Sample Project: Development of LabVIEW real-time control system

Code	BE5402
Programme	FCT
Department	BE
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Title

Development of LabVIEW real-time control system

Description

An Electron Beam Ion Source (EBIS) for particle-beam cancer radiotherapy with light ions is under development at CERN. The electron gun could also be utilized in charge breeders for nuclear physics facilities, such as HIE-ISOLDE and a future EURISOL. Conversion of one of CERN EBISes into a technology proving ground requires a full revision of its control system. The trainee would be responsible for the implementation of the real-time control system with connected user interface, presently based on LabVIEW PXI and cRIO from National Instrument. The upgrade would include new functionalities for ion beam diagnostics, vacuum control and power converter controlin an ion extraction line. The system should also be transformedfor operation at different electrostatic potentials. In parallel the trainee would take part in the development of an extraction and ion separator beam line.This involvement depends on her/his motivation towards applied physics and presence of necessary skills. The 24 months project will be carried out in a small multidisciplinary team in close contact with various field experts available at CERN and other laboratories.

Skills required - LabVIEW programming, general knowledge of electronics, general knowledge of physics. Desirable - advanced knowledge of physics and interest towards applied physics. Experience in other SCADA or ICS systems is an asset. Working language is English, knowledge of French is an asset.

Skills

LabVIEW, general knowledge of electronics, general knowledge of physics, SCADA or ICS systems

Disciplines

Accelerator Physics, Electronic Engineering