SUMMARY

Distribution of smart services to production machines; local execution of AI and machine learning methods, compression of data, extraction of know-how and feedback to central Cloud systems.

PROJECT DESCRIPTION

Taking agriculture as an example, the TUCANA low-code smart service platform is being used to develop smart Industrie 4.0 systems for a globally distributed production environment. Data acquired during harvesting procedures is analyzed locally using AI methods and offered to the farmer as local smart farming services for real-time decisions on the machine. Systems can be dynamically upgraded with smart services and be exchanged between machines. Connection to Cloud infrastructures means that large quantities of data can be analyzed. Smart services are therefore available any time and any place.

CURRENT SITUATION

Large volumes of data are constantly being created in various areas of industrial manufacturing. If industrial production is to be competitive, this data must be used to make decisions and optimize workflows in real time. As production resources are used on a mobile basis in distributed production environments such as agriculture and construction, Industrie 4.0 systems must be available any time and any place and must be dynamically connected to one another. The development and distribution of smart service in the context of Industrie 4.0 currently involves a great deal of time and money, where data is first transmitted to central Cloud data centers for analysis before being returned to the user or machine as a service.

INDUSTRIE 4.0 – FEATURES

- Digital administration shell on the production machine
- Connection to Cloud solutions
- Automatic learning for production

STANDARDIZATION APPROACHES

The following standards are used: WebRTC, oauth 2.0, compatible with OPC-UA. Recommendations from the DIN "Characteristic value statements" specification project are applied. Standardized administration shell is necessary.