INDUSTRY 4.0

SMS

AI

inVentia

"In our company, Inventia, we use the latest technical and technological achievements in order to create the optimal solutions which change the daily work of many businesses. We are constantly improving the wireless solutions of data transmission to enable the implementation of even the most advanced and demanding stationary and mobile systems. We provide complex hardware and software solutions, which stand out efficiency and professionalism, being simultaneously easy in implementation and use".

Jerzy Białousz
President

INVENTIA

The Inventia company was established in 2001 in Warsaw. It is a global supplier of telemetry devices (MOBICON, PLC, routers, communication gates, loggers, battery-operated Energy Efficient equipment) as well as the location equipment based on the mobile technologies GSM 2G/3G/LTE and GPS. Our references are **over 110 000 modules working in 63 countries** all around the world. We offer the open, scalable systems based on the proven industrial standards, friendly configuration as well as the integration tools, which enable the easy connection with the end-user of SCADA systems, relational databases as well as the management and analysis systems.

Inventia is created by the team of **over 30 employees**: engineers, IT specialists, marketing employees, and the sales specialist, who stand on the first line while contacting our customers. Despite the fact that we are different, we all share a common passion for creating things based on the latest technologies, which can be used in different applications. Professional activity, as well as the continuous development of our staff skills, brings the best results – we penetrate more and more new segments of Polish and world market.

Our **technical support department** will help you in choosing the proper module for the implemented application, will help in carrying out the configuring the device and with pleasure will answer all your questions related to telemetry. Our technical support department offers also the project consultations as well as training and service.

We have created a network of nearly **40 Authorized Partners** and independent integration companies, which actively implement the telemetry and location solutions in various industry branches.

Inventia is a reliable supplier working in accordance with the Certified Quality Management System compliant with **ISO 9001:2015** standard.

Our company has been awarded the prestigious title of the **Business Gazelle in 2014, 2015 and 2017**, which is organized by the business newspaper Puls Biznesu, and the best acknowledgment of our position among the best companies on the Polish market was receiving the title of **Forbes Diamond 2017**.

Innovative development

High-quality modern products, software tools and system software created on the base of the expert knowledge and the results of research and development works

Dialogue and partnership

Customer satisfaction monitoring, improvement of our employees' qualifications. Activities that built the competencies of teams, regarding the efficient use of goods and software

Comprehensive offer

Consultations, training, pre- and post-sale services, which guarantee the right choice and reliable operation of the implemented solutions with the support of the expert knowledge of our engineers

Polish product – global coverage

100 000 telemetric and location modules have been implemented in different applications in Poland and in 60 countries around the world

The latest data transmission standards

Remote monitoring and control over any distance between the objects. Insensitivity to terrain and object obstacles. No need for extensive antenna systems. Short implementation time.

Data safety

Transmission in closed APN.
Data encrypted with SSL 256-bit key.

"The goal of our activities is to get the best answer to the customer needs as well as maintaining the highest service level. The warranty of constant monitoring of the quality of our products, as well as improvement of our products, is the development and implementation of a quality management system in accordance with ISO 9001:2015 standard in Inventia".

Zbigniew Betkier
Director of Market Development
and Customer Support Department

„Inventia owes its success to the interdisciplinary knowledge of our engineers' team with many years of experience in various fields: industrial automation, IT and telecommunication.

Our strategy is based on the cooperation with our partners – system integrators, who create complex implementations. High reliability of our devices, functional attractiveness and technological advancement are the Inventia trademark.

We design and manufacture in Poland. We sell to over 60 countries worldwide. Inventia is the global trademark that enjoys big trust among our demanding customers".
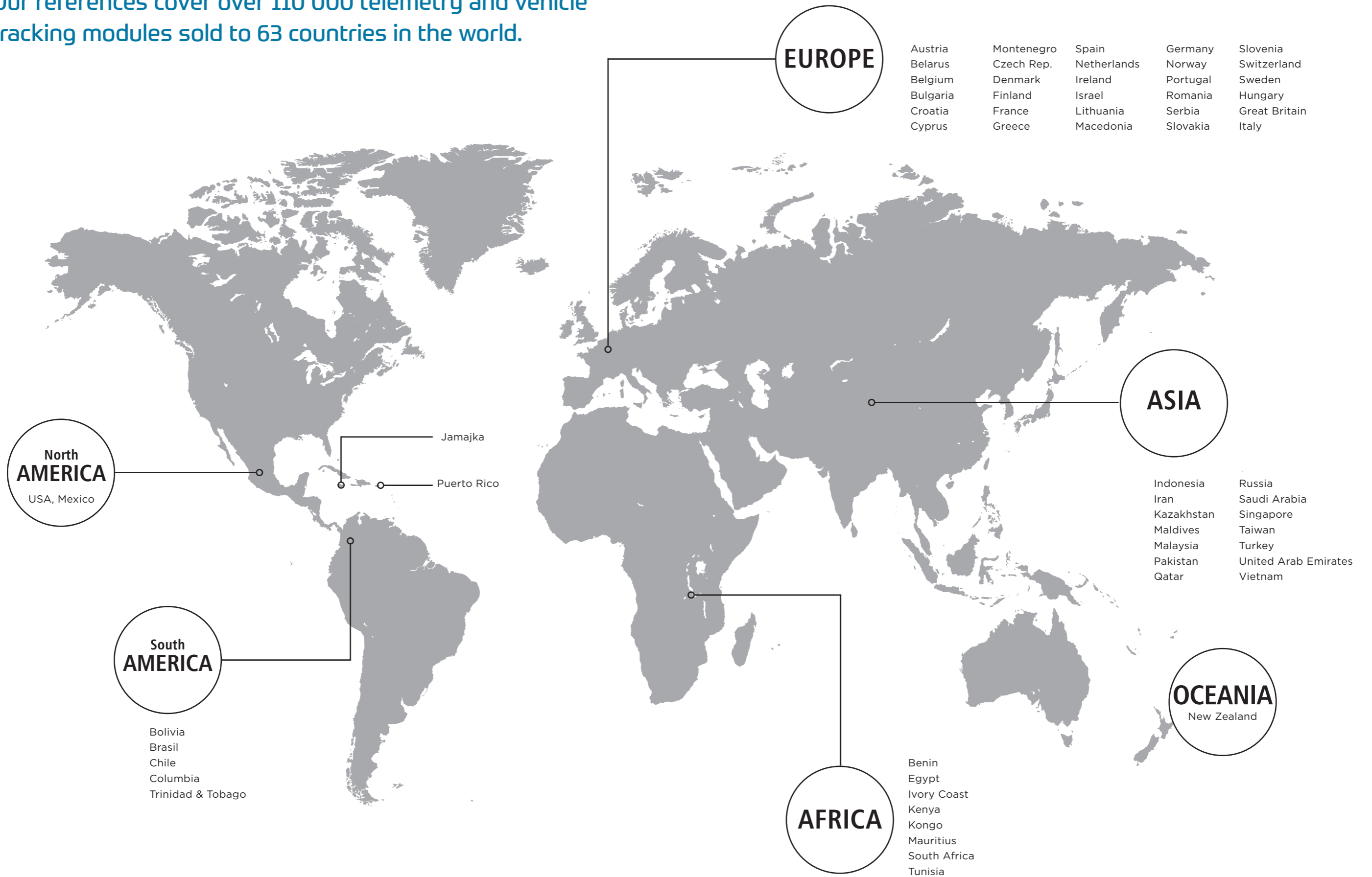
Zbigniew Betkier

Inventia's offer stands out:

▌ Possibility of remote configuration, control logic programming and firmware update in the already installed equipment via GPRS/3G

▌ System flexibility due to the open standards used

▌ Possibility of cooperation with standard devices (PLC controllers, I/O systems, measurement equipment) that support standard communication protocols (e.g. Modbus RTU/TCP, Gazmodem, MBUS, NMEA, SNMP, Genibus, IEC 60870-5-140)

▌ Possibility of using any visualization system using the data sharing through the standard OPC interface

▌ Possibility of databases integration and the user's IT environment using the data shared via standard ODBC interface and CSV files

▌ Minimum operating costs (remote control and updates, spontaneous event-initiated transmission, creating a mirror status of external devices, advanced diagnostics, scalability)

▌ Possibility of integration of various telemetry modules, battery-operated and location devices in one, consistent system according to the user's needs

The offer of professional telemetry and location systems:

- **GSM 2G/3G Telemetry and registration modules**: MT-020, MT-021, MT-051, MT-100, MT-101, MT-102, MT-331, MT-713, MT-723

- **MOBICON** Mobile Controllers: MT-151 HMI, MT-151 LED, MT-156 HMI

- **Dedicated modules**: MT-512 (alarm communication for lifts), MT-651 (cathodic protection), MT-652 (cathodic protection)

- **Location modules:** ML-231 i ML-941 and **Xway** – the non-subscription remote GPS location system *www.xway.pl*

- **2G/3G/LTE Communication gateways and routers**: MT-202, MT-251, TK800, TK500

- **IoT devices family** – measuring sensors

- **Dedicated modules** (OEM)

- **APN telemetria.pl** in T-Mobile, ORANGE and PLUS networks

- Telemetric **SIM cards** with static IP address

- **Software** for remote configuration, programming, management and data sharing via standard interfaces (OPC DA / UA, ODBC)

- Clouds solutions (visualization, configuration, data hosting): **DataPortal** interactive platform, *dataportal.online*

- **AGREUS System** – IIoT solution for the gardening and agriculture practice

Our references cover over 110 000 telemetry and vehicle tracking modules sold to 63 countries in the world.

EUROPE

Austria	Montenegro	Spain	Germany	Slovenia
Belarus	Czech Rep.	Netherlands	Norway	Switzerland
Belgium	Denmark	Ireland	Portugal	Sweden
Bulgaria	Finland	Israel	Romania	Hungary
Croatia	France	Lithuania	Serbia	Great Britain
Cyprus	Greece	Macedonia	Slovakia	Italy

Jamajka

ASIA

Indonesia	Russia
Iran	Saudi Arabia
Kazakhstan	Singapore
Maldives	Taiwan
Malaysia	Turkey
Pakistan	United Arab Emirates
Qatar	Vietnam

North AMERICA

USA, Mexico

Puerto Rico

South AMERICA

Bolivia
Brasil
Chile
Columbia
Trinidad & Tobago

OCEANIA
New Zealand

AFRICA

Benin
Egypt
Ivory Coast
Kenya
Kongo
Mauritius
South Africa
Tunisia

POWER INDUSTRY

WATER AND SEWAGE

INDUSTRIAL
AUTOMATION

TELECOMMUNICATION

The main areas of telemetry and location modules applications:

Water and sewage management, environment protection, heat and professional power industry, transport, facilities protection, agriculture and horticulture

Example applications:

- Monitoring and control of pumping stations
- Monitoring of gas reduction stations
- Remote reading of media consumption (water, heat, gas, electricity)
- Non-contact temperature control of elements in the electrical switchboards
- Location of vehicles and containers
- Measurement of water level (in wells, water intakes, rivers)
- Measurement of water tanks filling
- Monitoring of overhead transmission lines
- Monitoring of lifts operations, monitoring of temperature and humidity in silos, data transmission from meteorological stations
- Air pollution measurements
- Monitoring parameters and control of the cathodic protection installation of pipelines, tanks and other metal structures buried in the ground or immersed in water
- Large scale irrigation systems for crops, fruit and vegetable farms, forest areas and gardens

LOGISTICS AND
STORAGE OF GOODS

MANUFACTURING

ENVIRONMENT
PROTECTION

PERSONAL AND
PROPERTY SAFETY

"Experience gained during designing our standard telemetry modules, carefully tested hardware and software solutions enable us to develop in short time the devices in accordance with the specific customer requirements".

Director of Production and Development Department
Artur Wiśniewski

DataPortal

SCADA online
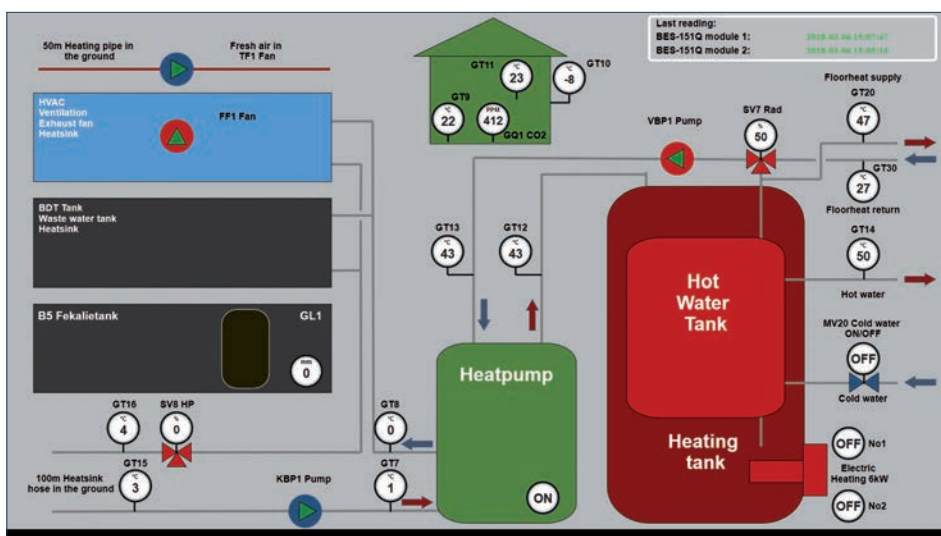
DataPortal is a SCADA system accessible from an Internet browser. It is a specific kind of a server displaying the animated visualization in the browser. After logging into the appropriate website page, animated drawings appear on the computer or phone, allowing observation of the status of monitored object or process. It is possible to make a detailed information analysis and prevent possible abnormalities.

DataPortal is the place where you can create such a customized system. You do not have to buy servers or licenses, install software, and program in PHP, Java Script or HTML. This platform provides ready-made tools. The users of MT telemetry modules can use this portal for their needs without the necessity of using the existing visualization systems. **DataPortal** is fully compatible with the telemetria.pl project. It supports all telemetry modules available currently in Inventia offer. Such service is embedded in "Cloud", where after logging in, you have access to the managing, designing or animation the drawings in operation mode (RUN mode).

To create a user profile it is necessary to have the telemetry module. During the device registration process, you create the account and the user with administrator rights. The administrator account owner can access all available functions. He can create all additional profiles, for users who should

have access to content or should contribute to it. New profiles do not have necessarily the full access to the content. In the system, there are several role levels defined and available for administrators to grant access by one mouse click. Such role is e.g. Observer profile. It allows only logging in to the working project designated by the administrator with already created visualization.

After switching to the developer mode, **DataPortal** runs the tool enabling drawing the screens, which will be displayed as animated ones to the other users. The designer module is an editor allowing creating vector graphics of various complexity. Simultaneously, it is the tool for reviving graphics based on the data from the previously prepared TAGs. The user has the working area for creating the drawings, which become the synoptic screens. All basic options such as save, copy, and group, are accessible directly from the main menu. Visualization creating functions are accessible from the dedicated panels, which visibility and position on the screen can be controlled according to the user's needs.

We invite all users of telemetry modules to try **DataPortal Platform** and creating a visualization for applications of their own.

http://dataportal.online

MOBICON
## Mobile controllers of the new version
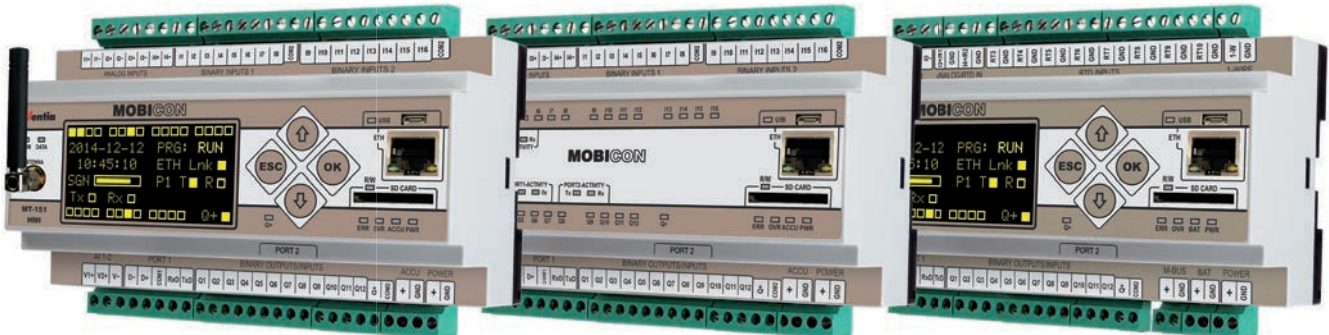
The dynamic development of telemetry and control systems using mobile technologies constantly expands their application range as well as the requirements for the used devices. Their users expect more and more higher transmission reliability, bigger resources of inputs/outputs and communication ports, control and calculation functions, which are typical for PLC controllers, advanced self-diagnostics, resistance to environment conditions, easy integration with other equipment and systems as well as the remote controlling of the already implemented telemetry and control systems (remote diagnostics, remote configuration, remote programming, remote firmware updates). To meet the growing needs and requirements of the market we have developed the **MOBICON** tele-controllers family GSM/GPRS/3G/LTE that is characterized by the attractive resources and functionality.

MOBICON series (the name derives from MOBile CONtroller) is the family of professional telemetry controllers of the latest generation for the advances applications. These device series combines the functions of a programmable PLC controller, a data logger, a transmission protocol converter and a wireless communication interface, which enables data transmission in the GSM network using GPRS/3G/LTE packet mode. As in other Inventia models, we have obtained the high reliability and interference-resistant product that was possible due to the use of galvanic isolation of inputs/outputs and communication ports. Applying the Dual-SIM technology provides the unique transmission reliability due to the access to two independent networks of GSM/GPRS/3G/LTE of various network operators.

The Ethernet port opens up the powerful capabilities of controller integration with other devices and user systems (video cameras, measuring devices, PLC controllers, LAN networks, server rooms, air conditioning systems, etc.). The user can use 16 two-state inputs and 12 outputs, which can be selectively configured as inputs. For the analog measurements, you can use 4 galvanically isolated current inputs with 4-20 mA load and 2 voltage inputs of 0-10 V rate. The module is equipped with outputs for an additional external battery, which is controlled and recharged by the buffer internal supply power system. One of the RS-232 serial ports has a supply voltage output for external devices, e.g. operator panels.

The built-in data and event logger with SD micro card stands out the **MOBICON** series. An efficient 32-bit processor with a real-time operating system ensures quick execution of user's control and calculation programs. The configuration, programming, updating of internal software and diagnostics can be implemented remotely using the intuitive MT Manager utility software. Control programs can be created using the existing tools for MT series as well as a ladder diagram.
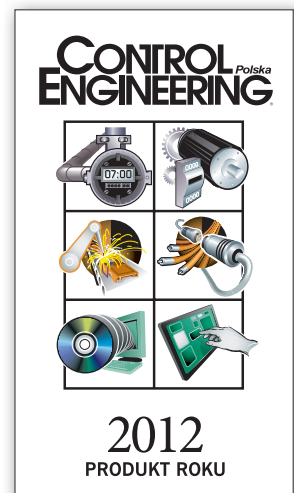
AGREUS

IIoT solutions for the gardening and agriculture practice

AGREUS is the latest project by Inventia. This system supports the user in making agrotechnical decisions in the surveyed areas. The use of modern technologies from the Industrial Internet of Things (IIoT) field, allowed building a solution that includes many types of environmental and technical sensors, as well as the executive modules.

Data from the sensor network are sent to the heart of **AGREUS** system – the base station, using the far range radio network – LoRa. This technology, depending on the terrain conditions, enables covering the large areas of crops, simultaneously with low power consumption, which is critical for battery and solar powered devices.
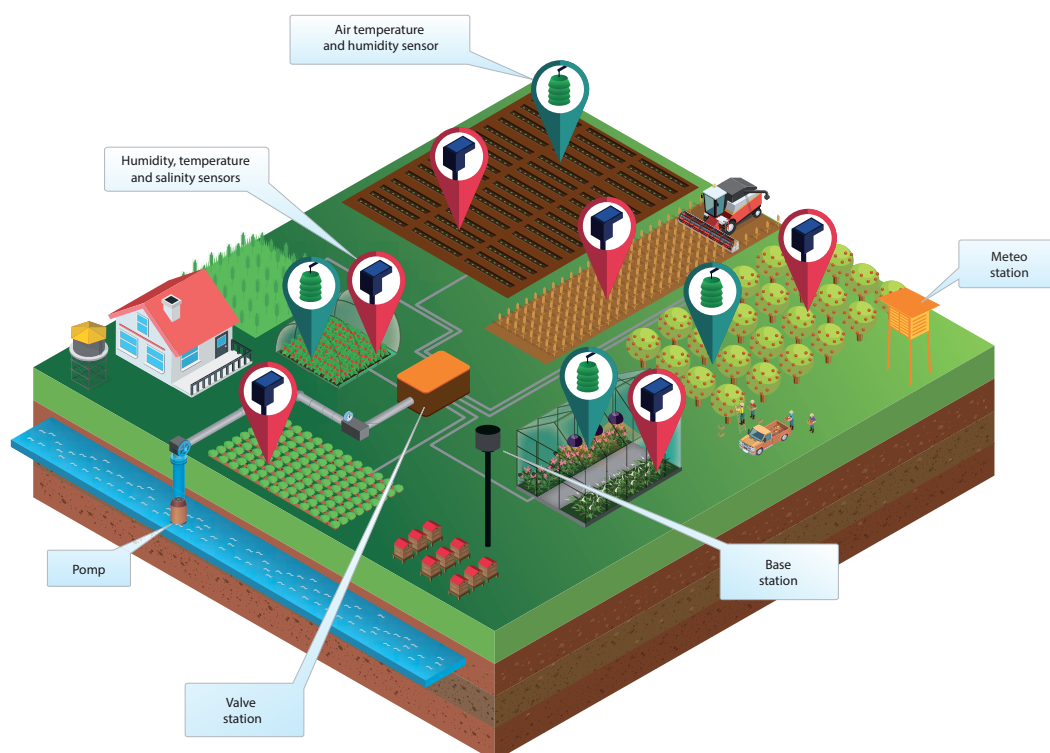
Such wireless solution allows covering the large-scale farms by a network of sensors and executive modules. The farmers have then online access to information on temperature and soil moisture and temperature and humidity of the air, which allows them to make decisions regarding the current water needs of plants. Information regarding the salinity level of soil means the pre-
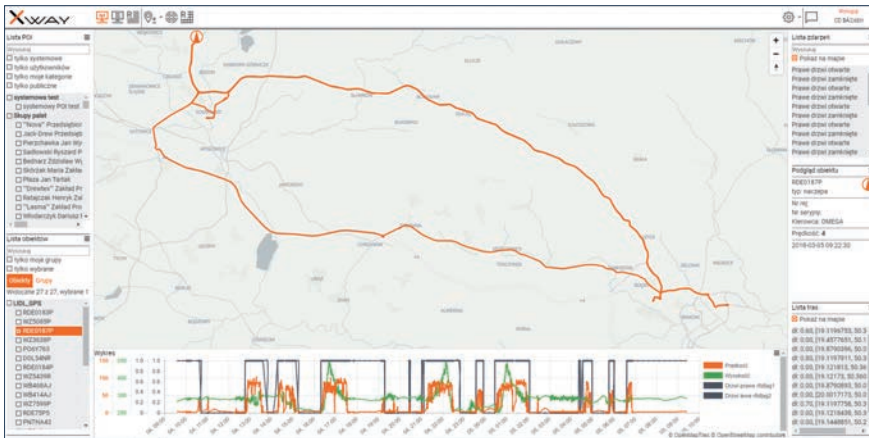
cision in fertilizing and the optimization of costs by matching the correct doses of fertilizers.

Additionally, data regarding rainfalls, wind speed, and the insolation are monitored or acquired from third sources, which will increase the precision of agrotechnical activities, related to irrigation, fertilization or plant protection.

AGREUS base station connects with the Internet using the existing WiFi network, independently via GSM (3D, LTE) or optionally – via the Ethernet cable connection. The Internet connection allows sending the collected data to the AGREUS Portal that works in the cloud. The sent data are collected on the accounts of individual System users', becoming the base for the carried out analysis regarding the optimization of the conditions of plants growth. Via the AGREUS Portal, the user can also automate the operation of pumps and valves, which are responsible for watering, can control the lighting and many other devices on his farm.

AGREUS means precision in making decisions and greater security in agriculture crops.

Air temperature and humidity sensor

Humidity, temperature and salinity sensors

Meteo station

Pomp

Base station

Valve station

XWAY

On-line location system

WEBXway is a new application, which is clear and easy to use. The previously used tool – XwayMap, which was designed for monitoring, viewing and analyzing data received from moving objects, has been transferred to the Internet platform.

This application consists of a few functional modules:

- Map module – using the Open-StreetMaps – with the central map area for showing the vehicle trace/traces and the functional panels on the left and right side of the screen as well as the graph area located on its bottom, which gives the unique possibility of presenting many signals on graph, both the analog and digital ones.

- Reports – delivered in 3 formats: XLS, PDF and as a preview form in a browser,

- Notifications and user event generation – this is another unique solution that allows the user to check the required coincidences between signals and events generated by telematic terminals.

While modernizing the application, we designed some elements from the very beginning. The appearance and graphics of the GUI have changed the most. Users will have to get used to a new, readable way of navigation, referring to the options from the locally installed application. The external appearance is not all that. The main change means the appliance of the new base engine for collecting measured data sent often in large quantities. At the

same time, this architecture shares stored data as quickly as it collects them. As in the previous version, we also provide users with the possibility to manage their own objects from the browser level.

Completely new graphics is the main change in the interface, which is visible immediately after logging in. The map is still the central position and it is a main element of the on-line monitoring. In the Internet version, we have focused on the open-source maps, which are updated by users from around the world. Thanks to this we can issue much more often updates than in the previous version. There will be also the well-known navigation panels, which were available in the desktop version. There will be also the new functions, which were unavailable so far e.g., the current graph with the possibility of drawing any trend, which can be selected from the registered data.

The new panels will be fixed as docked, but the change in their size will be possible. Each user could personalize the application settings in accordance with his needs and save them on his own profile.

XwaySystem undergoes metamorphosis. Soon all the XwayMap program users will be able to log in to the new application directly in their own favorite web browser. We kindly invite you to use the new version of the system embedded in the browser. We are also waiting for comments or suggestions on what functionalities our system should offer.

AGRO
4.0

IOT

3D

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