Supervisory and Control System
• Video surveillance
• Video recording
• Video analysis
• Intrusion detection
• Fire detection
• Access control
• Building automation
SCS
Security

Supervisory and Control System

SCS, Supervisory and Control System, enables the control and supervision of large plants through an extremely simple and user friendly interface.

SCS provides the managemente of a potentially unlimited number of hardware devices:

- Video surveillance, video recording and video analysis
- Intrusion detection centrals
- Fire detection centrals
- Access control devices
- Technological devices and plants

Supervisory and Control System

The management and control of a plant is provided through the use of graphic maps. Icons with different shapes and colours are used to recognize in real time on the map the status of an element or a group of elements connected.

Furthermore, the operator is enabled to send orders to the system, for instance the deselection of a sensor, the activation of a selected area, the visualisation of a selected camera or groups of orders on devices composing the plant.

The software has been developed following the highest quality standards and is constantly updated and improved. SCS recognises a large number of installations (airports, prisons, large companies, hospitals, harbours, law courts, museums, ...) with an average of 300 devices per plant and plants with over 700 devices.

Each event generated by a device and each action conducted by an operator is recorded and cannot be manipulated or deleted. The historical archive provides the complete analysis of everything occurred within the plant and can be consulted through a filtering system allowing the choice of an action or an event based on variables such as:

- The kind of device that generated the event
- The single element on the installation
- The action conducted by the operator
- The time when an action or an event occurred
- The request of confirmation by the operator
- The priority level of an event
- The object status

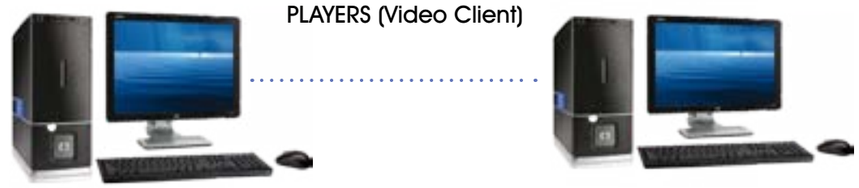
Moreover, events can be exported on text or .csv files thus allowing the copy of informations on PCs with no access to the system.

Hardware architecture

SCS manages a potentially unlimited number of hardware devices: field devices (sensors, cameras, badge readers, ...), control devices (cable or wireless control terminals, image visualization devices, image recording systems, ...).

The integration with hardware devices is enacted through different methods: TCP/IP protocol, WebServices, property protocols, SDK provided by producers or the use of devices as network interfaces.

PLAYERS (Video Client)



Data & Video CLIENT (Dual monitor workstation)

ACCESS CONTROL

FIRE DETECTION

INTRUSION DETECTION

WEB SERVER

REMOTE CLIENTS

SERVER
(Database + Comman Server)

BUILDING AUTOMATION

VIDEO SURVEILLANCE

Software architecture

CLIENT

COMMAND SERVER

PLAYER

DATALOGGER

(Proxy & Videostore)

HARDWARE

CLIENT

It is the software module that provides the user interface, integrating the functionality of plant management through graphic maps and allowing the visualization of live or recorder images simultaneously.
In a plant there are as many clients as the existing system control workstations. Each client station can be simultaneously connected to several plants.
Through the use of dual monitor video cards the operator can simultaneously view images captured by several cameras on one monitor(in 1/4/6/8/9/12/13/16/17/25/36 image visualisation modalities and in 4:3 and 16:9 video formats) and the graphic map or any other menu chosen by the user (system structure, historical archive, ...) on the other monitor.

COMMAND SERVER

The Command Server is the software module that manages the accesses to the database by the users, controlling the right assignments: the login to the system, the restrictions managemant over specific commands or devices, the authorisation towards the exporting of information from system devices (database, live and recorded video streams, ...) to the user. Any access request is processed by the Command Server. It is generally installed on the server where is locatad the database but can also be installed on any computer connected to SCS system network. There is one Command Server for each center.

PROXY

The proxy is a software module connected to the Data Logger (when it is used for controlling video devices). It takes on the capture of the video streams generated by a camera or a codec then it sends them to the asking users in order to efficiently manage the requests for video streams to hardware devices. Thus is avoided the same request for the same video stream to the same device.

DATA LOGGER

It is the software module in charge of the data collection by the peripherals (alarm centrals, fire detection centrals, access control, video devices, ...), converting data into file formats compatible with the system to send them to the database in order to be recorded and shared among the users. The data logger implements several drivers according to the different devices connected.
The system can support as many data loggers as necessary for the connection of peripherals both for performance (processing power requested) and connectivity needs.
When using devices with no direct network interface deployed in different spots toward the plant, it is requested to install different data loggers as physical connection to the SCS system network.
Video subsystems such as cameras and videostores can request a higher processing power due to resolution, frame rate, or other technical needs, therefore it could be necessary to split the management on more dataloggers.

DATABASE

All data describing the system are stored within the database: device configuration charts, user charts with connected assignment rights, historical archive, rules for automatic actions after an event (macros). The database is installed on a computer performing as server for the SCS system. There is one database for each plant and center.

Microsoft .NET

PLAYER

In control centers is often necessary the visualization of a large number of images coming from the cameras. When the visualization performances of the client are not enough, the use of one or more players is allowed.
The player is a software module installed on a computer along with a monitor where images captured by the cameras are played.

VIDEOSTORE

The videostore is a software module connected to the Data Logger (when it is used for controlling video devices). It provides the recording on high capacity hard disks of images captured by the cameras. Any computer within the installation can work as a videostore.

Plants configuration

All elements within the system can be viewed through a tree structure allowing an easy supervision and control. The visualization type is dynamic, thus for each element are scheduled different visualizations according to the status (for instance, a sensor will turn to red when in alarm mode, yellow when tamper, grey when out of order, ...).

Furthermore, for each represented element are available coherent commands (for instance, exclusion of a sensor, exit activation, image request to a camera, ...). The device configurations can be easily edited by operators with correct access rights.

The plant configuration is very easy: to generate the physical structure the operator is requested to list the hardware devices to be controlled by the system, then give instructions for the connections (IP address, authentication passwords, serial ports, ...) to the system and assign to different data loggers the devices according to their functions.

When a new device is added to the physical structure the software enables the visualization of its functions according to its status: rest, alarm, enacted, and more.

Graphic maps

The system enables the plant representation with an unlimited number of maps. Navigation icons allow to switch from map to map with a single click on the icon representing the selected plant spot.

An editing tool integrated within the system enables the association between a map and a background (usually a planimetry view), the add of icons identifying the elements (sensors, areas, ...) and to locate them accurately in the correct point where they have to be positioned.

The icon will allow to send commands to the element associated (for instance, exit activation, exclusion of a sensor, ...). Icons representing the cameras enable the request for image visualization on the same coputer monitor where the operator is working or on supporting monitors.

The status control of devices is provided by maps with icons with different shapes and colours according to the status of the represented device. Through the use of an editing tool the icons can be modified or created. Each icon can be replaced with any image in “ico” format or in a standard graphic format (bmp, jpg, tif, gif) and can be edited animated icons as well.

Logical structure

SCS provides a logical structure editing tool enabling the creation of a customized logical definition of a plant.
The plant administrator can therefore define logical group formations (“Macrogroups”) through which can be represented different parts of the system (for instance, all fire detection sensors of a building or all emergency doors of a warehouse ground floor).

Thus, the newly generated Macrogroup will be given a specific status according to the combination of the different statuses of the devices integrated by the Macrogroup. The Macrogroup icon can be freely located towards the map.

Macros

Macros are programmable sequences of commands, also running on different devices, that can be both executed manually by the operator and automatically after any event recorded by the system or scheduled according to a calendar.

According to the selected order, the programming lines are set up automatically for an easy editing of the operating parameters.
A Macro can incorporate another Macro (nested Macros) and even a command recalling itself in order to play cyclic and infinite sequences.
Such functionality is very useful, for instance, when the operator needs to view on the player cyclic sequences of live video streams.

Video analysis

The SCS software, other than managing the functionalities of video analysis originally integrated within videosurveillance devices, can execute in real time algorithms of advanced video analysis in order to automatically and promptly locate warning events or alarms such as:

- Motion detection
- Perimeter intrusion
- Tracking
- Abandoned objects
- Removed objects
- Plates recognition
- Video tamper detection

Analysis reliability

In order to guarantee a higher reliability and reduce false alarm cases, SCS implements functionalities of management and 3D depth analysis.
Furthermore, video analysis algorithms allow the measurement of speed, direction, absolute and relative sizes of objects and persons within the scene.

Building automation

SCS is not only intended for security management: thanks to the possibility to integrate heterogeneous devices, sensors, actuators and subsystems, SCS allows to centralize all technological plants providing a complete solution for building automation and building management.
Adding more potential to security control features, SCS becomes the all-in-one supervision point for all site plants with a remarkable time and resources saving.

Domotic, building automation and building management:

- Lighting control
- Heating and air conditioning control (on/off)
- Passage and opening control (gates, barriers, ...)

Security

The access to the control terminals requires a double authentication.
A first authentication occurs when a user tries to access to the client.
According to the assigned rights (configurable by the administrator), the user can be authorized or not to:

- Modify his or another one's connection lists to the plants
- Use other programs on the computer
- Shutdown the client
- Modify his or another one's assigned rights to access the client

A secont authentication enables the user to log in in order to enter a plant that he is authorized to connect through a specific Username and Password.

SUPERVISOR

configures the plant, the devices, manages all users and their rights assignments, the badges for access controls and controls the plant status.

ACCESS CONTROL ADMINISTRATOR

manages the badges for the access control.

OPERATOR

can be authorized in a completely customizable way.

TECHNICIAN

has the same access rights of the supervisor but is not authorized to manage users and their access rights.

SURVEILLANCE

controls the plant status.

Customized access rights for all users

The system provides an extended management of operators, allowing the association of a user to different preconfigured user profiles: supervisor, technician, guard and others.

Such assignments can be freely edited and extended by the system administrator and, furthermore, the software allows to define specific restrictions or athorizations for each operator when necessary

SCS

Security

C SYSTEM s.r.l.

Via ivrea, 42 - 10019 Strambino (TO) - ITALY
Tel. +39 0125 637167 - Fax +39 0125 637101
info@csystem.it

System certified in accordance with quality standard UNI EN ISO 9001

C System reserves the right to change the technical features without any notification. All the information of C System and cannot be used without written consent. Document version 5.0 – October 2015