› CASE STUDY AVL APPLICATION SERVICES

CONCERTO Application Workshop

@ OEMs Development Department

SUMMARY

In recent years, many efforts have been made by customers worldwide to improve efficiency in the usage of testbeds. This has been strongly supported by AVL. As a consequence, more and more data has been acquired, and needs to be processed.

AVL CONCERTO is the standard post-processing tool used by many customers. One of its most powerful features is the utilization of scripts to efficiently automate work and carry out work that would otherwise take too long.

This case study is about training customers' development engineers – unfamiliar with CONCERTO – to create a complete workflow for analyzing measured data.

Fast Facts	
Customer / Department	OEM Development Department
Region	Worldwide
Challenge	Bringing together development engineers with various backgrounds and experiences capable of creating an entire automatic CONCERTO workflow
Solution	• Customized CONCERTO training • Development of CONCERTO scripts for automated reports • Development of specific CONCERTO applications
Duration	5 days

CHALLENGE

The participants who gathered for the workshop were unfamiliar with CONCERTO, and only a few of them had any knowledge of scripting. However, they did have valuable experience in testing and engine calibration. The goal, for them, was to use their knowledge inside a CONCERTO workflow.

SOLUTION

1. Specific Training

In order to complete an entire workflow, the first step was giving specific, tailored training with hands-on exercises. This helped bring the entire group to the same knowledge level. This took 3 days.

2. Defining a goal

Some time was spent by the group determining what tasks would be worked on, and what the solution should look like. The result: create a tool for testbed controller analysis – based on PUMA recorder data – that could dynamically determine which controller settings are the best.

3. Listing of features

Once the goal was established, a set of features, which the tool needed to best evaluate the results and display them, was defined. Ideally, the tool should have the following features:

Input features:

- Definable input channels for K-factor, I-factor, measured torque and demand torque
- Automatic detection – either of rising edges, falling edges, or both – where the graph crosses a threshold
- The analysis could be limited to a specific time range
- This all had to be done in a user-friendly interactive way with a lot of visualization

Output features:

- Based on the settings, the torque would be cut down into parts between the edges detected to create work zones
- In each zone, the sum-squared errors would then be calculated
- The best results would automatically be selected as the zone with the least error, but can be changed by the user
- All this should be done in one window, where all the information is displayed instantly for the user to have the right information at the right time

4. Implementing the features

Almost two full days were spent working on this workflow. The participants were split into three groups to ensure the efficient development of the tool. Each group had its own task: the first group had to manage the file openings with automatic channel detection, one group created the settings page, and the last group completed the calculations and the final display (Fig. 1).

RESULT

The groups did a great job; the results were above the participants' own expectations. Not only did the participants have to manage the coordination between the different development teams to create a consistent workflow, but they also implemented the complete functionality. In addition to increasing their CONCERTO knowhow, the engineers mentioned that - even in a small project - communication between the teams was crucial, especially when it came to defining the interfaces and responsibilities.

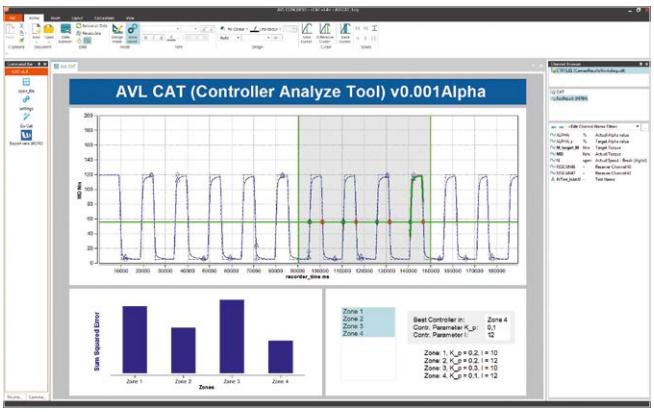

Fig. 1: Final display of evaluated data

OUTLOOK

The demand for automated workflows will continue to rise. A strategic approach for considering customer needs is necessary to understand how CONCERTO can assist daily tasks, and advance the lessons learned towards other applications. AVL Application Services offers the necessary knowledge and experience to support our customers in moving forward.

AVL Application Services is seen as a long-term partner for knowledge support and the introduction of new approaches to development and testing.

FOR FURTHER INFORMATION PLEASE CONTACT:

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