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Nagios and Arduino integratition for monitoring

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The Datacenter at the Galician Institute of High Energy Physics(IGFAE) of the Santiago de Compostela University (USC) is a computing cluster with about 150 nodes and 1250 cores that hosts the LHCb Tiers 2 and 3. In this small datacenter, and of course in similar or bigger ones, it is very important to keep optimal conditions of temperature, humidity and pressure. Therefore, it is a necessity to monitor the environment and be able to trigger alarms when operating outside the recommended settings.

There are currently a plenty of tools and systems developed for Datacenter monitorization, but until recent years all of them were of comercial nature and expensive. In recent years there has been and increasing interest in the use of technologies based on Arduino due to its open hardware licensing and the low cost of this type of components. In this article we describe the system developed to monitorize IGFAE's Datacenter, which integrates an Arduino controlled sensor network with the Nagios monitoring software.

Sensors of several types, temperature, humidity or pressure, are connected to the Arduino board. The nagios software is in charge of monitoring the different sensors, with the help of nagiosgraph to keep track of the historic data and to produce the plots. An arduino program, developed in house, provides the nagios sensor with the readout of one or several sensors depending on the sensor's request. The nagios temperature sensor also broadcasts an SNMP trap when the temperature gets out of the allowed operating range.

Summary

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