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Machine PSS upgrade at Australian Synchrotron

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The current Personnel Safety System (PSS) at the Australian Synchrotron has reached its End of Life. Most of the PSS hardware and software is no longer available, supported or repairable. This would affect the availability of the machine and beamlines for experiments.

This project aims to reduce the risk of a facility wide unplanned shutdown - resulting from a fault in the Machine PSS system by executing an upgrade/ replacement of the existing PSS PLC hardware and software platform in a planned manner.

This upgrade will also deploy all the PSS related hardware and software for new front ends. This will make possible for new beamlines/frontends to be integrated into the Machine PSS, accommodating BRIGHT projects.

The project has been awarded to a system integrator and the design stage is under way. Major installations is scheduled for Dec 2019 followed by SAT, validation and handover in Jan 2020.

The new PSS will be based on Siemens safety PLCs and PROFISafe remote I/O system. The same technology will be used for new BRIGHT beamlines' PSS. One of the main advantages of the new system is the ability to simulate the safety application code that allows us to fully test the safety functions and minimise the commissioning issues.

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