

# CELLULAR ROUTER FOR SHOPPING CENTRE VEHICLE & PEOPLE COUNTER

## HIGHLIGHTS

- ✔ [ATISoluciones](#) is a Spanish technology company specialising in R&D&I and comprehensive security. It offers custom hardware and software design services encompassing prototyping, development, installation and maintenance.
- ✔ For its vehicle counter in shopping centres solution, ATISoluciones chose our RUT241 cellular router to provide seamless and uninterrupted connectivity.
- ✔ This 4G router shines in this solution thanks to its ability to aggregate data from multiple end devices and send them to a single cloud server in real time, as well as its support of a wide range of industrial protocols and its compatibility with RMS.

## THE CHALLENGE – PEOPLE COUNTER WITHOUT PEOPLE

A fair bit of data gathering and analysis is done behind the scenes of shopping centres. So much so, in fact, that the International Council of Shopping Centers [provides a monthly industry benchmark](#). One of the key metrics worth collecting is people counting.

In smart retail, people counters are used to estimate client traffic and make strategic decisions based on the data. These decisions range from marketing and promotions to the choice of leasing rental space in one shopping centre and not the other.

In other words, this metric is an integral tool for staying competitive in the world of smart retail. The only question is – how and where do you collect this data?

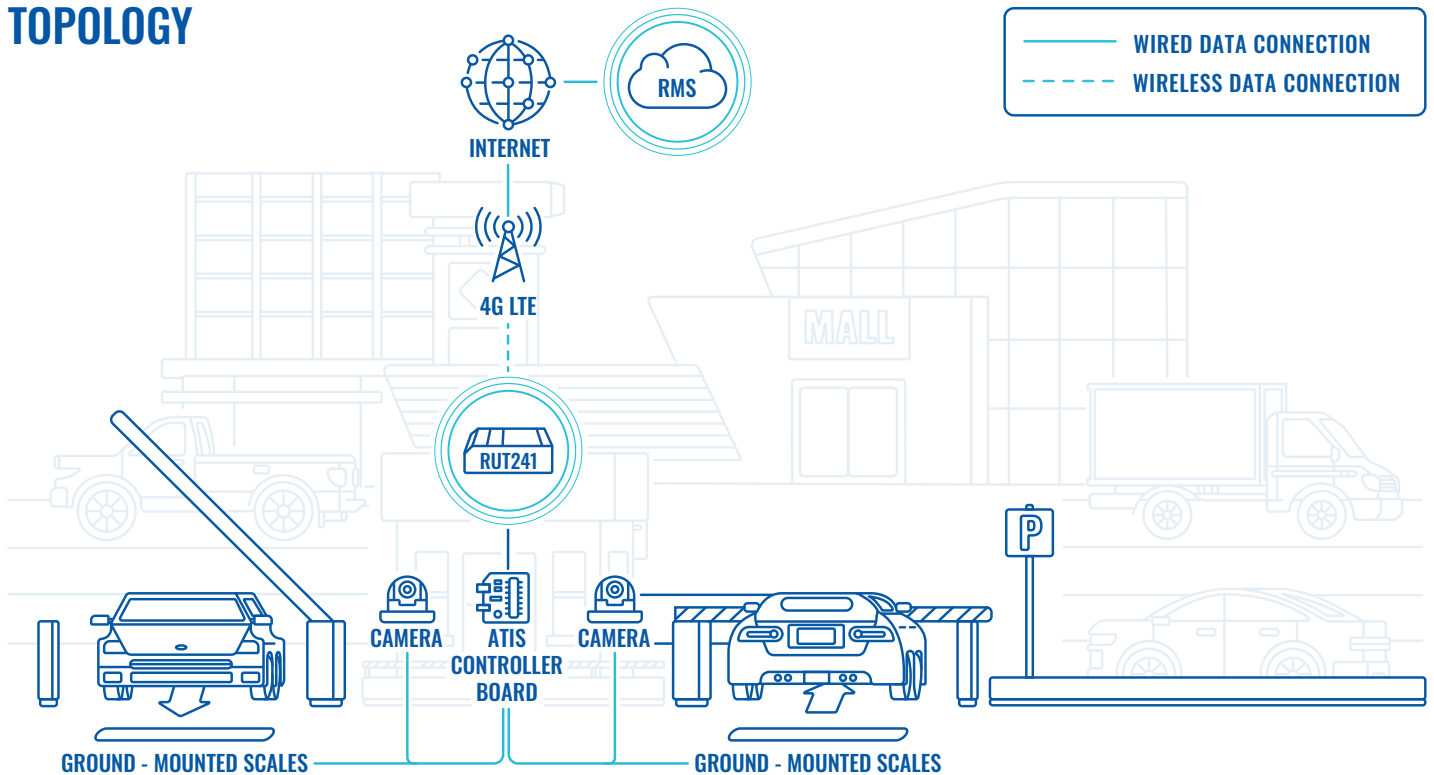
The technology in question is the people counting sensor, but the location of deployment is not quite clear-cut. Some shopping centres choose to install them inside, [such as at each entrance](#). Others opt to install them [outside, right before the entrance](#).

But the bright minds of ATISoluciones had a better idea – why not implement the same concept of retail people counters, but count vehicles instead?

Installed at any number of needed entrances to a shopping centre's parking lot, their vehicle counter solution also helps optimise its operational efficiency and guides any plans for its expansion. When you know exactly how many customers to expect at any given time, and how many vehicles they represent, you know how to best allocate your resources. The solution can even be customised to integrate features like license plate recognition and even barrier access control.

Their solution is perfect for parking lots without an existing occupancy notification system. The catch, however, is that this vehicle counter solution requires connectivity to work, which means ATISoluciones needed a reliable cellular router for its solution.

# TOPOLOGY



## THE SOLUTION – CELLULAR ROUTER FOR VEHICLE COUNTERS

ATISoluciones chose the RUT241 industrial cellular router for its in-vehicle people counter solution. This 4G router provides seamless LTE Cat 4 connectivity with speeds of up to 150 Mbps – more than enough for the needs of this solution.

The RUT241 is connected to a ground-mounted metal mass detector that functions like a people counting sensor, but for vehicles. All detectors are connected directly to a modified Atis Controller PCB board via relays. The PCB board is connected to the RUT241 via a LAN cable, and the entire solution is installed in and powered by a central control cabinet.

The 4G LTE router then sends the gathered data to ATISoluciones’ distributed capacity control system (SICAD) for further analysis. In addition to the inductive loop-based counting system, SICAD can incorporate two additional features.

First is a license plate recognition system for managing vehicle entries and exits, and second is an AI-powered camera system for counting and correlating people counter data with that of the parking spaces. with parking zones of interest or access points within the shopping center, university, concert venues, etc.

The communication is done in real-time via HTTPS and representational state transfer (REST) API, though Modbus TCP is also possible. This ensures that parking occupancy information is always up-to-date and enables immediate action in response to changing conditions, such as capacity becoming nearly full.

Importantly, this cellular router is capable of aggregating data from multiple ground-mounted detectors. This simplifies the data collection process and centralizes information from multiple devices and locations, providing a more accurate and comprehensive view of parking lot usage.

The RUT241 ensures an uninterrupted connection thanks to its WAN failover function, which automatically switches to an available backup connection if needed. On top of that, it is easy to install and then scale your solution with.

Lastly, this cellular router is compatible with the [Remote Management System](#) (RMS) of Teltonika Networks. This allows for seamless, simple, and robust remote access, monitoring, and management capabilities and minimises both the need for physical site visits and operational costs.

The RUT241 cellular router has been enabling ATISoluciones’ vehicle counter solution since 2020, and is certain to continue doing its connectivity magic for years to come.

