

Ampere Electric enables real-time insights through IoT-powered telematics platform



Client profile

Ampere Electric, a key player in India's electric two-wheeler market since 2008, offers reliable and cost-effective scooters. 200,000 units have been sold via a network of 210+ dealerships across 139 cities.

To address the limitations of traditional Bluetooth connectivity and meet tech-savvy consumer needs, Ampere sought a cost-efficient, scalable data solution that can integrate with their IoT platform.

NTT DATA developed a scalable IoT-powered telematics platform for Ampere Electric, enabling real-time vehicle insights, automating issue alerts, enhancing efficiency and supporting data-driven decisions. The solution integrates tools like Apache Beam, VerneMQ and BigQuery, with dashboards for real-time performance tracking and long-term data storage.

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NTT DATA has been instrumental in building a dynamic, scalable and secure telematics layer for our connected vehicle platform. Their understanding of our requirements and how to bring those requirements to life using Google Cloud is commendable. The team also put in extra effort to help test the platform with the devices deployed in our vehicles.”

Amaresh Prasad Nayak, Assistant General Manager,
Greaves Electric Mobility

Business need

Enabling agile, cost-efficient telematics for evolving IoT demands

- Developing a cost-efficient, scalable and robust telematics platform from scratch
- Adapting the database structure to accommodate evolving IoT devices and new variants
- Ensuring optimal platform performance and interoperability across all components
- Managing the complexities of planning and architectural adaptation to meet dynamic requirements

Solution

Transforming EV operations with scalable, insight-driven telematics

NTT DATA delivered a seamless, secure and intuitive experience for Ampere EV users. We developed a scalable IoT-powered telematics platform for Android and iOS, offering real-time insights across all electric vehicles.

The platform enabled Ampere EV to monitor performance metrics, identify issues and promptly address them through automated alerts. This approach enhanced operational efficiency and ensured cost-effectiveness while supporting data-driven decision-making.

The pilot phase was made up of 80% IoT devices and 20% Bluetooth-connected mobile phones, collecting data from various vehicle components such as the battery, motor and engine/flags.

A scalable, self-managed and fault-tolerant Dataflow pipeline was built using Apache Beam. VerneMQ facilitated communication with MQ Telemetry Transport (MQTT) clients, pushing data to Pub/Sub topics for processing. Dataflow handled real-time data processing before transferring it to BigQuery cloud, the designated target layer. Dashboards were created using Looker Studio over BigQuery tables, enabling the monitoring team to track vehicles in real time.

Google Cloud Storage was implemented for long-term data storage and archival. The platform generates both trip and daily activity summaries for Ampere EV vehicles. The dashboard provides key performance metrics, including active and idle vehicles, total trips and motor or throttle error occurrences.

Outcomes

Enhanced efficiency and insight through real-time telematics

NTT DATA partnered with Ampere EV to deliver a tailored, scalable and future-ready telematics platform addressing their unique business needs. Leveraging expertise in IoT, cloud computing and real-time data analytics, we provided end-to-end support — from designing a robust architecture to deploying the solution and enabling ongoing optimization.

Our cost-effective approach ensured a secure and high-performing platform that seamlessly integrated with Ampere EV's evolving IoT devices. By developing intuitive dashboards powered by Looker Studio and BigQuery, we empowered Ampere EV to monitor vehicle performance in real time and make data-driven decisions. This collaboration exemplifies our commitment to delivering impactful, business-focused solutions.

Highlights:

- **Faster data communication**
VerneMQ enabled interaction with MQTT clients, transferring data to Pub/Sub topics faster.
- **Implemented real-time data processing**
Dataflow was utilized to process data in real-time before loading it into BigQuery.
- **Enabled real-time vehicle monitoring**
BigQuery served as the target layer, with Looker Studio used to create dashboards for real-time vehicle monitoring, allowing for data analytics.

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