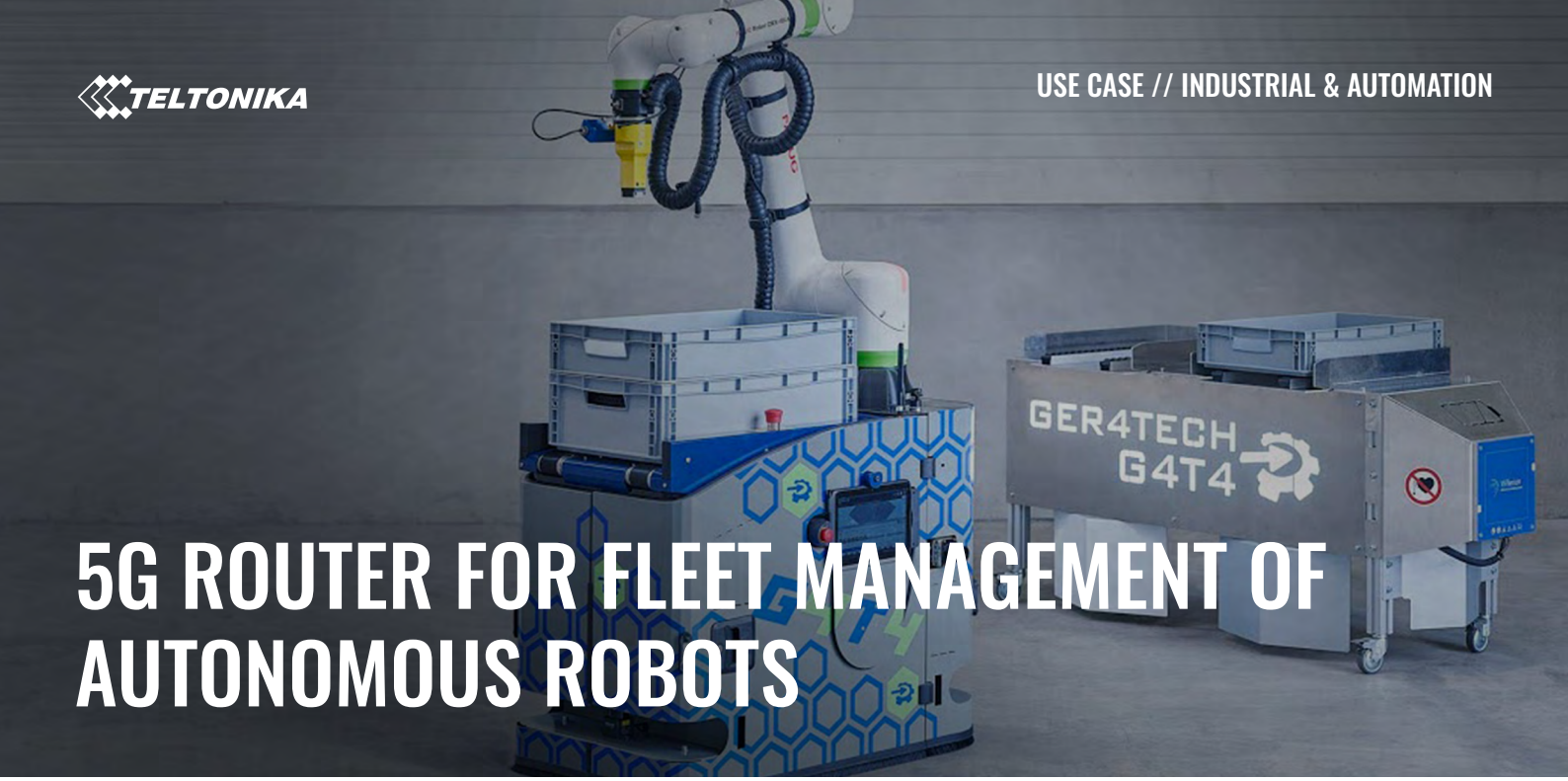



# 5G ROUTER FOR FLEET MANAGEMENT OF AUTONOMOUS ROBOTS

## HIGHLIGHTS

- GER4TECH Mechatronik GmbH is an Austrian specialist in metal and mechatronics technology. It offers advanced automation solutions, including autonomous mobile robots.
- One of its robots, G4T4 – AMC, required a reliable and extremely fast network connection to efficiently perform labour tasks while transmitting all necessary data to GER4TECH's fleet management system. This is why Teltonika's RUTX50 5G router was chosen.
- With cellular speeds of up to 3.3 Gbps, support for multiple M2M industrial protocols, and remote management capability, the 5G router ensures that GER4TECH can provide an efficient solution for its clients facing labour shortages.

## THE CHALLENGE – BEYOND THE POWER OF LABOUR ROBOTS

Filling human labour jobs has become increasingly challenging for multiple reasons, including an aging population and a workforce lacking in technological skills. Faced with such difficulties, companies inevitably experience reduced operational efficiency and higher employee turnover rates. This can contribute to falling behind in addressing the rapidly evolving needs of today's world.

Modern problems require modern solutions, so it makes the most sense to address these challenges by integrating automation technology.

To ensure that innovation and efficiency keep pace with market expectations and requirements, many companies are now considering the implementation of mobile robots that skim around their facilities and perform labour autonomously. And it's not without success!

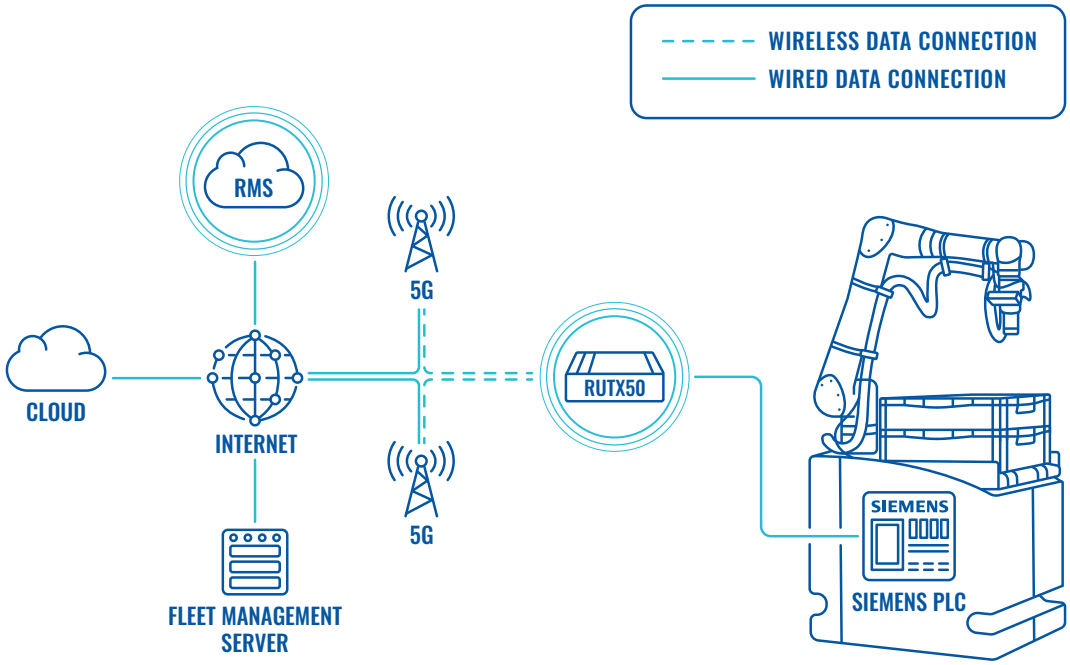
Autonomous mobile robots can be programmed to address a myriad of challenges, especially those prominent in manufacturing, logistics, agriculture, or warehouse facilities. They can perform repetitive or hazardous tasks at any time and for any duration, as long as they're fed power. Or so you might assume.

While it's crucial to keep mobile robots powered, there's another, equally significant necessity for meeting robot needs: network connectivity.

Ensuring robust connectivity is non-negotiable, as commands given to mobile robots cannot be executed without the seamless data transmission facilitating this communication. A robust Internet connection becomes even more prevalent in the context of entire fleet management in automation solutions.

Our client, GER4TECH, was aware of this and thus chose Teltonika's RUTX50 5G router to equip its autonomous mobile robots with robust 5G speeds. And dare we say, it made a perfect choice?

# TOPOLOGY




# THE SOLUTION – 5G ROUTER FOR THE WIN

Meet G4T4 – AMC, a mobile autonomous robot from GER4TECH equipped with Teltonika's RUTX50 5G router, which offers impeccable connectivity speeds that enable reliable data transmission and seamless fleet management.

The RUTX50 is connected to a Siemens PLC located inside the G4T4 – AMC via one of its five Gigabit RJ45 ports, providing the robot with mobile connection speeds of up to 3.3 Gbps and low latency. If 5G is unavailable, the router automatically switches to 4G LTE, utilising LTE Cat 20 for highly reliable connectivity. And if even 4G LTE isn't available, the RUTX50 doesn't stop there – it can still operate by switching to 3G!

Another crucial aspect of establishing this robust connectivity concerns the router's dual SIM and failover features. By having two SIM card slots, the RUTX50 has an additional WAN interface, which is highly relevant for failover. This is because failover enables the router to automatically switch between different WANs whenever the primary one fails or gets disrupted.

Such robust connectivity allows GER4TECH to establish an uninterrupted connection between the robot and its fleet management system, where data gathered from robots can be stored and analysed. And while this all sounds great, the 5G router wasn't chosen solely for its speed and reliable data transmission. It has much more to offer.

What sets this 5G router apart from others is its support of a wide range of industrial M2M protocols, such as HTTP(S), MQTT, and Kinesis. This compatibility enables GER4TECH clients to integrate its mobile autonomous robots into applications requiring specific M2M communications.

GER4TECH also uses interfaces like PROFINET or PROFIBUS to link its robots with CNC machines, elevators, and conveyor systems facilitated by the router's versatile protocol support.

If the mobile connection is out of sight, worries can be dismissed since the RUTX50 is equipped with dual-band Wi-Fi. This is very important for GER4TECH's clients, as there are cases when a mobile connection isn't available in their areas, leaving Wi-Fi as the primary Internet source for the router.

So, this router can obtain Internet from Wi-Fi, but it can also distribute it for the autonomous robots throughout the premises and other surrounding machinery on the 2.4 and 5 GHz bands. This way, the 5G wireless router ensures

that all processes, like data transmission and fleet management, perform as expected regardless of connectivity circumstances.

What's great about the RUTX50 is its compatibility with Teltonika's Remote Management System (RMS), which is a game changer for when you need to access your devices remotely. Specifically, remote management functionality over RMS Management is what GER4TECH uses to perform regular check-ups on the router to see how it's hanging in its robots.

With such integration of this 5G router in mobile autonomous robots, you can bet GER4TECH ensures that companies, such as manufacturing or logistics centres, are experiencing a transformative shift in labour from good to amazing with low latency and highly reliable data transmission.