

ENABLING COLD CHAIN TRACEABILITY WITH BLUETOOTH

SUMMARY

The cold chain market is expanding. Since the consumption of cold produce is growing, businesses are looking for improved traceability options, including food, pharmaceutical, and cosmetics companies. A good example of the scope of the problem is a global food waste report by the United Nations where it states that over 20% of fresh produce gets lost in the supply chain between harvest and retail. The result? Huge economic, social, and environmental losses. As such, there is a growing interest and efforts in developing sophisticated cold chain traceability technologies.

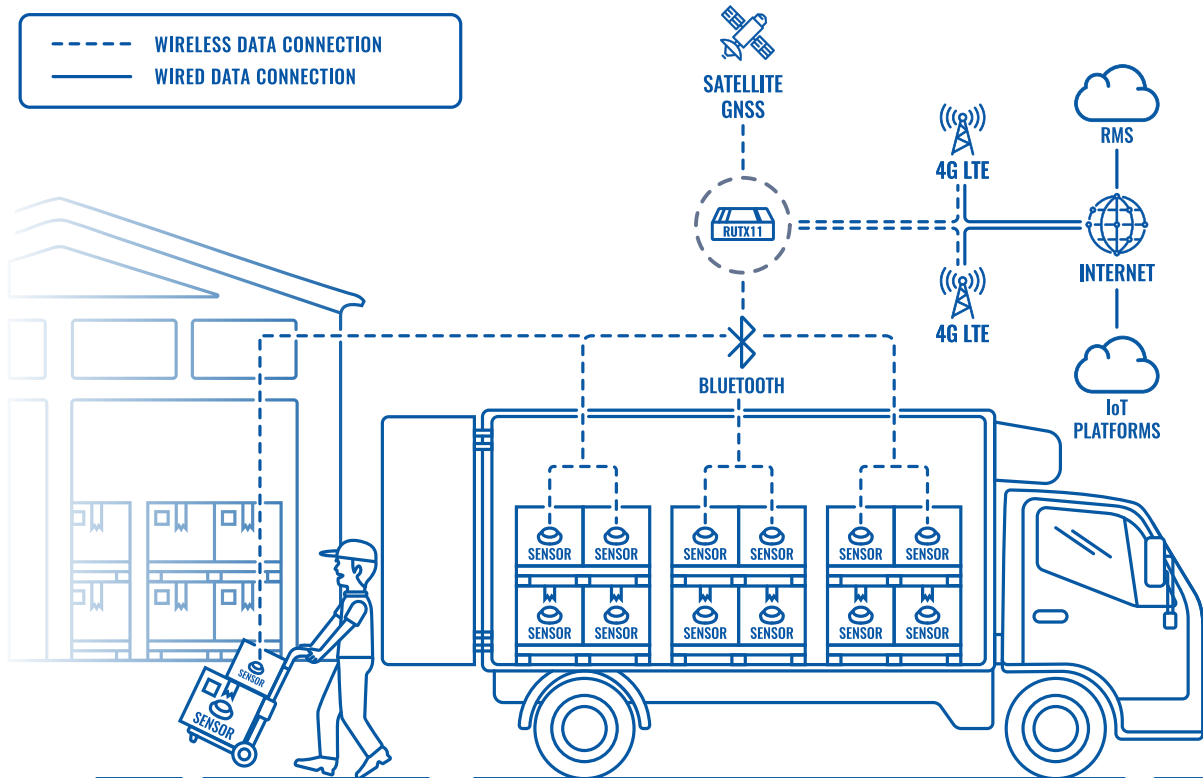
CHALLENGE

Should it be food, chemical products, or the new hot topic - vaccine, when the temperature requirements are not met even for a short period, the goods are no longer safe and need to be discarded. As this results in financial losses, the businesses are interested in possibilities to track the supply chain for accountability and prevention reasons. Besides, with products like vaccines, there is a lot more planning involved due to required follow-up doses that are also time-bound. Such goods are also an attractive target for theft or fraud. Tracking the location and movement of them is therefore essential to avoid losing or misplacing the shipment. All of these processes require effective tools and systems in place.

SOLUTION

Efficient tracking in the supply chain can be ensured by installing Bluetooth sensors on the pallets or the boxes where the products are being transported. Depending on what kind of metrics need to be monitored, there is a choice of ID (for equipment tracking), T (for temperature), or RHT (temperature and humidity) sensors, and others. Up to 200 such sensors can be connected to Teltonika Networks dual SIM RUTX11 cellular router for tracking.

TOPOLOGY



The router collects the information from the sensors via Bluetooth and sends it further to the IoT platform via MQTT or HTTPS protocols. The router is equipped with GNSS capabilities, so it can track events happening at an exact specific location. Using the sensor data allows to set up notifications whenever something out of the ordinary occurs. For example, if the temperature falls behind or gets close to a certain measure the system warns the employees and the situation can be rectified to avoid bigger losses. Or an alert may be set up for whenever an object changes its' location or leaves the premises. In general, GNSS allows to easily trace the goods inside the warehouse or during its' journey through the whole of the supply chain.

BENEFITS

- Reliable connectivity – ensured by dual SIM cellular router with auto-failover and SIM switch capabilities.
- Simple ecosystem – one RUTX11 can connect up to 200 Bluetooth sensors and the pairing process takes seconds using an NFC enabled device (like a smartphone).
- Security – since some cold chain products, like pharmaceuticals, are of interest to criminals, the data is secured by professional-level VPNs and industrial-grade protocols.
- Exact traceability – GNSS service availability on the RUTX11 router allows to track the exact location (or supply chain link) where a certain event occurred.

WHY TELTONIKA NETWORKS?

Over years of experience working with a variety of partners in different sectors, besides selecting the most compatible and optimized Bluetooth sensors, Teltonika Networks managed to also start partnerships with various top-rated 3rd party IoT platforms for data monitoring. As such, it became a one-stop shop for the whole solution. Combined with the know-how of experienced Support and R&D teams, we can offer a tailored product meeting the specific needs of each client.

