**ABSTRACT**

**Title**: Simulation of a unidirectional three stages solid state transformer from 13.2 [kV] to 220 [V]1.

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**Key Words:** Solid State Transformer, Multilevel Converters, Distribution systems, Power electronics.

**DESCRIPTION**

Voltage variations are responsible for more than 85% of the failures in electrical systems, these causes partial or even total damage to electrical devices because the machinery or equipment connected operate at a higher or lower voltage for which they have been made. These variations, are generally caused by changes in the energy demand, are mainly supported by the distribution transformers. Due to this reason, new technologies have been studied in the field of electrical distribution, among which stand out solid state transformers, which have particular characteristics such as allowing the inclusion of new unconventional energy sources and easy integration with schemes of smart distribution. In this degree work, the control was simulated for a three-stage solid-state transformer operating in buck mode in response to load variations, and therefore to maintain a constant output voltage value on the low side. With which, when implemented could be used as a solution to the problem of load variation in power systems, because the solid state transformers have the property of maintaining adequate voltage on the low side regardless of changes on the demand.