Fault Detection and Classification in Micro Grid Using AI Technique

Umesh Vithalrao Kute

Professor, Department of Computer Technology

Amrutvahini Polytechnic, Sangamner, Maharashtra, India

Abstract*: The increasing integration of renewable energy sources into power systems has led to the emergence of microgrids. These systems require reliable fault detection and classification mechanisms to ensure their stability and security. Artificial Intelligence (AI) techniques have gained attention for their ability to enhance fault detection and classification due to their accuracy, robustness, and adaptability. This paper provides a comprehensive review of various AI techniques applied in microgrid fault detection and classification, including Machine Learning (ML), Deep Learning (DL), Fuzzy Logic Systems, and Hybrid AI methods. The strengths and limitations of each approach are discussed, and future research directions are proposed.*

Keywords: Fault Detection, Fault Classification, Microgrid, Artificial Intelligence, Machine Learning, Deep Learning, Fuzzy Logic, Hybrid AI Methods