PcVue Solutions®

by ARC Informatique

PcVue Solutions

Your expertise embedded in our solutions

Transportation

www.pcvuesolutions.com

SCADA solution for Transportation

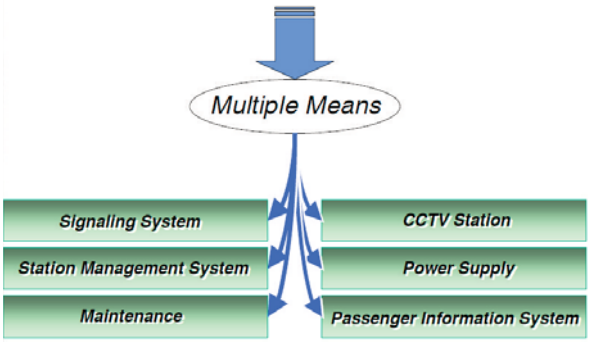
www.pcvuesolutions.com

Transportation and logistics comprises a diverse industry including all modes of transportation for goods and people.The markets are on the move. Due to advancing globalization, declining trade barriers and an increasingly mobile workforce, the transportation and logistics industry continues to enjoy above average growth. Transport companies and logistic service providers are expanding their service offerings both upstream and downstream.

We are thus becoming masters of their supply chain, both forward and backward. Many companies in the industry are following manufactures into new sales markets such as Eastern Europe and East Asia, which, in turn, have long ago become source markets with growing exports. Supply chains often stretch around the world and require a global business strategy.

ARC Informatique has long and varied experience in providing automated solutions for the transportation industry. Our products and solutions are characterized by an open architecture, a large number of native drivers and high scalability. This enables them to work easily with diverse platforms. We provide redundant features in our solutions.

PcVue - OPERATOR'S CHALLENGES



PERFORMING SOLUTION AT COMPETITIVE COST

Running on Microsoft Windows
Using Standard PCs
Highly Configurable
Multiple Display Management
Using SQL Server for Data Base Management
Validated by partners for large applications (more than 300.000 variables)
Integrated redundancy features

STATION CCTV SYSTEM

Camera selection
Display selection
Real time video insertion
Emergency calling booth/synchronization
Camera orientation Control (Pan, Tilt, zoom)

TRAIN SIGNALING SYSTEM

Lines Overview
Synthetic and clear picture of sub-networks
Library of Standard or Customized Signaling Symbols & Control Panels

CENTRAL SYSTEM CONTROL

PC & Network Failure Detection

LOCAL SYSTEM CONTROL

Functional views

SAFETY & SECURITY

Multiple redundancy: Control and Monitoring stations, Controllers, Networks
Several Control & Back up modes
Manual simulation or by scenario

STATION LIGHTING

Time table & Manual Lighting Control

HVAC

Cooling & Ventilation Management

LIFTS & ESCALATORS

Lifts, Escalators & Automatic Walkways control

POWER SUPPLY

Macro Views of the Electrical Distribution.

Single Line Diagram

Banner for real time alarm information

Micro View for each critical main intake Substation

Operators with proper user rights can override interlocking

Real time and Historical trending from the same environment

Fault and Power consumption Analysis and Reporting

Native millisecond time-stamp in every tag

STATION MANAGEMENT SYSTEM

In Station Control and Monitoring System for :

- Asset Monitoring
- Air Conditioning system
- Tunnel and Station Ventilation systems
- Escalators automatic walkways and lift systems
- Emergency phone booth
- Ticket vending machines
- Station Power Supply
- Fire Fighting system

MAINTENANCE SYSTEM

- Intervention teams are set up with time schedule of each individual
- Call the person on duty and concerned by the event
- Critical Alarms trigger calls or message sending
- Calls are logged and monitored online
- SMS messages, beeper, phone call with prerecorded voice messages, emails, …
- Acknowledgement of the message
- Archived data are compiled to generate reports
- Active preventive maintenance system (down time reports…)

ALARM MANAGEMENT

Alarm Groups

Acknowledgement

PASSENGER INFORMATION SYSTEM

Interface with specific protocols

Monitoring display system operation

Message management

TICKETING SYSTEM

Interface with specific protocols

Security breach alarm management

Ticketing machine diagnostics management

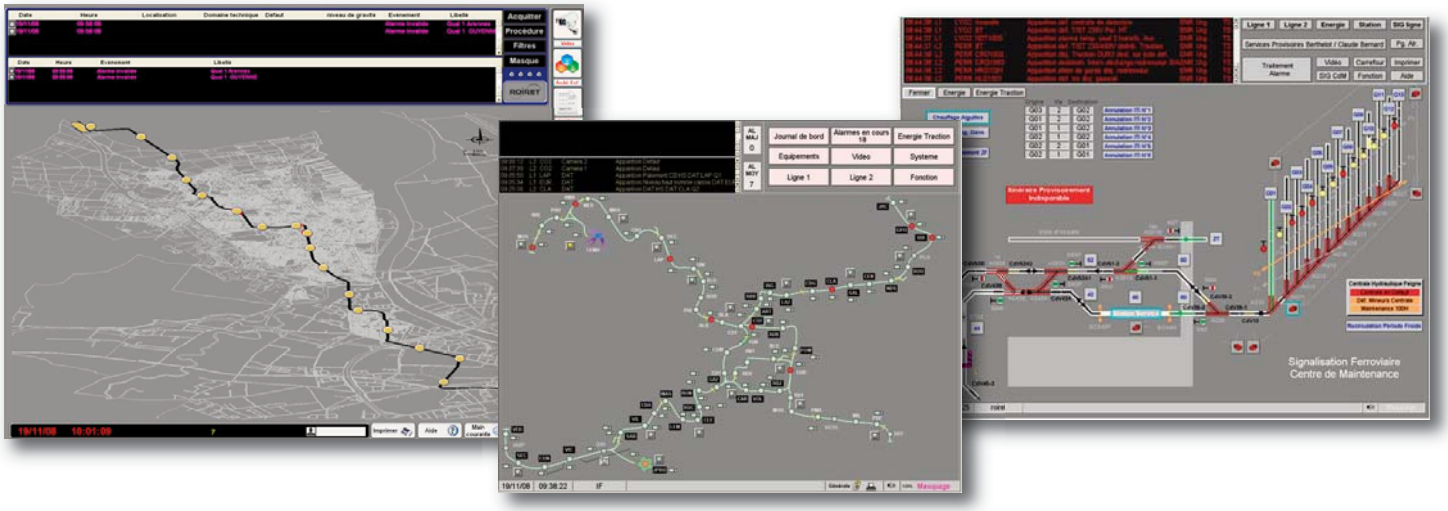
PcVue Solutions
by ARC Informatique

BUSINESS SOLUTION

SCADA solution for Transportation

www.pcvuesolutions.com

- High-availability system architecture
- IP video surveillance integration
- Interphone over IP integration
- VCR functionality support
- Operation Aid Systems & GIS interface
- Alarm filtering by geographic zone, line & station
- High resolution mimics (max. 10,000 x 10,000 pixels).
- Native management of multi-screen displays & video arrays
- Native millisecond time-stamp in every tag
- Graphic animations with specific color-to-object coding (electric circuit, sidings, signals etc.)
- Development kit for third party applications interface (vehicle tracking, space-time diagram etc.)



TRANSPORTATION: LYON - GRENOBLE TRAMWAY - NANTES TRAMWAY - SAINT ETIENNE TRAMWAY – MONTPELLIER TRAMWAY - LE MANS TRAMWAY - LYON METRO - MARSEILLE METRO - SNCF - PERUMKA RAILWAY, INDONESIA - SMRT, SINGAPORE METRO - SANTIAGO METRO IN CHILE - ISTANBUL METRO IN TURKEY - CAIRO METRO IN EGYPT - ADELAIDE METRO IN AUSTRALIA - MEXICO CITY METRO - GRANDE MOTTE, TIGNES FUNICULAR- FOURVIERE METRO IN LYON - GRANDE ROCHETTE FUNICULAR IN PLAGNE - JENAH TRAMWAY - TRAIN SIGNALLING MAIN CONTROL CENTER COLOMBO (SRI LANKA) - AUCKLAND TRAIN SIGNALIZATION ...

CASE HISTORY

TRANSPORTATION

JENA PUBLIC TRANSPORT

www.pcvuesolutions.com

JENA CITY'S SUBURBAN TRAFFIC BECOMES ATTRACTIVE AGAIN THANKS TO PCVUE SOLUTIONS

For travelers, the attraction of urban public transport basically depends on faultless working and punctuality. To enhance these vital factors, in 2008 the operating company for the Jena public transport system chose the **PcVue** Solutions supervisory control system, with implementation by Cegelec.

The traffic layout and topography of the city of Jena in the Saale valley are such that a large part of the intra-urban traffic is concentrated on a few busy networks. This leads to a particular management scheme for public transportation. The trams are concentrated on some routes with a large number of trains that serve mostly to convey travelers from the residential zones to the center city and back. Because of this concentration on the main axes, it is important to ensure regular operation and high availability. Indeed any disruption to this network can have serious effects on the transport infrastructure.

Facts of the matter

The risk of disruption to the running of the tram service by road traffic is somewhat reduced due to the large number of road-less routes. On the other hand, the proportion of incidents due to technical facilities with the rolling stock and railway facilities is increased. Outages of the facilities can cause failures in electrical supplies, in control of points and switchgear or to the system for signals and security of passageways between levels. Such breakdowns affect the reputation of the Jena's urban traffic. Any raising of the qualitative requirements, as well as improvement of the system design, do not eliminate the risks of the system malfunctioning. To minimize the impacts of failures on operation of the network, it is important to reduce the length of these breakdowns as much as possible. However the repair staff makes significant journeys because of the decentralized nature of parts of the network. The delays caused by these journeys play a large part in the length of the disruptions. Thanks to use of a remote supervisory control system, it is possible to visualize and control the electrical supply stations, points and switchgear; plus control and management of signaling alarms.

HISTORY

In 1992, the Jena city public transport company installed an initial system for supervisory control of the electrical supply. Until 1996, all voltage rectifier units, security units and signaling units were connected to that single-station, Unix-based system. The maximum capacity of the system was soon reached but no extra unit could be added. In 1997, the transport company started a consultation toward installing a new SCADA system capable of integrating the whole set of electrical supply units. Further changes followed in 2003 and 2004. As these works progressed, it was established that because of various additions within the data structure further development of this system would be very difficult, so data integrity would decrease.

Besides with this setup the number of unused variables increased considerably, which contributed to increased workload on the system. Nevertheless, the supervisory control system always met the requirements upon it. However in 2008 the I.T. system was ten years old and had been working continuously during this period. In order to continue to ensure reliable operation of the supervisory control system following subsequent development of the network, it became necessary to renovate the existing system.

During the start-up stage of the new system, it was imperative to ensure flawless working of the previous system. Interruptions had to be reduced to a minimum. This was made possible by concurrent running of the previous and new systems throughout the transition, so that interruptions only occurred during switch-overs. To achieve that required two measures, firstly by coupling the data via an OPC link to the previous system, then, after disconnection of the communication link, retrieving data directly from the PLCs via fiber optic cable.

IMPLEMENTATION WITH PCVUE SOLUTIONS

The new supervisory control system has been achieved by the Cegelec company by using **PcVue** SCADA software with a multi-user server architecture, plus new server hardware. It consists of a communication server, a database server and four fixed workstations. There is an option of using any computer or laptop as a remote station. Besides all that, a development station has been added for maintenance use. The two servers operate under Microsoft Windows Server 2003.

The servers act as domain servers and provide central functions such as user administration, wireless clock and data backup. The development station and the four workstations run under Windows XP. The communication server handles the link to the PLCs (via the ABB RP571 protocol), but there is no local HMI as for an OPC server and client. The back-up function and the handling of user actions, messages, alarms and variables take place on the database server under Microsoft SQL Server 2005 with Reporting Services. The workstations include object-oriented diagrams to display the current state of the system, alarms, reports, real-time trends and historical trends, as well as running the customer's programs. Thanks to the **PcVue** system's native capabilities (redundancy, several **PcVue** stations sharing an application across a network) as well as management of existing versions, it was possible to arrange the application so that the whole project resides on the communication server, to which all the other stations connect. So all changes are only applied in one place.

The **PcVue** management unit on the server uses an extra client license for a client to run as a Windows Terminal Server. In this way, all authorized users can access the server of any workstation via remote terminal access, display existing information and – after their passwords have been verified – control the system. Likewise Cegelec see to the maintenance of the software. Routers are used to provide a TCP/IP link from the telephone network to the Ethernet LAN of the supervisory control system; no other software is needed.

Thanks to the alarm management function of **PcVue** Solutions, some predefined alarms are sent by SMS to the service technician's cellphone.
In the same way, it is possible to deliver voice alarms by telephone. Using remote access, the technician on duty can thus get more information and get more quickly to the problem location. It may even be possible to solve the difficulty through the supervisory control system.

Like most modern SCADA systems, **PcVue** offers many native interfaces as standard, such as Modbus/TCP, Profibus and S7 via TCP, and it can be used as an OPC DA server, OPC client or OPC DA XML client. That was vital for modernizing the system, making frequent adaptation of hardware components a thing of the past, even when suitable spare parts could not be obtained. Future communication between the different devices will be of the Ethernet type, preferably IEC 870-5-104.

EASIER HANDLING

The decision of the Jena public transport company and Cegelec in favor of **PcVue** was based on ease and speed of conversion from the previous application. Design of the data model is achieved as standard by a set of menus, whilst changes during the project are integrated at once. A major attraction of **PcVue** for Cegelec is the always available display of the whole data model as ordinary text files that can also be edited using standard Microsoft Excel or Access tools. Thus you can readily configure variables in bulk with the filtering, copying, insertion and search & replace functions. All subsequent changes or additions that the user needs can be applied without resorting to development tools. To make best use of this facility, while improving clarity and maintenance, the most meaningful naming structure possible has been set up at Jena. So the name of a variable indicates the collection, site and components as well as an individual explanation and the nature of the data. The **PcVue** development tool represents the variable naming in a tree-structured manner also to assist selection by site, collection and component type. You can filter the data definitions in an Excel page using the structure of the variable names.
The existing images can be easily converted into **PcVue** images via an integrated import tool. The installer can develop and maintain the application by dragging & dropping a preconfigured object as a referenced symbol. Production of the display pictures (mimics) uses a WYSIWYG technique ("what you see is what you get"). With just a mouse click, development mode is switched to live running so as to visualize what the final presentation of the data would be.

A TALLY OF OUTCOMES

In fact thanks to Cegelec and the remotely operated supervisory control system based on **PcVue** Solutions, the Jena public transport company was able to achieve the following results.

CENTRALIZED PREVIEW

Continuously available from the supervisory control system is an overview of the whole installation, the energy supplies and the states of the switches. So it is possible to avoid those failures of switches that are due to not knowing the current state of the switchgear. In case of danger, it is possible to power down the whole installation.

CONTROL OF PLAUSIBILITY

Before a cut-off order is carried out, the supervisory control system applies a test of plausibility so that illogical and dangerous outages can be avoided.

ELIMINATION OF DANGERS

The electrical supply facilities robustly meet the standards for security and operation. In some situations though a fast response is necessary, as in the case of intervention by fire crew or when overhead cables must be disconnected. With the supervisory remote control system, this can be done directly from the central control station without specialists having to go on site.

PREVENTING CONFLICTS

If the security system or a one-way line's signals fail, the circulation must switch to a different mode of working (to proceed when traffic allows, or with wireless guidance). Another important situation besides the operational delays arises from the circulation of private vehicles, as well as among tramways. With the supervisory remote control system, one can anticipate problems and solve them faster. Through speed of response and the reduction of downtimes, the likelihood of conflict situations is reduced.

IDENTIFYING DISRUPTION FAST

Because every installation is decentralized, disruption cannot be spotted and handled by the staff on the trams until the traffic is already jammed. On the other hand, using the centralized control station the information about disruptions is taken into account more swiftly and appropriate actions are taken faster. Likewise this enables improved analysis of breakdowns. Besides, the various warning messages help to avoid eventual breakdowns.

FAST ELIMINATION OF DISRUPTION

A proportion of disruptions can be cleared directly from the central supervisory control station. For example mistakes in tracking a journey due to signaling disruption – in a particular circumstances, as soon as security clearance is given – can be restored to their initial state,

OPTIMAL USE OF THE ELECTRICAL SUPPLY DESIGN

The electrical supply of the transport routes mainly uses a dual feed to each section of the route. At the ends of the supply sections there are sometimes power switches in electrical cabinets, as well as motorized cut-off switches for the lines. By means of the supervisory control system, these can be controlled remotely and so can be used as efficiently as possible. The power switches and the line cut-off switches can when necessary be controlled from the centralized control station, as can the substations for the continuous supply. So in the case of a failure or disconnection of a supply substation, it is possible to feed a section of line from the substations by closing the appropriate power switches. In this way you can best ensure to electrical supply of the routes.

REDUCTION OF ROUTINE TASKS

Using the automatic handling and recording of messages and switching actions, the control station staff is freed from repetitive tasks.

IMPROVED PROFITABILITY

With the supervisory control system, tasks for eliminating disruptions and for planned switching actions are more efficiently accomplished, especially the complex switching operations in which several power switches had to be dealt with by staff working in parallel. Henceforth they can be achieved by just one person from the control station.

REDUCTION OF OVERTIME WORKING

When failures occur out of working hours, the duty staff can use a laptop computer to resolve problems remotely. In this way site visits, including the time for travelling to site, can be saved.

CASE HISTORY

TRANSPORTATION

TOULOUSE TRAMWAY

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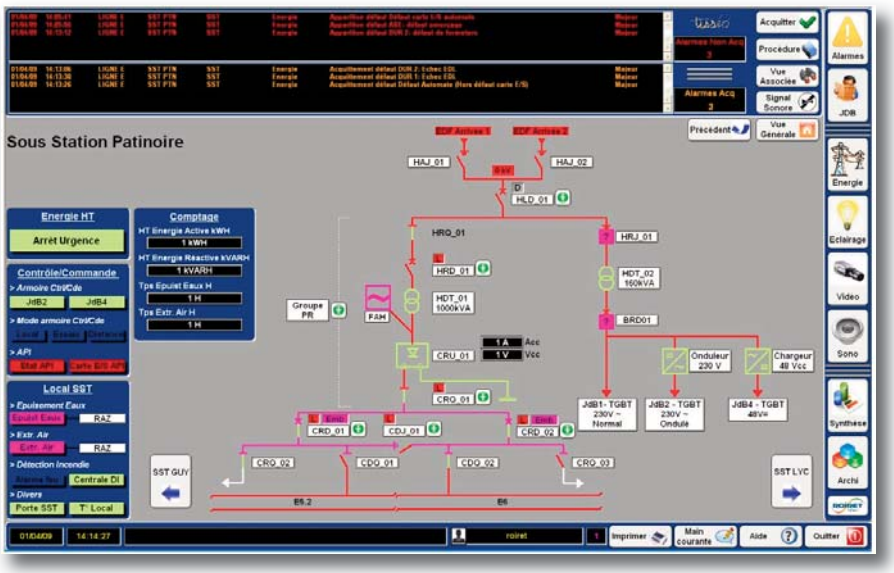
TOULOUSE TRAMWAY CHOOSES THE LATEST VERSION OF PCVUE

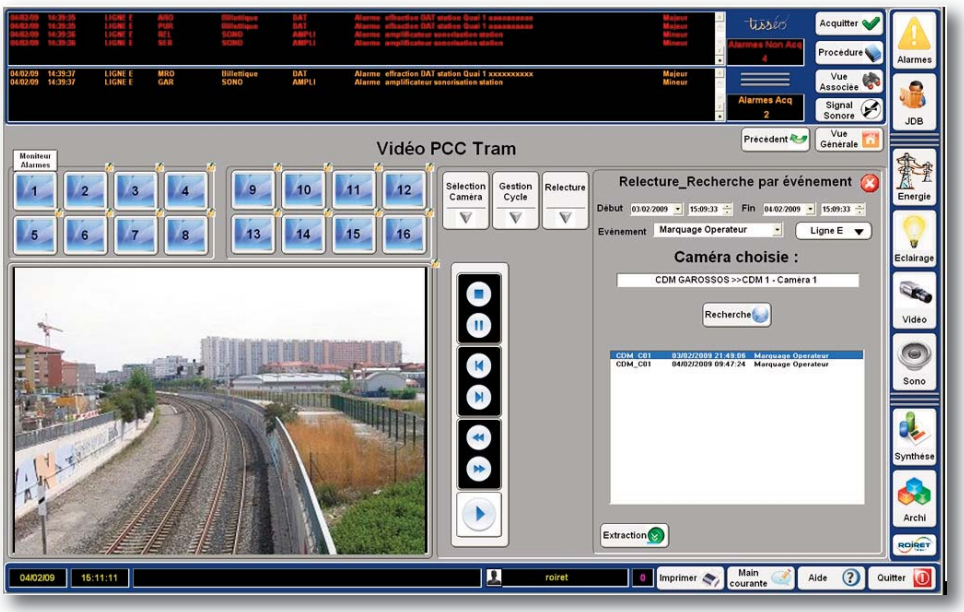
The railway systems integrator Roiret Transport, subsidiary of the Vinci Group, has selected the **PcVue** software solution from publisher Arc Informatique to supervise the centralized technical management (CTM) of the new Toulouse tramway. After the Lyon tramway and the Singapore and Santiago (Chile) undergrounds, it is the thirtieth urban system to opt for this solution. Every day **PcVue** manages the information necessary for the transportation of more than 10 million passengers around the world.

PcVue is a centralized supervision (SCADA) software with an installed base of more than 38,000 licences around the world. In its railway version it is used to supervise the CTM (centralized technical management) equipment, i.e. the trackside equipment of the network.

This equipment includes electricity substations, stations (ticketing, traveller information terminals, etc.), intercom, CCTV, and sometimes even the track signalling systems.

In practical terms, if a ticket machine is faulty, for example, the software sends an alarm to the operator in the central control room so that the most appropriate corrective action can be taken.

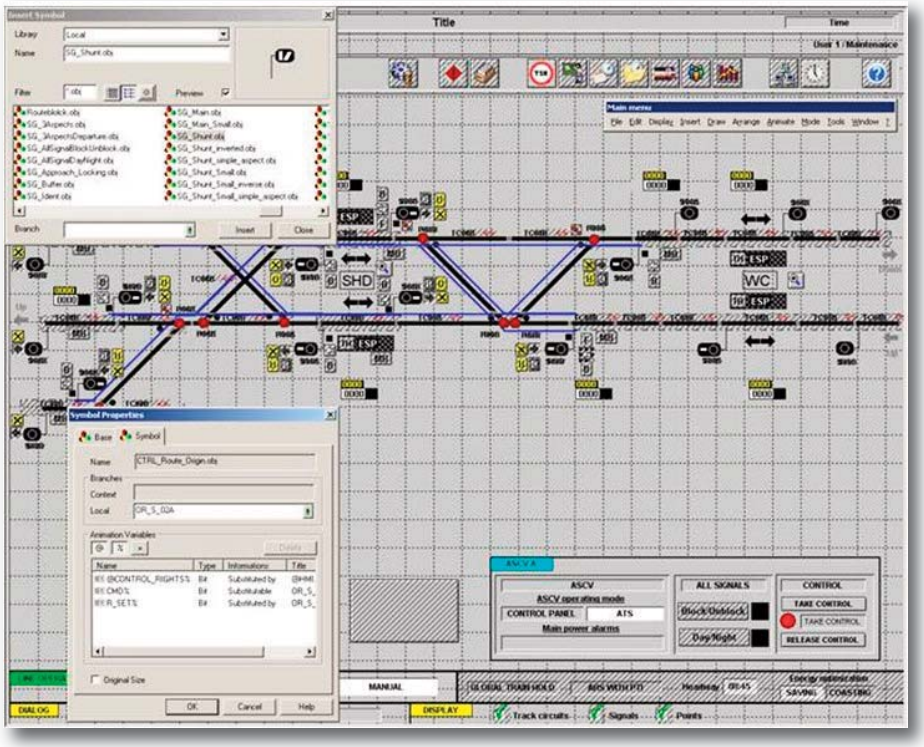




In the case of the Toulouse tramway, **PcVue** will interface with some thirty controllers (including one for each of the 18 stations).

The software manages 15,000 to 20,000 information items in real time. It can also run applications handling larger volumes, with up to several hundred thousand managed variables.

"We first appreciated the ability of Arc Informatique to develop specific protocols, particularly for the CCTV. This enables us to interface with the network supervision PCs that have ´business´ protocols and thus ensure the continuity of the installation. Next, ***PcVue*** *provides a ´VCR´ function which records the events. For example, if an incident occurs at a junction, the entire scenario leading up to the incident can be played back. Lastly, the* ***IntraVue*** *module enables* ***PcVue*** *to supervise and integrate equipment such as the CCTV cameras directly on a TCP/IP network. It is no longer necessary to use a dedicated PC for each type of equipment."* declared Mr Clarenne, Business Manager at Roiret Transport.



In a central control room there is usually a computer work station for the signalling, another for the CTM, and yet another for the AVLS (automatic vehicle location system).

The standout feature of **PcVue** is that it can integrate everything. Signalling functions can be included on the CTM screen. In this case, with only two screens, the operator supervises the CCTV, the intercom with the trains or the stations, etc.

PcVue also provides native management of multi-screen displays and video walls. Animated graphics managing the combinations required for object colouring are supplied in the form of libraries (track circuits, switches, signals, etc.).

Development kits are available as standard for interfacing with third-party applications (train tracking, space-time plots, etc.).

FEW SNAPSHOTS OF SOME OF OUR INTERNATIONAL REFERENCES

SNCF SUBURB' STATIONS - FRANCE

Project: Centralized management and video surveillance of Paris' suburban station

Description

For a nationwide project SNCF is implementing a BMS and video surveillance system in all the railway stations from its networ.

- Each station has a local supervision terminal for the local station alarms
- From the SCADA system, users can access video surveillance features
- The project will be extended to 120 Railway stations

PADUA TRAMWAY - ITALY

Project: Gemmo with the control of the Padua tramway (Italy) replacing an existing FactoryLink application with 2 Servers and 2 Client Stations

Description

The guided tramway connects Albignasego, in the south of Padua, with the Fornace, in the north of the city, thanks to the new line built in 2009. Each tram/bus is equipped with security cameras and controlled by GPS

O.N.C.F. - MOROCCO

Project: The Moroccan Railways (ONCF) awarded ALSTOM a 53 million's contract , to revamp the railway signalization over a 700 km of tracks. It is the line from Sidi Aidi in Marrakech to Kenitra in Oujda

Description

- The network spreads over 55 railway stations
- For safety reason communication's network are redundant
- Train tracking module interacting with PcVue in real time
- Zoom functions and panoramic view to represent and navigate easily through the network using the HMI, with multi monitor support

Technical aspects

- Specific field equipment S.S.I. (British Railways protocols)
- All the railway station will be fitted with PcVue supervision stations

SEMITAN – TRAMWAY NANTES - FRANCE

Project: Tramway line centralized management system of Nantes city. Power, lighting and itinerary management

Description

- Two PcVue redundant servers
- Redundancy of PcVue archives server
- Seven PcVue station on Ethernet network
- Twenty Schneider PLCs communication using Open Modbus over TCP/IP via modems
- Control of video matrix
- Around 10.000 points

PERUMKA RAILWAYS - INDONESIA

Project: Supervision of the overall railway network for Jakarta city and suburban area

Description

- 15 railway stations, each of them using a redundant supervision system
- For safety reasons communication networks (Field equipment / station and stations / Central Station) are redundant
- Synchronization and command priority functions between railway stations and central station. Dead man feature enabling to take over the control remotely
- Train tracking module interacting with PcVue in real time
- Dynamic bilingual application English / Indonesian
- Zoom functions and panoramic view to represent and navigate easily through the network using the HMI, with multi monitor support

Technical aspects

- Specific field equipment S.S.I. (British Railways protocols)
- 30 PcVue stations in Railway stations
- 4 server associations to the central station feeding 15 PcVue client stations
- Each server association is equipped with two PcVue redundant servers
- Over 150.000 variables in all

N.A.T. CAIRO METRO - EGYPT

Project: Interinfra, French electrical, civil works and mechanical companies' consortium, has been awarded a contract to upgrade a regional line linking Cairo city centre through a tunnel. This line became the line 1 of the subway and is 42.5 km between El Marg (north) to Helwan (south) and comprises of 33 stations (4 underground). The "National Authority for Tunnels" is under the Egyptian ministry of transport jurisdiction

Description

The electrifying and the line control command of :

- 2 sub-stations : Tura 66/20 kV, Ramsès 220/20 kV
- 4 underground sub-stations
- 10 traction' sub-stations with 12 rectifying and 12 impulses 2 250 kW and 1 500 V CC commutation station
- 9 TCP (traction control points)
- Control equipment for the 17 sub-stations
- A PcVue monitoring display for the 31 sub-stations
- A full dynamic bilingual HMI application English / Arabic
- Around 25.000 variables in total

METRO DACCA - BANGLADESH

Project: Supervision of the Dacca subway system traffic

Description

- Control – command of subway traffic system
- Train tracking
- Time tables
- Automatic and manual itinerary management

Technical aspects

- 8 SIGVIEW supervision stations (PcVue relabelled version)
- Specific field equipments

ADELAIDE SUBWAY - AUSTRALIA

Project: Supervision of Adelaide subway network traffic

Description

- Control – command of urban metro railway traffic
- Train tracking
- Time table
- Automatic and manual itinerary management

Technical aspects

- Sixteen SIGVIEW station (PcVue relabeled version)
- Specific field equipments

MINISTRY OF TRANSPORTS ISTANBUL - TURKEY

Project: Control – command of Istambul subway system's power supply

Description

- Ten P1200 supervision stations (PcVue relabelled version)
- Alspa PLCs
- 6.500 I/O points

MINISTRY OF TRANSPORTS MEXICO CITY - MEXICO

Project: Control – command of Mexico City' subway system's power supply

Description

- Twelve P1200NT supervision stations (PcVue relabelled version)
- Alspa PLCs

SYTRAL – TRAMWAY LYON - FRANCE

Project: Tramway line centralized management system of Lyon city. Power, lighting and itinerary management

Description

- 3 PcVue stations take care of the overall system in the Tramway main control centre
- A DataVue station to exploit the off line archives under Excel
- 2 more PcVue station allow monitoring of the system from the Perrache site and from a nomad station
- Control of video matrix
- Use of PcVue VCR function to ensure tracking and traceability of all tramway moves

Technical aspects

- Triple-redundancy of PcVue stations on an Ethernet network.
- 80 Premium PLCs communicating in Modbus TCP/IP.
- Over 44.000 points

METRO S.A. SANTIAGO - CHILE

Project: Control – command of the power supply of the Santiago subway system

Description

- 10 supervision stations P1200W (PcVue relabelled version)
- Alspa PLCs
- Around 10.000 variables

METRO S.A. SANTIAGO - CHILE

Project: Supervision of Santiago subway' system traffic

Description

- Control – command of traffic subway' system
- Train tracking
- Time tables
- Automatic and manual itinerary management

Technical aspects

- 12 SIGVIEW supervision stations (PcVue relabelled version)
- Alspa 80-35 PLCs
- Around 16.000 variables

SINGAPORE METRO SYSTEM (S.M.R.T.) - SINGAPORE

Project: Railway stations supervision system

Description

The system control command of the ventilation, air conditioning system and the entry in platforms of the rolling equipment. The stations equipped are :

- Stage 1 on the Woodlands line : Yew Tee, Kranji, Marsiling, Woodlands, Admiralty, Sembawang
- Stage 2 East : Expo and CGA (Changi Airport)

Technical aspects

- 16 PcVue supervision stations (2 redundant stations at each location)

RÉGIE DES TRANSPORTS MARSEILLAIS - FRANCE

Project: Supervision of the High and Low Voltage network for the Marseille metro line 1

Description

- Two redundant PcVue servers
- A PcVue client station is used for exploitation
- Schneider Electric PLCs on FIP network time stamped from source (PLCs)

SOME OF PCVUE TUNNEL AND INFRASTRUCTURE REFERENCES (SOME IN FRENCH)

BASEL – MULHOUSE AIRPORT - SWITZERLAND & FRANCE

Project: Monitoring and control of electricity, access control, intrusion, fire detection, blinds, elevators etc.

Description

- 2,500 tags
- Animation management per point and per zone
- Comments and set points on alarms
- Lighting on scheduler
- Trends
- Reporting

Technical aspects:

Three Schneider Premium PLCs
Optical fiber Ethernet TCP/IP network

ASF HIGHWAYS - FRANCE

Project: Supervision of the highway network for Autoroutes du Sud de la France

Description - supervision of:

Toll stations
Highway interlinks
Rest areas
High capacity pumping stations
Water stations and brine stations
ASF security radio masts
FM 107.7 radio mast
High voltage stations
Uninterruptible power supply (UPS) equipment and generator sets
Lighting and high voltage distribution

Technical aspects

Over 100 PcVue stations on the network.
Around 850 Moeller PLCs.
Staefa and Daikin equipment.

CERN SAFETY ALARM MONITORING - SWITZERLAND

Project: CSAM (CERN Safety Alarm Monitoring) - a wholly new system for monitoring safety alarms.

Description

System goals:

To ensure security of people and goods on the future Large Hadron Collider (LHC) project (which will cost around 8 billion Euros)
To notify the fire service in case of problems: fire, O2 deficiency etc
To ensure information update for external users (Web server, OPC)
To show equipment availability and downtimes at any moment.

Monitoring 33 LHC safety zones, 24 hours a day throughout 10 years.
Data are processed from two operations rooms: a fire service room and a distribution room.
Conforming to IEC 61508 rules: SIL2 high availability.

Technical aspects:

66 Schneider Premium PLCs with time-stamped data.
2 redundant PcVue stations.
4 PcVue client stations located in the two rooms.
1 dedicated Oracle server for long term data storage
1 WebVue server

BAYONNE SEAPORT - FRANCE

Project: Monitoring and control of the power supply for the port of Bayonne.

Description

Automatic management of circuit breakers and meters.
Alarm reporting by mobile phone, with alert software.
Railway crossing automation for the port.

Technical aspects:

1 PcVue station
Software for a sound alert server.
Schneider Electric PLCs.

SAPN - A14 HIGHWAY - FRANCE

Project: Supervision of the motorway between 2 interchanges.

Description

Electrical monitoring
Lighting
Smoke clearing system
Ventilation
Access control

Technical aspects:

2 PcVue stations
HIRSCHMANN communication network
SIEMENS PLCs: three 115U units, seven 115H and four 95U.

PARIS CHARLES DE GAULLE AIRPORT - FRANCE

Project: Building Management System for Terminal 2E

Description

Low voltage distribution
Climatic control
Electro-mechanical systems
Boarding gateways
Fire detection, access control, video, baggage handling and car parks.

Technical aspects:

2 redundant PcVue server stations, 1 PcVue historical data server, 10 PcVue operating stations
WebVue server: 5 concurrent connections
3 redundant Hirschmann loops
5 Modbus - TCP/IP gateways
100Mbit redundant Ethernet network
15,000 tags via 73PLCs, 49 equipment I/Os, 25 calculators.

SEPADEF - FRANCE

Project: Renewal of the car park management system in La Défense (a huge trade centre).

Description

Upgrade of the SCADA system, connected to the existing equipment and to new PLCs.
HVAC, electricity, elevators, fire detection, video monitoring and user access.

Technical aspects

Twelve PcVue stations.
New Schneider Premium PLCs.
10,500 tags (alarms, registers, counters & set points).

TUNNEL DE COINTE - LIÈGE - BELGIQUE

Projet : Supervision des installations techniques du Tunnel de Cointe à Liège pour le compte du Ministère de l'Equipement et des Transports Belge.

Caractéristiques :

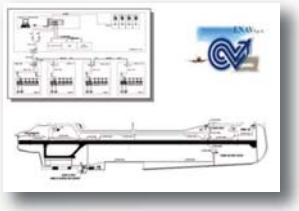
La supervision assure le contrôle de :
La gestion automatique de l'éclairage
La distribution électrique
Le système de ventilation
Le contrôle des systèmes de pollution

Environnement technique :

Quatre postes PcVue assurent la supervision de 30.000 variables au total
Communication sur réseau de communication LN03 redondant
Bus de terrain Profibus

ANCONA INTERNATIONAL AIRPORTFALCONARA MARITTIMA - ANCONA, ITALY

Project: Supervision and control system with automatic cut-over between two supplies, plus detection of breakdowns through leakage to earth. Remote calibration of the protection settings.

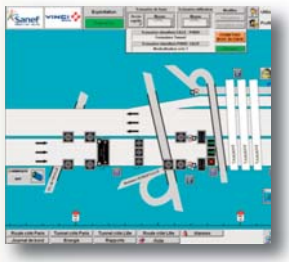


Description

PcVue supervisory station.
Modbus RTU communication network.
Sepam 2000 devices, Schneider Electric Micro and Premium PLCs.

SANEF - TUNNEL A1 / ROISSY- FRANCE

Projet : Gestion Technique Centralisée Equipements Dynamiques de Gestion de Trafic et de Sécurité des tunnels de l'autoroute A1, correspondants aux pistes de l'aéroport de Roissy Charles de Gaulle.



Caractéristiques : Les postes PcVue assurent la supervision :
États des équipements (panneaux police, panneaux messages préprogrammés, barrières de fermeture, bornes incendie, extincteurs, équipements radio, feux d'affectation de voies, capteurs d'atmosphère, etc …)
Gestion des scénarii (déclenchement, modification, création)
Alarmes et journaux de bord
Gestion du système (vues et états des équipements, alarmes et tests)

Environnement technique :

Un poste PcVue serveur
Deux postes clients "bi-écrans"
Accès pour clients Web
Automates Siemens sur réseau Ethernet

MILITARY AERODROMEGHEDI - BRESCIA, ITALY

Project: MV distribution on a double ring net.

Description

Supervisory system for two MV distribution rings, with fiber optic links between the cabinets sited at considerable distances apart.

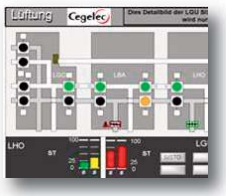
Technical aspects

PcVue supervisory station.
Modbus RTU communication network.
Sepam 2000 devices from Schneider Electric.

TUNNEL DU ST GOTTHARD- SUISSE

Projet : Supervision de la ventilation du tunnel

Caractéristiques : Les postes PcVue assurent la supervision :
détection incendie
des trappes de ventilation
des moteurs de ventilation
Le client WebVue supporte deux langues : Allemand et Italien
Architecture à trois niveaux :
KR : supervision générale (2 postes redondants, 1 à chaque entrée du tunnel)
GR : 7 secteurs du tunnel
ER : automatisme propre au secteur



Environnement technique :

Deux serveurs redondants
Sept clients
Deux clients WebVue par poste
Communication redondante
Ethernet & Profibus)

TUNNELS SISER ILE DE FRANCE

Projet : Gestion technique centralisée à trois niveaux des installations des 21 tunnels de l'Ile de France, avec interface avec le Système d'Aide à la Gestion du Trafic pour le Service Interdépartemental de Sécurité et d'Exploitation.

Caractéristiques : L'exploitation du réseau est répartie sur quatre régions couvertes par deux subdivisions. Un PC central regroupe la totalité des informations des centres d'exploitation et bénéficie d'une situation en temps réel de la totalité de l'infrastructure. Afin de garantir une disponibilité et sécurité totale du système et en complément des redondances locales, les régions peuvent se secourir entre elles "à chaud". Les historiques d'événements et alarmes sont produits localement au sein d'une base de données SQL Server, consolidées au PC Central et transférées au sein du base de données Oracle.

Le système de supervision interopère également avec:
Le Système d'Aide à la Gestion du Trafic (S.A.G.T.U.)
Le système de détection et aide aux incidents (D.A.I.)
La vidéo surveillance

Environnement technique :

25 postes PcVue d'exploitation sur 5 régions
10 postes PcVue dédiés à la maintenance au sein des tunnels
130 automates Siemens sur réseau Ethernet avec le protocole S7 ISO IP.
Historiques redondants sur SQL Server
Génération automatique de la configuration depuis un référentiel

TUNNEL DU BOIS DES CHÊNES - FRANCE

Projet : Supervision depuis le central de la DDE de la Moselle de Moulins-Les-Metz du tunnel mono-tube du Bois des Chênes.

Caractéristiques :

La supervision assure le contrôle commande de :
96 feux de signalisation
14 panneaux à messages variables
Les feux rouges et feux de barrage
Le signal "pré-décroché" d'extincteur
La TGBT
Les commande d'éclairage

Environnement technique :

Poste de supervision PcVue
Communication Modbus avec automates programmables APRIL 5000.

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