Sample Project: ATLAS Tile Calorimeter detector control system

Code	PH3282
Programme	TRAIN-PTES
Department	PH
Responsible	32016 - Dr. Ana Maria Henriques Correia
Created by	35413 - Mr. Agostinho Da Silva Gomes
Updated by	120518 - Ms. Jennifer Annabell Dembski
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Title

ATLAS Tile Calorimeter detector control system

Description

The Tile Calorimeter is a sub-system of the ATLAS experiment, one of the experiments that operate at the CERN LHC collider. The Tile calorimeter is built in three cylindrical sections, two 3 m long sections and one 6 m long section. Each cylinder is built by joining 64 modules. Most of the front end electronics is installed in drawers in the outer part of the modules, and is controlled and monitored remotely by the detector control system (DCS), a SCADA distributed system running in several PCs. Taking profit from the LHC shutdown, the electronics of the calorimeter is being upgraded, and the DCS system is being upgraded in parallel. The context of the job offer is to be integrated in the team in charge of the control of systems such as low voltage power supplies, high voltage power supplies, cooling, etc, and keeping these controls integrated in the global control system of the ATLAS experiment and always operational. An upgraded DCS is also being designed and it will be setup operational for the several places where it will be used: in the ATLAS cavern in the "demonstrator" modules (modules equipped with new electronics that is being developed), in a testbeam setup where full equipped modules will be tested, possibly running different electronics solutions, and in the laboratory where the modules are prepared and calibrated. For such a task, commercial tools as well as tools developed at CERN are used. By being involved in this project, it is possible to get an overall view of the execution of an electronics control and monitoring project. Last "state of art" resources will be applied for these tasks. The candidate will take part in the analysis of the data collected by the monitoring system and will interact with the physicist teams that are running the detector and will have to coordinate actions with them, as well as with the engineers that are developing the new electronics.

Skills

Disciplines

Information Technologies, Electronic Engineering