# TULAlabs

MENTATRONIC

Data center management and analysis

Why did we build it and what is the problem we are solving?

| INTRODUCING MENTATRONIC

Mentatronic is the most versatile and adaptable factory software system on the market to date. It is able to observe and translate the data generated from factory machines in real-time, giving us 100% transparency on the functionality of the machine. It is modular in the sense that features of Mentatronic can be adapted and used depending on the client's specific needs and existing solution.
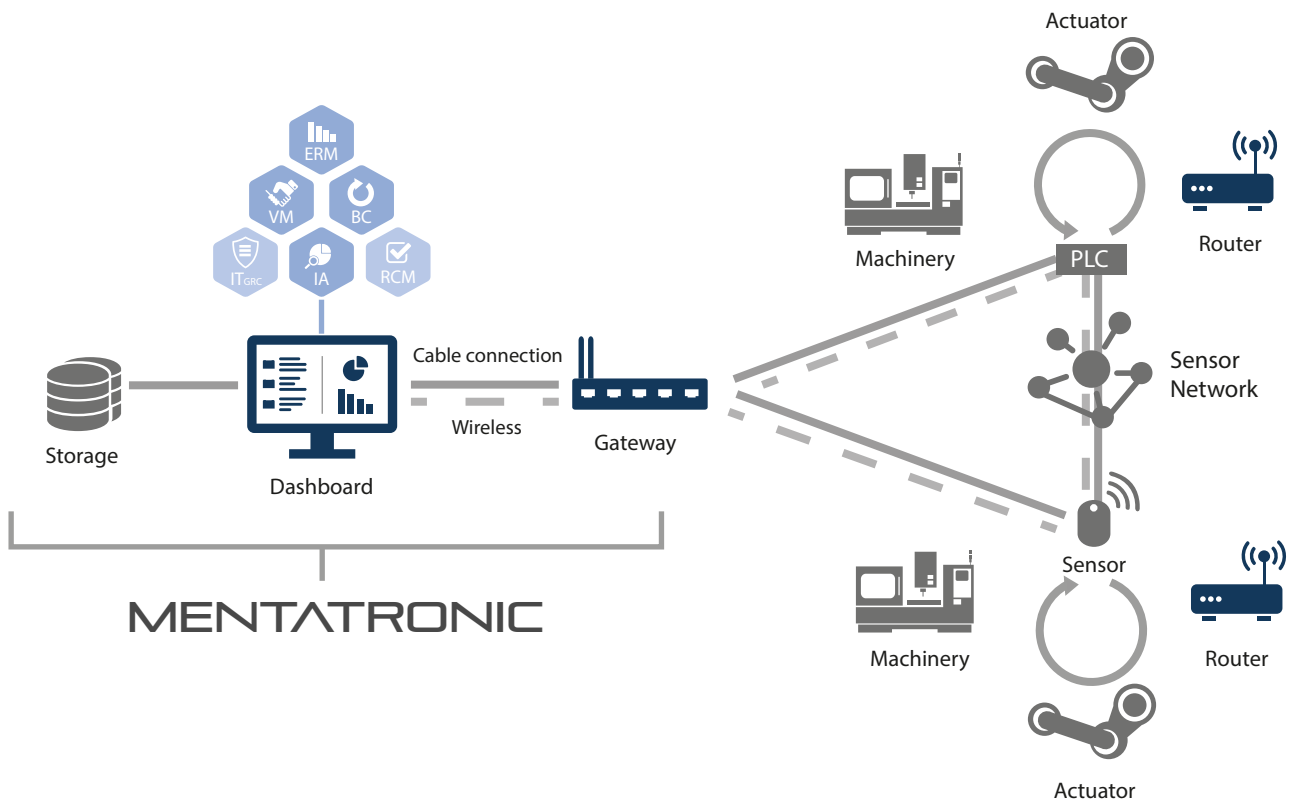
Mentatronic is the perfect software to fill in any gaps in the existing factory software solution or to add on any additional required functionality. This makes it the perfect solution to augment the system currently used by a factory. Our aim is to improve, not necessarily replace, the existing solution. Mentatronic can:

Speak to any machine, brand or industry

Extract any form of data required

Integrate with any existing system

"SAVINGS THROUGH OPTIMIZATION OF PROCESSES IN THE PRODUCTION CHAIN"

Mentatronic is a factory resource management solution that enables optimization of the production process in real-time. This includes full energy consumption, production metrics, compressed air flows and oil usage. Further, these costs can now be directly attributed to each unit, rather than allocated as an overhead.

Mentatronic has generated clear financial benefits to our existing clients by improving overall efficiency in the production line and reducing costs. Mentatronic also looks at the value chain outside the factory, by optimising logistics costs and just-in-time inventory metrics.

OVERVIEW OF FUNCTIONALITY AND APPLICATIONS

Real-time actionable data

Electricity, gas, steam & oil

Benchmark & trend

Smart alarms

Predictive maintenance

Real-time actionable data

Any brand, device, industry

Any type of data

Treated, exportable data

Automation … coming soon!

Mentatronic builds a real-time gateway that translates the programmable logic controller (PLC) generated data into exportable, usable data.

Mentatronic was designed to respond in real-time so that it can optimise predetermined factory key performance indicators (KPIs).

It can also recognise patterns in order to build predictive maintenance capabilities and varying levels of automation.

Mentatronic can adapt to the existing system, making it the perfect stop gap for any factory looking to become more efficient.

EXISTING APPLICATIONS INCLUDE

Overall equipment effectiveness monitoring

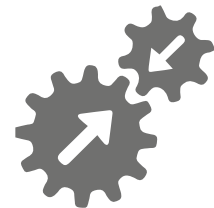Product line and machine specific energy optimisation

Leak detection on gas systems

Per unit energy monitoring and cost allocation

Pattern recognition in energy consumption for predictive maintenance

Data acquisition and exportation into the existing ERP

INTERNET OF EVERYTHING

REAL-TIME EXPORTABLE DATA

Our technical team has figured out a way of translating the data from the PLC into a format that is treatable and exportable. Therefore, this data can then be analysed in real-time, giving instant insight. The importance is that we are now able to respond to this information instantly making Mentatronic hyper-dynamic.
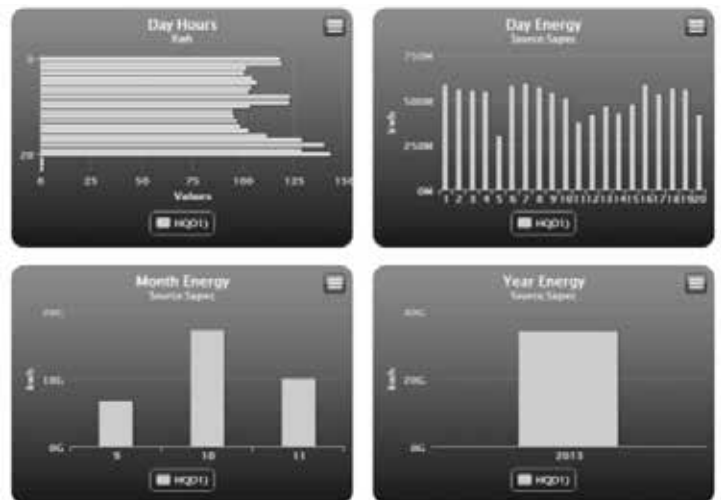
ADAPTABLE STRUCTURE

Mentatronic was designed to be compliant with any industry, brand, device or data type. We built this system in such a way that we are not limited by the context of the machinery. If the machine generates data, we can extract it and optimise the performance based on that information.

EASY INTEGRATION AND MODULARITY

Mentatronic was designed to augment the existing system in factories – we have the APIs needed to integrate into all major systems. This reduces the risk when adopting our solution. We can also tailor Mentatronic such that only a few required features are implemented.

FLEXIBLE PERFORMANCE METRICS WITH LEARNING ALGORITHMS

We are not limited on the type of data we can export. Therefore, we can optimise performance based on any factory KPIs – increasing the versatility of Mentatronic. Further, we have algorithms in place that track patterns and identify abnormalities.

FULL ENERGY OPTIMISATION AND LEAK DETECTION

The strength of Mentatronic is that we can analyse any form of data. This means that we can optimise all forms of energy usage – oil, gas and electricity. This includes energy used within the production line and taking peak and off peak costs into account.

RETROFITING AND AUTOMATION

We understand that 90% of machines are still not connected at all. This is why we have built capabilities to retrofit machines with the hardware needed to use Mentatronic . This is for both usage insights and actuators for automation.

Existing clients

Who is already benefitting from Mentatronic?

Mentatronic is already working in

6 different industries

sonafi

Auto parts suppliers for
German car manufacturers

📍 Portugal

Grupo procme

Installation and maintenance
of electro mechanics

📍 Spain

Robbialac Pinta a vida.

Paint, thermal insulation,
protection coating

📍 Portugal

LOGOPLASTE

Large scale plastic
packaging producers

📍 Portugal

SAPEC AGRO PORTUGAL

Agriculture chemical production
and logistics company

📍 Portugal and Spain

**LACTOGAL**

Large scale dairy & dairy
product suppliers

📍 Portugal

@ SAPEC Mentatronic
reduced cost of energy in the production line by

8.3% in the first year

Mentatronic is a system that measures exactly how much energy is being used by each machines to produce each widget. Further, it measures other key metrics needed to optimise and automate production and build predictive maintenance capabilities.
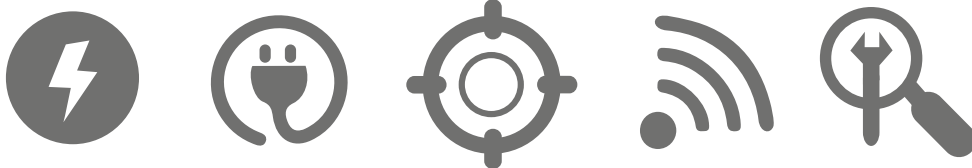
The immediate benefit is that you can now allocate energy costs directly to the product on a per unit level. The implications beyond that include reduced production and maintenance costs, reduced down time and the ability to accurately measure, benchmark and improve energy costs.

The Mentatronic system can optimise your production on any metrics you chose. Therefore, you can ensure higher output levels at off-peak cost times to save costs or profitability of each product to push up margins. It is a learning system that will allow diagnostics that allow predictive maintenance, reducing down time of the machines. It will also let the production teams know when there are irregularities. Finally, we can reduce production costs through automation of the system.

Mentatronic builds a real time gateway that translates data coming from the PLC of the machine into exportable, actionable data. This is then sent via the TCP/IP network to the Mentatronic system that then generates the graphics on the user interface.

Mentatronic has the required algorithms in place to build the know-how for predictive maintenance. Further, we have the software and actuators required to automate the production line based on this real-time information. Our software reads from any machine, any type of data one can take from the machine (energy consumption, temperature, pressure, gas, state etc.) and converts it into to Mentatronic format, sending it to the Mentatronic platform to be used as needed.

Therefore, the operator is able to see graphics in real time, keep record to track or compare machine behaviour, determine overall equipment efficiency (e.g. exact details of where and for how long a machine had an unplanned stop), integrate with other systems and the list continues. The exciting part is that this opens up endless possibilities of machine to machine communication, enabling the dream of the smart factory.

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