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MATHIS Software for controlling BCAM-based monitoring and alignment systems

The MATHIS Software (Monitoring and Alignment Tracking for HIE-Isolde Software) aims at providing 3D positions of physical components of the HIE-Isolde superconducting modules, accurately and permanently measured by well-designed networks of BCAM devices (Brandeis Camera Angle Monitoring). Although it is originally intended for the HIE-Isolde project, its architecture and its use cases have been extended and optimized for more general setups. Most of the configuration data are stored either within XML-formatted files or within databases. The adaptation of MATHIS for different BCAM monitoring systems thus does not require any further code rewriting. Moreover, the software is fully cross-platform and can either be run on the specific Linux machines driving the accelerator electronic devices, or be used on independent Windows workstations as a stand-alone software. In the first case, the software mainly relies on FESA (Front End Software Architecture) which is an object-oriented real-time framework that ensures equipment software portability across CERN accelerators. Through this standardized module, MATHIS communicates with dedicated servers networks and publishes in real-time the computed positions to any workstation, and more specifically to the concerned control room operators. This paper describes the main features and explains the modular architecture of the software.

Summary

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