



SIDERA SOFTWARE PLATFORM

The SIDERA software platform offers a comprehensive solution for the centralized management of intelligent transport systems (ITS) based on each project's requirements. It manages more than 2,500km of roads and more than 160km of tunnels worldwide.

SIDERA's objectives are:

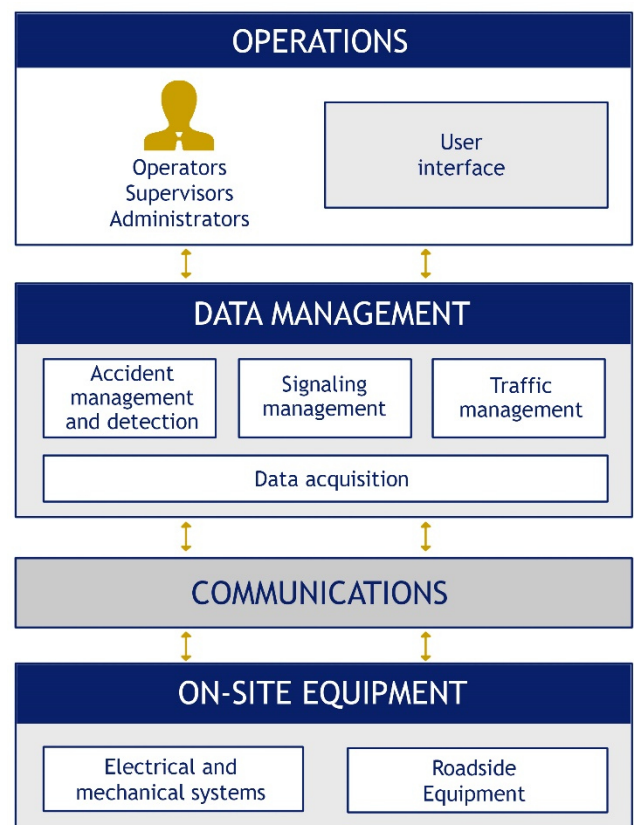
- Improving road user mobility
- Providing monitoring, security and emergency management.
- Providing information to users through different means (displays, social networks, online, radio broadcast, PA, I2V...).
- Exchanging information between different agencies (emergency services...).
- Obtaining information on the condition and availability of equipment and infrastructure for maintenance purposes.

SIDERA FUNCTIONALITIES

SIDERA's main functionalities are:

- Control and management of the traffic network.
 - Reducing traffic congestion
 - Reducing travel times
 - Reducing emissions
- Supervising and managing systems:
 - Access control
 - Urban and road tunnels
 - Administration buildings
 - Control of supply and services
 - Shadow tolls
- Assistance in the operation of:
 - Monitoring
 - Security
 - Accident and emergency management

SIDERA controls all installed on-site equipment; it manages events, alerts and data collection, ensuring a rapid response to incidents across the operations center.



MAIN CHARACTERISTICS

Centralized comprehensive management: Unified graphic user interface.

Scalability and Upgrades: Modular and expandable architecture which makes it easy to incorporate technological advances and new functionalities as well as the integration of third party tools, a wide range of databases and any type of device.

Standardization: Uses internationally approved standards reducing the risk of incompatibility between different systems, devices and applications.

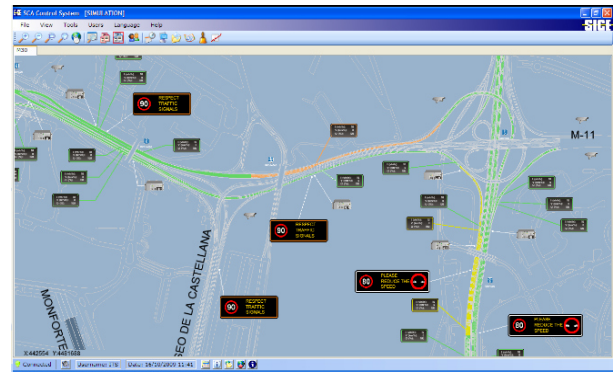
Quality: Implements software quality control plans during all phases.

Security and availability: Redundancy of servers, control centers and communication networks.

Multi-language support: SIDERA uses a multi-language human-machine interface which can easily incorporate new languages.

Operation, training and support:

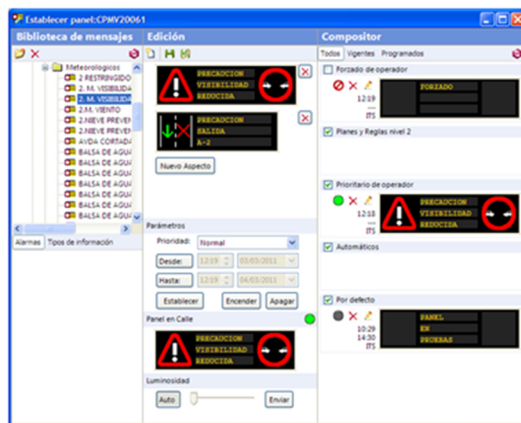
- Real time system monitoring and control.
- Automation tools to generate reports and trend curves.
- Interactive geo-referenced motorway maps and facility schematics.
- Specific modules to help with operations and simulation and training modules.



MAIN ALGORITHMS

In terms of traffic management and control, the main algorithms are:

- An automatic accident detection system based on internationally accepted mathematical algorithms (McMaster, HIOCC, APID, California algorithms etc...)
- Automatic signalling based on defined business rules for each facility.



- Traffic status algorithm. Information on traffic status and event location.
- Traffic data prognosis based on neural networks to predict traffic flows.

- Travel time calculation algorithm (SAETA), based on traffic data from sensors. Calculation of travel times, showing them automatically on the display signalling system.

The main algorithms regarding tunnel security are:

- Fire extinguisher equipment control and fire detection.
- General or emergency ventilation based on pollution, visibility and fire detection calculations.
- Lighting control.
- Pumping systems control.

