

IoT Workshop Storyboard

Summary

This dashboard presents real time metrics about our fleet of electrical vehicles (EV):

- Charging
- Motor temperature
- Torque

Abnormal motor temperature behavior is detected affecting performance of EV, Pivot is used to quickly identify the root cause and fix it..

Demo Dashboard URL :

https://imply-iot.app.imply.io/fc7b9ff9-c180-49d5-af30-75997f484b12/pivot/i/f46bfdb7b8895170c5/iot_Ev_Final

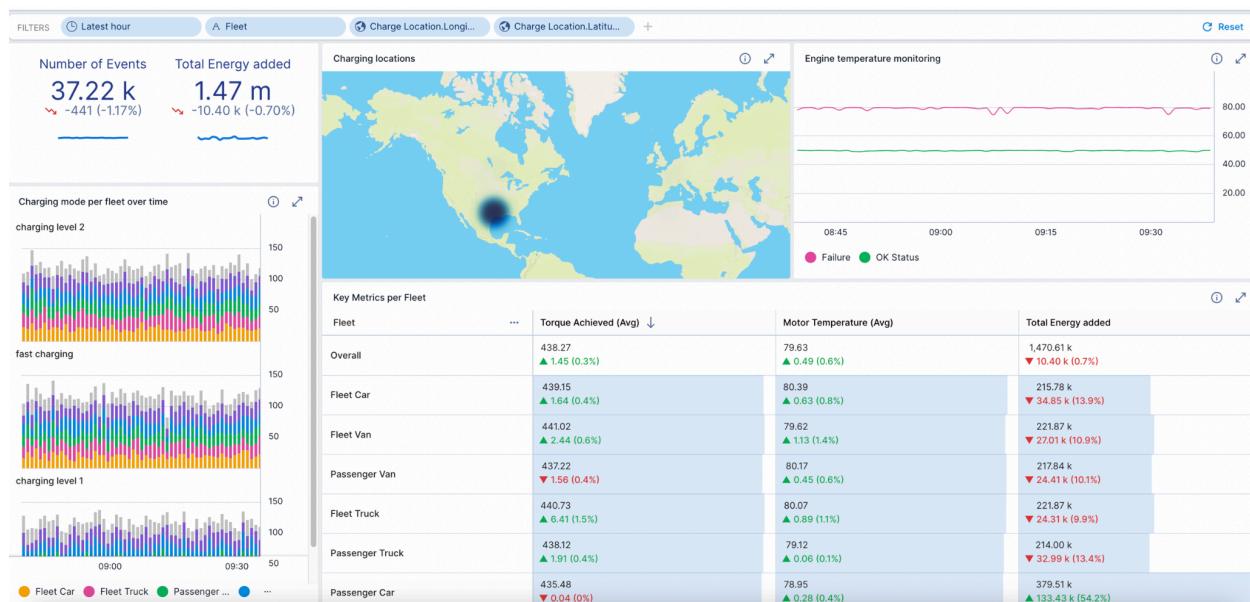
ACT I : Landing page

Step 1: Main dashboard presentation

=> tell the story about IoT fleet of electric vehicles use case

=> present the Dashboard:

- KPIs about **fleet engine charging** (including map visualization)
- KPIs about engine **Torque** and **temperature**
- then focus on **Engine temperature monitoring** timeseries (top right) as some failures are showing

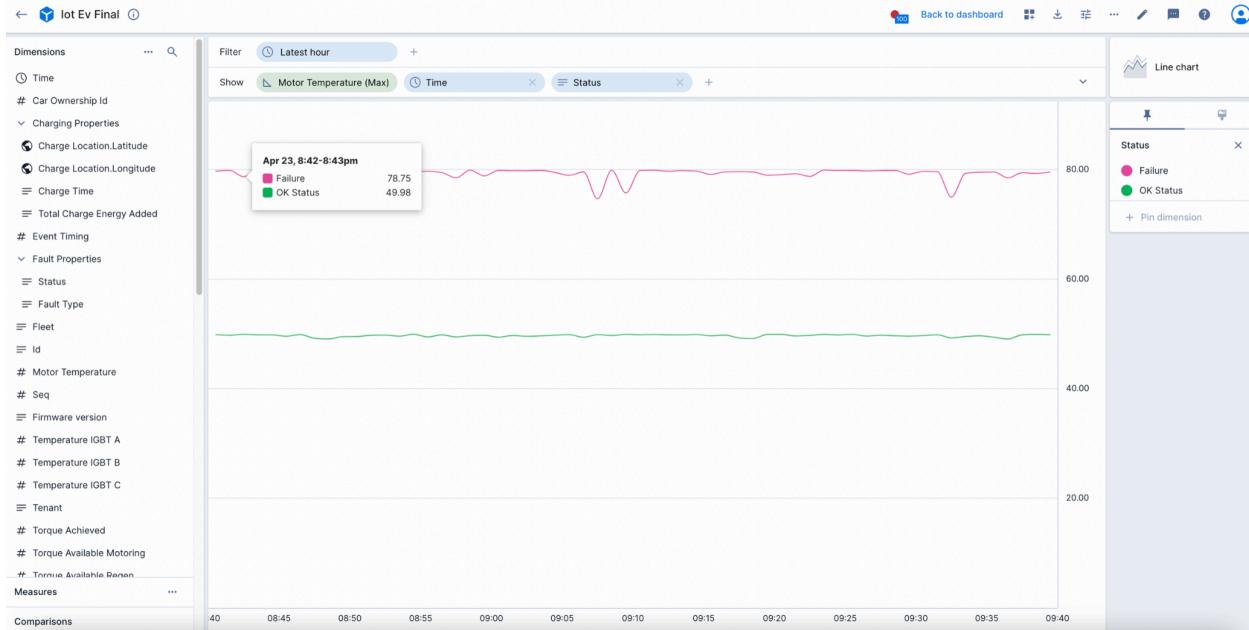


Step 2 : Now Edit Engine temperature monitoring tile to interact with the report :

=> briefly present how Pivot works (drag and drop, filters, visualizations)

=> we can see **maximum engine temperature** is constantly around 80F for vehicles sending a failure status, other vehicles being around 50F.

=> Switch to a larger time period to confirm same behavior over time

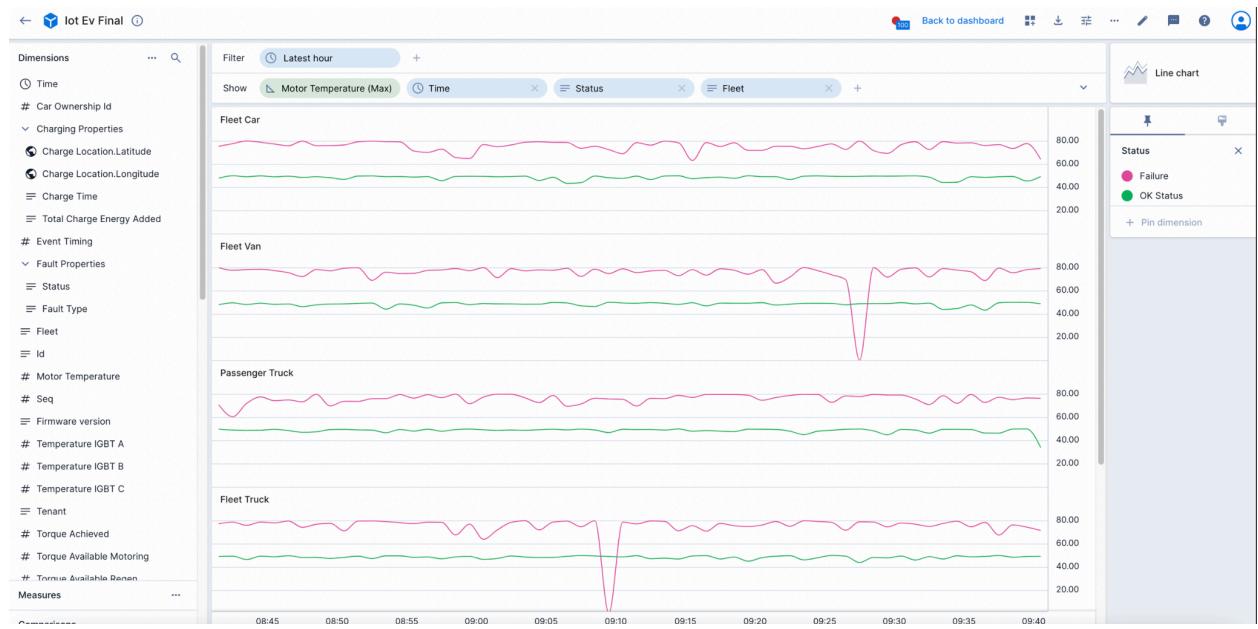


ACT II : Troubleshooting

Step 3 : Add fault type to get more details about the issue description :
=> engine overheating issue confirmed



Step 4 : Add fleet dimension to detect any fleet specific issue :
=> Issue impacts all the fleet types



Step 5 : Now add all other max temperature measures for IGBT A, B and C sensors
=> IGBT B is not impacted by temperature issue (this can help for any further troubleshooting)



Step 6 : Now add Max Torque Achieved to assess any impact on other engine features
=> the overheating issue is also limiting the Torque to around 200 (vs 800 in normal conditions)



ACT III : Root cause analysis and next steps

Step 7 : Now adding the **firmware version** to confirm any software issue (yes, always blame it on the software !):



Step 8 : For more visibility, remove **Time** and switch to a **table** view to confirm the RCA => older “2023” firmwares are affecting engines with high temperature and low torque measures, for all fleet types and 2 out of 3 IGBT sensors are affected.

The figure is a table view titled "Table" on the right side. The columns represent different metrics: Status, Firmware version, Motor Temperature (Max), Temperature IGBT A (Max), Temperature IGBT B (Max), Temperature IGBT C (Max), and Torque Achieved (Max). The rows group data by Firmware version. The table shows that the "Failure" status is associated with the "v2023.12" and "v2023.11" firmware versions, which have the highest temperatures and lowest torque achieved. The "OK Status" rows correspond to the newer firmware versions (v2024.06, v2024.08, v2024.02, v2024.04), which have lower temperatures and higher torque achieved.

Status	Firmware version	Motor Temperature (Max)	Temperature IGBT A (Max)	Temperature IGBT B (Max)	Temperature IGBT C (Max)	Torque Achieved (Max)
Overall		80.00	79.99	50.00	86.00	800.00
Failure	v2023.12	80.00	79.99	49.91	86.00	249.96
	v2023.11	79.96	79.95	49.60	85.99	249.93
OK Status	v2024.06	50.00	50.00	50.00	50.00	800.00
	v2024.08	49.99	49.97	49.98	50.00	800.00
	v2024.02	49.98	49.99	49.99	50.00	800.00
	v2024.04	49.98	49.99	49.99	50.00	800.00

Next Steps :

- Contact fleet owners ASAP to recommend updating to latest firmware version and fix the issue
- Add this last Pivot to the dashboard to improve future monitoring
- set a Pivot alerts