**Initial Situation:**
- State of the art machine tool controllers offer several Internet-of-Things (IoT) interfaces for machine data acquisition using industrial or edge computers.
- In addition, external sensors enable even more precise monitoring of the production processes. Therefore, an advanced system architecture has been developed at the Institute for Machine Tools and Industrial Management (iwb) in recent years, which enables simultaneous acquisition of external sensor signals and internal machine data.
- This system architecture must now be developed further: The acquired data must be stored in a common database and the data from the various data sources must be synchronized with each other.

**Goal of the IDP project:**
The following tasks / work packages must be completed as part of the IDP project:
1. The data from the external sensors, which are collected using so-called ADS communication (ADS: Automation Device Specification), must be serialized (JSON) and then stored into an influx-DB.
2. Adaption of an existing OPC-UA client:
   a) The selection which data should be logged via OPC-UA communication should be possible via a config file or via a dynamic user interface.
   b) Data which is collected with the help of this client should be synchronized to the external sensor data and stored into the influx-DB.
3. The logged internal machine data (Sinumerik Edge) is accessible via a shared directory (Samba share) and via a REST-API.
   a) The internal machine data must be synchronized to the external sensor data.
   b) This data must be stored into the influx-DB as well.

**Requirements:**
- interested in data acquisition and data processing
- programming knowledge (must: Python, beneficial: C++)
- structured and independent way of working
- profound English language skills, German is a plus

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