

SIMPLIFYING BORDER CONTROL WITH A CELLULAR ROUTER

HIGHLIGHTS

- ✓ [Adaptive Recognition](#) is a Hungarian developer and manufacturer of AI-based image processing technologies. Their technologies enable identity and traffic recognition for ensuring security, used by governments and businesses worldwide.
- ✓ Border control points must reliably identify vehicles and alert personnel of risks in real time, but remote locations, limit of human recourses, time and unstable connectivity make traditional setups challenging to deploy and maintain.
- ✓ Mounted on a vehicle and positioned at the border checkpoint, the M402 camera, RUT956 cellular router, and TSW100 industrial switch. Enabling fast, simple, and efficient automated vehicle inspections and remote monitoring. RUT956 cellular router and TSW100 ethernet switch was the final combination to solve the challenge.

THE CHALLENGE – INEFFICIENT BORDER CHECKS

Some border checkpoints currently rely on manual number plate input to verify a vehicle's crossing history and identify potential alerts in the database. This process must be repeated each time a vehicle crosses the border.

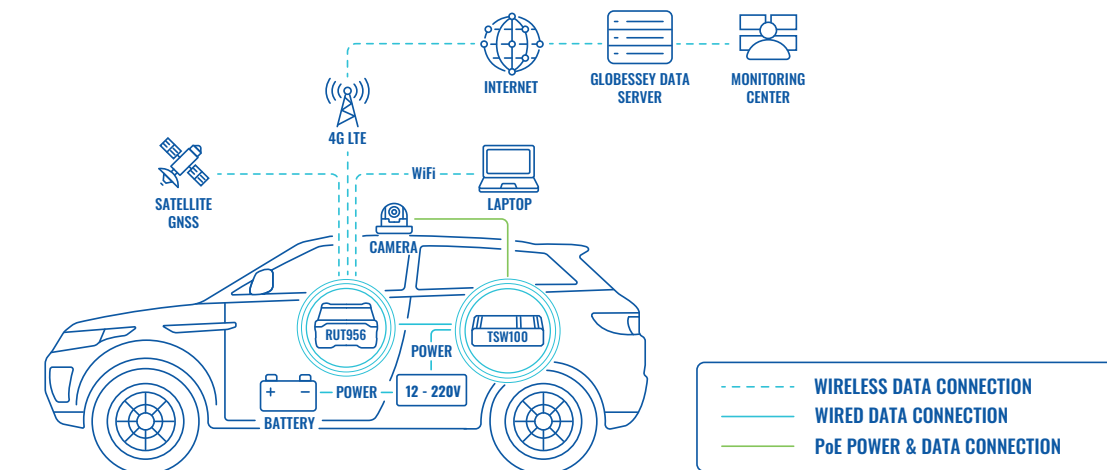
A 2019 [report](#) by the European Court of Auditors found that manual border checks in the EU often face serious limitations, including incomplete or delayed data in systems like SIS II, and frequent false positives during identity verification.

Manual verification is time-consuming, increases operational costs, and carries the risk of human error. Even a small data entry mistake can result in the misidentification of a vehicle, leading to security issues. The higher the volume of vehicles, the greater the risk becomes.

Implementing automated number plate recognition (ANPR) technology addresses these challenges. While the technology to capture and identify number plates exists, it must be integrated with the database for real-time verification.

Due to the remote location of many border checkpoints, establishing stable communication between ANPR systems and backend databases is a significant challenge that needs to be addressed for full process automation.

TOPOLOGY



THE SOLUTION – AUTOMATED BORDER CHECKS

To automate the vehicle inspection process, Adaptive Recognition deployed a mobile number plate recognition (ALPR) system at the checkpoint. Its M402 camera identifies vehicle number plates and sends the data to a central server for verification in real time.

However, ensuring continuous communication between the mobile system and backend databases requires a robust and stable network connection. To achieve this, the solution integrates Teltonika's RUT956 industrial cellular router, delivering high-performance connectivity with GNSS antenna tracking and dual SIM failover to maintain uptime even in challenging conditions.

Thanks to the easy integration capabilities of the RUT956 cellular router, recognizing license plates at the border is made simpler. This cellular router is designed to work seamlessly with various ANPR systems and backend infrastructure, allowing quick deployment without complicated setup. Its support for industrial protocols and flexible I/O ensures smooth communication between components, minimizing integration time and technical complexity.

Powering the system was a key challenge, since standard wiring isn't practical in a mobile border control vehicle. To solve this, the setup uses Teltonika's TSW100 industrial switch with PoE+ support. It delivers power to both the camera and the RUT956 4G LTE router using the vehicle's onboard power, converted to the right voltage. This makes installation easier and keeps the system running reliably without the need for complex infrastructure.

For additional resilience and control, the setup is integrated with Teltonika's Remote Management System (RMS), allowing remote monitoring, maintenance, and security management even in isolated locations.

If you're ready to unlock new possibilities for your next project, click the "Contact Us" button below — let's make your work more efficient.

