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Atlanta Streetcar

Digital Rail Services help deliver a safer, smoother and more efficient ride through downtown Atlanta.

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In Downtown Atlanta, the Atlanta Streetcar is pioneering a state-of-the-art approach to managing its light-rail vehicles. In partnership with Siemens Digital Rail Services, the transit agency is leveraging a cloud-based platform to generate real-time insights into streetcar performance and to store and manage event information. Part of an ongoing initiative to digitalize its operations, the Atlanta Streetcar is already using the data and analytics delivered by Siemens to enhance safety and improve operator performance.

Client Objectives

The Atlanta Streetcar is Atlanta's newest public transportation option. Running on a 2.7-mile loop, it serves the downtown area with 12 stops and offers easy hop-on, hop-off access. Safety and operator performance are critical to its daily operations.

Each of the Siemens-built streetcars generates a wealth of trip information and data. Officials at the Atlanta Streetcar saw this data as an untapped resource for enhancing operations and overall performance. However, accessing data from rail vehicles is challenging. On most rail vehicles, it is stored within on-board systems and has to be manually downloaded for analysis.

In order to ensure the best service for riders, the Atlanta Streetcar needed a service to automatically and remotely capture vehicle data and present it in a user-friendly way to its engineers, supervisors and executives. The ideal solution would also encrypt and store the vast amounts of historical data in the cloud and make it easily accessible via a secure website.

According to Marwan Al-Mukhtar, executive director of the Atlanta Streetcar, "We needed a means to show us on-demand what each vehicle is doing. And we also wanted to see the performance history for particular cars, drivers and our entire fleet." The project required a partner with the right combination of digital analytics know-how and rail industry expertise.

"We are now equipped to solve issues quicker, more efficiently, and without delay, and also be more efficient in our maintenance and operations."

Marwan Al-Mukhtar
Executive Director
Atlanta Streetcar

Digital Rail Services provide the Atlanta Streetcar with real-time visualization of its vehicles' operations.

Siemens Solution

The Atlanta Streetcar chose Siemens Railigent® to help digitalize its operations. Railigent – powered by MindSphere – is the application suite to manage rail and infrastructure assets smarter.

Through Railigent, the Atlanta Streetcar's operations team has access to current trip information transmitted from its vehicles using cellular technology. Real-time data includes location, boarding/idling times and feeds from internal and external vehicle cameras. It also records, displays and stores operational information, like driver performance metrics, brake usage, along with maintenance-related KPIs like miles traveled, completed trips and usage of vehicle components.

Incorporating digital services is a cost-effective process. Siemens was able to add connectivity without installing costly new sensors. Simon Davidoff, head of Siemens Mobility Digital Services in North America, states that "We are providing fast access without the excessive expense of sensors. We are accessing the data that is already being generated but has not been tapped into." It's an approach that can be applied to any type of urban transit looking to enhance their operations through the use of data and analytics.

After the data is extracted, it is securely uploaded to the Railigent cloud-based suite. Advanced algorithms turn the raw data into relevant insights that are transmitted to an intuitive user interface. Vehicle data is also securely stored long-term within Railigent; as a cloud application, storage capacity is essentially unlimited.

The Atlanta Streetcar remains the owner of all its data, and vehicle insights are easily and securely accessed via a web application by approved personnel. "We are able to take the pain away from manual extraction," states Mr. Davidoff. "You can now see how a railcar is traveling, how fast or how it is braking. You don't have to wait for a manual upload, we make it possible to see it within a few seconds, apply data analytics and automate the whole process."

Client Results

The use of digital services is creating a safer, more comfortable ride for passengers of the Atlanta Streetcar. This is thanks in part to the monitoring of operator performance—which is tracked by matching vehicle data with the Atlanta Streetcar's operational logs. This provides educational opportunities for operations and maintenance staff to ensure safety and customer satisfaction. The result is less braking and smoother acceleration and deceleration. Improved vehicle operation also offers the long-term benefits of greater vehicle efficiency and less wear-and-tear on components.

In addition, the capturing of trip data and video footage provides the Atlanta Streetcar greater confidence in addressing any potential liability claims. With the ability to store data and video long-term, the Atlanta Streetcar is able to investigate cases relating to alleged injuries by gaining insights into vehicle and driver behavior at precise dates and times.

Looking to the future, officials at the Atlanta Streetcar see great potential for using digital services from Siemens to reduce costs through improved maintenance and operations. Taking a "big data" approach will enable more predictive maintenance and provide supervisors and operators with insights on how vehicles can be operated more efficiently over the entire vehicle lifecycle. "When operations become more efficient, then our maintenance becomes more efficient and our parts costs are more efficient," notes Mr. Al-Mukhtar. "Efficient operations also reduce power use and are more environmentally friendly; and this system can tell us the best way to do that."

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