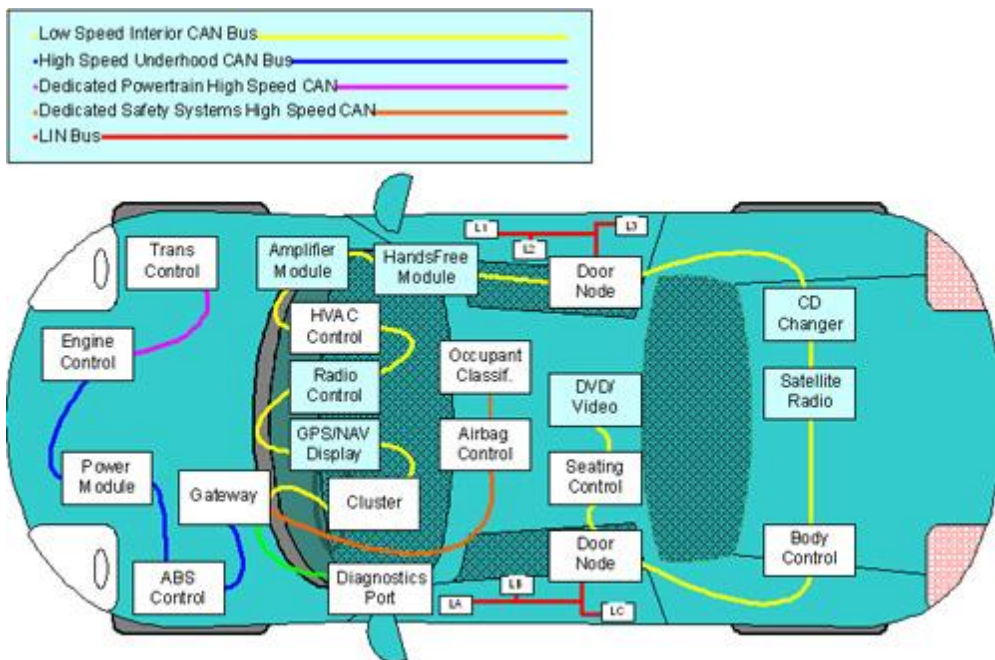


Vehicle Networking

SATE OFFERS MANY SERVICES TO AID THE CUSTOMERS IN THE ELECTRICAL DESIGN, TEST AND DEBUG PHASES OF DATA AND DIAGNOSTIC NETWORKS WITHIN THE VEHICLES.



OVERVIEW

The increasing electronic complexity of modern vehicles requires higher competence than what was required only a few years ago, especially in terms of know-how of networking and diagnostic digital protocols.

In fact the number of interconnected electronic devices within a typical vehicle is growing up continuously. These devices need to exchange a large amount of information in the most safe and fast ways.

The cluster dialogs in both directions with the Engine Management Unit, while the latter needs to exchange data with the other devices that control the vehicle, such as ABS, Traction Control and Stability Control.

In addition, the electronic keys (Immobilizer) require a radio-frequency encrypted communication with its related base-receiver. The latter must be interfaced with the dashboard and the Engine Management Unit to allow only authenticated drivers accessing and firing up the engine.

SATE, having strong experience in automotive projects, can support OEMs and vehicle system integrators in the whole process of designing, developing, testing and debugging data network and diagnostic functionalities of the vehicle.

This experience spans not only the Engine Management, ABS, traction control and cluster system but also the Body Control, HVAC, Car Infotainment and doors management system.

The core competence required for such a support is also offered to OEMs who want to design a new electronic device (Dashboard, Antitheft, Immobilizer system, Electronic Key, HVAC system) which aims to be smoothly integrated in a vehicle network.

SATE can assist the customer from the very beginning of the process, starting from the definition of the technical and functional requirements and specifications, the selection of suppliers, the design review of the proposed solution and the verification of the adherence of the design to the actual implemented solution.

SATE owns the electronic equipments and the competence which allow performing any measurements on analogue and digital signals, such as digital oscilloscopes for hardware decoding and accurate timing measurements.

In addition SATE can develop customized instrumentation for advanced data logging for any needs which could arise in the production phase, in the "end of line" testing and in the aftermarket.

EXPERIENCE

During the last years SATE improved its experience in the data network and diagnostic functionalities applied to vehicles.

The protocols and systems for which SATE already performed its services are the following:

Serial Protocols:

- ISO 14230 (K-line)
- ISO 11898-2 (Can bus High Speed)
- ISO 11898-3 (Can bus Low Speed)
- ISO 15765 (Can Bus diagnostic protocol)
- J1939 (Can bus Application Layer for buses and trucks)

Electronic Systems:

- Dashboard
- Antitheft
- Immobilizer
- Electronic Key
- Gateway Unit (bridge between different protocols)

SERVICES

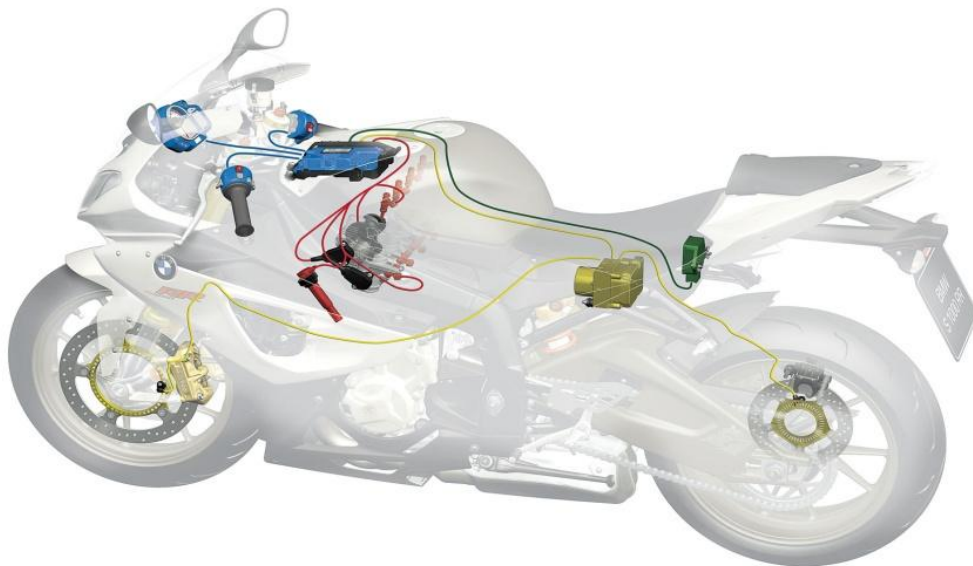
- Definition of technical and functional specifications for any electronic unit
- Design Review of electrical drawings (schematics and layout)
- Definition, test and debug of CAN messages

- Definition, test and debug of diagnostic functionalities, like Flash memory reprogramming and standard OBD requirements
- Definition, test and debug of Immobilizer devices
- Electrical measurements of analogue and digital signals to verify:
 - Signal integrity
 - Adherence to the specification
 - Performance

PRODUCTION PHASE SUPPORT

SATE supports the customer for the whole lifecycle of its product: in the prototype phase and in the pre-production and production phases, which are often fundamental for a successful product.

- Integration in the production line process
- End Of Line final testing
- Logistic information management
- Automatic failure recognition
- Automatic spare parts management



S.A.T.E. Systems and Advanced Technologies Engineering S.r.l.

Santa Croce 664/a, 30135 VENICE (ITALY)

Tel.: +39 041 - 2757634

fax: +39 041 - 2757633

Email: info@sate-italy.com

www.sate-italy.com