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(57) Abstract :
In the current era, power grids are transformed into Smart Grids raising several challenges as penetration of smart devices in the existing power systems. Challenges are also posed on Information and Communication Technology due to these changes as it has to support services related to Smart Grids. In Smart Grid, power systems are integrated with Information and Communication Technology which has enabled distributed controls and real time services by the fusion of these technologies. In this invention, architecture of Smart Grid testbed is designed and developed by integrating algorithms of Artificial intelligence and real world wireless communication systems such that real time design requirements of Smart Grid testbed is met by this reconfigurable framework with stacking of full protocol in MAC layers and PHY layers. The proposed architecture has the reconfiguration property based on the network of wireless communication and advanced technologies of ICT which includes Machine Learning algorithm. A novel Smart Grid design is addressed with cross system interfacing that shows greater potential for evaluating power systems especially Smart Grids.

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