

# MESH NETWORK ENABLING SMART FACTORY CONNECTIVITY

## SUMMARY

Industry 4.0 and the increasing scale of automation are revolutionizing manufacturing. With every developed innovative technology, less and less human interaction is required in the day-to-day operation of factories. The benefits of automation are multiple: it helps eliminate human errors, increase productivity, reduce costs and acquire valuable data for future optimization. And that is why the global industrial automation market is growing at an exponential rate, expecting to have surpassed 200 billion US dollars next year.

## CHALLENGE

In automated IoT solutions, machinery and equipment are connected into one together functioning system. Because of that, all the processes can be further streamlined and optimized by implementing data-driven changes. Naturally, automation requires reliable and secure internet connectivity that enables the devices to communicate with one another in real-time and enables remote monitoring and management of smart factory systems.

Such ample facilities as factories require specialized network infrastructure. With the growing e-commerce industry, manufacturing facilities, on average, have more than doubled over the last two decades. That means that the usual connectivity solution would not be sufficient to cover such extensive areas.

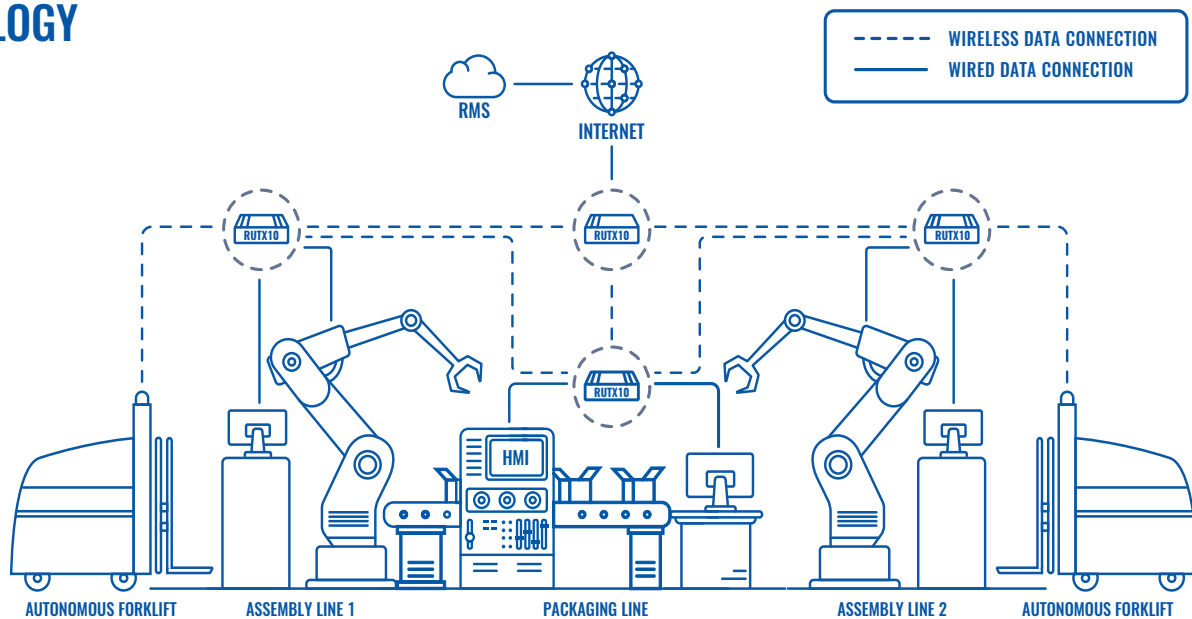
## SOLUTION

Factory connectivity solution requires professional rugged routers that can sustain the challenges of an industrial environment. Naturally, each device can only cover only a limited area with desirable signal strength. For this reason, multiple RUTX10 Ethernet routers were installed to enable a strong-enough Wi-Fi and ensure seamless operation of all the computers and machinery. While setting up one router does not take a lot of IT resources, configuring multiple to create a secure network can become a time and energy-consuming project. In such cases - creating a Wi-Fi Mesh network could be your best bet.

The 802.11s standard available in RutOS allows connecting various wireless equipment without setting up complicated infrastructure. Mesh Wi-Fi enables quick and easy configuration. All you need to do is configure one router and apply the same properties to the rest of the network via a user-friendly WebUI. Besides, if one node in the network fails or disconnects, the Mesh network will self-heal and continue the route onto the next node until the issue is resolved. This way, the network continuity remains uninterrupted, and the processes may continue as they were.

Since the factory topology includes moving objects (like autonomous forklifts), this adds another challenge: they need a fast transition between one router and another. That is where 802.11r support (aka Fast Roaming) comes into the picture to save the day. With Fast Roaming, autonomous moving machines can travel around production facilities and seamlessly communicate, quickly switching among routers of the same network.

## TOPOLOGY



## BENEFITS

- Equipped with Dual Band Wi-Fi 5 802.11 ac, RUTX10 offers high data transmission and robust wireless performance.
- Multiple supported protocols, including MQTT, Modbus, Bluetooth, DNP3, make this router suitable for industrial automation solutions.
- The solution is easily scalable due to the simplicity of the Wi-Fi Mesh network configuration.
- Advanced security features, like multiple VPN choices, Firewall, access control, and others, ensure the system runs uncompromised.
- The solution can be remotely monitored and managed with Teltonika Networks Remote Management System (RMS).
- Industrial aluminum casing of the router ensures that it sustains challenging environments and offers convenient mounting options.

## WHY TELTONIKA NETWORKS?

Teltonika Networks specializes in connectivity for industrial IoT solutions. Although our portfolio spiraled into a more comprehensive offering of networking products through the years, the industrial and automation solutions have been our primary focus area and the continuous source of know-how and expertise that helped us grow. Having been a part of so many different solutions allowed us to develop our hardware and continuously improve our software to reach the maximum potential of Teltonika Networks products.

