blues wireless

Supply Chain Monitoring

How Velvetwire is Connecting the Global Supply Chain to the IoT with Blues Wireless

"The Blues Wireless Notecard is a game changer for IoT-enabled companies that need global connectivity to intelligent assets in motion."

Eric Bodnar, Founder & CTO, Velvetwire

Overview

The COVID-19 pandemic has caused major disruptions in our transportation and logistics supply chain, highlighting existing inefficiencies and risks. Velvetwire's industrial IoT supply chain monitoring solution allows a shipper or asset owner to follow an asset on its shipping journey across the globe, no matter whose custody it's in. These durable devices are built on the lightweight connectivity of the Blues Wireless Notecard to deliver international tracking and monitoring data, arming customers with actionable information during a time of unprecedented disruption.

A Need for an IoT-Connected Supply Chain

Today's supply chain is complicated, with products changing hands up to 20 times in a typical global transit. The COVID-19 pandemic has put a critical spotlight on global supply chain deficiencies and inefficiencies across every business sector. We're experiencing protracted shipping schedules as ports are closed or congested, and there is a shortage in labor, containers, ships, and flights. Cold chain delivery and monitoring is particularly impacted as populations around the world require direct delivery of perishables like food and critical medication such as the vaccine.

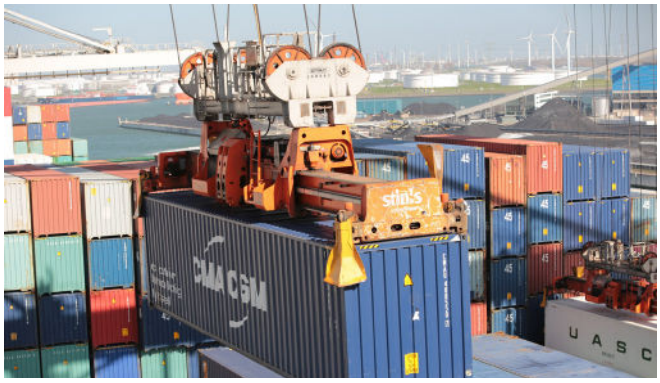
There are a lot of moving parts, and no unified approach for tracking where something is. Until recently the industry has relied on data loggers. Data loggers are devices that sit on the outside of shipping containers and collect data on the conditions of materials during transport or storage. The use of a data logger presents three significant challenges:

1. **Offline** – It requires human intervention to find the device on the container or asset and plug it into their computer to transfer the data. This is clumsy and costly.
2. **Single Use** – Data loggers were purchased and discarded without being reused. This was a capital expense for companies and has a large environmental impact as well.

3. **Zero Visibility** – No way to make informed decisions about your assets without intercepting the shipment and manually pulling data from the device.

Because assets move locations and owners, decisions need to be made on rerouting due to delays, cancellation due to a problem, or involving insurance due to damage or unmonitored conditions. For those who can't get information on a timely basis, it becomes difficult to assess who's responsible for loss, and they can't mitigate issues that delay shipment and can destroy product that relies upon a stable environment.

An IoT Solution for Data Loggers



Disruption of condition monitoring within a facility or transportation of component goods can lead to millions of dollars of losses per day. The industry has been clamoring for a better solution to monitor assets during transport that doesn't require human intervention and can give up-to-date visibility into what's going on. This need for an independent and digitized network inspired Velvetwire to think about how to modernize the data logger.

To get real-time visibility without requiring human intervention they knew they needed a cellular-connected industrial supply chain IoT monitoring solution. This would allow businesses to access data remotely and customize the device based on what conditions were required to maintain the value of their product during transport. This could be, for instance, the strict temperature requirements necessary for cold chain transport of vaccines.

Due to the schedule and resource challenges caused by the global pandemic, a critical aspect of an asset tracking solution is its ability to function unmanaged over many months. A device in which the battery life only lasts two weeks is not going to be viable, as the system needs to be operational and reporting on information for at least six months. According to Velvetwire's Founder & CTO Eric Bodnar, most IoT solutions missed the mark on battery life. He was preparing for the time and expense required to build their own solution until they discovered Blues Wireless.

> *"We recognized early on that to make a product like ours successful, battery life is critical. The industry has been focused on network topology that doesn't makes sense for battery life. Blues is the only company that recognizes this problem and understands the value of intermittent, light-weight connectivity, and the need to accumulate and synchronize data."*
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> *Eric Bodnar, Founder & CTO, Velvetwire*

Velvetwire is one of Blues Wireless' earliest customers, because they found that Blues focused on solving the practical issues that can make it difficult to prototype an IoT device. Velvetwire augmented their development team with the Blues Wireless team, cutting several years of development work off Velvetwire's launch timeline.

A Smart Supply Chain Monitoring Solution

Leveraging the out-of-the-box functionality of the Notecard, Velvetwire quickly delivered devices to their customers for evaluation. Their industrial IoT supply chain monitoring solution collects critical Condition, Location, and Identity (CLI) data during vaccine and food manufacturing and distribution, as well as with global logistics companies who need critical CLI data for effective multi-mode shipments in the cold supply chain. Several customers came in with urgent needs or with their own deals contingent upon the success of their device, and Velvetwire was able to respond quickly with a targeted solution.

> *"We were faced with building IoT connectivity ourselves but luckily we found Blues Wireless that fully embraces the same philosophy we have about how to make this practical in the real world."*
>
> *Eric Bodnar, Founder & CTO, Velvetwire*

Their frictionless, pay-as-you-go model provides actionable CLI data for business-critical assets that are in motion. Customers activate with an app, and there is no punishment for how long you track something or what you track, there are no special fees, and global coverage and data is included. This allows Velvetwire to serve companies at scale, with their customers ranging in size from large pharmaceutical companies distributing billions of doses of vaccines for COVID-19, to small wineries who have a handful of shipments a year to distributors around the world.

By leveraging Blues connectivity, Velvetwire integrates timely CLI data into its comprehensive supply chain monitoring solution. Their connected industrial IoT CLI solution includes these essential components:

1. **Stickershock™ Tracker** powered by the Blues Wireless Notecard™ provides critical alerts concerning the Location and Condition of assets in transit, world-wide, via mobile app and cloud.
2. **Stickershock™ Sensor** provides comprehensive data about the Condition and Identity of goods at every step of the supply chain, including temperature, humidity, orientation, breakage, shrinkage and mishandling.

3. **Ubiquitous Connectivity** using the Blues Notecard's 4GLTE, Cat-M1 and NB-IoT networks across 137+ countries.

Various use cases require a suite of sensors for condition monitoring, making custom configuration a critical offering of their devices:

- Pharmaceuticals: temperature and humidity
- Lab equipment: breakage
- Remote assets (eg. wind turbines): impact and frost
- Critical machinery (eg. forest firefighting equipment): GPS and machine health

Tangible ROI with Data-Driven Visibility

Velvetwire is disrupting the shipping and logistics industry with their simplified transactional model to asset condition monitoring. Access to high-integrity data creates measurable value for all stakeholders at every stage of the logistics journey. In contrast to data loggers, the Velvetwire IoT solution provides real benefit to customers:

- Online – With OTT networking everything works out of the box and eliminates the need for human intervention. Tracking and condition monitoring data is pushed to the cloud as often as once an hour.
- Reusable – The devices are rechargeable and can be reconfigured, supporting green initiatives and making it an operational expenditure.
- Full Visibility – Data-driven visibility across the supply chain results in greater asset security, improved business agility, compliance capabilities, and tangible ROI.

Insight into the location and condition of their assets empowers customers with the ability to make timely decisions. Quantifying the value of accurate condition monitoring is difficult, however, each container-load represents a range of value and risk for Velvetwire's customers. Small winery shipments represent hundreds of thousands of dollars while large pharmaceutical shipments represent millions of dollars.

How to Learn More

The pandemic-related disruptions in our transportation and logistics supply chain have highlighted ongoing challenges. Stakeholders need actionable information about assets in motion, and the opportunity to solve problems in real-time. Using the lightweight, low-power connectivity of the Blues Wireless Notecard, Velvetwire's Stickershock™ IoT solution is a single source for tracking the location and condition of business-critical assets as they're transported across the globe.

Stay up to date with the latest breakthroughs in Wireless IoT technology and applications. Visit us at Blues.io, subscribe to our newsletter, or reach out to us through chat.