Nikhil B. Sardar

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EDUCATION

National Institute of Technology, Warangal — August 2015 – May 2017
Master of Technology in Electrical Power System Engineering — CGPA: 8.2/10
Scholarship: MHRD GATE Scholarship

Relevant Coursework: Power Electronics, Distribution Systems, Electronics Devices & Circuits, Electrical Vehicle Changing Methods, High Voltage AC, Control Systems, Power systems.

Research Interest: Power Electronics, Electrical Vehicle (EVs), Fast Charging of EVs, Onboard chargers (OBC) for EVs, Wireless Changing of EVs, E-bicycle Automation, E-bicycle Motor Control, Electrical Power System Engineering,

Walchand College of Engineering, Sangli — July 2009 – June 2013
Bachelor of Technology in Electrical Engineering — CGPA: 7.42/10

RESEARCH EXPERIENCE

National Institute of Technology, Warangal — August 2015 – May 2017
Supervisor: Dr. Sydulu Maheswarapu
Master's Thesis: Real-Time Monitoring of Points of Common Coupling in Distribution Systems through State Estimation.

- Developed a detailed model of a distribution network for real-time monitoring of Points of Common Coupling (PCC).
- Conducted a Root-Vector based Algorithm for observability test on the IEEE 34 bus system, integrating Pseudo Measurements to enhance system observability.
- Implemented and rigorously compared the results of the Forward/Backward sweep algorithm and an Improved Load flow method for the IEEE 34 bus distribution system.
- Implemented state estimation in the distribution system using the weighted least squares method, ensuring accurate estimation of system states.
- Identified and mitigated bad data using collinearity test techniques, ensuring the integrity of the estimation process.
- Detected and mitigated unplanned reactive and active power inputs at PCC to prevent grid isolation without a system fault.
- Conducted a thorough assessment and comparison of estimated results with planned power injections to ensure the reliability of the monitoring system.
- Recognized and analyzed unscheduled power injections at PCC caused by natural calamities, providing insights into their impact on distribution networks.

Walchand College of Engineering, Sangli — July 2009 – June 2013
Supervisor: Prof. Madhukar Wavare
Bachelor's Thesis: Energy audit at (KPT) Kulkarni power tools Ltd., Shiro

- Utilized a power analyzer device to measure and analyze the power factor of the company's electrical system.
- Identified inefficiencies and areas for improvement in the power factor to reduce energy consumption and improve overall efficiency.
- Designed and implemented an active filter using MATLAB to mitigate power factor issues and improve the power quality of the electrical system.

PUBLICATIONS

Journal Papers

1. Abhishek Kumar, Rushit Trivedi, Aruna Kumari, Nikhil Sardar, "Single Axis Sun Tracking Photovoltaic system using Microcontroller", International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), Volume 10, Issue 5, May 2021, DOI:10.15680/IJIRSET.2021.1005239

Conference Papers

1. Megha Jadhav, Aarti Chaure, Aditya Netake, Indrajit Pawar, Nikhil B Sardar, Vaishali Katkar, "Regenerative System for Mountain E-Bicycle", 1st International Conference on Circuits, Power, and Intelligent Systems (CCPIS), 2023

2. Vaishnavi Bhagwat, Harshvardhan Barge, Ganesh Naik, Vaishali Katkar, Nikhil B Sardar, Robust Estimation of State of Charge for Electric Vehicular Application",1st International Conference on Circuits, Power, and Intelligent Systems (CCPIS), 2023

3. Mohan P Thakre, Yogesh V. Mahadik, Nikhil B Sardar, "Architecture of a HV Power Battery Protection Devices for Hybrid Electric Vehicles," (HEV), - IOP Conf. Series: Materials Science and Engineering, ICCSSS 2020

4. Mayur M. Pawar, Shubham V. Ranbhare, Shree G. Mane, Nikhil B. Sardar, "Emergency Robot", Proceedings of Cybernetics, Cognition and Machine Learning Applications (ICCCMLA 2020)

5. Renuka D. Modak, Vikramsinh A. Doke, Sayali U. Kawarkar, Nikhil B Sardar "Wireless Battery Monitoring System for Electric Vehicle", Proceedings of Cybernetics, Cognition and Machine Learning Applications (ICCCMLA 2020)

6. Patil, D. Lakade, S. Khute and N. Sardar, "Throttle Less Electric Bicycle Controller Using Fuzzy Logic," 2023 IEEE Pune Section International Conference (PuneCon), Pune, India, 2023, pp. 1-4, doi:10.1109/PuneCon58714.2023.10450099

Patent

1. "Throttle-less E-bicycle" - Application No.202221075671 A has been published under Section 11A of the Indian Patents Act on January 27, 2023.

National Journal

1. Apurva Borghare, Arati Bhosale, Shital Kardile, Nikhil Sardar, "Smart Energy Monitoring using ARM Cortex ", SAMRIDDHI – A Journal of Physical Sciences, Engineering & Technology Vol. 12, Special Issue 2, 2020, ISSN: 2454 – 5767. RNI No. UPENG04179

TEACHING EXPERIENCE

MIT Academy of Engineering, Alandi (D), Pune, India August 2017 – Present
Assistant Professor

- Conducted research and patented a "Throttle-less E-bicycle" to improve electric bicycle efficiency and usability.
- Researched Fuzzy logic-based controllers for Brushless DC (BLDC) and Permanent Magnet DC (PMDC) motors to enhance motor control and efficiency.
- Taught courses in Electrical and Electronics Engineering, Power Electronics, Calculus and Differential Equations, and Electronics Devices and Circuits.
- Mentored students on research projects and guided them in publishing papers in reputed journals and conferences.
- Engaged in curriculum development and enhancement activities to ensure alignment with industry standards and technological advancements.

Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology, Baramati June 2017 – May 2018
Assistant Professor

- Taught courses in Power Systems, Power Electronics, and Electronics Devices and Circuits.
- Developed course materials and syllabi in alignment with the curriculum and industry standards.
- Conducted laboratory sessions to provide hands-on experience to students in the relevant subjects.
- Mentored students and guided them in their academic and research projects.

SKILLS

Programming: C, MATLAB Programming
Research Equipment: Multimeter, Breadboard, Power supply, oscilloscope, function generator, Semiconductor parameters analyser.
Software: Simulink, MATLAB

CERTIFICATIONS

Certification Name: Control Systems
NPTEL, IIT Madras — Elite with Silver, 84%

Certification Name: **Electrical Distribution System Analysis**
NPTEL, IIT Roorkee — Elite, 62%

LEADERSHIP EXPERIENCE

1. TEDxMITAOE Convener (2021, 2022, 2023)
2. Performer at TEDxMITAOE 2020
3. Cultural club faculty coordinator at MIT AOE, Alandi (D), Pune.
4. Corporate Relations and Placement Cell (CRPC) faculty coordinator in the department of E&TC, MIT AOE, Alandi (D), Pune.

HOBBIES

Singing, Song Composition, Bass Guitar, Piano, Travelling

REFERENCES

Dr. Maheswarapu Sydulu
Former Dean (Administration, R and C, Faculty Welfare)
Professor (Retired)
Department of Electrical Engineering,
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