



# AIUB DSpace Publication Details

**Title:** Performance Improvement of Power System Network by Placing Unified Power Flow Controller at Appropriate Location

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**Published Journal Name:** AIUB Journal of Science and Engineering (AJSE)

**Type of Publication:** Journal

**Volume:** 14 Issue 1

**Publisher:** AIUB

**Publication Date:** 31/08/2015

**ISSN:** 1608 - 3679

**DOI:** \_\_\_\_\_

**URL:** Print Version of AJSE VOL 14

**Other Related Info.:** Page 1-8



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## Abstract:

This paper presents a dynamic model of UPFC to enhance performance of power system in terms of power flow capability or voltage stability where its location has been determined by employing two line stability indices (LSIs) known as Fast Voltage Stability Index (FVSI) and Voltage Collapse Point Indicators (VCPI). These indices have been exploited dynamically to find out the weakest links of the power system network which are prone to voltage instability. The control algorithms for both series and shunt converters of UPFC are designed based on PI controller. To investigate the performance of UPFC on the enhancement of voltage stability, dynamic simulations has been carried out in PSCAD/EMTDC software. IEEE-5 and IEEE-14 bus systems have been selected for case studies. The locations have been found using FVSI and VCPI for UPFC placement proved to be the best locations through the simulation results which have also exhibited the improvement in power system performance.