

Post

Transport



Sensor platforms at 300 kilometers per hour

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A degree or two more in the temperature of the brakes, a bit less air friction, a little more speed that causes higher fuel combustion... mere details in private vehicles, keys to victory in Formula 1, a sport in which M2M communications are as valuable allies as the engineers or the spoilers.

Formula One cars are nothing less than mobile platforms of 150 to 300 hundred sensors, moving at very high speeds and collecting data as diverse as heat from engine, tires and brakes, pressure of the various liquids inside the car (coolant, oil, fuel), and forces and structural stress in the different areas of the vehicle.

Ensuring that the data collected by all these sensors is transmitted and received correctly is paramount. For that, there is a device called ECU (Engine Control Unit or Electronic Control Unit), which can be considered the “brain” of the car. The ECU collects and transmits the data to the pit garage where engineers can monitor the performance of the vehicle.

Of course this raw data needs to be translated, interpreted and presented to the expert eyes of the engineers in a meaningful way. This is when ATLAS (Advanced Telemetry Linked Analysis System) comes in. ATLAS is the software client that distributes and provides real-time display of data presented in graphics that help teams to monitor the health of the racing car.

F1 cars are big data generators by themselves. The amount of data that the ATLAS system analyzes is huge. Each car generates between one to two gigabytes per race, or to put it other way, if every piece of data recorded during a Grand Prix distance were printed out, it would cover a pile of double-sided A4 paper 2.5km high.

Managing this impressive amount of information is critical. Former F1 pilot and leader of the disappeared HRT F1 Team Luis Pérez-Sala explains how the possibility of accessing this data stream in real time has changed the sport dramatically. “Thirty years ago we didn’t have any information and planning the races was totally different. Now we monitor all the behavior of the car, from temperature to aerodynamics, so we can make decisions instantly”.



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