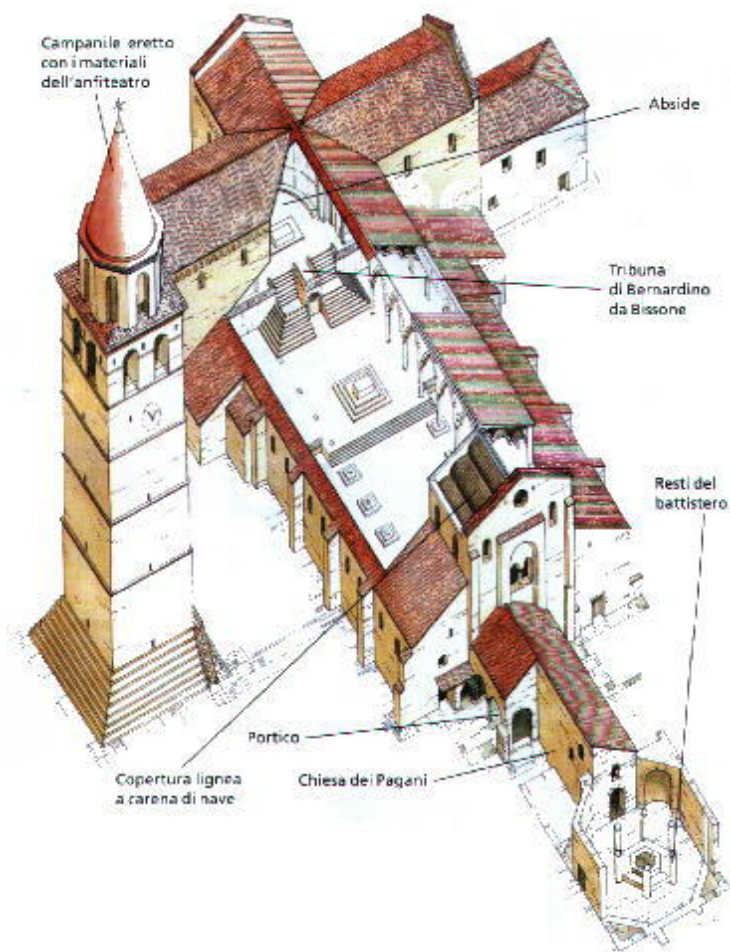


Supervision technology makes history.

The Technological innovation of Movicon has been deployed to serve and safeguard the Cultural Art treasures of the historical cathedral of Aquileia (Italy).



The historical cathedral Basilica of Aquileia, one of the most beautiful and important Romanesque-Gothic style monuments of the Italian fine art treasures.

The S.I.E. company (Società Italiana Elettroimpianti) from Codroipo (Udine, Italy) undertook contract work for rebuilding and rationalizing the electrical installation systems used in the historical cathedral Basilica of Aquileia, one of the most beautiful and important Romanesque-Gothic style monuments of the Italian fine art treasures which is also inscribed on the World Heritage List. S.I.E are apart of the solution provider network, which supports the Movicon supervision system developed and produced by Progea. Donato Castellani, chairman of ElettroSistemi (Udine, Italy), one of the company's branch's solution provider for North-Est Italy, designed the project by developing the telecontrol management using the most modern and innovative technologies

of today. The end product successfully met all the requirements put forward by the Fine Arts office (Soprintendenza Archeologica) to come up with a technology capable of rebuilding the electrical installation system to reduce the system's architectonic impact to a minimum while obtaining adequate managerial performance levels at the same time. This entailed making the light installation system very userfriendly to manage and maintain, automating scenario functions and optimizing energy saving.

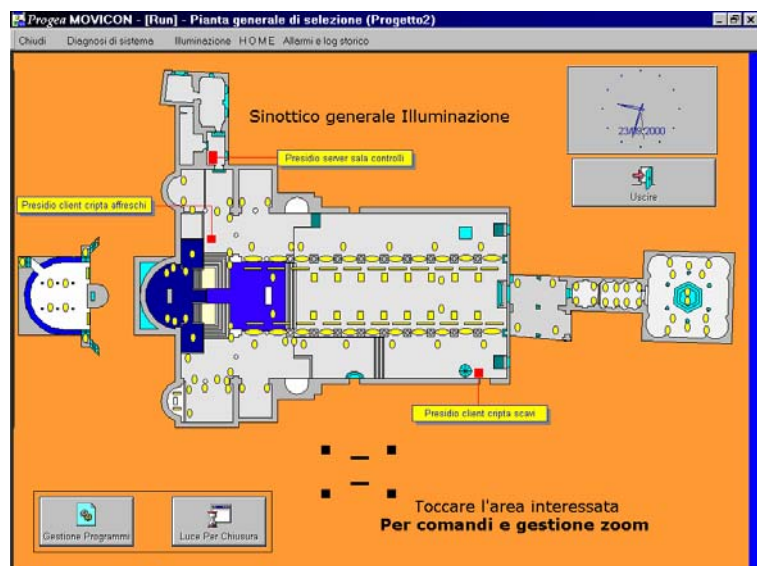
The Local Government recognized that is it extremely important to have the most modern technologies developed and applied to preserving and safeguarding the Italian fine arts which are apart of the world's heritage. Within this context, the project had to aim at providing the best management of human resources, to integrate safe and reliable security plans and systems, to have man-machine interfacing and maintenance with the software's system controls, client redundancy and fire alarm systems, CCTV surveillance and remote controls.

The Basilica's History

The patriarchal Basilica of Aquileia is one of the most important testimonies of romanian art edifices and Christianity. The original complex was built by bishop Teodoro in the 4th century. After undergoing a series of interventions and modifications throughout the following centuries, Patriarch Poppo rebuilt and extended the basilica in 1031. In 1348 it was partly destroyed by an earthquake but rebuilt around 1379 in the Gothic style by Patriarch Marquad.

The simple façade, in Romanesque-Gothic style, is connected by a portico to the Church of the Pagans (9th century), where catechumen reunited before being baptized, and leads to the remains of the 5th century Baptistry. The massive 9th century bell-tower, on the façade's left, has survived unscathed since it was built in 1031. It not only is a geographical and symbolic landmark for the whole of the Friuli region plain but prototype of the many bell towers found in Friuli and Istria regions. The interior has a nave and two aisles in latin cross plan, where the floor

is carpeted with a very impressive multicoloured 4th century mosaic depicting various subject matter in panels referring to esoteric cults. Other fascinating mosaics can be found in the Excavations Crypt belonging to the Palaeochristian basilica and in a Roman villa of the age of Augustus. The symbolic designs are particularly interesting. One features a struggle between a cock and a tortoise, symbols of light/Christianity and darkness/paganism respectively. The Crypt of frescoes, dating from



One of the Movicon's screens that manage the supervision of the historical cathedral Basilica of Aquileia.

the 6th or 7th century, under the presbytery, has a cycle depicting the origins of Christianity in Aquileia to the 12th century, including the lives of St. Mark and St. Hermagoras, the first bishop of the city, the death of Christ and the Dormition of the Virgin.

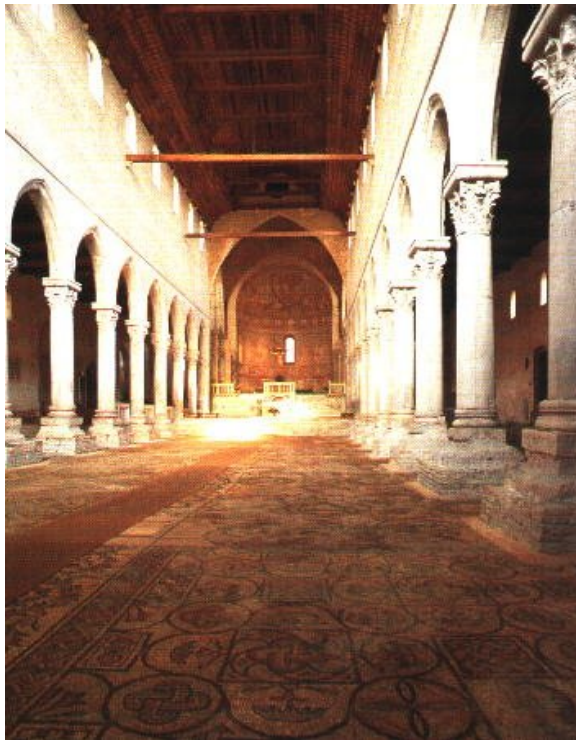
The Technology adopted

The project has been integrated with a fieldbus based architecture. The decentralized periphery has been chosen with Intermod Bus systems distributed to 10 electric ceiling cabinets and linked with serial connections to the Movicon Server pc kept inside the vestry in a rack cabinet. This Server is connected to two Movicon Clients PCs inside the Cathedral, in Ethernet local LAN using an industrial 17" Touch-screen pc.

Processed information from the Movicon pc network is sent to the Bus interface centre, through the two-wired vector communications, which sends and receives data from the remote devices aboard the various electric cabinets. The Movicon application represents the electric system's topographical features, devices and illuminations, in animated screen graphics. The graphics have been optimized and developed for touch screen use to simplify management without needing the use of a keyboard and mouse.

All the control and command functions can be accessed from the main screen, where the operator can manually set commands of the different devices by simply touching the corresponding icon, with on-off logic. A tool-tip pop-up window, associated to the icon, provides all the device's technical information, making it very userfriendly even for the not-so-expert user.

The operator can set an unlimited number of scenarios by defining different types of light activations and time intervals. Each scenario can be memorized and called manually.



Internal view of the historical cathedral Basilica di Aquileia.

The system diagnostic functions play a very important part. All the light fixtures and devices are controlled and alarms are clearly displayed and recorded in the system.

Technological alarm event occurrences are associated to the instructions relating to the problem solutions relating to the building's security layout. All events are recorded on the Historical Log database (relational DBMS).

Furthermore, this system manages maintenance intervention prognostications based on the recorded times of how long each illumination fixture is kept on. Each device is carefully monitored so that when the average life span of

each lamp expires (settable), the operator is notified to carry out the necessary maintenance to prevent system failure or replace any expiring light bulbs.

Advantages

The Government is completely satisfied with the advantages gained in using the system's innovative technology, which has been applied with great expertise and professionalism of S.I.E.

A drastic cut in cable traffic has been made using the Intermod Bus system, which has reduced the light installation's architectonic impact all round. The great potentiality and simplicity of the Movicon Scada software has replaced the bulky traditional and inefficient command consols used beforehand. Furthermore, less time is needed in training personnel due to Movicon's very userfriendly graphical interface.

The open and flexible architecture of Movicon also provides the option for further integration of other diverse peripherals with connectivity and compatibility in standard environments.

The project has completely fulfilled the client's demands by rationalizing resources, with an evident energy save in using automated controls and a noticeable save in management and maintenance costs due to prevention maintenance carried out according to statistical analysis performed on breakdowns, failures and maintenance. This project also permits maintenance and administration personnel to use remote control (via modem).

Major security of the whole complex has been enforced using redundancy and fire alarm systems where operators are provided with immediate security plans on event or alarm occurrence. Furthermore Movicon automatically manages calls to maintenance technicians on call duty using SMS messages or mobile phone calls for remote control use.

Paolo Fiorani