CASE STUDY

TEMPERATURE MONITORING

FOOD STORAGE IN CHEST FREEZERS AND VERTICAL DISPLAYS

Application of a temperature monitoring solution for cold and frozen food in a retail store.

OBJECTIVE

The main objective of the application was to improve the process of monitoring and controlling the temperature of vertical display cabinets and freezing chests for food storage in an *O Meu Super* retail store.

The solution developed by **Tekon Electronics** aimed at the daily and automatic recording of temperature values in the food storage equipment, to monitor changes and apply resolutions on time.

SOLUTION

TRANSMITTERS

Temperature readings were performed by DUOS TEMP transmitters with integrated probes. This low-consumption solution carries out temperature measurements, standing out for its compliance with food applications.

REPEATERS

The repeaters required and included in the solution ensured the range and redundancy of the wireless signal between the transmitters and the gateway, so that the gateway could gather the records from all measurement points without obstacles.

SOLUTION

GATEWAY
The gateway allowed for data aggregation from all transmitters. Thus, it automatically ensures network mapping, as well as its connections formation and recovery, in case of changes to the environment or communication conditions.

TEKON IOT PLATFORM
The Tekon platform enabled native integration with the other supplied equipment. With the Tekon IoT Platform, it became possible to view data in real-time and configure alarms based on the recorded temperature values. Thus, an additional layer of security is ensured, notifying users of temperature deviations that could compromise the quality of the monitored food.

TECHNICAL DETAILS

The chest freezers and vertical displays used for the preservation of food items are mandatory equipment for the correct treatment of these products, which, in the case of retail surfaces like *O Meu Super*, must have their environmental conditions controlled in the best way possible, so that they reach the end consumers in perfect condition for consumption or continued preservation.

For this reason, temperature monitoring solutions, like the DUOS sensors with integrated probe, and analysis tools, like the Tekon IoT Platform, were the ideal choice to meet the given requirements.

Furthermore, during this implementation, aimed at improving the process of temperature monitoring of chest freezers and vertical displays, the dangers associated with potential temperature changes in perishable products were always considered.

The product diversity offered by the supermarket was also a factor to consider, both in the needs perceived by the client and in the application of the **Tekon** system with multiple measurement points, since the list of devices needing measurement was extensive - 16 points, including frozen goods, beverages, ready meals and vegetables, among others.

TECHNICAL DETAILS

As a result of the space organization and the physical barriers encountered, it was necessary to place 2 repeaters, strategically located, with the purpose of ensuring a full signal coverage in the wireless network connections without communication failures.

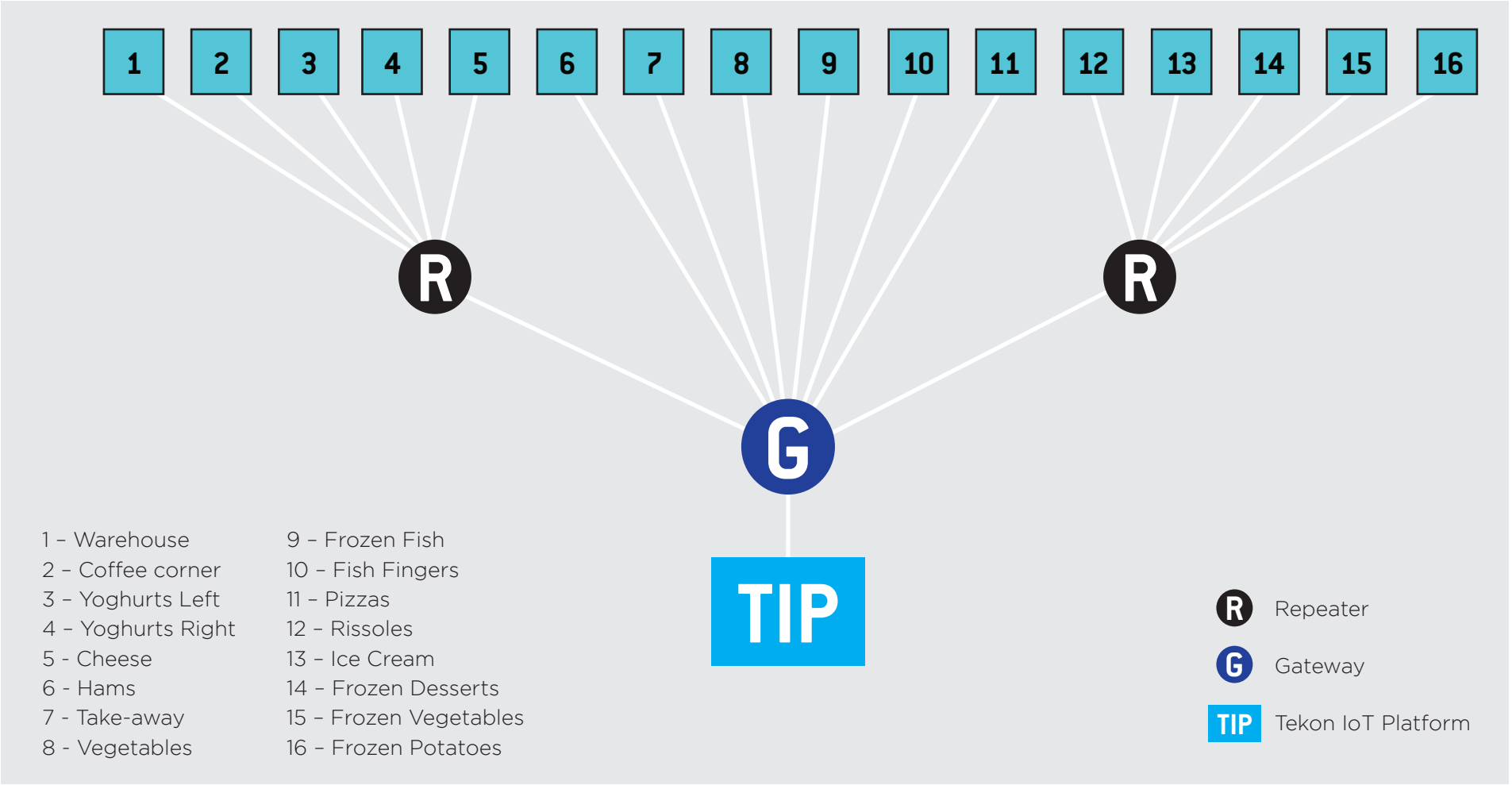
The signal coverage is further supported by *Tinymesh™* technology, allowing the DUOS transmitters to communicate with each other effectively.

The last highlight, in technical terms, is the hardware and software combination achieved with the application of the gateway and the Tekon IoT Platform.

In terms of hardware, there is an entry point for data sent by repeaters and transmitters. The IoT platform, on the other hand, acts as a data hub and allows for its analysis.

In this software solution, the most relevant tools for constant data exploration are obtained, including the display of temperatures measured in each chest and display, the creation of structured reports tailored to the client, and the sending of alert notifications in cases of significant temperature deviations, all in the cloud and with ease of remote access.

APPLICATION DIAGRAM



CONCLUSION

"We were quite happy with the solution because it saves time and it is effective."

Luísa Sampaio
Business Administrator

The implementation of a complete solution by **Tekon** in the *O Meu Super* store brought significant improvements in monitoring and controlling temperature values in the chest freezers and vertical displays of this commercial area, thus fulfilling its objective and offering guarantees to its users.

Thanks to the successful implementation of transmitters, repeaters, gateway, and the Tekon IoT Platform, the challenge of having to manually record temperatures in the fridges every day was overcome.

One of the main advantages of integrating DUOS sensors with the Tekon IoT Platform software in the client's facilities was the periodic temperature monitoring obtained and the fact that it can be constantly monitored remotely.

WIRELESS SENSORS TECHNOLOGY

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