available parking spaces for drivers. This urban IoT solution has already been tested and installed in Belgrade, where it continues to help solve traffic congestion, exhaust fume pollution and noise issues.

First, Nedap installed sensors in each parking spot connected to a communication unit. Once it collects all the information about parking availability via sensors, it is sent to a Nedap cloud server. The display board is installed farther from the sensors and still needs to acquire data from the server. In this case, a wired connection would be inconvenient as it adds extra costs and takes additional time to set up. For these reasons they chose 4G cellular connection provided by Teltonika Networks industrial LTE gateway TRB145, installed within the display housing. TRB145 uses a 4G LTE cellular connection to retrieve the information from the server and passes on the parking space availability data to the display via the RS485 serial interface.

The TRB145 gateway design is compact enough to easily fit within the display board, making it great for IoT setups that must fit in tight spaces. Also, TRB145 runs on the open-source operating system — RutOS, allowing for seamless integration with other systems and software as users can customize it according to their needs, tasks at hand and the existing infrastructure.

TOPOLOGY



BENEFITS

- TRB145 has a sturdy aluminum housing that resists vibrations near heavy and constant traffic.
- TRB145 has a compact design, perfect for the fast and easy deployment of urban IoT solutions and tight spaces.
- Thanks to multiple software features like Firewall, Open VPN and more, TRB145 is great for applications where security plays an important role.
- TRB145 provides stable 4G LTE cellular connectivity where wired connection isn't an option.

WHY TELTONIKA NETWORKS?

Teltonika Networks has extensive experience providing connectivity solutions for urban and industrial IoT setups. Novatronics found all the required functionality with our product and, after performing extensive testing, have decided to implement it into their solution. The TRB145 industrial gateway was perfect for the Novatronics available parking space display.

