

101. AN EFFICIENT FAULT ZONE IDENTIFICATION OF BUS SYSTEM IN DATA MINING TECHNIQUE

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The system presents a data-mining model for fault-zone identification of a flexible ac transmission system (FACTS)-based transmission line including a unified power-flow controller (UPFC), using ensemble decision trees. With the presence of UPFC to maintain the voltage stability of all the buses contains loads, lines with generators and their real and reactive power are compensated . Given the randomness in the ensemble of decision trees stacked inside the random forests model, it provides effective decision on fault-zone identification. Half-cycle postfault current and voltage samples from the fault inception are used as an input vector against target output for the fault after UPFC and for the fault before UPFC for fault-zone identification. The algorithm is tested on [MATLAB (SIMULINK) - version 2011] and also find out the various power system parameters such as voltage, current, real power , reactive power of all buses , generators are connected in the 14 bus power system network with simulated fault dataare wide variations in operating parameters of the power system network, including noisy environment providing reliability with faster response time. The results of the presented approach using the Random Forest (RFs) model identify the fault zone and check the every buses and lines with its predicted ensemble value along with fault data. They are highly reliable identification of the fault zone in FACTS-based transmission lines and the results indicate that the ensemble tree is highly effective.

Index Terms—Unified power flow controller, Data mining, Random forest, 14 bus system, MATLAB, PSAT.

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