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MONITORING THE DANUBE WITH ADCON TELEMETRY EQUIPMENT – A CASE STUDY FOR OTT HYDROMET AND ROWATER COMPANY

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System Partner
Sales Partner
Siemens Communications

SIEMENS

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- Construction practices at some monitoring installation sites
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Business Description

General



Company Name	Beia Consult International SRL
General Manager	George SUCIU
•Business Field	<ul style="list-style-type: none">• Trading and distribution of telecommunications equipment• National and EU R&D Projects• Telecommunications turn-key projects
Team	Total: 40 employees ; 7 management personnel
Headquarters	12, Poiana Narciselor st., sect.1, Bucharest
Tel / Fax	Tel: +40 21 332 3005 Fax: +40 21 332 3006
Home Page	www.beia.ro
Certification	ISO 9002/2000; ISO 14001;ISO27000
Established	1991



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Beia Business Description

Beia Consult International is one of the leading providers of telecommunications equipment and solutions in Romania

- **More than 15 R&D National and EU Projects accomplished**
- **Beia is authorized distributor for: *Adcon, Exalead, InVision, Voxtron, Dialogic, Gigaset, Siemens, Beyertone, Dasan Electron, FMT, Tiptel.***
- **More than 9,900 turn-key projects for telephone exchanges, local and corporate networks, advanced communications solutions**

Business Description

Project Consulting: Helping newcomers approach financing sources and submit projects:

- Romania's National Plan for Research, Development and Innovation (2007-2013)
- Structural Development Funds
- EU- Seventh Framework Programme (FP 7) and now Horizon 2020
- Private and other funding

Business Description

Technical Consulting & Installation: Offering more than one solution for technical problems related to Information Technology and Communications (ITC). Our strong points mainly are:

- Telemetry Monitoring Systems
- Contact/Call Centers
- Enterprise Communications (IT&C integration hardware, software, network)
- Local telephone and data networks
- Small Office and Home Office Communications (PABX, phones)
- PCM and XDSL transmission
- Tele-monitoring (IP / Wireless SCADA)
- Structured Cabling and other Network Construction Elements

Business Description



- R&D for complete ITC Projects
- Consultancy Services for Carrier grade Infrastructure
- Communication Solutions : PABX, voice mail, IVR, softphone, Call Centre applications, VoIP services, Technical testing, Testing of market related features, Implementation
- Managed Services & System Integration : IP-Wireless-SCADA (Supervisory Control and Data Acquisition), GPRS/CDMA on-line communications with TCP/IP embedded, billing software, GPS applications, μ -controller programming, software development



Telemonitoring systems

Agriculture

- Management of plant disease
- Irrigation management

Renewable energies

- Measuring aeolian and solar potential
- Real-time monitoring of performance and energy efficiency in existing aeolian and solar solar parks
- Efficient exploitation of hydroenergetic power plants

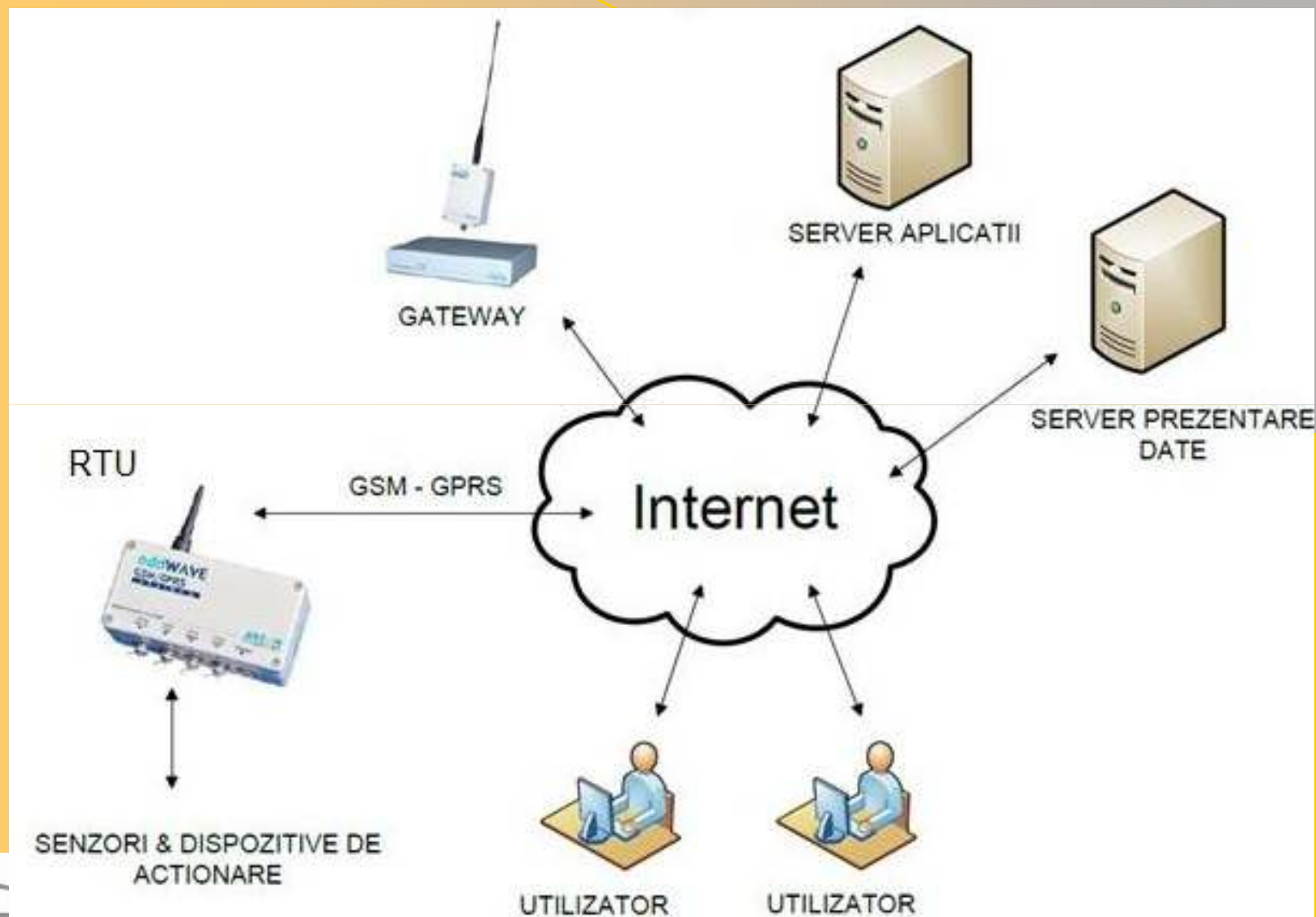
Hidrometry

- Water level and other parameters in lakes, rivers, canals, underground water, sea

Environment protection

- Meteorology, etc.

General structure of a telemonitoring system



Components of a telemonitoring system

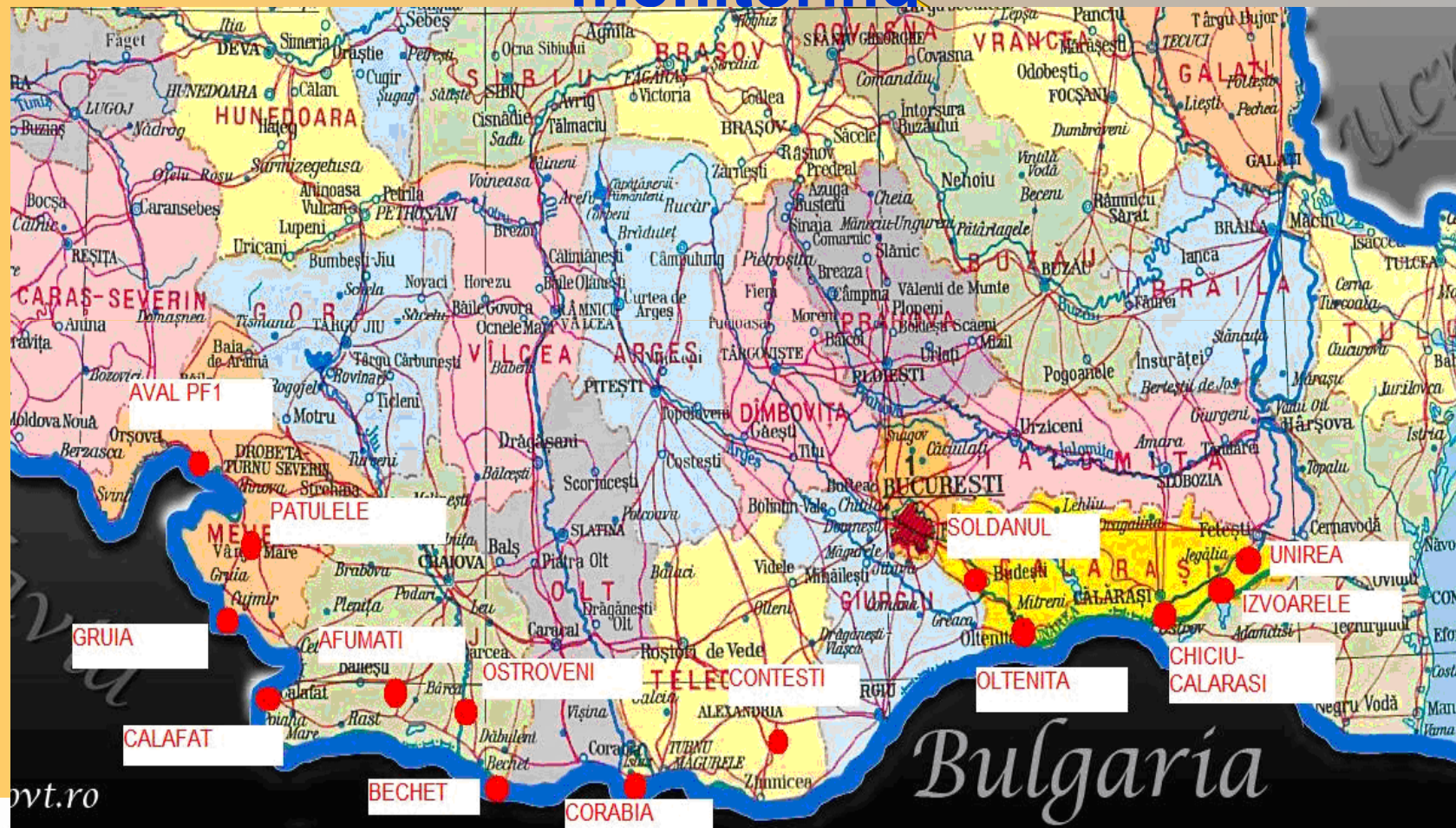
- Sensors and actuators
- Remote Telemetry Units (RTU) from sensors to the data concentrators (gateway) in unlicensed UHF band 430 – 460 MHz, satellite IS/m band for meteorology or GSM-GPRS
- Data concentrator (Gateway)
 - With direct radio modem
 - With remote radio modem
 - Without radio modem (exclusively M2M GSM-GPRS - Internet)
- Server for processing and presenting data / big data. Data processing can be done
 - By user demand – detailed data
 - By system workflow – events and alarms (e-mail si SIP)

Entities communicate by Internet – IoT (Internet of Things)

Station (RTU) with meteorological sensors



ANAR- Locations of the 14 remote monitoring installations along the Danube and some tributary rivers for water level and temperature monitoring



ANAR- Components of the telemetry system along the Danube and some tributary rivers for water level and temperature monitoring



Example of station for water level and temperature monitoring along the Danube



Construction practices at some monitoring installation sites



Each remote monitoring installation consists of an Adcon A753 GSM-GPRS remote telemetry unit (RTU), a water level and temperature sensor which is connected to the RTU through an atmospheric pressure relief box and the solar panel that powers the RTU and the sensor.



Trial remote monitoring installation at Afumati - Closer view of the A753 RTU, solar panel and pressure relief box (from up to down)

Construction practices at some monitoring installation sites



Specially-trained climbers have performed the installation on bridge pillars



Re-adjustable foundation screws were utilised at locations where the Danube is known as strongly either erode or sediment its banks

Examples of observed evolutions

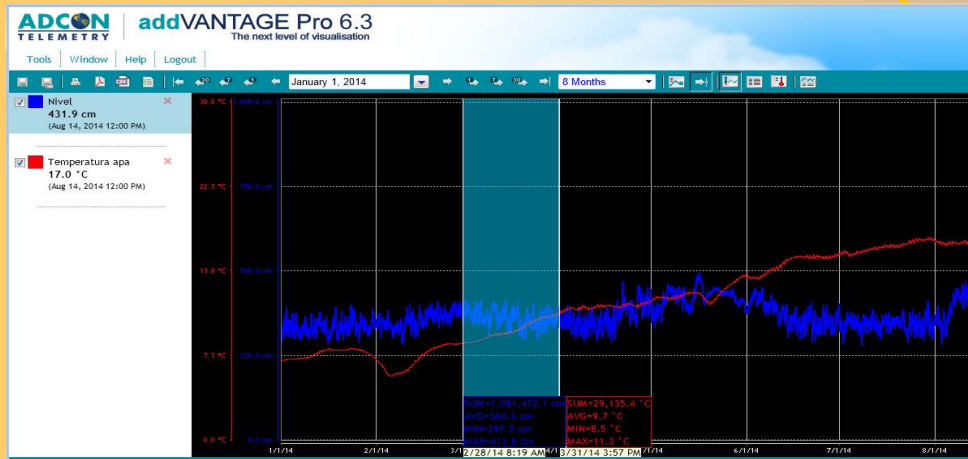


Water level comparison - the huge mass of water at the monitoring station Unirea (close to Cernavoda) makes level changes slower than at a monitoring station situated upstream, at Bechet (November – December 2013)



Levels actually measured above the reference line of the level sensor (blue) and values corrected to match official Danube levels at Corabia (white) – July 2014

Examples of observed evolutions

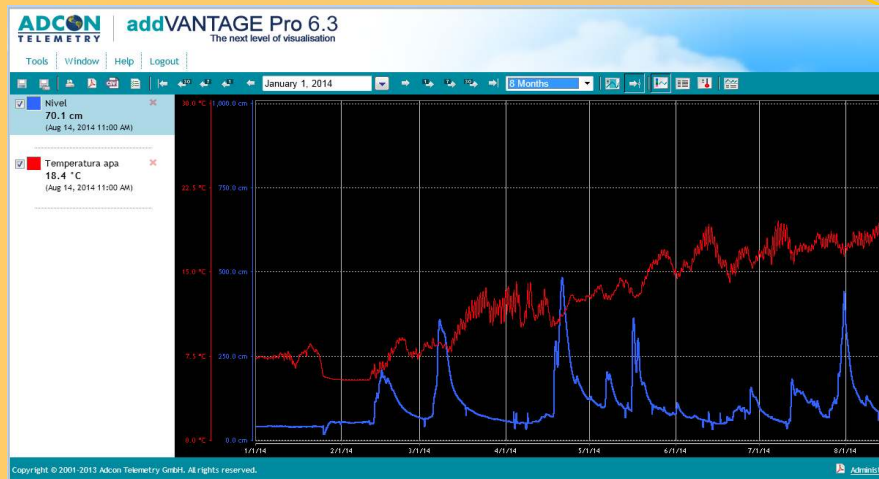


At Turnu Severin, water level evolutions are obviously influenced by the Portile de Fier hydro plant dam. Daily oscillations are specific to this site, while max and min values situate themselves only slightly above and below the average value

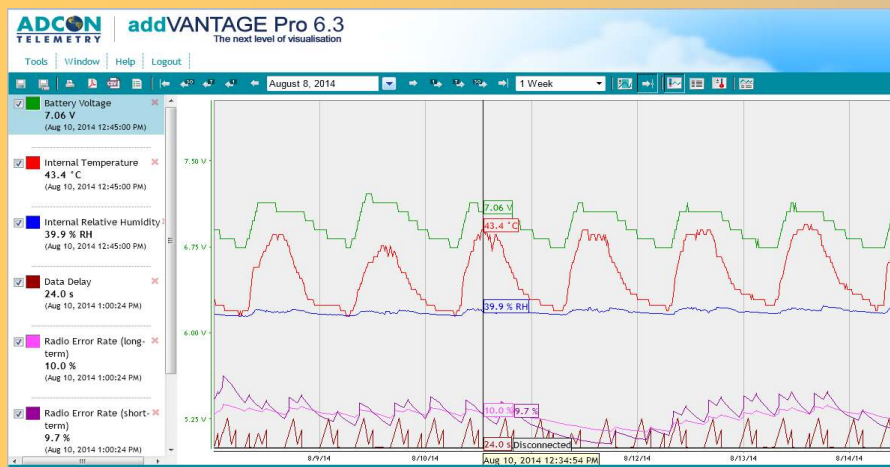


In clear contrast to what happens at Turnu Severin, max and min levels have at Calafat considerable deviations from the average

Examples of observed evolutions



During dramatic floods in spring-summer 2014, the monitoring station on the Vedeo river has revealed spikes of nearly 5 meters for a level that barely amounts to 50 cm under normal weather and hydrological conditions.



Besides accurately processing and transmitting data from the sensors, the Adcon A753 RTU also transmits data about its own functioning. At about 1 PM, August 10, 2014, for instance, internal battery voltage was of 7,06 V, internal temperature was of 43,4 grade C, internal air humidity was 39,3 %, data transmission delay was of only 24 seconds and the radio error rate was about 10 %

Conclusions

- The BEIA – Adcon – ANAR system above-described was already being in function from about nine months.
- It is a lapse of time that encompasses difficult winter months for the outdoor equipment and also difficult summer months.
 - In spite of that, data have continuously arrived at the ANAR headquarters, hour after hour and with utmost precision.
- This is being seen as a good reason to hope that ANAR will order further developments of the system with remote monitoring installations in some new locations and also, eventually, with additional sensors at existing installations.

R&D PROJECTS

Ongoing Projects from Structural Development Funds

- [TELEGREEN](#)
- [COMMCENTER](#)

Ongoing Projects from FP7 Programme

- [CLOUD-CONSULTING](#)
- [FAIR](#)
- [NMSDMON](#)

Projects financed from “FP7”

- [REDICT](#)

Projects financed from the “National Plan for Research, Development and Innovation”

- [MITEAPL](#)
- [TERRA RO](#)
- [LOCOMAX](#)
- [SAWHAU](#)
- [SEDCC](#)

Projects financed from „Research of Excellence Programme”

- [ARTEMIS](#)
- [ROIP-Wireless-Telemetry](#)
- [HIBRIVOLT](#)
- [PRO-EURO-TIC](#)

R&D PROJECTS



Projects from Structural Development Funds

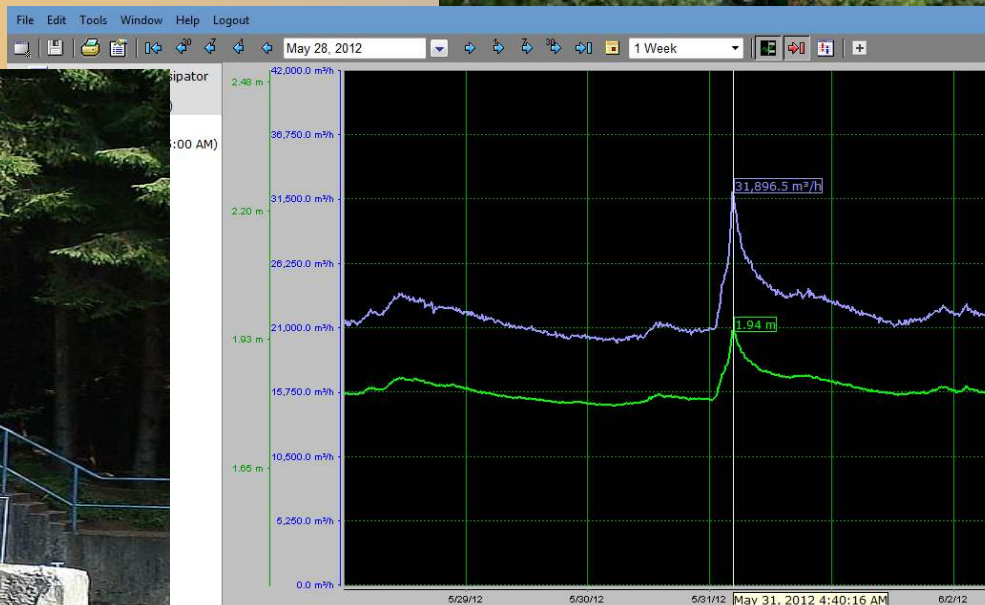
- **TELEGREEN - Telemonitoring of clean energy sources: hydro, solar, wind**

Purposes of the project:

- Monitoring of primary energy source: water, sun, wind
- Monitoring of installations: output, efficiency, status of batteries & consumables, security



TELEGREEN Project



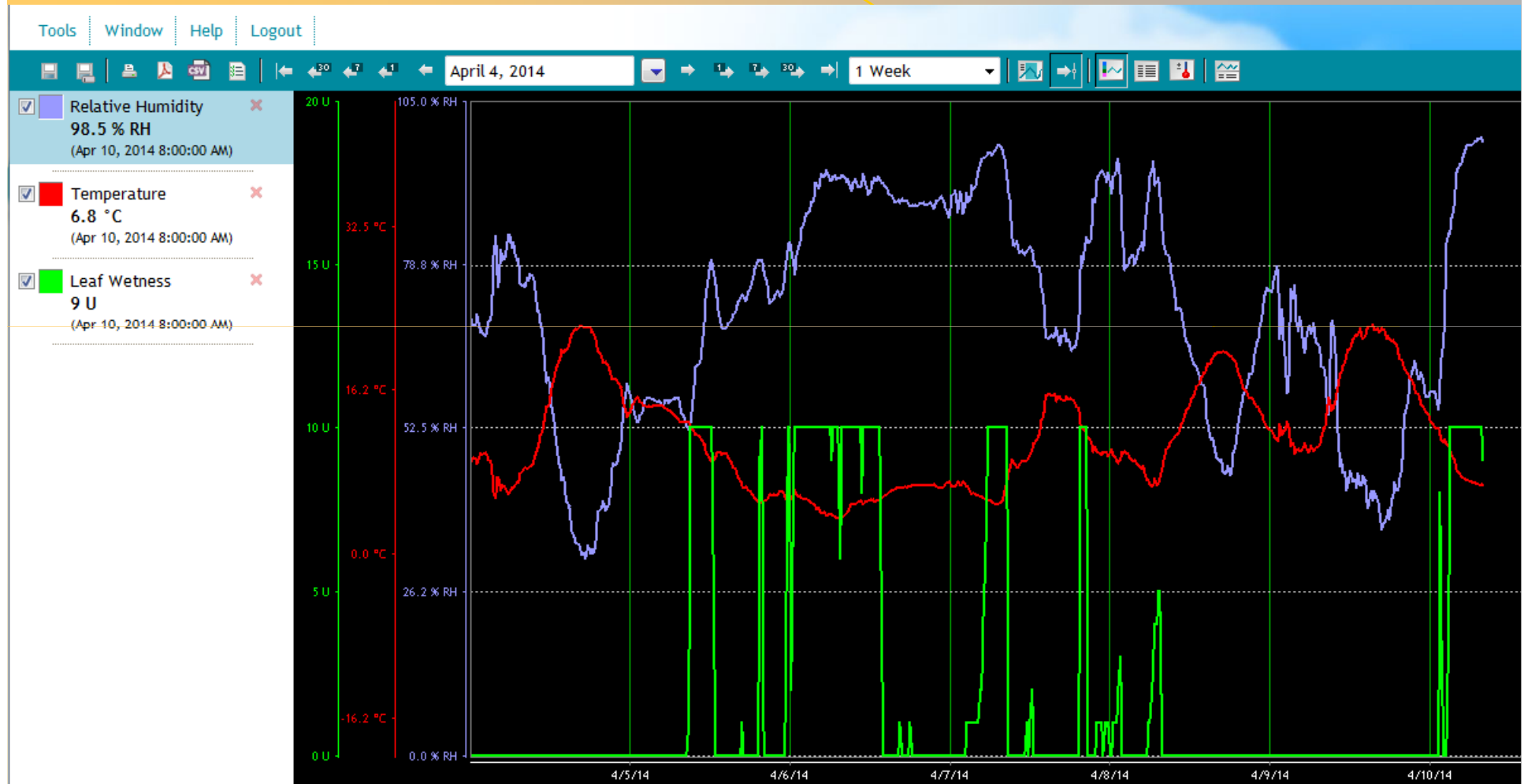
TOPOLOG: Stația RTU A723, panoul solar si pluviometrul, Stația bridge RA440,



Application "precision farming" - Valea Calugareasca



Meteo data: Air temperature, relative humidity of the air, leaf wetness



Statie monitorizare vant pentru un heliport din Bucuresti



R&D PROJECTS



Projects from Structural Development Funds

➤ **COMMCENTER – Communication Center for multimedia interactions**

Purposes of the project:

- Developing of a “cloud communication center” by integrating a call/contact center platform with unified communication technology, CRM system, “text-to-speech” and “automatic speech recognition” solutions in Romanian language



Cloud Consulting is Cloud-based Automation of ERP and CRM software for Small Businesses

ERP=integrates all departments and functions across a company into a single computer system.

ERP can help

- Get rid of standalone computer systems
- Replace them with ONE software solution, with multiple modules
- Inter-departmental monitoring of business processes
- Reports that provide a clearer picture of the enterprise
- Cut IT costs
- Improve relations with your customers



FAIR-Friendly Application for Interactive Receiver

The purpose of *FAIR* : to provide point-of-sale information by means of the consumer's Smartphone

- The FAIR project encompasses customer satisfaction ratings, brand ratings, social networking,
- Userfriendly and convenience services such as:
 - ❑ locating doctors and emergency services, connecting brands with their customers, exchanging and sharing relevant information,
 - ❑ social mobile consumer networking, street e-commerce , mobile couponing, mobile promotions, communities

*NMSDMON-**N**etwork **M**anagement **S**ystem **D**evelopment and **M**ONitoring*

The purpose of *NMSDMON* : to create a new and easier way to monitor networks, for the benefit of telecommunication operators.

- The project will provide tools to qualify the quality of network, database Infocenter and a web-Platform to manage the networks
- The platform will offer several services to operators such as:
 - ❑ data acquisition, asset management, work force management, provisioning, infrastructure work management.

Product Range



Beia Consult International supplies the market with:

- Telephone sets, from simplest up to most complex models:
 - Memory telephone sets
 - Telephone sets with complex functions
 - Cordless telephone sets
 - DECT cordless telephone sets
 - ISDN telephone sets
 - Caller ID telephone sets
- Data and networking equipment, equipment for communications wiring, including structured cabling
- A large offer of PBX systems, ranging from small analogue models with two extension lines up to large capacities digital communications systems



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Product Range



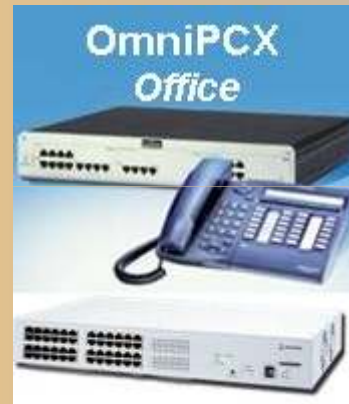
PABX :

SIEMENS

HiPath



ALCATEL



Panasonic



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Product Range



ANALOG AND DIGITAL TELEPHONE SETS



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Product Range



DATA AND NETWORKING EQUIPMENT



UAE 8 (4) Up – Cat.5e shielded

4-way; 4 screw terminals and 1 support terminal (S); with center plate and wall plate; with spreading claws; 80 x 80 x 30 mm; 51 g



PP-ZT

Labeling strip for the patch panel
PP 24/1; self-adhesive; 105 x 14 mm



UAE 2x8 (4) TRS Up – Real Cat.6

2 x 4-way; 4 screw terminals; with center plate and wall plate; with spreading claws; 80 x 80 x 30 mm; 52 g



PP-Cat.5e-24/1

Patch panel according to Cat 5, 19" / 1 U;
24 x RJ-45-ports; light grey; 480 x 45 x 130 mm; 1400 g



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Product Range

ACTIVE DATA AND NETWORKING EQUIPMENT



Pure Gigabit Web Management Switch



Mixed Gigabit SNMP Management Switch



Wireless Security & VPN Gateway

xDSL, Pair Gain PCM, SCADA



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Product Range

HiPath



**Solution Portfolio
That Meet Customer Requirements**

Unified Messaging

Teleworking

**Internet/
Intranet**



**Communications
server according to
Customer**



Voicemail

Mobility

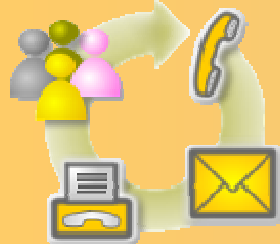


**Cordless
Multicell**



ACD / Call Center Multimedia

Product Range Beia-Voxtron Contact Centers



- **Prevent customer contacts from getting lost**
 - Transfer calls, faxes and emails immediately to the right person (that is available!)
- **Improve the relationship with your customers**
 - Who is calling? Integrate with your (CRM) software.
 - Launch outbound campaigns to get feedback of customers
- **Get new customers**
 - Launch outbound campaigns to potential new customers
- **Make your life easier**
 - Handle calls automatically with the built-in IVR
 - Control your telephone with the built-in softphone
 - Send faxes without leaving your office
- **Get an insight in your contacts**
 - Know what is going on in realtime
 - See what your people are doing
 - Extract statistical reports



agentTel	VEXTRON
0	0	0	0	100%	
0	0	0	0	0'0"	
0'0"	0'0"	0	0'0"	0'0"	
6	6	6	0	0	
0	100%	0	0		

Beia Call Center



Consulting and Training



www.beia.ro

Fairs and Expositions



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Customer Care Policy



Beia Consult International offers to the customers

- **System solutions** including all needed professional help from the idea to the project realization, commissioning and training of the customer specialists.
- **Customer-oriented philosophy** "purchase under one roof" is complemented with the installation and maintenance services.
- **Specialists trained** in order to offer installation, service and technical assistance according to the Europeans quality standards.
- **Assistance and service 24/7** ours/days, perfectly adapted to the needs of companies, no matter their size and also to domestic use.
- We have a **strong relationship** with each client in order to offer to everyone top quality services and technical consulting.



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Clients Portfolio

1. STATE AND PUBLIC ADMINISTRATION INSTITUTIONS

Romanian Government, Romanian Chamber of Commerce and Industry, Ministry of Industry and Commerce, Ministry of Justice, Ministry of National Defense, Ministry of Transports, Ministry of Tourism, Ministry of Internal Affairs, General Direction of Customs, Embassy of China, Embassy of Spain, Embassy of Portugal, Embassy of Algeria.

2. TELECOMMUNICATION AND TRANSPORT

ROMTELECOM, FX Internet, Compaq, Softwin, New York Connect, Zipmail, Air France, National Railways Company, Mobil Technology Romania, Soft time, Austrian Airlines.

3. FINANCIAL AND ASSURANCE INSTITUTIONS

Commercial Bank of Romania, Romanian International Bank, Raiffeisen Bank, BRD GROUP SOCIETE GENERALE, General direction of Public Finance, BRS, DAEG INVEST, ADAS (National insurance company), Romexterra Bank, ASTRA.

4. INDUSTRIAL AND COMMERCIAL COMPANIES

***ENEL Romania**, AMRO Manufacturer, British American Tobacco, Radet, Luxten, Brau Union, Automobile Bavaria, Automobile Dacia, Bucuresti MALL, Danone, Lafarge-Romcim, Renault, Schlumberger, Sodexo, Rom Control Data, Volvo, Regato Pan, Romatsa, Euroconstruct, Provus, Publiferom, Procor, Eurolife, Conel-Termoelectrica Rovinari (national electrical energy provider), Eastern Technology, Freyrom, Carrefour, Iridex Group, SUT Carpati, Teleconstructia, Majestic Hotel, Hilton Bucharest.*

5. CULTURAL AND EDUCATIONAL INSTITUTES

Titulescu University, Ecologic University, Romanian Academy of Aviation, Romanian Federation of Ahtletism.

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