REALTIME MONITORING OF PRODUCTION PROCESSES

In many enterprises, the notion of Industry 4.0 still leaves a lot of room for speculation and irritation. The vision of products and machines communicating with each other in order to autonomously steer the processing and conveyance of parts first and foremost raises questions regarding the costs and benefits of implementing an Industry 4.0 solution. What many executives seem to misunderstand is that self-management and self-optimization of production processes represent the final stage of that vision; the state of the art is much less futuristic, referring mainly to IT-supported production (e.g., ERP systems, computer-controlled machines, robotic assembly) and logistics (e.g., route management systems, warehouse management featuring computer-aided order picking).

In view of the requirements posed by Industry 4.0, enterprises need to
- visualize events occurring in production processes,
- detect interrelations between such events, and
- predict events.

Addressing these needs, RIOTANA® (Realtime Internet of Things Analytics) is Fraunhofer ISST’s affordable, easy-to-use solution for enterprises to make their first steps in the world of Industry 4.0.

RIOTANA® allows you to,
- easily equip objects and humans with sensors,
- transfer the sensor data recorded to a big-data infrastructure in the cloud, and
- evaluate the data in the cloud in order to be able to process it in real time with the help of analytics and machine learning.
Using real-time data processing, it is possible to
- detect interrelations between events,
- detect soft spots in processes, and
- predict events.

The system architecture of RIOTANA® complies with the IoT reference model according to ISO/IEC. Data usage can be restricted as specified by the reference architecture of the Industrial Data Space.

**VISUALIZING EVENTS AND CONDITIONS**

As low-cost sensors can easily be integrated in existing processes and infrastructures, RIOTANA® allows low-effort monitoring of processes and detection of events or conditions occurring therein. The solution makes undesired events and conditions directly visible.

RIOTANA® Lambda architecture, which is based on SMACK open-source software components, is capable of efficiently processing high-frequency data streams. Incoming data is visualized in real time over a web-based application.

**ANALYZING EVENTS AND CONDITIONS**

RIOTANA® not just allows visualizing incoming data, but also analyzing it. To do so, the system uses a library of machine learning methods. The functionality comprises basic statistical operations (such as calculating mean/average values or determining variance or standard deviation) as well as methods for classification (e.g., naive Bayes), regression, or clustering.

**OUR VALUE PROPOSITION**

You want to digitize your business processes in order to make them more efficient, but you are not sure how to get started? Then RIOTANA® is the solution you have been looking for!

Fraunhofer ISST will support you on your journey to becoming a digital enterprise by providing you with state-of-the-art tools increasing process efficiency and reducing cost.

Don’t hesitate to get in touch with us! We are looking forward to offering you consultation!