IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 6, June 2025
Impact Factor: 7.67

Simulation of Hybrid Control for Automatic Voltage Regulator

Prof. Ganesh B. Murade[1], Deepak Khandagale[2], Ganesh Aute[3] and Pravin Wagh[4]
Department of Electrical Engineering[1-4]
Dr. Vithalrao Vikhe Patil College of Engineering, Ahilyanagar, Maharashtra, India
dskhandagale935@gmail.com, ganeshaute2003@gmail.com, pravinwagh7620@gmail.com

Abstract: *Automatic Voltage Regulation (AVR) is essential for maintaining the stability and reliability of power systems under varying load and operating conditions. Traditional Proportional-Integral-Derivative (PID) controllers are commonly used for AVR due to their simplicity and ease of implementation. However, fixed-parameter PID controllers often exhibit limitations in handling system nonlinearities,*
disturbances, and dynamic changes in the power grid. To address these challenges, this research proposes a hybrid control strategy that integrates a PID controller with an Artificial Neural Network (ANN) for enhanced adaptability and performance..

Keywords: *PID and ANN controller, AVR, Optimization, voltage regulator.*

Copyright to IJARSCT
www.ijarsct.co.in

DOI: 10.48175/IJARSCT-27914