

# NOVEL APPLICATION OF LabVIEW IN HIGH VOLTAGE ENGINEERING

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A PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENT FOR THE DEGREE OF  
Bachelor of Technology

in

Electrical Engineering

by

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**Janmejaya Hota (108EE070)**

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**Department of Electrical Engineering**  
**National Institute of Technology, Rourkela**  
**Odisha**  
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**2012**



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### CERTIFICATE

This is to certify that the thesis entitled, “**Novel Application of LabVIEW in High Voltage Engineering**” submitted by Deepak Kumar Singh, Janmejaya Hota and Satyajeet Nayak in partial fulfillment of the requirements for the award of Bachelor of Technology Degree in Electrical Engineering at the National Institute of Technology, Rourkela is an authentic work carried out by them under my supervision and guidance.

To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other university/institute for the award of any Degree or Diploma.

Date:

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## ABSTRACT

High voltage equipments are often placed in open air and they are often exposed to lightning strike as well as surge voltage. Most of such high voltage power equipments are placed in the power transmission line. They are sustaining high surge voltage during the lightning phenomena. To protect all such power equipments and quality power supply the study of lightning characteristics is most important for every power engineers.

Lightning impulse voltage and standard impulse voltage (1.2/50  $\mu$ s) are similar to each other. So, to achieving better protection of high voltage equipment study of impulse voltage waveform is very important. A comparison has been made between standard impulse waveform obtained by simulating Marx impulse generation circuit in LabVIEW Multisim and practical Marx circuit. This impulse waveform can be used to test the capacity of electrical equipment against the lightning and switching surge voltage.

So, generation and simulation of an impulse wave has been carried out by the help of LabVIEW Multisim Software Package. A practical Marx circuit has been made and its comparison has been drawn with standard impulse voltage. Data acquisition of the practical impulse voltage generation circuit has been performed.

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