ABSTRACT

The power system is a very important asset of every nation. In recent days we are very much depended on electric power. Electric power consumption is the key index of nation development. Power systems have challenges such as fault diagnosis, load frequency control, unit commitment, load scheduling, optimization, etc. In the above-mentioned, fault diagnosis is one of the major issues. The stability of the power system depends on the faults in the system. If any fault occurs in the system means the corrective measure has to be taken within a few seconds else losses in the system will get increased and also the equipment in the power system will get damaged. These issues in fault diagnosis can be addressed with various traditional and artificial intelligence-based techniques.

Machine Learning is one of the better technique available for the above-mentioned issue. Machine learning uses artificial neural networks to process the data. Artificial neural networks are inspired by the human brain. These neural networks are shown to be in layers. There will be multiple layers to process the data. The output from one layer is used as input for another layer. This network structure is called an artificial neural network. Before testing the network, the training for the network is essential by using past data.

In this thesis, we will try to address the power system fault diagnosis problem, by using the deep neural networks. The simulation results concluded that Partially Recurrent Neural Network is efficient in detecting, classifying and locating the faults on the transmission lines with satisfactory performance.

Keywords: Fault Diagnosis, Artificial Neural Networks, Deep Learning, Recurrent Neural network, Parially Recurrent Neural Network.