Call for contribution (Industrial Informatics)

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

Date: March 2022 - February 2023 (1 year contract)

Project/Activity: **Science Gateway Lab Automation**

Activity:
Design and development of a control system to automate the setup of building equipment.

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 the industrial control systems and provides technology support CERN wide.

In the context of the CERN Science Gateway project, around 250m2 space will be dedicated to Educational labs. These labs will be equipped with around 20 FlyOne media supply systems, which offer a broad range of uses. Typically these telescopic arms can supply electricity, compressed air or gas in any spaces where it is needed and they can be precisely positioned from down/up to the ceiling/workbench tables by means of dedicated control board panels. Additionally, the designed system shall control some building facilities such as blinds, lights, audio and HVAC systems.

The project goals aim at providing a control software and an ergonomic human interface to monitor and control the telescopic arms.

Detailed description of Activity:

The main tasks will be the following:
- Gathering the requirements of the control systems and compiling all the relevant documents
- Analyzing and evaluating the possible solutions for the controls of both telescopic arms serving facilities to different working benches (FlyOnes) and some other building automation parts (e.g. lights, blinds, ventilation…)
- Design and development the control software
- Prototype the solution, validate and realize the commissioning of the solution on site
- Document all the project phases

Profile:
Computing Engineer (Master's degree or bachelor's in computing, industrial control or similar).

Technical competences:

- Defining and managing requirements
- Knowledge of high-level programming and scripting languages (e.g. C++, python…)
- Knowledge of PLCs, fieldbuses, OPC would be an asset
- Knowledge of Java/Android programming and design of Graphical User Interfaces (GUI)

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.