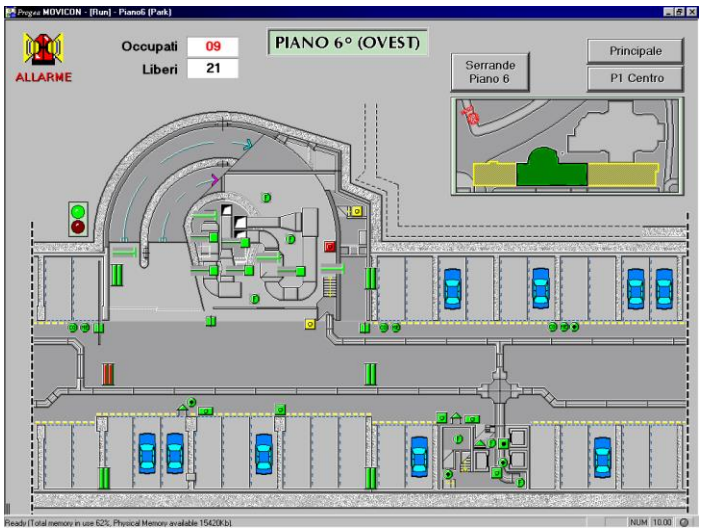
INTELLIGENT CAR PARK…

Movicon supervises and controls a major car park in Milan.

Everyone living, working or visiting a big City is fully aware how difficult it is to find parking space especially in the center where space for parking cars is usually very limited. This is a worldwide problem for most cities, accept for those few metropolitans that provide sufficient and reliable public transport network systems enabling commuters to leave their vehicle outside the central zones and make their way to their destination in the center by public transport. However, this does not guarantee that the car won't get broken into or stolen while the owner is away and is not easily accessible especially after a hard day's work, shopping, site-seeing or night-out on-the-town.
Therefore, there is a great need to build structures within the city centre to provide parking spaces for the ever increasing invasion of commuter and visitor vehicles, and make city dwellers' lives easier to live. It's not at all fun finding someone's parked outside your door, forcing you to find somewhere else to park, usually at a long walking distance from home.
The foremost issue for the city council is finding enough space already overpopulated areas and council administrators can now rely



One of the screens displayed on a car park attendant control terminal.

on modern technology which plays a decisive role in making car park structures safe, efficient and reliable places to leave cars in. Modern technology, whatever sector applied to, is based above all on PC architectures, with supervision and control terminals connected to a PLC and/or field bus. Even those applications not strictly industrial are more inclined to follow this philosophy, and the advantages of doing so are very apparent. The solutions reported in this example have been applied to a supervision terminal for gathering information from one of the most important car parks in the city centre of Milan. This six storey car park provides parking space for 500 vehicles in a safe and easily accessible environment. The system's architecture has 2 dislocated PLCs for every floor level, dedicated to traffic light control, ventilators, illumination and access points. Each floor also has two dislocated security, fire alarm and anti-intrusion control units. All the control and surveillance devices are connected directly to the supervision terminal, localized in the control room at the main entrance. The supervision terminal gathers all the vital information on the car park's operating statuses and security. The car attendant can easily keep a constant eye on all situations in realtime and intervene when necessary by using the commands directly on the PC. The control station uses standard Scada software using the Windows ambient. The engineers of this project have chosen to use Movicon, a Progea product, for its simplicity of use and technical support services provided by the Modenese company to develop communication drivers for fire detection and ant-intrusion control units, which didn't take long to create and cost little to implement. Many security system products are available on the market today but often do not provide communication drivers if not for proprietary software. The choice of the technicians to keep a standard architecture instead of using proprietary software enabled them to contain costs all round, even though initial costs were slightly higher. By exploiting the company's know-how, setup and system management costs worked out to be much less and included the great advantage of being flexible to expand or upgrade in the future at a minimal cost.

Thanks to this solution used in the control room, by using Movicon the car park attendant can control every floor level situation in realtime by means of using video screen pages and check for any unauthorized persons within the building, presence of smoke or fire, and check statuses of lights, traffic lights and parking barriers at vehicle access points. These devices being automated by logic from the PLC, allow the parking attendant to decide whether to intervene manually or not, by regulating the access points of each floor level accordingly.

In addition to the supervision and control, the applied Movicon project manages efficient diagnostics and records events with accurate times to enable analysis of all significant recorded alarms or events by number of interventions or duration. This lets maintenance staff single out the system's weak points at an instant in order to prevent system failure or downtimes.

The designers have predisposed the system for remote control, so that the local Movicon workstations can be connected to remote Movicon workstations by modem dislocated in maintenance worker and technician control rooms. The possibility to use the Web Client technology, even though not momentarily required, was one of the reasons that Movicon was chosen as a control solution. Movicon is actually predisposed for monitoring systems through geographic networks (Internet) without needing any project invention or additional software.

The final solution is completely satisfactory. Movicon today gathers data from all the installed devices, represents it on simple and userfriendly video screen windows and records it on historical log files to allow better cost effective system management with increased security that conventional solutions are unable to provide.

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