

MATRICES-SIGMA+

URBAN TRAFFIC CONTROL SYSTEM

Population growth and a consequent greater circulation of vehicles have meant that in many urban areas traffic reached thresholds close to the maximum capacity of the roads during most of the periods of the day.

The effects of congestion have thus increased and with them also the need to mitigate the consequences. Congestion in fact reduces the efficiency of transport infrastructures by introducing a negative impact on travelling times, air pollution (with higher greenhouse gas and NOx emissions) and fuel consumption.

Addressing the problem of congestion by expanding road infrastructure is very often not possible and Intelligent Transport Systems (ITS) becomes the key to improve the effectiveness of operation and optimize the assets management.

Leonardo deals with the design and construction of solutions for the technological and IT governance of mobility in a global way.

The product proposed by Leonardo for centralized traffic monitoring and control is **MATRICES-UTC (Urban Traffic Control)**, characterized by:

- **SIGMA+ Central Software** (Integrated Urban Mobility Management System)
- **Peripheral Multi-Function Unit (PMFU)** Traffic Light Controller.

AN EASY TO USE, EFFECTIVE AND MODULAR SUPERVISION AND CONTROL SYSTEM

Central System SIGMA+ (Integrated Urban Mobility Management System) is an easy-to-use and highly effective software platform.

The main features of the central system are:

- Acquisition of information (traffic data, vehicle flow, occupancy rates, speed, classification of vehicles transited, etc.) from traffic light systems via adapters that use standard or tailored interchange.
- Clear and easy-to-read representations
- Management of events and alarms
- Monitoring and management tools for traffic light plans
- Historical analysis of events and alarms
- Exportability of traffic data to external systems
- High configurability of the system
- Integrated data backup and restore functionalities.

A VERSATILE AND EFFECTIVE PERIPHERAL CONTROL

The peripheral controller PMFU (Peripheral Multi-Function Unit) of Leonardo is the management/automation device for road traffic used in multiple areas: UTC (Urban Traffic Control), VMSS (Variable Message Signs System) and MMS (Mobility Management System).

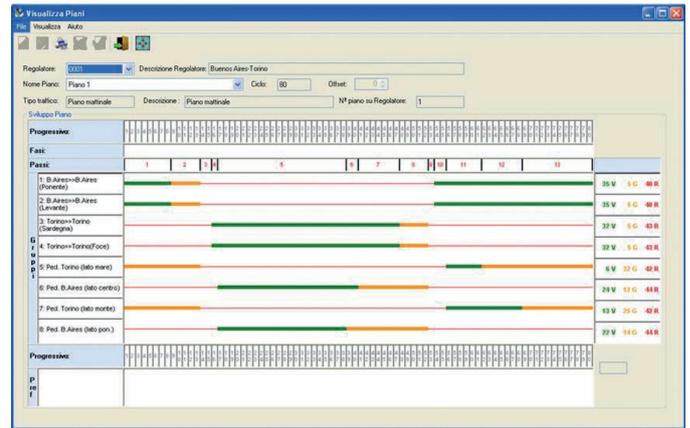
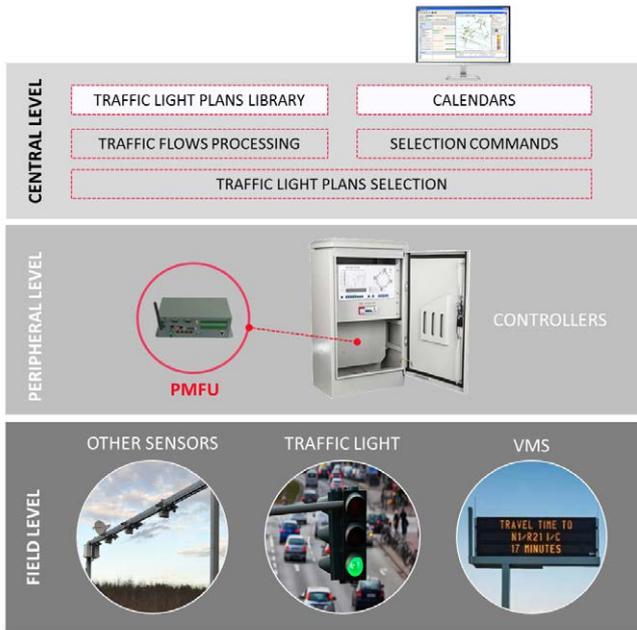
The software installed on board the PMFU, in a native Linux environment, allows to interface the traffic light and road panel management units with traffic control devices from different manufacturers, without worrying about their direct management.

The PMFU software exposes the same connectivity and remote control choices to the control units for any device

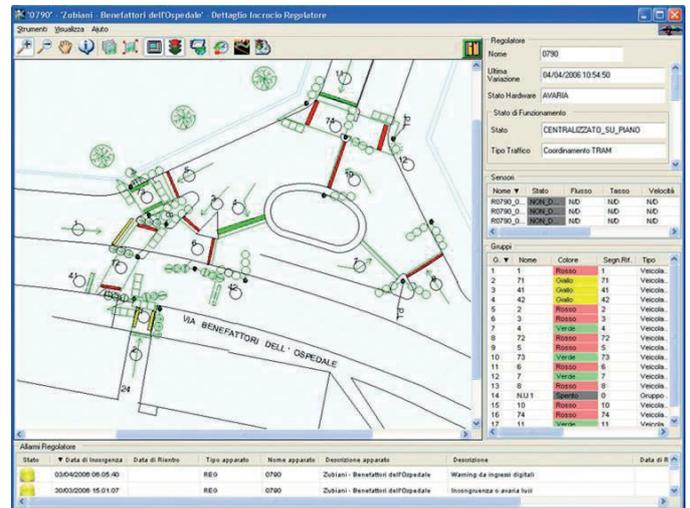
connected to it, integrating in this way the traffic light controllers, the PMVs (Variable Message Panels) and the various types of traffic sensors of the different most popular brands in Italy and abroad.

From the hardware point of view, the PMFU embodies all the experiences and solutions that Leonardo has encountered on the field in more than forty years, giving birth to an apparatus of unparalleled versatility.

The PMFU in fact allows connectivity in all the main modes, both towards the control panel (connectivity via external modem and 4 Ethernet network ports), and towards the periphery (RS232/RS485 serial ports and digital I/O, all strictly opto-isolated, to provide maximum response and robustness even in the most difficult situations).



Traffic Light Plane



UTC monitoring status

The integration of our ITS, security, communications and cyber solutions creates an ecosystem that is unique on the market, allowing to manage and control urban areas improving effectiveness of operation, optimization of resources and quality of life for citizens.

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