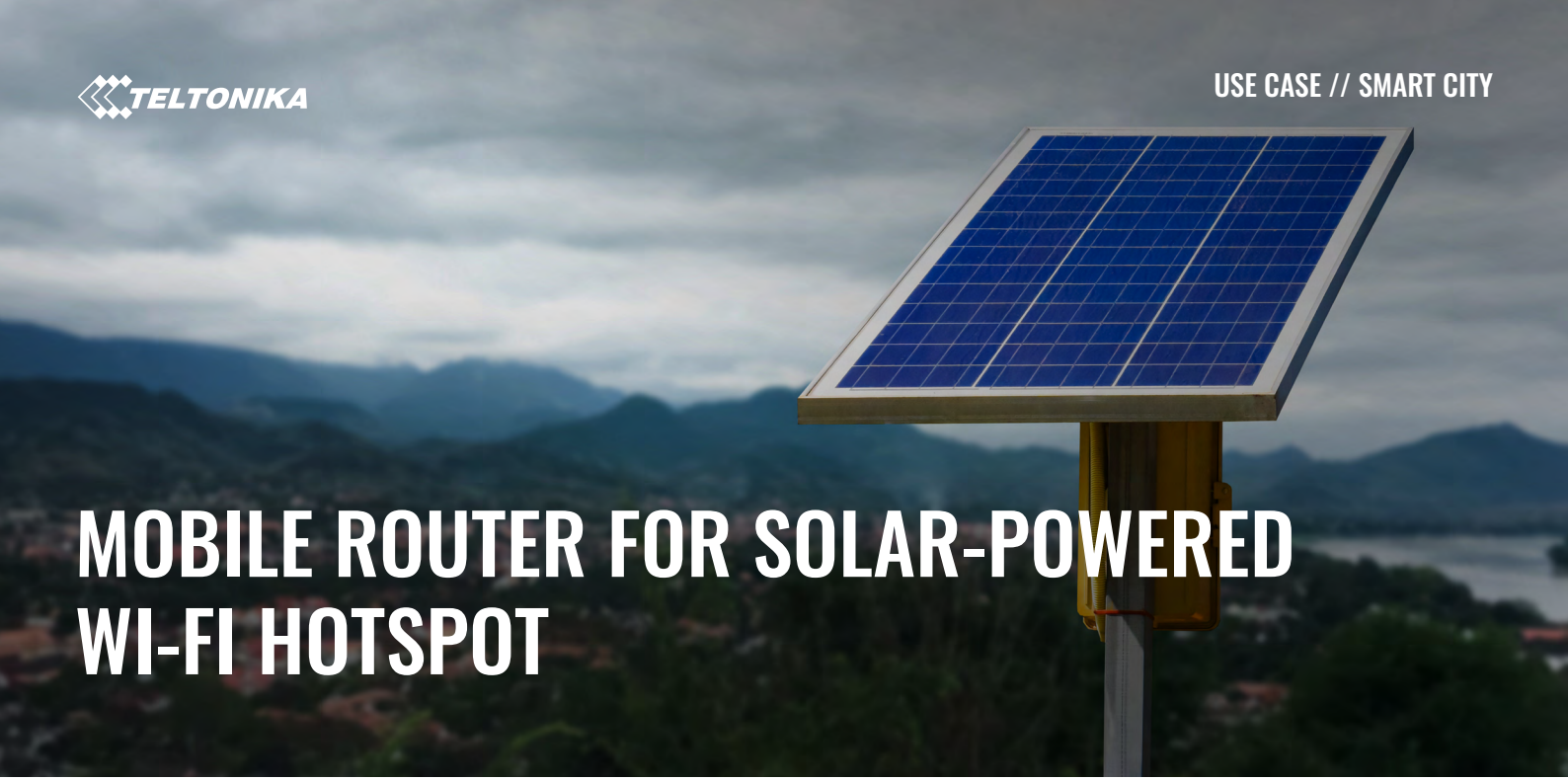


MOBILE ROUTER FOR SOLAR-POWERED WI-FI HOTSPOT

HIGHLIGHTS

- Bartech is an Israeli provider of IoT solutions, combining Edge AI, Vision, and IoT to deliver human-like smart applications.
- Bartech chose Teltonika's RUT956 mobile router for its solar-powered Wi-Fi hotspot stations. This dual-band router not only provides LTE Cat 4 connectivity in rural areas, but also enables remote monitoring and management thanks to RMS Connect support.
- The RUT956 mobile router is the perfect device for the job thanks to its dual SIM functionality with auto-failover, compact and durable design, and a wide range of interfaces—including RS232, RS485, four RJ45 connectors, and six I/Os.

THE CHALLENGE – CONNECTING THE RURAL

In 2023, 57% of the world's population was living in cities. This percentage goes higher in the Americas and lower in Africa, with other regions falling somewhere on the spectrum. According to the UN, the global percentage is expected to reach 68% by 2050.

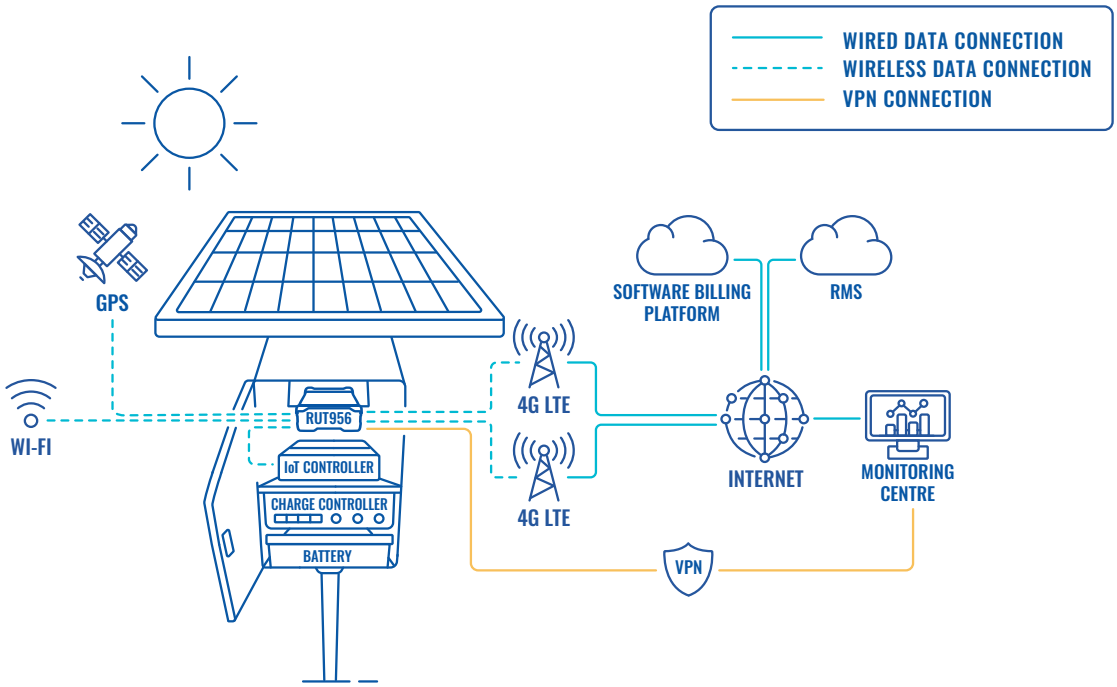
Living in urban areas, like all things, comes with pros and cons. One of the better pros is easy access to connectivity thanks to available infrastructure, leading to a higher rate of Internet usage in cities compared to rural areas, where said infrastructure isn't as prevalent.

In other words, Internet access remains a challenge to 43% of the population. While this number will fall to 32% within a few decades, it would still represent over 3 billion individuals worldwide.

It's no surprise, then, that IoT solutions providing Internet access in rural areas aren't a mere quality of life, but a substantial game changer to how people in those areas live, interact with the world, and become benefiters of modern technological innovations.

How do such solutions work, and where does their connectivity come from?

TOPOLOGY



THE SOLUTION – SOLAR-POWERED CONNECTIVITY

Connectivity may not be a natural resource in rural areas, but sunlight definitely is. Our partner, Bartech, implements self-sufficient, solar-powered Wi-Fi hotspots using Teltonika's RUT956 mobile router.

These Wi-Fi hotspot stations utilise a solar panel connected to a battery and charge controller to generate, store, and manage solar energy. Also connected is an IoT controller, which collects power efficiency data.

This data is transmitted via the IPSec protocol to a remote monitoring centre thanks to the same mobile router that creates the Wi-Fi hotspot—the RUT956.

This 4G router provides LTE Cat 4 connectivity and broadcasts its wireless signal thanks to its Wi-Fi 4 capabilities. In case 4G is unavailable in any given area this solar energy solution is installed in, the RUT956 is also backward compatible with 3G and 2G. In addition, this dual-band router is equipped with GNSS capabilities, enabling the monitoring centre to know the location of each Wi-Fi hotspot station.

As this is a self-sufficient solar energy solution, ensuring an uninterrupted connection is a must. To that end, this mobile router has dual SIM slots with auto-failover, backup WAN, and other switching scenarios. These help maintain a stable connection via seamless switching from one Internet source to another in case of any interruptions.

The RUT956 is perfect for this IoT solution in no small part due to its hardware. Compact sizing and sturdy aluminium housing with plastic panels make it built to last and easy to install in tight spaces. A wide range of interfaces enable the connection of different end devices with no need for additional adapters. These interfaces include four RJ45 connectors, an RS485 connector, an RS232 port, and six I/Os.

In addition, Bartech also deploys the Connect suite of our Remote Management System (RMS). Using RMS Connect, the remote monitoring centre uses the RUT956 mobile router to access the end devices of this IoT solution, such as the solar panel, via the HTTP, HTTPS and SSH protocols.

This makes for expert remote monitoring and management of this solar energy solution, eliminating the need to travel to the location of any given Wi-Fi hotspot station to perform any sort of maintenance work.