



visualTRACK ENERGY

monitoring & control
for energy production plants



SOLAR



WIND



HYDRO

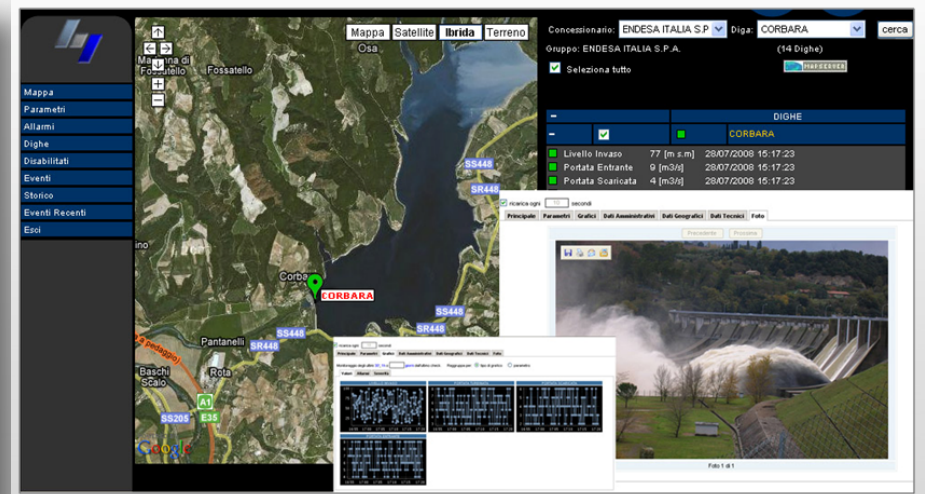


BIO



Monitoring & Control of energy production plants

visualTRACK ENERGY allows the management and integration of plants producing energy from different sources, through a **web platform for monitoring and control** for a **centralized access** to all the remote plants





Key features

Operation & Maintenance (maintenance management, plants operations)

- Data acquisition from the field
- Remote settings and controls
- Data archiving
- Statistical analysis and reporting
- Alarm management: detection, monitoring, notification, intervention and corrective actions
- SMS and e-mail notifications
- Tablet applications for interventions management
- Remote access on ANDROID, iPad and iPhone

Executive Monitoring (Production monitoring and planning)

- Production reporting: day, week, month, year
- Data correlation on multiple plants
- Analysis of expected VS actual production
- Reporting to the manager and administrative procedures
- Asset management: *Inventory, Efficiency, Spare parts*
- Remote access on ANDROID, iPad and iPhone



Numbers

200

PV plants
managed for a
total production
of about 150
MW

500

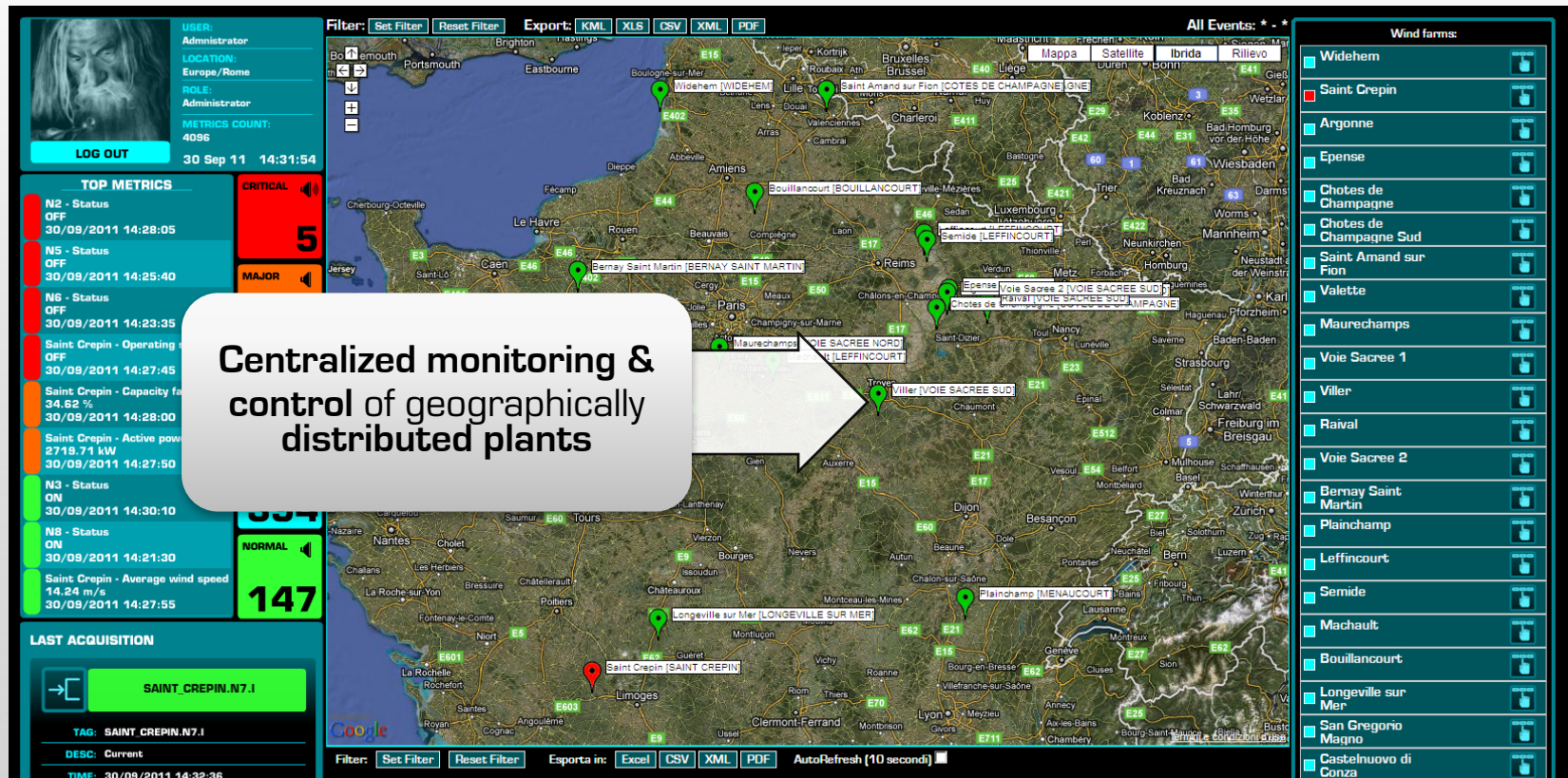
dams in Italy
Managed with
the VisualTrack
platform

20.000

ACUs we are
going to connect
to VisualTrack
next months for
Smart Lighting



Centralized monitoring & control





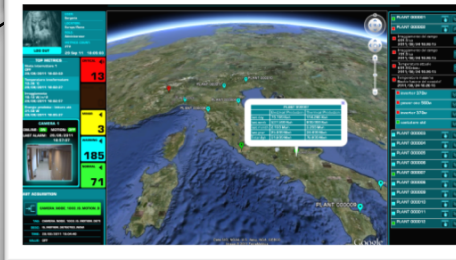
User profiling for multi-manager access

visualTRACK ENERGY implements a **user profiling** component allowing the **access to system functionalities for several managers and organizations** using the same centralized installation

Control Room



Distributors



Public Administration



Producers





Communication with several producers

visualTRACK ENERGY is open to allow easy **communication** and **integration** with different **producers**

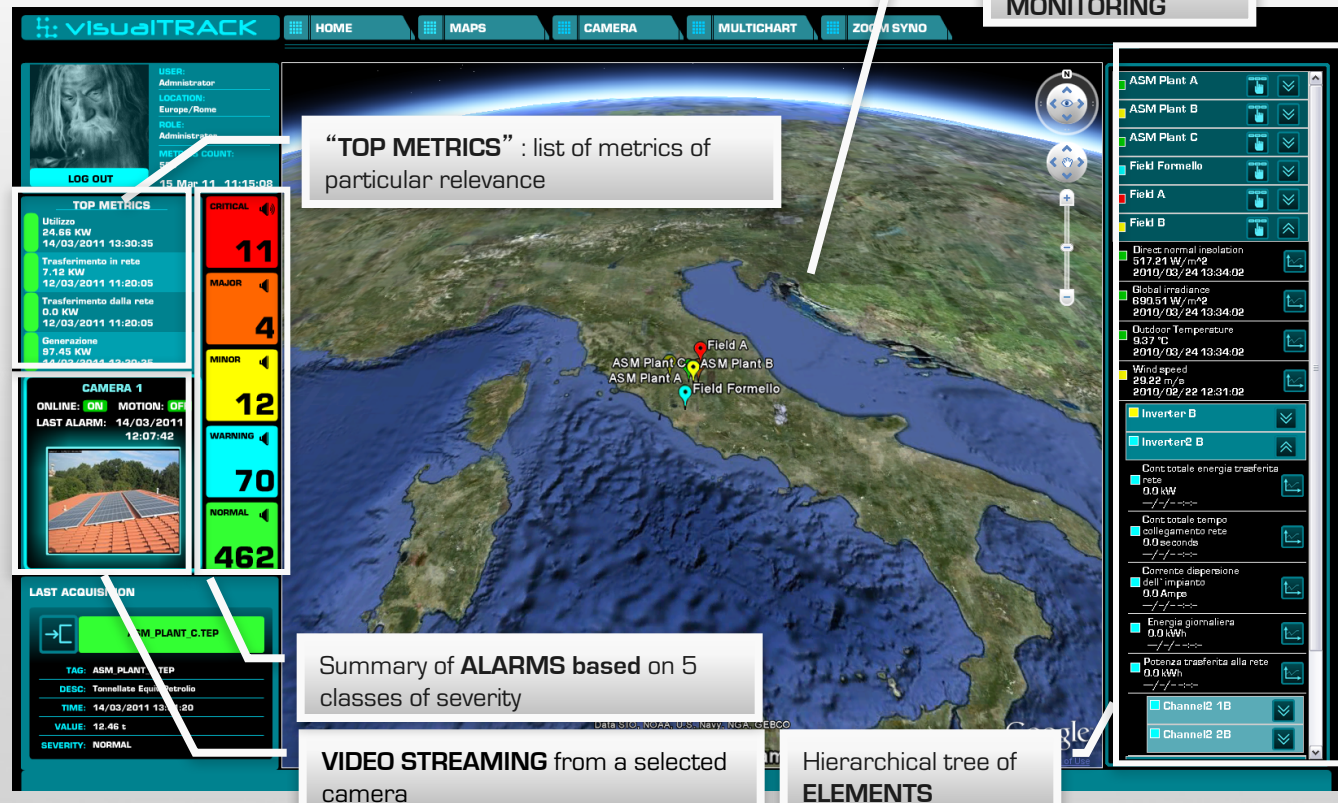




WEB panel for monitoring & control

Web based **USER INTERFACE**, portable and totally integrated with monitoring and control functionalities

All elements are updated in **real-time**, as soon as data are collected from the field





Native integration with Digital Maps and GPS

Access to the system's functionalities from digital maps:

GOOGLE Maps,

GOOGLE Earth,

BING,

OpenStreetMap,

shape files standard

Resources localization using
GPS technology

Concessionario: **ENDESA ITALIA S.P.A.** Diga: **CORBARA** (14 Dighe) cerca

Gruppo: **ENDESA ITALIA S.P.A.** (14 Dighe)

☒ Seleziona tutto

DIGHE		
<input checked="" type="checkbox"/>	CORBARA	
<input checked="" type="checkbox"/>	Livello Invaso	77 [m s.m] 28/07/2008 15:17:23
<input checked="" type="checkbox"/>	Portata Entrante	9 [m3/s] 28/07/2008 15:17:23
<input checked="" type="checkbox"/>	Portata Scaricata	4 [m3/s] 28/07/2008 15:17:23

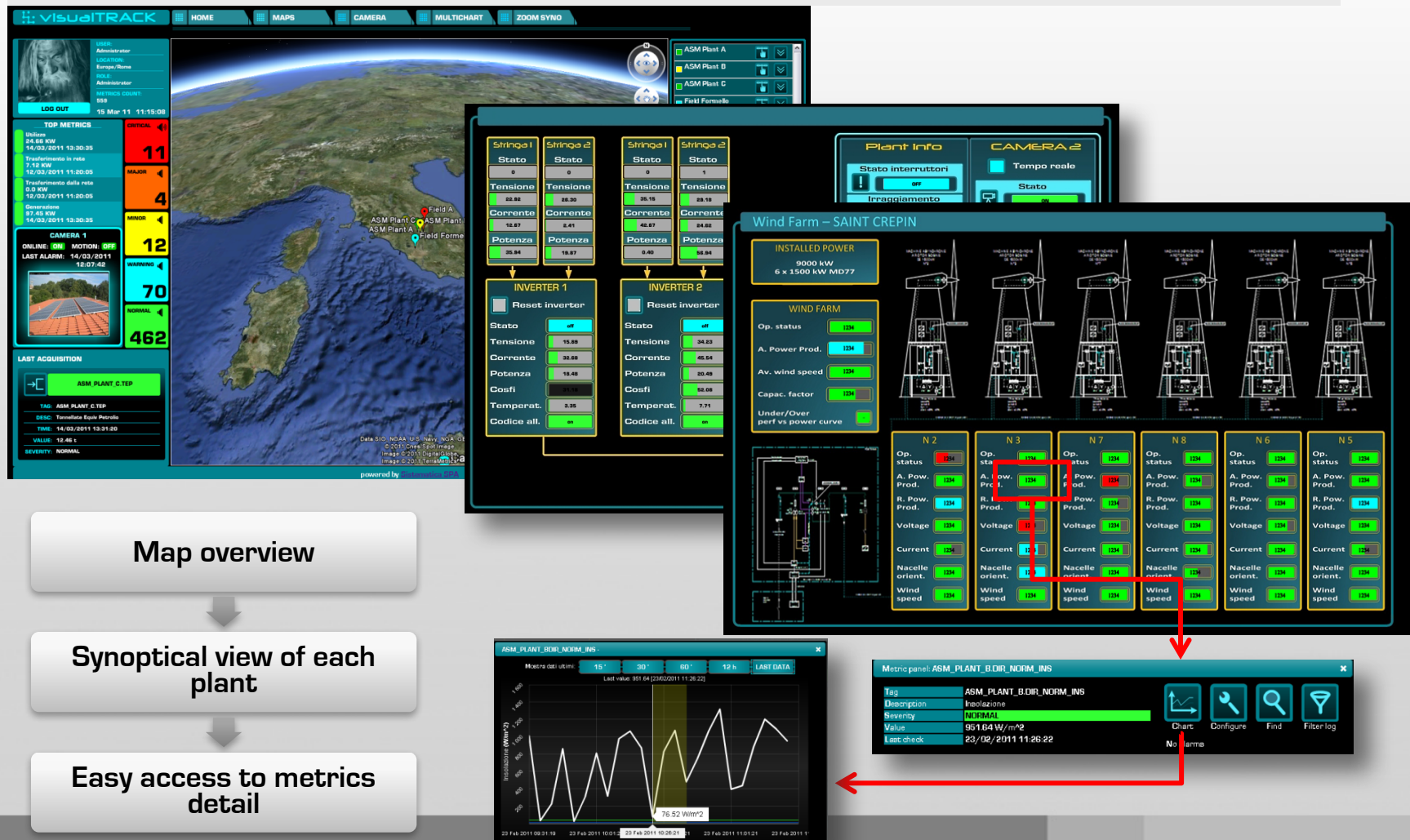
ricerca ogni 10 secondi

Principale Parametri Grafici Dati Amministrativi Dati Geografici Dati Tecnici Foto

Foto 1 di 1



Live synoptical views





3D views for monitoring & control

3D VIEWS for
access to data,
using **GOOGLE
Sketchup**

visualTRACK | HOME | MAPS | CAMERA | MULTICHART | ZOOM SYNO

USER: Administrator
LOCATION: Europe/Rome
ROLE: Administrator
METRICS COUNT: 559
LOG OUT 23 Feb 11 11:00:15

TOP METRICS

Utilizzo: 15.43 KW
23/02/2011 10:58:19
Trasferimento in rete: 83.41 KW
23/02/2011 10:57:05
Trasferimento dalla rete: 0.0 KW
23/02/2011 10:57:05
Generazione: 83.41 KW
23/02/2011 10:58:19

CAMERA 1
ONLINE: ON MOTION: OFF
LAST ALARM: 23/02/2011 11:01:58

LAST ACQUISITION

CAMERA_NODE_1001 IS MOTION DETECTED NOW
TAG: CAMERA_NODE_1001 IS MOTION DETECTED NOW
DESC: IS MOTION DETECTED NOW
TIME: 23/02/2011 11:01:58
VALUE: OFF
SEVERITY: NORMAL

SEVERITY: 23
MAJOR: 2
MINOR: 12
WARNING: 66
NORMAL: 456

DATA DI ACCQUISIZIONE DELL'IMMAGINE: 4/28/2008 12:00

SEVERITY	TIMESTAMP	OPERATION	ELEMENT	MEASURE	VALUE
NORMAL	23/02/2011 10:46:20	Recover	ASM Plant A >> Camera 3	IS MOTION DETECTED NOW	0
CRITICAL	23/02/2011 10:46:17	Relapse	ASM Plant A >> Camera 3	IS MOTION DETECTED NOW	1
NORMAL	23/02/2011 10:45:42	Recover	ASM Plant A >> Camera 3	EVENTS SOURCE	0 pts
NORMAL	23/02/2011 10:45:42	Recover	ASM Plant A >> Camera 3	IS MOTION DETECTED NOW	0
CRITICAL	23/02/2011 10:45:40	Relapse	ASM Plant A >> Camera 3	EVENTS SOURCE	1005 pts
CRITICAL	23/02/2011 10:45:40	Relapse	ASM Plant A >> Camera 3	IS MOTION DETECTED NOW	1
CRITICAL	23/02/2011 10:44:24	Severity update	AC-12-024-002 >> Imp Viale Donato Bramante - TR >> Lampada Stato complessivo		5
NORMAL	23/02/2011 10:44:24	Delete	AC-12-024-003 >> Imp Viale Donato Bramante - TR >> Lampada Stato complessivo		1
			AC-12-024-003 >> Imp Viale		

Show synoptic metrics only: ☒

- NDX: 450.3 Kg
2011/02/23 10:57:05
- Potenza: 87.07 KW
2011/02/23 10:58:15
- Temperatura ambiente: 6.28 °C
2011/02/23 10:58:13
- Trasferimento dalla rete: 0.0 KW
2011/02/23 10:57:05
- Trasferimento in rete: 83.41 KW
2011/02/23 10:57:05
- Umidità: 79.53 %
2011/02/23 10:58:11
- Utilizzo: 15.43 KW
2011/02/23 10:58:19
- Velocità del vento: 14.86 m/s
2011/02/23 10:58:12
- Inverter**
- Corrente AC: 90.37 A
2011/02/23 10:58:14
- Corrente DC: 57.37 A
2011/02/23 10:58:16
- Frequenza: 27.02 HZ
2011/02/23 10:58:15
- Temperatura inverter: 28.89 °C
2011/02/23 10:58:13
- Tensione AC: 22.37 V
2011/02/23 10:58:14
- Tensione DC: 28.0 V
2011/02/23 10:58:16
- Stringa 1
- Stringa 2
- Camera 1



Alarm retrieval and management

access to full list of all alarms detected in the field

red hot chili peppers advent... Google Calendar Site Track Dev

visualTRACK Monitoraggio Configurazione Indietro Ricarica

Lista degli allarmi attivi

Viste: Presi in carico Attivi Tutti Esporta in: Excel CSV XML PDF

	ELEMENTO	MISURA	STATO	VALORE	RISOLTO	RIENTRANTE	AZIONI
WARNING	Field Formello >> Tracker 1	GPS error	Nuovo	0.0	NO	SI	dettagli Prendi in carico
CRITICAL	Field Formello >> Tracker 1	Logic supply voltage	Rilasciato	0.0	NO	SI	dettagli Prendi in carico
CRITICAL	Field Formello >> Tracker 1	Motor 2 / coil 2 temperature	Nuovo	392.9	NO	SI	dettagli Prendi in carico
WARNING	Inverter Aurora >> Inverter Aurora >> Channel 1	Tensione dell'array fotovoltaico	Nuovo	0	NO	SI	dettagli Prendi in carico
WARNING	Inverter Aurora >> Inverter Aurora >> Channel 2	Tensione dell'array fotovoltaico	Nuovo	0	NO	SI	dettagli Prendi in carico
WARNING	Field A >> Inverter A	Prova Enum 1	Nuovo	2	NO	SI	dettagli Prendi in carico
CRITICAL	Field A >> Inverter A	Corrente dispersione dell'impianto	Nuovo	600	NO	SI	dettagli Prendi in carico
MINOR	Field B >> Tracker B	Wind speed	Nuovo	29.22	NO	SI	dettagli Prendi in carico
CRITICAL	Field B >> Tracker B	Homed	Nuovo	0	NO	SI	dettagli Prendi in carico
CRITICAL	Field B >> Tracker B	Previous step fault	Nuovo	1	NO	SI	dettagli Prendi in carico
MINOR	Field B >> Inverter B	Corrente di dispersione verso terra	Nuovo	83.92	NO	SI	dettagli Prendi in carico
MINOR	Field Formello >> Inverter Aurora	Tensione di Rete	Nuovo	222.85	NO	SI	dettagli Prendi in carico
WARNING	Field Formello >> Inverter Aurora	Frequenza di Rete	Nuovo	49.76	NO	SI	dettagli Prendi in carico
MINOR	ASM Plant B	Velocita' del vento	Nuovo	12.39	NO	SI	dettagli Prendi in carico
WARNING	AC 12-024-001 >> AC 12-024-001 >> Lampada 2	Temperatura interna	Nuovo	48.85	NO	SI	dettagli Prendi in carico
MAJOR	AC 12-024-001 >> AC 12-024-001 >> Lampada 4	Stato complessivo	Nuovo	4	NO	SI	dettagli Prendi in carico
MAJOR	AC 12-024-001 >> AC 12-024-001 >> Lampada 4	Tensione rete	Nuovo	44.47	NO	SI	dettagli Prendi in carico
MINOR	ASM Plant A	Velocita' del vento	Nuovo	28.26	NO	SI	dettagli Prendi in carico
CRITICAL	ASM Plant A >> Inverter	Stato di funzionamento	Nuovo	0	NO	SI	dettagli Prendi in carico
CRITICAL	ASM Plant A >> Inverter	Stato di funzionamento	Nuovo	0	NO	SI	dettagli Prendi in carico
MINOR	ASM Plant A >> Inverter	Corrente di disp verso terra	Nuovo	42.64	NO	SI	dettagli Prendi in carico
WARNING	Inverter >> Inverter >> Stringa 1	Tensione array fotovoltaico	Nuovo	34.15	NO	SI	dettagli Prendi in carico
CRITICAL	Inverter >> Inverter >> Stringa 1	Corrente array fotovoltaico	Nuovo	85.83	NO	SI	dettagli Prendi in carico
WARNING	Inverter >> Inverter >> Stringa 2	Tensione array fotovoltaico	Nuovo	87.15	NO	SI	dettagli Prendi in carico
CRITICAL	Inverter >> Inverter >> Stringa 2	Corrente array fotovoltaico	Nuovo	72.93	NO	SI	dettagli Prendi in carico
MINOR	ASM Plant C	Velocita' del vento	Nuovo				
CRITICAL	ASM Plant C >> Inverter	Stato di funzionamento	Nuovo				
WARNING	ASM Plant C >> Inverter	Corrente di disp verso terra	Nuovo				
MINOR	ASM Plant C >> Inverter	Corrente di disp impianto	Nuovo				

Completato

User can take on the alarm and give the acknowledgement



Historical Archiving, Analysis & Reporting

Reporting based on the **key performance indicators**.

Users can apply search filters and export results in several file formats (**PDF, MS Excel, XML, CVS, ...**)

Analysis of actual vs expected production

Historical Archiving of all acquired data



Analysis & Comparison of production data



Integrated VideoSurveillance (1/2)

visualTRACK
integrates video
surveillance systems
to allow a complete
monitoring of the
plants

The screenshot displays the visualTRACK software interface. At the top, there are navigation tabs: HOME, MAPS, CAMERA, MULTICHART, and ZOOM SYNO. The main interface is divided into several sections:

- Top Left:** User information (Administrator), location (Europe/Rome), and a LOG OUT button.
- Top Center:** A large "Camera View" window showing a live feed of a solar panel.
- Top Right:** A "Camera List" section showing three cameras (Camera 1, Camera 2, Camera 3) with their respective live feeds.
- Bottom Left:** A "TOP METRICS" section displaying various energy-related data points, including "Utilizzo 57.55 KW" and "Trasferimento in rete 0.0 KW".
- Bottom Center:** A "LAST ACQUISITION" table showing a list of events with columns for SEVERITY, TIMESAMP, OPERATION, and ELEMENT.
- Bottom Right:** A "CAMERA 1" window showing a larger view of the solar panel array.

The "LAST ACQUISITION" table contains the following data:

SEVERITY	TIMESAMP	OPERATION	ELEMENT
MINOR	23/02/2011 10:26:31	Creation	ASM Plant C
NORMAL	23/02/2011 10:26:24	Recover	ASM Plant A > Camera 3
MINOR	23/02/2011 10:26:24	Creation	ASM Plant B > Inverter
NORMAL	23/02/2011 10:26:22	Recover	ASM Plant A > Camera 3
CRITICAL	23/02/2011 10:26:22	Recover	ASM Plant A > Camera 3
NORMAL	23/02/2011 10:26:08	Recover	ASM Plant A > Camera 2
CRITICAL	23/02/2011 10:26:05	Recover	ASM Plant A > Camera 2
NORMAL	23/02/2011 10:26:05	Recover	ASM Plant A > Camera 2
CRITICAL	23/02/2011 10:25:05	Recover	ASM Plant A > Camera 3
CRITICAL	23/02/2011 10:25:03	Recover	ASM Plant A > Camera 3
CRITICAL	23/02/2011 10:24:55	Recover	ASM Plant A > Camera 2



Integrated VideoSurveillance (2/2)

The screenshot displays the visualTRACK software interface for an industrial facility. The top navigation bar includes tabs for HOME, MAPS, CAMERA, MULTICHART, and ZOOM SYNO. The main interface is divided into several sections:

- Left Panel:** Contains user information (ADMINISTRATOR), a LOG OUT button, and a TOP METRICS section showing various energy and operational data points with color-coded status indicators (red for critical, orange for major, yellow for minor, green for normal).
- Center Panel:** Features a 3D isometric model of the plant layout. Three cameras are highlighted with yellow boxes and labeled CAMERA 1, CAMERA 2, and CAMERA 3. Each camera has a 'Real-Time Camera View' button and associated status indicators for Temperature, Motion Detection, and Event Score.
- Right Panel:** Displays a 'Camera View' window showing a live feed from Camera 1. Below this is a 'Last 12 alarms' table with columns for date, time, and alarm type. The table shows several alarms from 2011-02-07, including 'Camera 1 - 2011-02-07 17:31:54'.
- Bottom Panel:** Contains a 'Camera List' section with three small thumbnail images of the cameras. Below this is a 'Filter' section with buttons for 'Set Filter', 'Export in', and 'AutoRefresh (10 seconds)'.

Immediate access to
camera's images

Real-time warnings when
alarms are detected

Events recording & Replay
of recorded alarms



Integrated Field Force Management

Mappe | Satellite | Ibrida | Rilievo

Lista Siti

Operatori | **Siti** | **Task**

Deseleziona tutti i siti | Filtra i siti per provincia

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ANZIO/003 [RMC653]	<input type="checkbox"/>	<input type="checkbox"/>
LARGO VENEZIA, 6 - ANZIO (RM)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	AREZZO/DSL [-]	<input type="checkbox"/>	<input type="checkbox"/>
VIA FRANCESCO PETRARCA, 32 - AREZZO (AR)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BARI/BC1 [BA020]	<input type="checkbox"/>	<input type="checkbox"/>
VIALE FRANCESCO ZIPPITELLI, 17 - BARI (BA)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BITONTO/000 [BAC046]	<input type="checkbox"/>	<input type="checkbox"/>
VIA GIUSEPPE VERDI, 26/28 - BITONTO (BA)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	GELA/LIT [CLGEL]	<input type="checkbox"/>	<input type="checkbox"/>
N/A TEVERE A, 121 - GELA (CL)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LATINA/001 [LTC001]	<input type="checkbox"/>	<input type="checkbox"/>
LARGO A. CELLI, 3 - LATINA (LT)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LATINA/003 [LTE104]	<input type="checkbox"/>	<input type="checkbox"/>
CORSO DELLA REPUBBLICA, 89 - LATINA (LT)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	LECCE/TAW [LECCE]	<input type="checkbox"/>	<input type="checkbox"/>
V. TARANTO, 187 - LECCE (LE)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROMA/000 [RMC261]	<input type="checkbox"/>	<input type="checkbox"/>
VIA DEL SERAFICO, 200 ROMA ROMA (RM)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROMA/002 [RME094]	<input type="checkbox"/>	<input type="checkbox"/>
VIA CARLO VENEZIANI, 56 - ROMA (RM)					
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ROMA/00R [RMC015]	<input type="checkbox"/>	<input type="checkbox"/>
VIA CORNELIA, 498 - ROMA (RM)					

Dettagli Sito

NOME	ANZIO/003
SHORT_NAME	RMC653
ACCESSIBILITA'	-
INDIRIZZO	LARGO VENEZIA, 6
CAP	00042
CITTA'	ANZIO
PROVINCIA	Roma
POSIZIONE	41.451043 - 12.629986

Task Management Table:

PRIORITA'	STATO	DATA MODIFICA	OPERATORE
PRIORITA' BASSA	Draft	2010-10-26 15:16:39	cagnetta
PRIORITA' BASSA	In Carico	2010-09-22 14:32:15	cagnetta
PRIORITA' BASSA	In Carico	2010-09-22 14:32:15	cagnetta
PRIORITA' BASSA	Draft	2010-09-22 14:32:15	cagnetta
PRIORITA' BASSA	Draft	2010-11-11 09:18:08	cagnetta
PRIORITA' BASSA	Assegnato	2010-09-22 14:32:15	cagnetta
PRIORITA' BASSA	In Carico	2010-09-22 14:32:15	cagnetta
PRIORITA' BASSA	In Carico	2010-09-22 14:32:16	cagnetta
PRIORITA' BASSA	Draft	2010-06-24 12:34:55	cagnetta

Management of field force teams on Android, iPad and iPhone, with GPS localization

Map data ©2010 Tele Atlas - Termini e condizioni d'uso



Technology

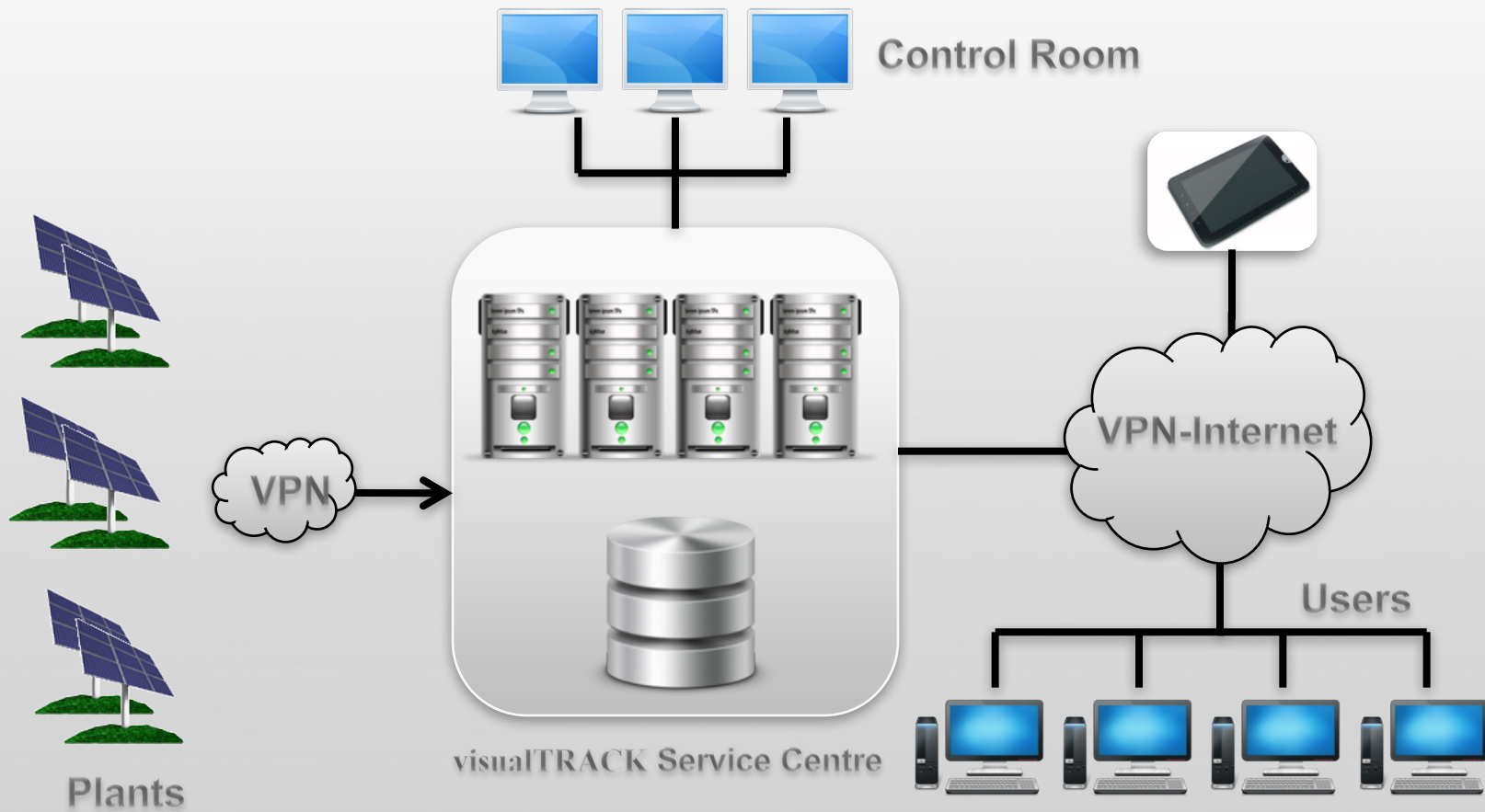


visualTRACK
ENERGY

- Open, Modular, Scalable
- 64-bit Architecture
- Based on LINUX and JAVA, can be integrated with Microsoft Windows platforms
- Interfaces and API on Web Services and XML
- Database SQL (ORACLE, MS SQL, PostgreSQL, MySQL)
- Cartography: GOOGLE, BING, OPENSTREETMAP, Shape standard, NAVTEQ, TELEATLAS
- Remote access on ANDROID, iPad and iPhone



Architecture





Case studies

Registro Italiano Dighe: hydrological monitoring system

Customer: CSC, final customer: RID

The project involved the development of a SCADA system for dams managed by the RID.

System features: More than 500 dams located throughout the Italian territory are monitored by the system, which allows alarms management according to determined thresholds of monitored values.

Feed S.p.A.: monitoring of renewable energy production plants

System features: Monitoring and control application into a unique centralized platform for distributed SOLAR, WIND and BIOMASS energy production plants

TerniEnergia S.p.A.: solar fields monitoring system

System features: Monitoring and control application in a unique centralized platform for distributed SOLAR energy production plants. Total production is about 100MW

GreenUtility S.p.A.: solar fields monitoring system

System features: Monitoring and control application in a unique centralized platform for distributed SOLAR energy production plants. Total production is about 50MW

PlanGreen S.p.A.: energy efficiency monitoring system

System features: Monitoring of energy efficiency interventions to compute energy savings

SOLERGY ITALIA: solar fields monitoring system

System features: Platform for remote control and monitoring of solar fields with concentration technology. The system manages the acquisition and validation of metrics, alarms generation and propagation, the historicization of data for the elaboration of reports and statistics, command sendings to solar trackers.



Contacts



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