Stratio Automotive

Supporting Bus Operations and Maintenance with AI

Predictive Maintenance: The Key to Efficient, Reliable Public Transportation

The lack of visibility into key aspects of every fleet business, combined with manual tasks that require human intervention at all steps, limits both the efficiency of public transport operations and the amount of people that can access key services and opportunities.

The general public doesn't realise it because we are used to the way it has always been, but a large part of the transportation industry is still labour-intensive, requires manual input every step of the way, and maintains a degree of separation between areas of the business that impedes real visibility and monitoring.

The result is a continuous, tremendous drain on repair and maintenance, fuel / energy costs and productivity losses. This is where predictive maintenance comes in – we created Stratio and developed our technology

to change the paradigm of how transport companies think about the maintenance of their vehicles, and solve the problems that prevent public transportation from being as efficient and reliable as it can and should be.

With advanced AI and ML algorithms, our platform analyses billions of vehicle sensor datapoints and turns them into predictive intelligence that allows transport operators to know when a component might fail... before it does. This enables the streamlining, digitalisation and automation of maintenance operations in a way that wasn't possible before.

It's a bit like being able to see the future – AI can spot patterns that humans can't, sifting through and analysing amounts of data that it would be unthinkable to process manually.

The intelligence that this process generates can also be turned into automated maintenance plans, and is fully integrable into other platforms, systems and tools.

This intelligence allows public transport operators to pursue a zero-downtime strategy that enables them to save costs, improve operational efficiency and offer a more reliable service to passengers.

The most advanced predictive fleet maintenance platform — Stay competitive by keeping your fleet on the road. Actionable, predictive insights that eliminate unplanned downtime and prevent breakdowns. — stratio

Transitioning to Electric Buses Successfully: The Battery Cortex Project

The European Green Deal has set ambitious targets of reducing greenhouse gas emissions by 55% by 2030. With the EU's ban on ICE vehicle sales set for 2035 also looming large, transitioning to electric vehicles has never been higher in the priorities of public transport fleet operators.

However, electrifying an entire bus fleet while remaining profitable is no small feat. Electric vehicles are a relatively new technology, and the upfront cost of an electric bus is still significantly higher than that of an ICE bus, meaning that a solid strategy needs to be put in place to compute the life-cycle costs of the transition.

Batteries are by far the most expensive component of electric buses, accounting for an average

of 40% of the cost of the vehicle. Therefore, their performance and their lifespan are key factors influencing the total cost of ownership of electric buses and can make the difference between a successful investment and an unsuccessful one.

To tackle these challenges, Stratio partnered up with Caetano Bus and the University of Halmstad to set up the Battery Cortex project, aimed at providing EV OEMs and fleet operators with insights into the quality, faults and anomalies of the battery packs, the most critical component in EVs.

What is different between existing AI models and those developed by the researchers of the Battery Cortex Project is that, rather than just collecting and analysing battery data, the framework they designed also takes into account vehicle data. This is important because the variables that influence the lifespan of an electric bus's battery pack

include things like air conditioning and external temperature; therefore, the more granular the data collection is, the better and the more accurate the prediction will be.

The Battery Cortex project and its findings were instrumental for Stratio to be able to offer a mature and reliable predictive fleet maintenance service for electric vehicles. The AI and ML algorithms developed by the researchers were incorporated into the Stratio Platform, which can now serve electric and ICE fleets alike.

This also means that, while extending the life-cycle of battery packs, public transport operators can keep their electric buses on the road with predictive maintenance analytics, integrated and automated to give maintenance managers a single pane view of the state of health of their vehicles, whatever the type, brand, model or age.

Unparalleled Visibility to Maximise Operational Efficiency

To eliminate costly unplanned downtime, maintenance operations need to work like a well-oiled machine. From the head office to the workshop, visibility is essential to ensure that all teams are working in concert, following accurate servicing schedules to keep vehicles on the road.

For this reason, Stratio has been designed to have a fully open API that enables the free flow of data across different tools and systems. In particular, software company Freeway Fleet Systems, which provides systems to many of the UK's largest bus operators, has joined forces with Stratio to bring the latest predictive maintenance technology to the UK bus and coach market.

Freeway is designed to improve asset management, compliance and fleet maintenance with a paperless solution working seamlessly across different platforms. The system automates asset management, maintenance, defect management, stores and stock control, purchasing and compliance. With a centralised system that can operate across multiple sites, Freeway synchronises with mobile devices used by workshop technicians, drivers and managers, to provide enterprise-wide visibility on the status of the entire fleet.

"There have long been demands for live diagnostic data from vehicles to be incorporated into vehicle maintenance planning," says Patrick Tandy, Managing Director of Freeway.

"With Stratio's smart technology there is at last a solution that delivers exactly what operators want. We see Stratio as a real game-changer and work to integrate our respective platforms is already underway."

At Go-Ahead Ireland, Stratio's platform has been successfully integrated with Freeway to provide crucial, real-time, information of on-the-road vehicle performance and condition. Freeway receives vehicle sensor data live from Go-Ahead buses via CAN bus.

Stratio also collects wheel and tyre pressure data for Freeway from an integration with Wheely-Safe, a wheel-loss prevention system. This provides a single point of visibility into the operation and, through business analytics, gives a comprehensive insight into the costs of running the fleet.

You can meet Stratio and Freeway Fleet Systems at the Euro Bus Expo 2022, at booths **T60**, **T62** and **T92**.