

**INVESTIGATION OF OVERVOLTAGE SURGE IN A LOW
VOLTAGE SYSTEM**

**Project report presented in the partial fulfillment for the award of the
Bachelor of Electrical Engineering (Hons)**

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ABSTRACT

Transient or overvoltage is one of the most common power quality disturbance encountered today. It can damage in many ways to nature or system reliability and for worst case, it will involve fire cases. Overvoltage surge in power system network occur due to lightning strike, switching action or voltage elevation of sound phases during ground fault and short circuit between two different voltage level networks. In this paper, the main focus is to investigate overvoltage surge due to possible causes such as lightning and switching action in low voltage system. Analysis is also carried out to investigate the compatibility of overvoltage surge with the Information Technology Industry Council (ITIC) power acceptability curve. This paper also describes how surge arresters could be used to protect a chosen IEEE 13 node feeders system whereby PSCAD/EMTDC simulation software is used for all of the simulation and model. The results of the analysis show that the temporary increase in voltage value will be rise to 22.10kVolts at the line which is done by lightning and 1.64kVolts for fault interruption cause when the surge arrester not set in the system. While an improve result of overvoltage when consider arrester with appropriate design and consideration that is fall under acceptable value as compare to (ITIC) power acceptability curve.

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