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An ANN Based Approach to Improve the Distance Relaying Algorithm

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Abstract: This paper presents an artificial neural network- (ANN) based approach to improve the performance of the distance relaying algorithm. The proposed distance relay uses magnitudes of voltages and currents as input signals to find fault locations. In this approach, an ANN has been included in the protection algorithm as an extension of the existing methods, which improves the reliability of the protection operation. The design procedure of the proposed relay is presented in detail. Simulation studies are performed and the influence of changing system parameters, such as fault resistance and source impedance, is studied. Performance studies show that the proposed algorithm is accurate and reliable.

Key Words: Artificial neural networks, adaptive distance protection, transmission line, pattern recognition

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