RAJANT

CASE STUDY

# Mining Tag Chile Achieves Livestreaming In-Motion Video for Forestry


Arauco is one of the largest forestry companies in the world. Arauco's work is present throughout the entire forestry value chain, and they produce a wide variety of products in over 80 countries worldwide. From forestry through to end-product, Arauco conducts research and development that is essential to ensure sustainability over the long term. It includes Bioforest, a center of excellence to help apply the latest technologies at the center's wood pulp and biotechnology labs and greenhouses.

Central to Arauco's strategy is innovation. They promote the optimization of processes, ventures, and social and environmental sustainability, in creating their products. This focus informed Arauco's decision to engage with Mining Tag Chile for a forestry project to remove timber from a remote mountainous region of Chile.

## The Challenge

Cutting and collecting trees are complex tasks requiring the utmost focus on the safety of the personnel while ensuring the work is done efficiently. Equally daunting is the challenge of conducting semi-autonomous operations within a faraway forest environment while safeguarding workers, improving processes, and optimizing proficiency. Arauco uses Carro Bereuter products, and MiningTag provided a solution that included (1) cameras to provide live video feeds from multiple in-motion cameras to an operator with a remote controller to provide a comprehensive view of tasks (2) the wireless network to support this (3) installation and integration services to deliver a functional solution. There is no central controller, and tele-operation is done at a distance of up to 1300 feet. The operator depends on this multi-sourced video to maneuver and control the forestry equipment. Therefore, superior networking without infrastructure is required. The complexity of circumstances was facing networking shortfalls. Arauco reached out to Mining Tag Chile to provide a wireless solution to maintain the live-streaming and mobile video feeds regardless of the dynamically changing conditions.

### Location

- Southern Chile, en Maule Region

### The Partners

- **Rajant:** Pioneers of peer-to-peer radio communications enabling real-time voice, video, and data to connect machines, robots, and people together as part of a secure private mobile network.
- **Mining Tag Chile:** Founded in 2010, the Chilean company of Mining Tag uses digital transformation to increase safety and underground mining productivity through automation and optimization. This goal is achieved by developing and implementing production control and tracking solutions, using innovative, high-quality techniques for the mining industry. They then bring them to other IIoT operations.

### Kinetic Mesh Components - KM3—2409R

- 2.4 GHz, 300 Mbps, and 900 MHz, 65 Mbps transceivers
- Supports three antennas with 2.4 GHz MIMO and 900 MHz SISO transceivers

## The Solution

The MiningTag Chile team was no stranger to demanding project requirements, having worked with semi-autonomous mine industry solutions. However, this set of requirements forced Mining Tag Chile to look beyond what they knew as the existing solutions were inadequate. The team, led by Andres Quezada and Luis Ogaz, was one of many companies invited by Arauco to provide real-time connectivity and ensure delivery of the video feeds. Only a handful of prospective companies sent a proposal to Arauco with the potential to solve its mobile connectivity needs.

Of this small group, only Mining Tag Chile brought Rajant's field-proven Kinetic Mesh network up for consideration. Mining Tag Chile also proposed a complete solution, including integration work with the Bereuter Logging equipment and other machines. They successfully addressed the need to transmit and receive three live-streaming in-motion video feeds – with Rajant's Kinetic Mesh network forming the foundation.

When it came to selecting a model, the Mining Tag Chile staff knew what Arauco needed - - - a Rajant model that worked with 900MHz along with a second frequency. Where other networking options failed to overcome slopes, inclines, and not easy line-of-sight, Rajant had the meshing capability. Fortunately, Rajant's product satisfied the requirement within a relatively short lead time.

Rajant's KM3, a non-ruggedized version of its BreadCrumb® ME4, aptly suited Arauco's forestry requirement. The KM3 is intended for deployments inside pre-existing outdoor NEMA enclosures. The KM3 provides high bandwidth for real-time monitoring and dynamic mobile video transmission. With built-in network redundancy enabled by InstaMesh® software, this wireless node offers two transceivers and up to four external antenna ports, all in a lightweight and portable form factor. The KM3 also offers flexible DIN Rail mounting to make deployments even easier and faster while eliminating the need to invest in costly tower construction to support PtP or PtMP fixed technologies.

> "Our engineering team's proposal to address this problem only worked because we used Rajant and its unique mesh feature, which is designed for this challenging environment."
>
> **— Francisco Casals**
> CTO of Mining Tag Chile

## The Results

The Rajant KM3 BreadCrumb wireless radio was able to mesh moving devices, and three camera feeds all at once without interruption. Other companies were offering a pure Wi-Fi solution that needed a lot more infrastructure points and was unreliable.

Maintaining mission-critical connections in this hilly, rural environment, where trees are dynamically transferring position from up to down, was met by Rajant as Mining Tag Chile had experienced for the mining industry.

Since the initial phase two years ago, where the proof of concept was successful, Mining Tag Chile increased to using 35 KM3-2409s for Arauco. The plan for this Arauco forestry project is to scale to 100+ KM3 BreadCrumbs.

To see the full deployment of Rajant in action, watch Arauco's video.

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