FAITH ON AIR: 4G ROUTER FOR SEAMLESS GLOBAL RADIO BROADCASTS

HIGHLIGHTS

- The World Family of Radio Maria, a global Catholic radio network, delivers faith-based programming to communities in even the most remote and isolated locations.
- Ensuring reliable connectivity for remote monitoring and management of transmission towers posed challenges, including difficult access, power outages, and legacy system integration.
- Teltonika's RUT956 4G router enables robust remote management, reliable FM transmitter communication over IP via RS232 and RS485 ports, and precise GNSS location tracking, addressing the unique challenges of remote tower operations.

THE CHALLENGE - NAVIGATING THE PATH TO RELIABLE BROADCASTS

For the World Family of Radio Maria, bringing messages of Christian faith and hope to listeners worldwide is a mission that comes with unique challenges. Ensuring its programmes reach even the most remote communities requires overcoming both logistical and technical barriers.

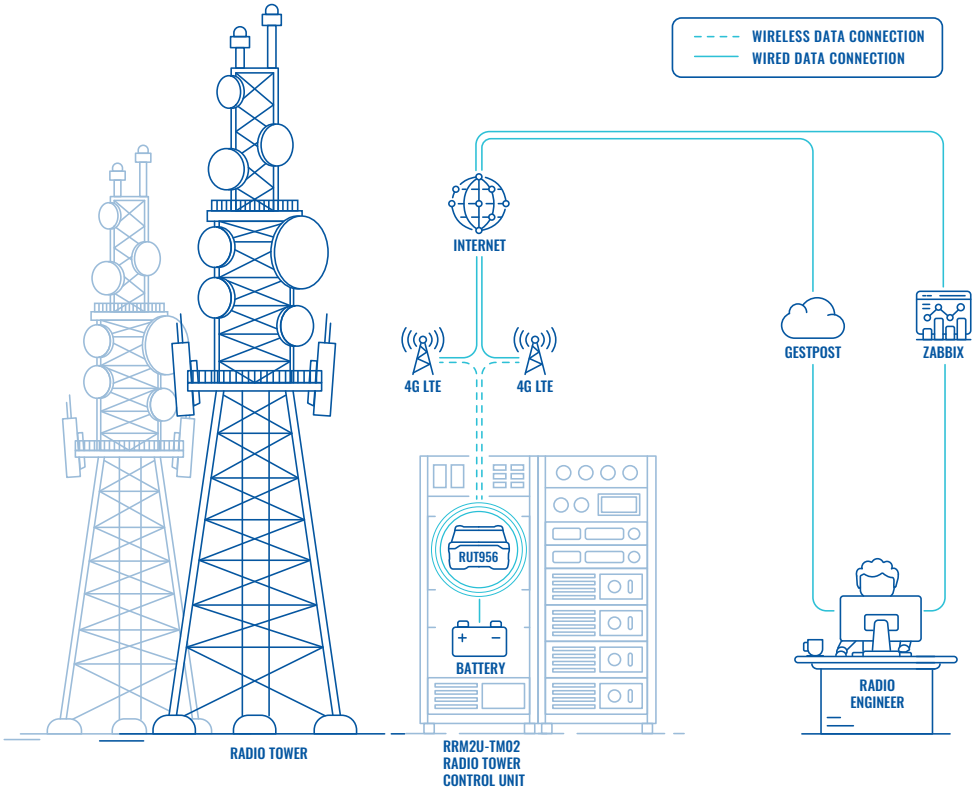
Many of its transmission towers are located in isolated regions, from mountain tops to coastal areas, chosen to maximise signal coverage. However, these locations make it difficult to monitor and maintain critical equipment, especially when access requires significant time and resources.

Another challenge lies in managing FM transmitters remotely. Keeping the network running smoothly requires tasks such as updating broadcast data and ensuring compatibility with legacy systems. Without an efficient way to handle these updates, operational consistency can be compromised.

The network spans hundreds of towers across various countries, making it essential to accurately track the locations of these sites. Precise positioning helps streamline maintenance and ensure reliable service for listeners everywhere.

Finally, unpredictable power conditions in remote areas create an added layer of complexity. The organisation needed a device that could handle these challenges while ensuring uninterrupted service, so their message could reach those who rely on it most.

TOPOLOGY



THE SOLUTION - CONNECTING FAITH WITH INNOVATION

To help Radio Maria continue its mission of spreading faith and hope to even the most remote communities, Teltonika's RUT956 4G router was seamlessly integrated into its transmission towers. This device became a vital enabler of connectivity, transforming technical challenges into opportunities for reliable broadcasting.

The RUT956 4G router serves as the nerve center of Radio Maria's telemetry system, ensuring their global network of transmission towers remains operational and efficient. Its GPIO interfaces provide real-time monitoring of critical metrics, such as transmitted power levels and audio modulation. Alerts are managed through the Input/Output service and I/O Juggler, using Rising/Falling Pin Triggers to notify the start or end of alarms via SMS alerts.

Custom bash scripts further enhance SMS management by communicating with local equipment via RS485 and leveraging the router's SMS Utilities and "Execute custom script" functionality. This seamless integration ensures swift issue detection and resolution, maintaining uninterrupted broadcasts.

By leveraging RS232 and RS485 over IP (i.e., serial over IP), Radio Maria can remotely configure FM transmitters, update essential RDS data, and maintain compatibility with legacy equipment without the need for on-site visits. This capability saves valuable time and resources, ensuring the message of faith continues to reach its audience.

The integration of GNSS is another critical feature, enabling precise tracking of each tower's location. For a solution operating across continents, this ensures maintenance teams always know exactly where to focus their efforts, streamlining global operations and reducing downtime.

Built to withstand challenging environments, the RUT956 4G router thrives in remote and rugged locations, ensuring that Radio Maria's towers continue to serve as beacons of hope, no matter the weather or terrain. Its battery-backed power supply guarantees that operations remain uninterrupted even in areas with unreliable electricity.

For Radio Maria, this IoT solution is more than a technical achievement; it is a testament to the power of innovation in supporting their mission of connection and comfort. As Tiziano Brusa, Radio Frequency Technical Support at Radio Maria, says: *"The RUT956 4G router is the perfect fit for our application. Both its software and hardware meet all our needs."*