

GOAL

Implement wide interoperability to increase standardization and modularity of the Data Acquisition System (DAS) for production environments.

Challenge

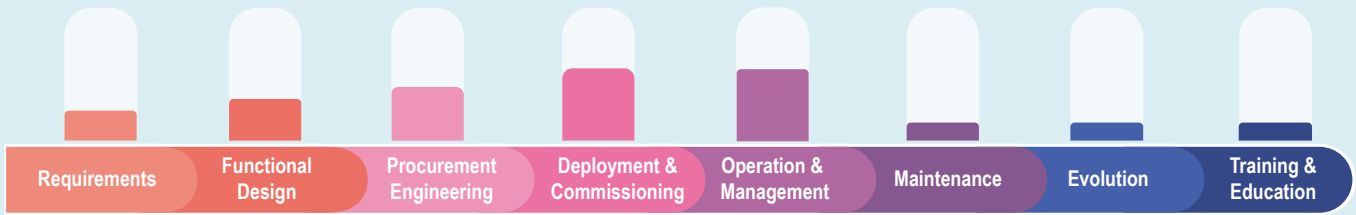
A Data Acquisition System (DAS) specifically designed to deal with the ingest of process data coming from heterogeneous devices (e.g., presses, blanking line, etc.) was developed previously by Fagor Arrasate. This DAS system interacts with industrial protocols to be able to read the data from all these manufacturing devices and stores the data so it can be later retrieved, analysed and sent to the its Industrial Digital Platform.

The challenge addressed is to improve the modularity of the DAS with the goal to reduce the Learning Curve during implementation. It will additionally allow the DAS to operate with multiple cloud providers making a change between providers very simple and easy.

Within the scope of this project, the DAS system will be extended to:

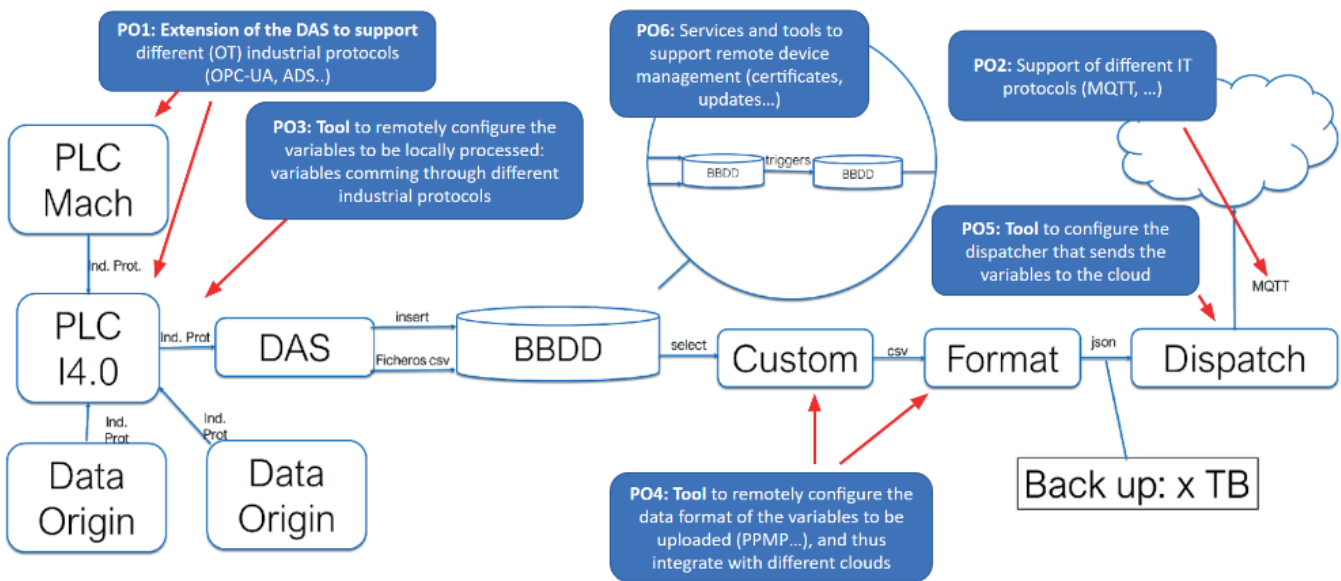
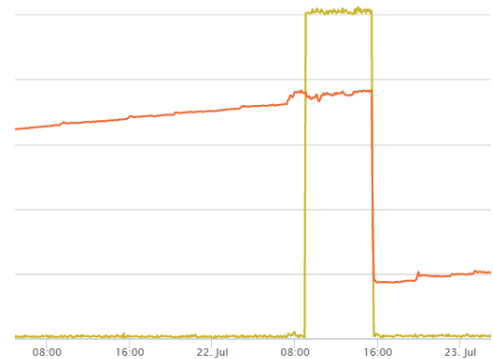
1. Support interoperable OT communications with different manufacturing asset (legacy and not) by using a variety of industrial protocols (e.g., OPC UA, ADS).
2. Support the interaction with a plethora of IT protocols (more concretely lightweight Internet of Things protocols) by using different technologies like:
 - a. Publish & subscribe technologies (e.g. MQTT, Kafka)
 - b. Flow Control technologies (Apache NiFi).
3. Offer advanced Fog/Edge Computing capabilities that would allow to improve the efficiency of data based analytic decisions by shortening the closed-loop control processes thanks to the leverage of the processing capabilities between the cloud and the Fog/Edge.
4. Interact with the environment in a more secure way by complying with the Cyber Security Standard IEC 62443.
5. Support remote device management (bootstrapping, certificate management, updates, etc.).

Engineering Phases



Results

Fagor Arrasate will use the resulting tools in order to supply information about the health status and production rates of the machines to their clients. Moreover, Fagor Arrasate will position these tools as their corporate digitalisation strategy thus they will be exploited by the three main businesses of the company: automotive, metal processing and home appliances.



Partner Data



FAGOR ARRASATE is a world leader in the design and manufacturing of tailor-made solutions for material forming to manufacture complex parts in metal, composites or thermoplastics, including presses, coil cutting and processing lines, and complete systems for manufacturing complex metal parts. It also specializes in composite forming, hot and cold forging systems, and press hardening. The company operates globally, and its customers include OEMs, TIER1s, and service centers in the automotive and aerospace sectors, as well as companies in the forging, steel, appliance, and metal furniture industries. With more than 60 years of experience, Fagor Arrasate has 6 production plants, 3 technical assistance service centers, and an R&D and innovation unit, in addition to numerous business delegations throughout the world.