RAKStars Success Stories

b-konnet

connected things

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Project Summary

Trade is an essential part of every economy and international trade brings in the most revenue. The process and logistics of it all are complicated things. Shipping containers prove to be useful and their management is essential for trading. Technology is here to help. As everything becomes smart, so does the business. Smart Ports and convenient asset tracking are the future of international trade and b-konnet s here to show you how it is done!

Company Profile

Founded in 2014, the company is dedicated to innovating and creating better IoT solutions for Industry 4.0. Located in Vitacura, Santiago, Chile, they develop IoT solutions that contribute to digitalizing the operations of industries in the region. Their solutions allow for better decisions to be made, based not only on measurements but also on trends, the interaction of variables, and automatic prediction through the powerful analytics engine of their platform: b-kontrol. Those solutions are specially oriented to control raw materials for aquaculture, food, industries, and integral solutions to stock control for chemicals, Good Laboratory Practice (GLP), and fuel distribution companies.

b-konnet is an IoT and M2M systems integrator and developer, specially oriented on the industrial logistics process. The company also does Big Data integrations for Smart City applications, making them available for application developers and bringing the concept to the market.

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The Challenge

The project itself is a straightforward one. The goal is to implement an asset tracking solution to be used in the management of assets by port operators.

The desired outcome for the solution is that it should offer the following features:

- Coverage both in the port area and in the bay area
- Reliability in asset tracking
- Battery-powered
- Zero maintenance

RAK Product used:

- RAK**7249** WisGate Edge Max
- RAK**5205** WisTrio LPWAN Tracker

The Solution

- Choosing equipment and testing the concept

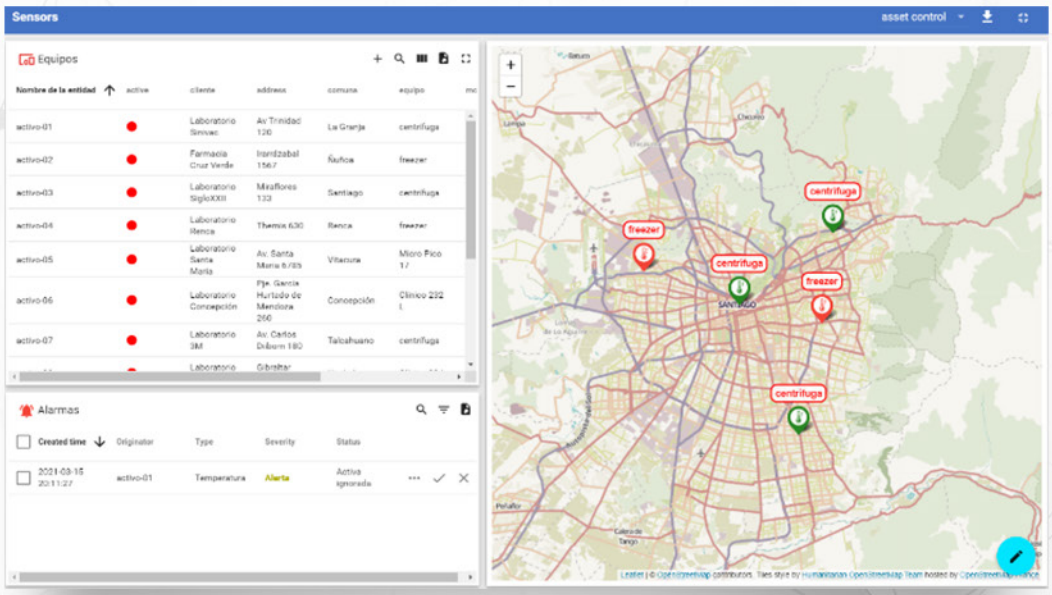
The gateway, b-konnet decided to use was the RAK7249 WisGate Edge Max for its durable casing and great characteristics. They installed it in the central area of Valparaiso bay, on a building, about 30 meters above sea level. In this position, they have verified coverage up to 10 km offshore and all the coastal areas of the cities of Valparaiso and Viña del Mar.

The RAK7205 WisNode Track devices (with the RAK5205 WisTrio LPWAN Trackers inside) were chosen
for their 3400 mAh battery and 5V solar panel. With this configuration, it is possible to have
independent power, even on cloudy days. Ideally, the battery would never require recharging via the mains and the node will operate autonomously indefinitely.

- Modifications and customization

It can be said that creativity means to have something and modify it to fit perfectly in your concept. b-konnet took the RAK7205 as a base and developed another tracker with a 5.5V panel to speed up battery charging and allow for a longer run time in even harsher environments with only batteries.

Not only that, they took things further with their other equipment modifications, designed to be implemented in assets that have their own energy provision and therefore have the option of an external 12V power supply. They even added an external antenna for both the GPS and LoRa, thus boosting the great device range even further.



• Deployment period

This project is under development, as field tests are still ongoing. As the matter with coverage is dealt with, the team is testing if the equipment can remain powered only with battery and solar panel and for how long, given the periodic tracking requirements demanded by customers.

As mentioned, in parallel, other power options were explored: larger solar panels, batteries with more capacity, and even equipment that can be powered directly from the monitored assets.

The solution that b-konnet is presenting took them approximately 3 months to develop to this stage.

• Data collection and management

For data collection and management purposes, a custom platform is used. Here's a sneak-peek:

• Implementation

Everything was put to the test in a real working environment, with some tests in a real port operation, where tracking container trucks that work throughout the port area were transporting containers for the loading and unloading of ships. The challenge was to gain full coverage despite the high stacks of containers in the port area, which block the signal.
The result was very satisfactory. There were no dead spots in the coverage of any area of the port and the monitoring could be carried out continuously without problems.

The Outcome

Alejandro Hugo, a b-konnet representative, summarized the project as successful:

> *All the objectives were achieved. It was possible to obtain more than 12 km in the bay area and offshore, and also excellent coverage in the port area and the entire coast of the cities of Valparaiso and Viña del Mar, which are located in the bay of Valparaiso, Chile.*
>
> *We also obtained very good results in tracking assets in the port of Valparaiso, so the solution can be perfectly applied to real situations controlling a large number of assets of all kinds, without having to have sources of external power supplies, which also allows it to be a maintenance-free solution.*

Apart from this project aimed at port assets, the company is developing another asset control solution for the health industry. This one aims to create an asset tracking system that allows control of the presence of expensive laboratory equipment on loan from suppliers to their clients, which are hospitals, clinics, and laboratories — a fitting cause in pandemic times.

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Achieving Goals TOGETHER

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About RAKwireless:

Shenzhen RAKwireless Technology is a pioneer in providing innovative modular IoT solutions for the three critical elements of IoT edge devices - computing, connectivity, and node sensing. Our patented, modularized, and simplified design that combines one, two, or all three elements help address diverse IoT applications and accelerate businesses' time-to-market.

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