

Dramatically improving the efficiency of hydrogen engine vehicle testing with mobile communications and the cloud!



At Toyota Motor Corporation Australia (TMCA) (source: TMC)



Toyota Motor Corporation
Powertrain Company
BR H2 Commercialization
Promotion Office
Ms. Onishi

Toyota Motor Corporation
Vehicle Development Center
Powertrain Performance
Development Division
Second Testing Section
Mr. Saito



◆What type of work do you do?

Ms. Onishi: I have been involved in the development of diesel, gasoline, and hybrid engines, and I am now applying that experience primarily to hydrogen engine calibration. I also analyze data collected from vehicles driven in Japan and overseas.

Mr. Saito: I am also involved in hydrogen engine calibration, where I draw upon my experience in gasoline and hybrid engine development. We perform vehicle maintenance and measurement preparation so that evaluations can be conducted as intended, and measure the data required for engine control at test courses and on chassis dynamometers.



Measurement at TMCA (Source: TMC)

◆Tell us about the challenges you face in your work

In the past, after collecting data during tests conducted overseas or at external sites, it was standard practice to return to the base, upload the measurement data from a PC to the server, and then send the data to TMC. With the previous process, even when a communications network was available, test personnel on site still had to manually send the measurement data. There was also the challenge of sending data in a timely manner. For example, data still needs to be sent after arriving at a base or hotel that has network coverage, whether testing is conducted around a particular base or while traveling between remote locations. In addition, when an issue occurred, we could contact each other,

but because the data could not be reviewed until it was sent from the hotel several hours later, timely data sharing and analysis were difficult. This proved to be a major challenge.

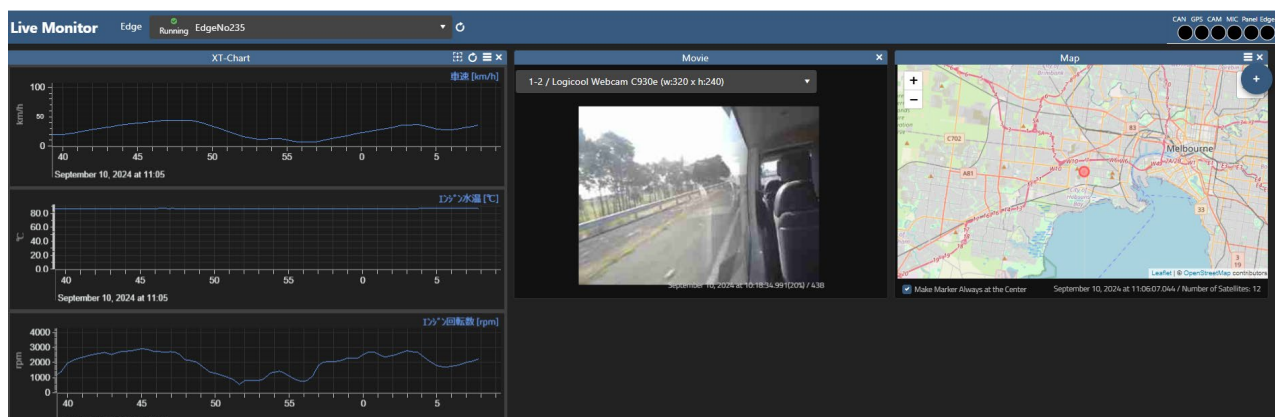
◆What led you to choose the Smart Logging Service?

Since the Smart Logging Service had already been used in Australia, we first conducted a trial in Japan. After trying it ourselves, we confirmed that it enabled timely transmission and analysis of measurement data from vehicles operating in remote locations, and that it had the potential to reduce the workload of on-site staff. Based on those results, we decided to use it for this project.

Reducing analysis time by sharing driving data from remote locations with developers in real time!



Vehicle testing in Australia and the onboard setup (source: TMC)



Example of the live monitor interface (source: TMC)

◆What were the benefits of adoption?

Although we encountered some unexpected issues at first, TTDC offered timely support each time, and the system is now operating smoothly. We currently drive approximately 200 to 400 km per day, and wherever cellular coverage is available, the data is uploaded from within a few minutes to about 30 minutes. With the Smart Logging Service, data can be shared without placing any additional burden on the on-site staff, allowing us to analyze it in Japan. We also discovered after beginning the analysis that the map information and video footage were extremely helpful. Whenever an issue occurred, the camera footage and map information enabled us to understand the road conditions more quickly and accurately than relying on a verbal explanation from the driver, allowing us to share information with the on-site team more smoothly.

◆Could you tell us about your plans for the future?

Vehicle testing in Australia will continue, so we intend to keep using the Smart Logging Service. We also hope it can be used by other projects that conduct on-road testing outside the company.



From the left: Mr. Sakaguchi (TTDC), Ms. Onishi, Mr. Saito, and Mr. Ikki (TTDC)