

Call for contribution (Industrial Controls)

CERN invites collaborating institutes and universities to contribute the expertise of their qualified employees to the activity described below.

Contract duration: 1 year (possibility of an extension up to a maximum of 3 years)

Project/Activity: Technical supervision and IIoT monitoring of CERN handling equipment

Activity: Design and development of technical facilities supervision and monitoring for industrial components: e.g. lifts, cranes, mobile equipment using IIoT (Industrial Internet of Things) technology

Description of Project:

Within the CERN BE department (BE), the Industrial Control Systems group (ICS) develops solutions and provides support for large and medium scale industrial control systems and also promotes their use. The support covers the domains of the experiments, the technical infrastructure and the accelerators. The *Control Engineering* section (BE-ICS-CE) is in charge of the engineering of a number of industrial control systems and provides technology support CERN wide.

Detailed description of Activity:

The main tasks will be the following:

- Programming PLC, configuring local operation panels and the SCADA (Supervisory Control and Data Acquisition) layers of the control systems. The code could also be automatically generated by using high-level languages (e.g. python).
- Evaluate the latest version (web-based solution) of the current supervision system namely '*Elevison*' that has already been put in place for a number of existing lifts at CERN, to integrate all CERN lifts taking into account the network security aspects.
- Assess several middleware solutions to communicate with the Lifts from the SCADA system and propose the more appropriate solution
- Implement and integrate the approved solution to the SCADA systems for all lifts
- Configure "level 2" alarms in the WinCC OA framework for each lift in order to inform CCC technical infrastructure operation immediately in case of failure of a supervised lift
- Implement the control and monitoring system (PLC and SCADA) using the UNICOS framework for Lifts which cannot be integrated in the *Elevison* supervision system
- Analysis, implementation, validation and deployment of IIoT based solution for the monitoring and tracking of the CERN handling equipment (e.g. cranes, bucket trucks...)

Profile:

- Master's or Bachelor's degree in Automation, industrial informatics or similar.
- Initial experience with industrial controls systems
- Knowledge of high-level programming and scripting languages (e.g. C++, python...) and databases would be an asset

Status at CERN:

Associated Member of the Personnel (Project Associate).

Conditions in accordance with CERN's Staff Rules and Regulations and Administrative Circular No. 11.

Subsistence allowance is payable by CERN to cover the additional cost arising from the individual's (and, as applicable, their family's) stay in the local area while performing activities at CERN.