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New Slow Control Emulator for the CMS Phase 2 Upgrade of the RPC Link System

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In the CMS RPC system, the electronics upgrade for Phase 2 have been foreseen by the RPC community and has been approved in the CMS Muon technical report. This upgrade not only covers the replacement of the off-detector electronics of the present RPC chambers but also includes renovating the legacy Slow Controller with a new version. In this work, at first, we will review the architecture of the legacy RPC Slow Controller and its pros and cons. Then, the new Slow Controller's idea and its architecture will be explained. We also show how the new Slow Control emulator chains with the new RPC Link System and how this chain is validated. Meanwhile, each of the firmware building blocks and its state machine will be explained.

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