PcVue® Solutions

Software platform for IoT, SCADA, BMS & real-time data analytics

HMI SCADA

Mobility Solutions

THE RIGHT INFORMATION TO
THE RIGHT PERSON AT
THE RIGHT PLACE AT
THE RIGHT TIME
SECURELY PRESENTED

www.pcvuesolutions.com

OPPORTUNITIES

✓ Take advantage of the growing availability of data

✓ Transform big data to relevant information

✓ Display information in the context of location/role

✓ Automatically push information to the mobile worker

✓ Protect the data

FEATURES

✓ A dedicated mobility server with a Contextual Logic Engine

✓ A contextual mobile HMI with proximity & location services

✓ A mobile interface with notification based services

✓ A rich graphical HTML5 web interface

✓ Works with standard smart mobile devices

✓ A Secure design

> " In an increasingly communicating universe, PcVue Solutions innovates with solutions that facilitate exchanges between people, connected objects and the SCADA system by taking advantage of the latest mobile and geolocation technologies: NFC, Bluetooth LE Beacons, QRCodes, GPS… "

The Mobility Opportunities

The rise of smart mobile devices and the impact to SCADA

The massive adoption of smart mobile devices in the professional world in the ever more connected world of the Internet of Things (IoT) or the Industrial Internet of Things (IIoT) raises new opportunities and also new challenges.

The systems generate more and more data that has to be filtered to bring relevant information on smart mobile devices with their limited size screens.

Moreover, the way in which people interact with smart mobile devices differs from the way in which people interact with laptop and workstations.

Historical approaches to monitor, diagnose, maintain and control industrial and building assets must be reconsidered.

The PcVue Mobile Solutions

The SCADA mobility reinvented

What is needed is a system that is proactively and securely presenting the right contextual information, to the right person, at the right location and at the right time.
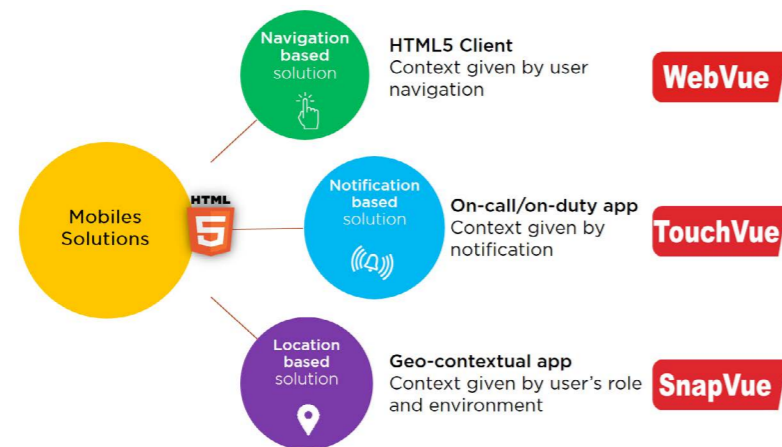
IPS (Indoor Positioning System) and the long-standing Global Positioning System (GPS) are standard features of today's mobile devices. PcVue Solutions has developed a mobility infrastructure that takes advantage of these new technologies to serve a contextual mobility based on proximity and location services.

The mobile worker is now able to automatically get relevant information on his mobile device depending on his location and his role without the need to navigate.

This disruptive innovation allows for dramatically improved performance and efficient operation and safety.
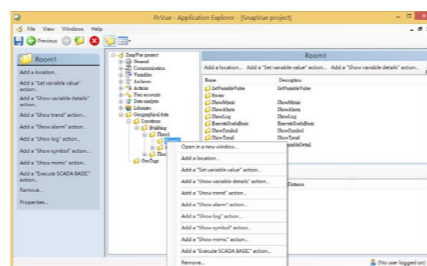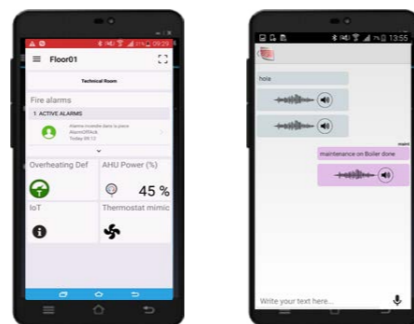
Solutions for all mobility needs

✓ Solutions can be used individually or can be combined together

✓ Solutions for all mobile requirements

SnapVue* - Get the relevant information as you move

Contextual mobile HMI with proximity services

✓ Indoor/Outdoor geolocation using IPS (Bluetooth LE Beacons, QRCode, NFC, Wifi) and GPS

✓ Automatic contextual information & controls

- Graphical HMI on mobile device
- Real time values display & control
- Alarms & events management
- Trends visualization
- Access to arbitrary local or non-local resources: audio, video, user-manuals, documents in general etc.
- Attach a text or voice message to a location.
- Open a chat-channel with the control room or other mobile users.
- Asset Tracking

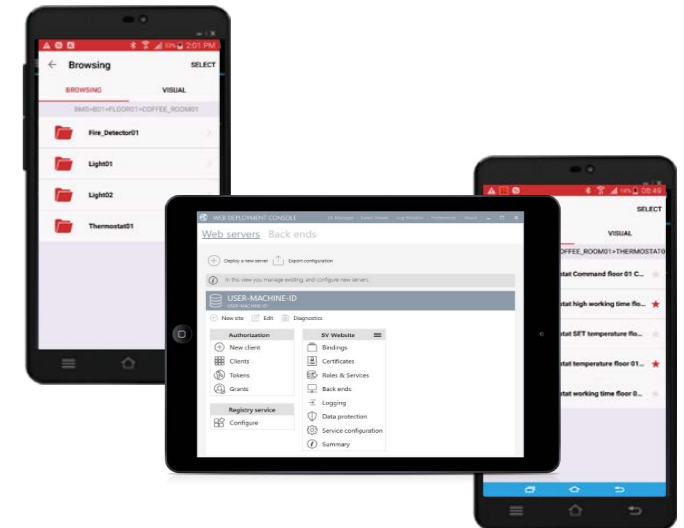✓ Object-oriented & user friendly configuration interface to reduce deployment time

Available in version >12

TouchVue - The mobile app for immediate action

An interactive mobile interface for notifications and control

✓ On-call/on-duty mobile app for PcVue

✓ Latest ergonomic design

✓ Based on the *EasyMobileTechnology* for easy configuration and deployment

✓ Access the data from several sites

✓ Real-time information and notifications (alarms, values, trends) for immediate action (acknoledgments or control values)

✓ Archived data (events logs, historical trends)

✓ Contextual mimic display

✓ Data filter depending on user profiles

✓ Watchlist for favorite variables to watch

WebVue - Access your workstation graphics from your mobile device

A HTML5 web client for any device

✓ Monitor & control your PcVue process from a web browser with any devices

✓ No specific development

✓ Mimics, alarm lists & acknowledgment, event logs, real time and historical trends

✓ Webservices toolkit available to create your own custom web interface

EasyMobileTechnology

Our mobile solutions are based on the *EasyMobileTechnology* wich ensures a fast, easy and secure configuration & deployment

✓ No gateway, no extra plugin

✓ HTML5

✓ No client installation

✓ A deployment console for easy configuration – no scripts – Wizard only

✓ Open to third-party application

✓ Adapted to any user: End-user, SI, IT

✓ Secure scalable architectures and communications (HTTPS,SSO,OAuth)

✓ Easy Diagnostic

✓ Affordable

Contextual logic engine

Associates actions and events to location and to user credentials

Sends contextual information and controls

Recommends routes for safety and security

Voice and text user messaging

Integration with PcVue GIS Map Control

Location historian

Archive device and assets movements

Contextual mobility services

Alarms & events notifications services

HTML5 mimic service

Others SCADA
OPC Client/Server

PcVue communication server
WINNET

WebServices

Micro geolocation/Indoor Positioning Systems
Bluetooth LE Beacons
NFC
QR Code
WiFi Router
...

Geolocation
GPS

Function

Services

Open connectivity

Location devices

The Mobility Server

Innovation

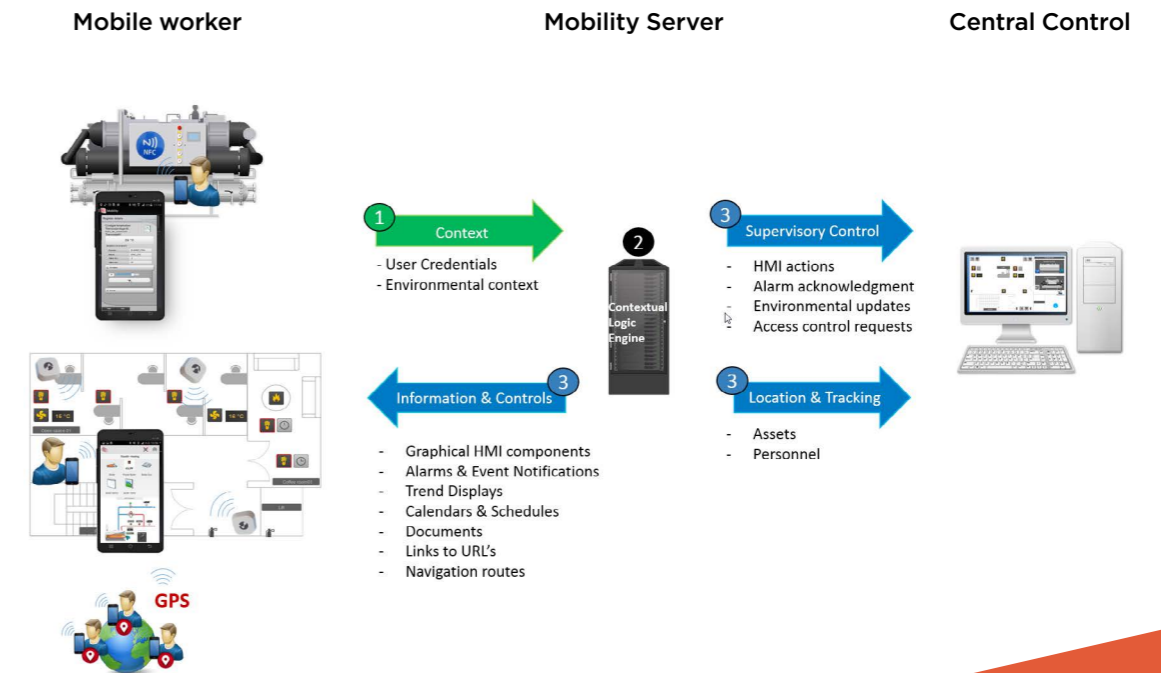PROTECTED
PATENT NO. 9,819,509

The PcVue Solutions Mobility Infrastructure

The PcVue Solutions mobility infrastructure consists of geo-tags deployed in zones of control, a Proximity Services application on the mobile devices and a Mobility Server responsible for evaluating the appropriate contextual requirements.

The Mobility Server is connected to a SCADA system which handles the communications needed to monitor and control equipment and other assets.

The mobile devices are communicating with the Mobility Server using standard wireless network connections.

Mobile worker   **Mobility Server**   **Central Control**

1 Context
- User Credentials
- Environmental context

2 Contextual Logic Engine

3 Supervisory Control
- HMI actions
- Alarm acknowledgment
- Environmental updates
- Access control requests

3 Information & Controls
- Graphical HMI components
- Alarms & Event Notifications
- Trend Displays
- Calendars & Schedules
- Documents
- Links to URL's
- Navigation routes

3 Location & Tracking
- Assets
- Personnel

GPS

HOW IT WORKS STEP-BY-STEP

1. A mobile worker starts the mobile app and logs on. The worker enters a zone and the app detects nearby Bluetooth LE Beacon tags and WiFi Access Points, or scans a NFC tag, or a QR Code. The app sends the Mobility Server the environmental context and the mobile worker's credentials.

2. The Mobility Server maintains a database which associates locations and user roles with actions and events. Using the information transmitted by the app, the Mobility Server is able to determine the mobile device current location and the role of the user.

3. The Mobility Server automatically sends the mobile device relevant information based on the mobile worker's location and role. The Mobility Server provides the SCADA or BMS system with:

   - all real time data needed for the supervisory control.

   - real-time location of the devices and assets as they move.

The mobility server can play automatic sequences depending on contextual events. For example in case of an important event in a zone, an alarm will be automatically broadcasted to any mobile worker in the zone.The mobility Server also maintains status/counters for each zone and send actions to the Scada Server when these status change. For example when the last person leaves a zone, light is turned off.

BENEFITS

"Many benefits are realized with the deployment of a Mobility Infrastructure.   These include benefits to all users depending on their roles and to the entire organization in safety, security, comfort and efficiency"

Mobile workers & Benefits

Occupants
Automatic tuning adjustment
Access Control
People Safety

Maintenance team
Diagnostic and troubleshooting
Access Control
People Safety

Central control
Tracking of moving assets
Dispatching and guidance for a maintenance team
Occupancy monitoring in an area
Operation monitoring and control
Access Control
People Safety

Managers
KPI monitoring
Reports
Access Control
People Safety

Engineering
Commissioning
Access Control

USE CASES

Maintenance operations

SCENARIO
- A Maintenance staff is performing maintenance task on an equipment.
- They are facing a machine or equipment that has no HMI or operator Interface.
- They scan the QR code or touch the NFC tag to visualize status and parameters.
- They then set the equipment to maintenance mode masking alarms, then enter their maintenance actions & reports.
- They can consult Manuals or Equipment datasheets as needed.

BENEFITS
- Provides a mobile interface to verify status live of connected equipment.
- Improves safety as maintenance staff has full live information and data sheet/manual available
- Can tune parameters according to overall system and visual reality on the spot
- Intervention summary done on the spot and immediately recorded on central system
- Automatically provides the correct information depending on where the maintenance staff is
- All Industries, Infrastructures and BMS applications.

Assets tracking

SCENARIO
- A critical asset has on-board sensors connected via WiFi,GPRS, GPS, ANT+, BTLE, RFID,LORA
- The location of the asset is sent back to the mobility server.
- Location of asset is monitored from server and tracked on a map updated real time.
- He scans the QR code or touch the NFC tag to visualize status and eventually control some parameters if something needs to be done.

BENEFITS
- Monitor mobile asset movement indoor/outdoor.
- Verify asset movements.
- Maximize asset utilization.
- Alarm triggering or Geo-Fencing on restricted area.
- Archive location history.

Safety and dispatching

SCENARIO
- Security guard securing a facility is patrolling an area at regular intervals.
- Guards have mobile devices running the app
- Their movements during rounds are detected by sensors or GPS location, tapping NFC on must check spots.

BENEFITS
- Optimize dispatch of personnel
- Dispatch assistance providing current location, qualifications.
- Trigger Alarm with personnel location in case of danger/emergency.
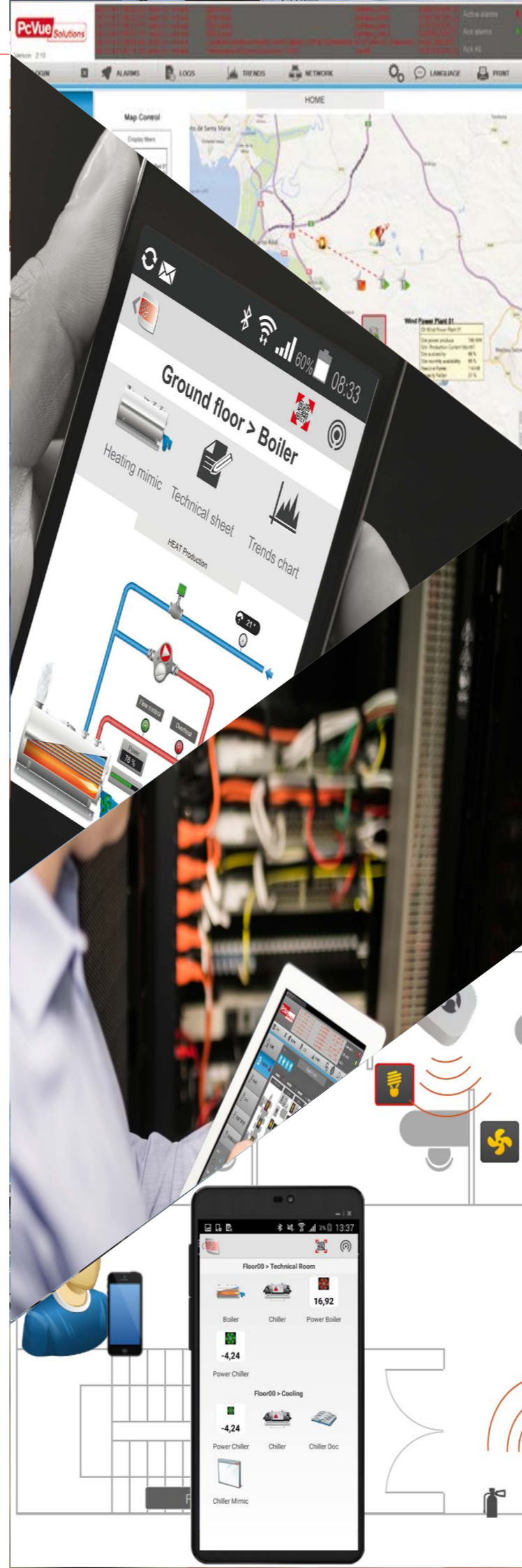- Monitor and archive movements

Room display and control

SCENARIO
- Registered user with mobile device is moving around a building or facility entering different rooms or zones
- Bluetooth LE Beacons are strategically located in the facilities to propose to the user interacting with his surroundings as he moves.
- Particular equipment can be equipped with NFC tags or QR code for the user to access specific controls or parameters.

BENEFITS
- Provide an immediate graphical interface for the nearby devices asset
- Eliminates navigation through non relevant mimics
- Secured action according to user rights.
- Reduce GUI hardware cost around the facility.
- All Industries, Infrastructures, BMS and Home automation applications.

Data recording for non-connected devices

SCENARIO
- A SCADA application monitors numbers of connected equipment but some older generation equipment such as meters can't be connected to the system
- An operator with a mobile device scans a NFC or QR code with the device.
- They then manually input the reading using his mobile device.

BENEFITS
- Enable management of non-connected devices.
- Eliminates double entry as data recorded directly from the field device.
- Paperless process.
- Logs automatically the operator who did the input.

Access Control

SCENARIO
- A person is granted access with GEO- tag
- They place their smartphone close to the GEO- tag. Their profile is compared with mobility server user profile list.
- Access is granted or denied according to their credentials.
- Mobility server logs all entries and eventually exits.

BENEFITS
- Integrate Access Control into the BMS system easily. Reduce the number of sub-systems.
- Cost effective time attendance software solution.
- Possibility to easily segregate different zones with different access level credentials.
- Facility Management System, BMS, Hotels applications mostly.

Commissioning

SCENARIO
- The Project is in commissioning stage and the automation engineer is testing the SCADA system
- Engineer enters an Bluetooth LE Beacon area or touches a NFC or scans a QR code.
- Engineer immediately accesses the SCADA mimic related to their location can test system alone by forcing locally parameters on device and check reading on physical equipment and SCADA reading at the same time.

BENEFITS
- Speed up commissioning tasks.
- An engineer is able to perform commissioning task autonomously.
- Commission both devices and SCADA system at the same time.
- All Industries, Infrastructures and BMS applications where automation system is being installed.

Visualization & Control of Nearby assets

SCENARIO
- Operators are moving within a Plant or an industrial facility
- They are facing a machine or equipment that has no HMI or operator Interface.
- They scan the QR code or the NFC to visualize status and eventually control parameters if needed.

BENEFITS
- Provide an immediate graphical interface for the asset.
- Avoid navigation through large SCADA graphics.
- Reduce installation cost, avoiding the use of single purpose HMIs
- Secured action according to user rights. No unauthorized tampering
- Allows control when outside of the control room.
- All Industries, Infrastructures and BMS applications.

Mastering interfaces between
#Humans
#Systems
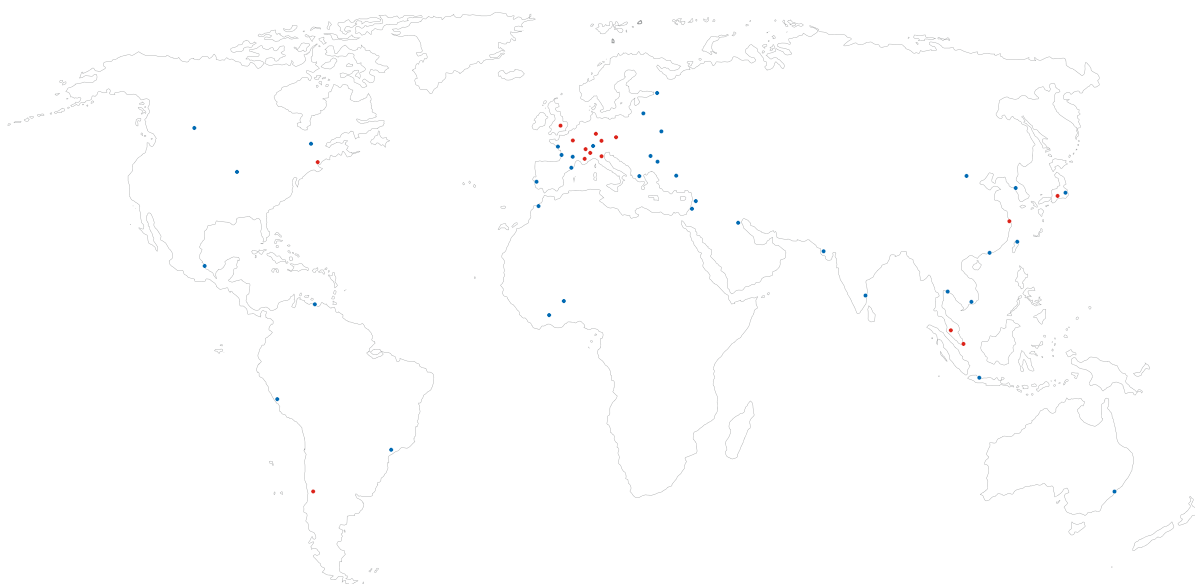# #Connected things

ARC Informatique

Headquarters and Paris office
2 avenue de la Cristallerie
92310 Sèvres - France

tel + 33 1 41 14 36 00
fax + 33 1 46 23 86 02
hotline +33 1 41 14 36 25

arcnews@arcinfo.com
www.pcvuesolutions.com

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