



SAFETRANSPORT MAKES THE SCHOOL COMMUTE MORE SECURE WITH THE POWER OF PARTICLE

BY NICK JOHNSON

ComputerAid, Inc. (CAI) is using Particle's Asset Tracker and cloud platform to bring greater visibility to your kids' commute. CAI's school bus tracking solution, SafeTransport, allows administrators to see where their buses are, and how fast they're traveling, at every step along their route. And by switching from a previous hardware platform to Particle, CAI was able to cut their overhead costs in half, and fuel growth into new school districts.



INTRODUCTION

When determining the viability of an asset tracking application, three key variables are often considered – the asset’s value, its overall risk profile, and the total cost of implementation. In the past, the high price of connectivity made it so tracking was reserved for only the most high-value, high-risk of items. Shipping expensive, volatile chemicals cross country, for example, would likely justify the exorbitant expense of tracking technologies.

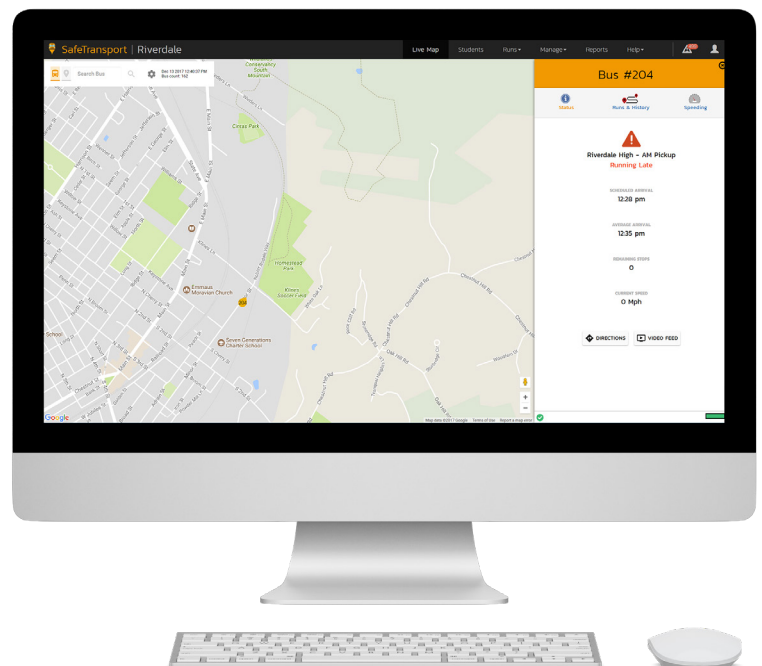
Today, however, the development of the Internet of Things (IoT) is tipping the balance of that equation toward widespread application. With the advent of small, inexpensive microcontrollers, and increasingly low data costs, asset tracking is becoming economically viable in more and more fields and use-cases. Countless assets are now being tracked in real time and across large geographical expanses.

And yet, the vast majority of American school buses still remain completely unaccounted for while on the road. In many cases, neither parents nor school administrators know the location or state of the school bus until it arrived at its destination. And what asset is more valuable than the safety and wellbeing of children? It was precisely that disconnect that compelled Computer Aid, Inc. (CAI) to create SafeTransport – a real-time school bus tracking and monitoring solution for security-conscious school districts.

BACKGROUND

First launched in 2015, SafeTransport currently services three large school districts in the Lehigh Valley region of Pennsylvania. Each day, the SafeTransport system tracks and monitors roughly 300 buses as they weave across the region, carrying thousands of children to and from school.

In addition to real-time location tracking, SafeTransport also provides live state monitoring around metrics such as speed, power cord connectivity, and battery life. That data is then sent through the Particle device cloud to the end user. Parents and/or school administrators can then follow th state of the school bus on an easy-to-use, Google Maps based interface.



BACKGROUND CONT.

Data can also be retrieved and saved in the form of detailed reports, which administrators can then maintain for recordkeeping and disciplinary purposes. Administrators can request comprehensive speed-limit reports, for example, which help to ensure driver safety and legal compliance. All speeding violations are visualized as colored dots superimposed over the map. Orange dots are used to represent minor overages (5-10 mph over the limit), while red dots represent excessive speeding (≥ 11 mph over).

As CAI deploys SafeTransport in more and more school districts, they continue to update and add to the system's capabilities and functionalities.

LIMITATIONS TO SCALE

The first iteration of the SafeTransport system utilized Android phones to serve as tracking devices for their fleet. The phones' built-in Global Positioning System (GPS) made for a fairly simple implementation process; and its complete operating system (Android) facilitated a wide range of functionality. CAI could remotely control each device over the air, allowing them to do anything someone could do with their hand from afar.

However, the devices required a fair amount of tinkering and development to get them to work as asset trackers, rather than phones. What's more, the Android-based devices were also costly, power inefficient, and data hungry. Despite early success with their business model and user interface, CAI soon realized they would need to find a hardware alternative that's better suited to large scale deployment.

"We had a solution in place," said Peter Balestrini, Senior Solutions Architect at CAI Labs "But we quickly ran out of runway with that hardware. Thankfully, we had designed the system so that the [cellphone] was basically just a plug-in component. So, when we moved to Particle, all we had to do was remove the old units and replace them with the Electron-based hardware. The whole process was pretty seamless."



PARTICLE POWERS A SOLUTION



With the Particle Asset Tracker, CAI found a fully-integrated, off-the-shelf tracking solution for a competitive price. Although they considered a variety of connectivity solutions – including developing their own proprietary hardware – CAI ultimately selected Particle to serve as the engine of their service.

“CompAid has existing relationships with organizations that could have outfitted us with the necessary hardware for this application,” Balestrini said. “But in the end, we had to take price and practicality into consideration. The Particle solution was much better for us economically and it works very well.

“Their asset tracker is as close to purpose-built as you can get; and certainly everything we need for this application.”

CAI also employs a service-based sales model for SafeTransport, which comes with certain financial implications that don’t typically apply to traditional hardware businesses.

“We charge our customers for the service, rather than the devices themselves. So, it takes us some time to recoup our upfront hardware costs. That’s why the price point is extremely important, and it also plays a role in my ability to get school districts on board. If I had to sell an exorbitant piece of hardware for \$1,200, I wouldn’t get many customers.”



“As a result of switching to Particle, we’ve reduced our monthly, per-unit overhead by half.”

BEYOND DOLLARS AND CENTS



Although price is undoubtedly a key consideration for all businesses, CAI explained that their decision to use Particle was influenced by other, equally-important factors as well. And chief among those were ease of implementation and support.

"Unlike a lot of hardware providers, Particle has a cloud platform of their own," said Balestrini. "So, I can have my units ride directly on the Particle platform for cellular service and device management. That, plus them having their own data plans, made integration really easy."

"The other major benefit is the community. Whenever our development team came across any problems, we would post a question to the community forum and we'd usually receive a response within minutes. The engineers at Particle have also given us code snippets to try, and they've had a lot of success. If we had built our own proprietary device, we wouldn't have had anywhere to turn when problems came up."

**"It's just nice to know that you're not on your own.
It's nice to know that you're being supported."**

CONCLUSION

When people talk about "Asset Tracking", it's most often in the context of things like supply-chain management, shipping, and logistics. But, as reliable, inexpensive IoT technologies continue to grow, those perceptions are bound to fade. As the case of SafeTransport illustrates, internet-connected technologies can be used to track and safeguard virtually anything we hold dear - whether it be industrial chemicals, or kids.

Innovative companies like CAI are leading that charge, and fully-integrated IoT platforms like Particle are helping them do it. By bringing the physical world online, the Internet of Things stands to make our lives safer, more transparent, and more efficient. And thanks to companies like CAI, those changes are already well underway.

LOOKING FOR MORE INFORMATION?

Visit particle.io/sales or contact sales@particle.io

