

Integration of a Low Cost Switching Mechanism into the NI ELVIS Ilab Shared Architecture Platform

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Abstract

This paper presents the development of a low cost switching mechanism into the NI ELVIS platform for online laboratories based on the iLab Shared Architecture. This came up after experiencing the limitations on using NI ELVIS II+ platform in deploying discrete experiments using common measuring and testing instruments; as well as the use of different components on the same experimental setup. This requires switching mechanisms as a solution to implement those experiments. The designed mechanism in this work uses analogue switching devices with digital control inputs connected to the NI ELVIS II+ Digital writer instrument. The mechanism were successfully tested using implementation of diode rectification characteristics experiments showing the switching mechanism between different components; whereas switching between different experimental setups was shown using Low Pass Filter, High Pass Filter and Band Pass Filter setups.

Keywords

NI ELVIS

E-learning

Online laboratories

Switching