

JOURNAL OF ROBOTICS AND CONTROL (JRC)

Cover Letter

22/03/2024

Respected Editor,

We are writing to submit our manuscript entitled " **Fuzzy-Logic-based differential protection for distribution transformers**" for publication consideration in the **Journal of Robotics and control (JRC)**.

This research presents an approach to enhancing the reliability and efficiency of transformer protection through the integration of a differential relay with a Fuzzy-Logic control system. The Fuzzy-Logic controller (FLC) is designed to improve fault detection accuracy by effectively handling the uncertainties and nonlinearities inherent in transformer operations. The proposed methodology involves the detailed modeling of a power transformer and its protection system in MATLAB/Simulink, followed by the integration of a Fuzzy-Logic controller with the differential relay, a topic we believe is both timely and relevant to the journal's readership.

Simulation results demonstrate a significant enhancement in the speed and accuracy of fault detection and discrimination, compared to conventional protection methods. The proposed system not only offers a more adaptable and reliable approach to transformer protection but also lays the groundwork for further advancements in intelligent protection systems. This study contributes to the field by providing a practical and effective solution for enhancing transformer safety and efficiency

by choosing the **Journal of Robotics and control (JRC)** as the platform to share our findings, we aim to contribute to the body of knowledge that supports the development of more reliable and efficient control systems in engineering. We believe that our study's implications for system design and optimization will resonate with your readership, offering valuable perspectives for researchers and practitioners alike.

We confirm that this manuscript is original, has not been published elsewhere, and is not under consideration by any other publication. All authors have reviewed and approved the manuscript and its submission to your journal. We are prepared to cooperate fully with the peer-review process and are open to making any necessary revisions to meet your publication standards.

Yours sincerely,

Asst. Prof. Dr. Mustafa TEKE

Email: mustafateke@karatekin.edu.tr

Phone No: +90 5057400963