Personal Information

Name	Dr. C Venkata Subba Reddy
Years of Experience	Teaching: 02 years Research: 05 years
Email Id	venkatasubbareddy@bvrithyderabad.edu.in
Areas of Specialization	Power electronics and electric drives
Course Networking ID	MR1821

Educational Qualifications

Doctoral Degree	Ph.D	Power Electronics Drives, NIT Warangal
PG Degree	M.Tech	Power Electronics, RGMCET Nandyal
UG Degree	B.Tech	Electrical & Electronics Engineering, AITS Tirupati

Papers Published

International Journal Publications

1. **V. S. Reddy Chagam** and S. Devabhaktuni, "An Isolation Transformer-less Single DC Source fed Dual 5-leg Inverter Controlled 5-Phase Induction Motor with Modified Direct Torque Control," in **IEEE Latin America Transactions**, vol. 22, no. 3, pp. 229-239, March 2024, doi: 10.1109/TLA.2024.10431418.
2. **V. s. r. Chagam redd** and S. Devabhaktuni, "Reduction of Stator Flux Ripple and Current Harmonic Distortion using Constant Switching Flux Controller-based DTC of Five-Phase Induction Motor," in **IEEE Latin America Transactions**, vol. 21, no. 8, pp. 915-924, Aug. 2023, doi: 10.1109/TLA.2023.10246341.
3. **V. S. Reddy** and S. Devabhaktuni, "Enhanced Low-Speed characteristics with Constant Switching Torque Controller-based DTC Technique of Five-Phase Induction Motor Drive with FOPI Control," in **IEEE Transactions on Industrial Electronics**, doi: 10.1109/TIE.2022.3227275.

International Conference Publications:

1. **V. S. Reddy C** and S. Devabhaktuni, "Improved Low-Speed Performance of DTC controller-based Dual Voltage Source Inverter fed Five-Phase OEW Induction Motor," 2022 *IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES*), Jaipur, India, 2022, pp. 1-4, doi: 10.1109/PEDES56012.2022.10080521.
2. S. Devabhakthuni and **V. S. Reddy C**, "Novel Control technique to capture maximum power in wind energy based on DFIG," 2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), Jaipur, India, 2022, pp. 1-5, doi: 10.1109/PEDES56012.2022.10080637.

National Conference Publications:

1. **C. Venkata Subba Reddy**, S. Devabhaktuni and N. Rayavarapu, "A Modified Lookup Table-Based DTC of a 5-Phase Open-End Winding Induction Motor to Reduce Flux Ripple and Torque Ripple," 2023 11th *National Power Electronics Conference (NPEC)*, Guwahati, India, 2023, pp. 1-6, doi: 10.1109/NPEC57805.2023.10384976.
2. **Reddy, C.V.S**., Devabhaktuni, S. (2022). Low Speed Performance Improvement of Dual VSI Fed Direct Torque Controlled Five Phase Open-End Winding Induction Motor. In: Kumar, S., Singh, B., Singh, A.K. (eds) *Recent Advances in Power Electronics and Drives.* Lecture Notes

in Electrical Engineering, vol 852. Springer, Singapore. https://doi.org/10.1007/978-981-16-9239-0_20
3. **V. S. R. C** and S. Devabhaktuni, "Low speed Performance improvement of Constant Switching Frequency DTC of Five phase Induction Motor," 2021 *National Power Electronics Conference (NPEC)*, 2021, pp. 01-06, doi: 10.1109/NPEC52100.2021.9672519.
4. N. Rayavarapu, S. Devabhaktuni and **C. V. Subba Reddy**, "Weighting Factor Less Model Predictive Flux Control of Five-Phase Induction Motor with Maximum Torque per Ampere," 2023 11th *National Power Electronics Conference (NPEC)*, Guwahati, India, 2023, pp. 1-6, doi: 10.1109/NPEC57805.2023.10384900.
5. **Venkata Subbareddy, C**., Devabhaktuni, S. (2024). A Modified Direct Torque Control of a Five-Phase Induction Motor for Harmonic Current Elimination and Reduction of Common Mode Voltage. In: Murari, K., Singh, B., Sood, V.K. (eds) Recent Advances in Power Electronics and Drives. EPREC 2023. Lecture Notes in Electrical Engineering, vol 1139. Springer, Singapore. https://doi.org/10.1007/978-981-99-9439-7_24
6. **Venkata Subbareddy, C**., Devabhaktuni, S. (2024). A Modified Direct Torque Control of a Five-Phase Induction Motor for Harmonic Current Elimination and Reduction of Common Mode Voltage. In: Murari, K., Singh, B., Sood, V.K. (eds) Recent Advances in Power Electronics and Drives. EPREC 2023. Lecture Notes in Electrical Engineering, vol 1139. Springer, Singapore. https://doi.org/10.1007/978-981-99-9439-7_24

Description of the Ph.D. Research Projects

- In Ph.D Research project, the steady state performance of 5-phase induction motor improved with the implementation modified Direct Torque Control schemes without disturbing the dynamic performance of the drive. The 5-phase induction motor have special features like fault-tolerance, improved efficiency, high torque density, reduced per-phase power w.r.t conventional 3-phase induction motor drives.
- Developed and designed a constant switching torque controller in place conventional hysteresis torque controller to improve the low-speed performance in terms of reduced torque ripple, current %THD and validated with the experimental hardware setup containing a 5-phase induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.
- Developed and designed a constant switching flux controller and constant switching torque controller in place of conventional hysteresis-based torque and flux controllers for 5-phase induction motor to reduce both stator flux ripple and torque ripple and current harmonics and validated experimental hardware setup containing a 5-phase induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.
- Developed a modified lookup table-based hysteresis Direct Torque Control for dual inverter fed 5-phase open end winding induction motor to reduce the torque ripple, flux ripple and current harmonics along with elimination of common mode voltage/common mode current. This modified DTC technique is validated with experimental hardware setup containing a 5-phase open end winding induction motor drive, inverter modules, a sensing unit, and a dSPACE controller along with a control desk.

Research Interests:

- Power Electronic Converters such as DC-DC, DC-AC, AC-AC circuits Design
- Multi-Phase Induction Motor and Permanent Magnet Synchronous Motor Drives Control,
- Design of Control circuits for closed loop control schemes
- Real Time Interfacing and control of Hardware systems with the Software MATLAB/Simulink

Technical Skills:

- Programming/Data analysis tools: MATLAB, Basics of Embedded Coding
- Simulation Tools: MATLAB/Simulink, PSIM, PLEXIM
- RTI Tools: dSPACE1104, DS1202, TMS320F28379D, Arduino
- Drawing Tools: MS Visio, Draw.io
- Documentation: MS Office

Achievements

- Secured **Best paper award** for the session in National Power Electronics Conference-2021 conducted by IIT Bhuvaneswar
- Received **MHRD Govt. of India Fellowship** during pursual of Master and Doctoral degrees.
- Secured **Elite** Certificate for Electrical Machines in National level NPTEL Exam
- Qualified the National level **Graduate Aptitude Test in Engineering (GATE)** exam in 2013, 2016, 2018

Extra/Co-curricular Activities:

- Worked as **Department Level Student Co-ordinator** for the NPTEL online course "Electrical Machines"
- Worked as **Reviewer** for IEEE Transactions on Industrial electronics Journal
- Worked as **Reviewer** for the Technical papers for the Conferences ICPC^{2}T, NPEC, PEDES etc.