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FGC Test Manager: a framework for executing and monitoring software tests

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Function Generator Controllers (FGCs) are key devices used in CERN's converter control systems to regulate and monitor the power converters that supply current to the magnets in the accelerator complex. To ensure the reliability and enhance the quality assurance of the software that controls these devices, the FGC Test Manager has been developed. It encompasses the Python library `pyfgc_test_framework`, which provides an interface for test scripts to seamlessly communicate with the FGC devices; and a web tool providing an interface to run test scripts on schedule and on demand, assign tests to resources, review test results, and directly access test logs. The web tool uses Vue 3 for the frontend and FastAPI with a PostgreSQL database for the backend. Test execution is handled by the GitLab Pipeline API, which executes pipelines directly in the repository containing the tests. This paper presents the design and functionality of the FGC Test Manager and the improvements it brings to the quality assurance of CERN's converter control systems.

Footnotes

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