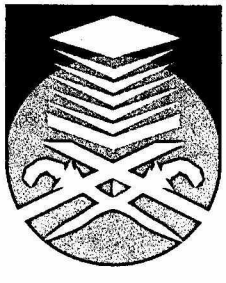
UNIVERSITI TEKNOLOGI MARA

ARTIFICIAL IMMUNE SYSTEM BASED OPTIMIZATION TECHNIQUE FOR VOLTAGE PROFILE IMPROVEMENT USING UNIFIED POWER FLOW CONTROLLER

Thesis is submitted in partial fulfilment

for the award of

Bachelor of Engineering (Hons.) in Electrical



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ABSTRACT

This thesis presents the application of Artificial Immune System (AIS) as one of the Biological Computing optimization techniques with the use of Unified Power Flow Controller (UPFC) for voltage profile improvement. In order to determine the optimal voltage profile improvement, the AIS based optimization technique was developed and tested on the IEEE 30-bus Reliability Test System abbreviated as RTS. The programming codes were written in MATLAB. Multiple Unified Power Flow Controllers (UPFCs) are introduced in the system for voltage profile improvement. The UPFC is used with an objective to improve the voltage profile in the transmission systems. The proposed technique shown significant results and proved that the application of UPFC in transmission lines for voltage profile improvement or maximization has been achieved.

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