

Student's Zone 2018 of the NICA Project



Contribution ID: 21

Type: **Team for the Future of NICA Dubna 2018**

Fire extinguishing system for the MPD/NICA Slow Control System

1. Motivation

MPD - (Multi Purpose Detector) has been designed to record particles emitted during the heavy ions collisions. MPD is a component of the experimental NICA complex (Nuclotron-based Ion Collider fAcility) currently being under construction at the Joint Institute for Nuclear Research (JINR) in Dubna.

MPD is a multi-detector, which includes many subdetectors, including TOF (Time Of Flight) detector. The purpose of these systems is to determine the trajectory of emitting after collision particles and their deposited energy in the active area of the detector.

Complex physical processes leading to the electrical signals formation make measurement systems to be maintained at a proper temperature, specific for each type of detector. Ensuring and maintaining the right temperature also applies to electronic circuits cooperating with detection systems. If the temperature of the electronic used for the Slow Control System is over the parameter described in the EqDB as the maximum value, there is a possibility of the fire inside the rack. Moreover, in the room where racks are located

1. Tasks

Student will work with the LabView on his own device. The main tasks are:

- 1) Assembly of the system in a block and its setup in the Master and Slave RACKs,
- 2) Configuration of the Firesi_FRS-RACK Master module using the Ethernet and RS232 protocols,
- 3) Setup of the Fire FRS-RACK Slave module to the Fire FRS-RACK Master,
- 4) Developing of software for data acquisition using LabVIEW 2016,
- 5) Developing of software for data visualizations and monitoring,
- 6) Add the module that send the SMS when the parameter is over its maximum value,
- 6) Performance of application tests,
- 7) Preparation of documentation.

1. Requirements

- a. Computer with Windows operating system,
- b. Programming skills in LabView,
- c. Basic English skills.

1. Recommended literature

- a) www.jinr.ru –JINR's website,
- b) <http://nica.jinr.ru> –NICA's website,
- c) <http://labview.pl> –LabView website,
- d) <http://nica.fizyka.pw.edu.pl/> - Twiki of SCS group.

1. The number of project participants: 1-2

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