The industrial automation system is a combination of software, hardware and communications infrastructure that allows real-time data acquisition from the production process and its management and optimization. Siviko OOD is a certified integrator of Ignition SCADA 7.9, which is the most innovative and powerful industrial platform in the world, while being among the most affordable.

The industrial control system helps in three main ways:

• Greater **productivity** and lower costs;
• **Data collection** from production for analysis and optimization, and connection to business planning and logistics systems;
• Helps to introduce and comply with **standards and quality control** through production traceability and procedures;

The industrial automation system may include four main sub-systems:

**SCADA**

Supervisory Control And Data Acquisition - system for monitoring, control and collection of production data.

**EMS**

Energy Management System – energy management system of electricity, water, air, gas, etc.

**MES**

Management Execution System - system for production planning, control and management.

**IIoT**

Industrial Internet of Things – enables the acquisition and accessibility of far greater amounts of data, at far greater speeds and efficiency than before by decoupling devices from applications.
**What is an Industrial Automation System?**

The industrial automation system is a combination of software, hardware and communications infrastructure that allows real-time data acquisition from the production process and its management and optimization.

**Programmable logic controller (PLC)** – is a robust computer that is designed to work in harsh environments and adapted to the needs of the production process. These devices are a major data source for the industrial automation system.

**Control of local processes (PLC)**
- SCADA (Supervisory Control and Data Acquisition) is a supervisory and data collection system, which allows the management of production processes and the collection and analysis of data.
  - It connects with the machines and installations in the production and allows the input of data by the employees.
  - Shows real-time measurements via graphical interface.
  - Allows centralized and local process management in real time.
  - Keeps historical data on measured values.
- MES (Manufacturing Execution System) – This system allows the planning and management of the entire production process.
  - The main functionalities of the typical MES system include:
    - Planning and traceability of the production process in real time;
    - Traceability and production efficiency statistics and downtime monitoring;
    - Quality control and management;
    - Managing and storing machine settings and recipes;

**System for industrial automation (SCADA, MES, EMS, IIoT)**

**Business planning and logistics (ERP)**

**EMS (Energy Management System)** – an energy management system that includes electricity measurement, forecasting and cost analysis and power quality analysis. It may also include Costs related to water, gas, air, etc.

**IIoT (Industrial Internet Of Things)** – is a network of intelligent computers, devices, and objects that collect and share huge amounts of data. It enables the acquisition and accessibility of far greater amounts of data, at far greater speeds, and far more efficiently than before. It also decouples devices from applications.

© Siviko OOD, 2017
### What are the benefits?

The main benefits of the industrial automation system are increased productivity, data extraction from the production process and better quality control.

<table>
<thead>
<tr>
<th>Productivity</th>
<th>Data</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>- <strong>Optimization of the cost</strong> of materials, labor and energy.</td>
<td>- <strong>Faster problem solving</strong> based on collected data and analyzed information.</td>
<td>- <strong>Reduction of waste</strong> due to quicker response to alarm events, more precise control of settings and greater automation.</td>
</tr>
<tr>
<td>- <strong>Enhanced productivity</strong> through complete or partial automation of certain processes, improved material flow and less process interruption.</td>
<td>- <strong>Enhances the ability to make informed decisions.</strong></td>
<td>- <strong>Facilitated quality control</strong> of different types of processes</td>
</tr>
<tr>
<td>- <strong>Quick input or recording of settings</strong> on particular machines, which saves time and errors. Real time tracking for deviations from settings and corrections.</td>
<td>- <strong>No paper document</strong>, which reduce manual data entry in the ERP system and limits the communication errors.</td>
<td>- <strong>Traceability of the entire production</strong> and quick access to historical data - route cards and input materials.</td>
</tr>
<tr>
<td>- <strong>Faster training</strong> and putting into operation of new workers.</td>
<td>- <strong>Control and traceability of primary materials</strong> (connection with scales, flowmeters, etc.), work-in-process and finished products.</td>
<td>- Help in compiling <strong>8D reports</strong> and other methods by finding the root cause of a problem.</td>
</tr>
<tr>
<td>- <strong>Prevention</strong> of serious industrial accidents and incidents.</td>
<td>- <strong>Exact forecasting of electricity consumption</strong>, which enables bargaining for better tariffs on the free electricity market.</td>
<td>- Help with introducing and adhering to various standards, including:</td>
</tr>
<tr>
<td>- <strong>Preventive maintenance</strong> of machines as a result of data analysis. Less unplanned interruptions.</td>
<td>- <strong>Real time information for order status and production output.</strong></td>
<td></td>
</tr>
</tbody>
</table>

© Siviko OOD, 2017
Ignition is unlimited, so at the affordable price of a single server license you can easily get all your data, implement any industry application, and have an unlimited number of customers - all from one universal industrial platform.

- Ignition is a powerful and affordable industrial software with fully integrated modules for creating complete SCADA, MES, EMS and IIoT solutions.
- Provides easy connectivity to external systems, databases and controllers and other hardware devices and machines regardless of manufacturer.
- Ignition SCADA is being developed by Inductive Automation, an independent company founded in 2003 and based in California, USA.
- 44% of the largest US companies (the 100 largest Fortune companies) use Ignition SCADA as well as thousands of other customers in over 100 countries around the world.
- It is used in a variety of industries:
  - Chemical industry
  - Energy, plumbing and other infrastructure
  - Machinery and Manufacturing
  - Metallurgy and plastics,
  - Grain-storage and agriculture,
  - The Food and Beverage Industry,
  - Transport, Logistics and Warehouses,
  - Others
**Server-Centric Web-Based Deployment**

Ignition has a **unique server-centric web-based deployment model**. With Ignition, you can instantly web-launch an unlimited number of zero-install, full runtime clients on virtually any device. The central Ignition gateway can be on one central server or distributed across several servers, located on premise, in the cloud, or a combination of both. You can even put Ignition all the way out to the edge of the network.

- **Sensors** - for temperature, position, weight, speed, frequency, pressure, electrical parameters, counting input, etc.

- **Manually Inputs** - input and visualization of data from local devices - computers, tablets and more.

- **PLCs and Remote Peripherals (RTUs)** - collects sensor data and manages various actuators (engine, pump, cylinder, etc.)

- **Network** – with cable of wireless

- **SCADA Computer** – a personal computer that serves a particular task and has a definite physical location. Often it is also a server.

- **HMI** (Human Machine Interface) – man-machine interface. Graphic visualization on a monitor, tablet, phone, or other device.
The current state of the whole production and individual machine can be seen at a glance at mnemo charts.

Manages and tracks key processes through predefined algorithms and boundary values.

Alarms for events and accidents. Traceability of the reaction when removed.

Loading, storing and managing settings (recipes) on machines and tracking their correct application.

Energy management of electricity, water, air, gas and others. Quality indicators of power supply.

It facilitates operators’ work through guides, boundaries and blocking of wrong commands. Improves quality and reduces accidents.

Traceability and material flow management - stocks, current status of orders, inputs, etc.

Tracking performance of machines and operators. Maintenance management.

Tracking the work, condition and location of tools used in production.

Production data is stored digitally and is easily accessible for review and analysis. Statistical data.

Reports and information on the production process produced automatically.

Makes a link between the data generated in production and the ERP system.

Various functionalities

Numerous applications based on Ignition SCADA can be developed according to the specific needs. These are just some of them.

© Siviko OOD, 2017
### Conventional SCADA

- Based on one operating system - Windows
- Closed for communication only to specialized devices - specific PLC models, IO modules, etc.
- Closed connection to a single database
- Licensing based on number of clients (users), number of tags (points of information) or number of connections with external devices. Extensions are charged separately.
- A conventional graphical interface that is pre-set and does not scale to the resolution of the screen
- Local access only from the computer on which the system is installed.
- More difficult to develop or expand the system because of the limitations of working with other databases
- It is not flexible and does not have modules, slow installation and integration. Difficult to update the software.
- Based on technology from the 1990s

### Ignition SCADA

- Multiplatform - Windows, Linux, MAC OS
- Independent platform. Open for communication with devices from various manufacturers: Wago, Siemens, Allen Bradley, Omron, all MODBUS devices and more.
- Open links with a large number of databases - MySQL, MS SQL, Oracle DB and etc. As a consequence - easy communication with external systems such as ERP.
- Server license - unlimited number of clients (users), unlimited number of tags (information points), unlimited connections with external systems. It is limited only by the server resources.
- High performance HMI - Enhanced interface and customizable display scaling according the screen resolution
- Web based - could launch from any device with a web browser and internet connection - a computer, a tablet, a smartphone, and so on.
- A modular system that can be varied to customer needs - from a small system for a specific need, to a system covering every aspect of production.
- Centralized system management, easy to upgrade and extend
- A modern platform. An SSL communication certificate is used, making the system extremely secure.
Contact us

• Via mobile: +359 883 440 951, Svetoslav Vasilev, Manager
• Via email: engineered@siviko.com
• On spot in our office in Sofia: 10 Georgi Bradistilov Str, block 11 TVN, 1000 Sofia (google maps: https://goo.gl/maps/ZbMCbQC119w)
• Website: www.siviko.com