

RESUME

B.Venkatesa Perumal.

Professor & Professor In-Charge NITK-STEP

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WORK EXPERIENCE:

1. Working as Professor, Department of Electrical and Electronics, National Institute of Technology Karnataka, Surathkal, from 16/09/2019 to till today.
 2. Worked as Associate Professor, Department of Electrical and Electronics, National Institute of Technology Karnataka, Surathkal, from 20/05/2015 to 15/09/2019.
HoD of EEE at NITK, 29 –May -2017 to 28-May 2019.
 3. Worked as a Technical Lead Power electronics, SunEdison Energy India Pvt Ltd, Bangalore, from 01/03/2013 to 19/05/2015.
 - **Solar Water Pump controller Design** – Design and development of solar water pump system from 1HP to 10 HP.
Visited san Francisco in USA, to develop concurrent engineering on solar pump development. Involved in electrical architecture design, reviews & Modeled of the system.
 - **DC power module** – Redesign of DC-DC converter for solar PV module has been done to address the customer failure. MPPT algorithm with synchronies buck boost converter has been reworked.
 - **Fuel optimizer** – Developing a micro-grid system for mining application. The system consists of diesel generator (DG), solar inverter (PV) and load. During the day time 80% of load is supplied by PV and remaining 20% will be supplied by DG.
Visited san Francisco in USA, to develop concurrent engineering on Distributed generation system. Involved in electrical architecture reviews & Modeled in Digsilent.
 4. Worked as a Senior Design Engineer, **SunEdison Energy India Pvt Ltd, Bangalore**. From **06/04/2011 to 28/02/2013**.
 - **Fuji (15kW Grid tie Inverter) discrete IGBT based solution & System architecture**
 - **Solar Water Pump-**
 - **Setting up Power Electronics Lab in Bangalore –**
 - **Feasibility study of Inverters –**
 5. Working as a Senior Design Engineer, **APC India**. Bangalore. Since **10/01/2010 to 05/04/2011**.
 - I) **Design and development of 1.1kW Charger:**
 - II) **Design and Development of Full Bridge Charger:**
 6. Worked as a Senior Design Engineer, **GE Healthcare**, and Bangalore. Since **01/08/2007 to 08/01/2010**.
 - ✓ Worked for MRI scanner Gradient Power Supply. Worked for the new Gradient Power supply for extended fidelity drive- development.
- Project: 1** Customer compliance- High Fidelity Amplifier (HFA) control board failure in the field.
Project: 2 Customer compliance- Scan Room Power Supply (SRPS) tap changer circuit board failure- SRPS is a part of Magnetic Resonance scanner.
Project: 3 New product development: Development of a new gradient amplifier for Super Value Gradient

MR- eXtreme Fidelity Amplifier (XFA).

Project: 4 New product development: Development of a new gradient power supply using supercapacitor for Super value gradient MR-eXtreme Fidelity Power supply (XFD-PS).

Visited Hino in Japan twice (21-June-2008 to 20-July-2008 and 22-Feb-2009 to 26- April- 2009), to develop concurrent engineering on MR gradient amplifier XFA for super value. Involved in electrical circuit reviews & thermal experiment for XFA.

7. Worked as a Manager R&D, BPL Health Care Ltd. Bangalore-560076, from 14/02/2007 to 31/07/2007.

1. Power Electronics converter design for biphasic defibrillator.

8. Worked in **Vellore Institute of Technology, Vellore** as a faculty from Sept 2001 to July 2003.

- Handled Power Electronics courses for both UG and PG.
- Developed a Hardware Power electronics lab.
- Guided two M.Tech Thesis
 - Development of TCR-TSC based Var controller.
 - Active power Controller using six pulse converter and chopper.

ACADEMIC DETAILS:

1. **Ph.D Electrical Engineering (Power Electronics and Drives) from Indian Institute of Technology Delhi in August 2007: Topic: “An Investigation on Some Operational Aspects of Generalized Impedance Controller Based Self Excited Induction Generator (SEIG)”**
2. **Master of Engineering (Power Electronics and Drives) from Bharathidasan University in 2001,Topic: “Modeling and Analysis of A.C Voltage Controller fed Induction Motor”**
3. **Bachelor of Engineering in Electrical and Electronics Engg. from Madras University in 1999, Project: “Auto synchronization of Alternators using Microprocessor”.**

PATENT:

1. **Indian Patent : 289453 “A Novel Closed Loop Amplitude and Frequency Control of Self Excited Induction Generator” – Granted**
2. **US Patent: US8278927 B2 “System and method for controlling current in gradient coil of magnetic resonance imaging system ” -Granted**
3. **Indian Patent filed on “ Solar water pumping system”(6034/CHE/2015) dated on 07/11/2015 – Published (Application Awaiting Examination)**
4. **Indian Patent filed on “A Solar water pumping system in grid tie or off grid mode with net zero energy from grid”. Application number 201641035575 dated on 18/10/2016 –Published.**
5. **Indian Patent filed on “Method of Device for Sensorless PMSM drive”. Application number 201741000335 dated on 04/01/2017 –Published (Application Awaiting Examination)**
6. **Indian Patent filed on “A dynamic voltage restoration system for weak ac grids and a method thereof”. Application number 201741009197 dated on 16/03/2017.**
7. **Indian Patent filed on “Transformer-Less Solar Photovoltaic Grid connected Inverter”. Application number 201841038650 dated on 11/10/2018.**

LIST OF SPONSORED R&D PROJECTS :

Sl.No	Title of the project	Funding Agency	Sanction order date	Duration	Responsibility	Amount in Lakhs
1	Standalone Evaporative Air cooler – Pump flow and fan speed controller using solar energy	DST	15 th May 2017	2.5 years	Principal Investigator	38.698
2	Solar water pumping system in off-grid mode with changeover to grid	NITK- Institute sponsored	29 th June 2017	2.5 years	Principal Investigator	5
3	Smart PV Energy Harvesting	TI-DST		1 year	Mentor	5
4	Back to back converter development for solar water pumps application	Infineon Technology India Pvt. Ltd. (company)	5 th May 2018	2 year	Principal Investigator	10
5	Android based home automation	Alumni NITK 1988 batch EEE	23 rd March 2018	2 years	Principal Investigator	1.15
6	Voyager-“solar tracker automation	Raptor Design Technology Pvt. Ltd. (company)	22 nd March 2018	1 Year	Principal Investigator	2
7	High Gain Single Stage Micro Inverter	Raptor Design Technology Pvt. Ltd. (company)	23 rd January 2019	2 years	Principal Investigator	2
8	Switched Reluctance Motor - DHI Fame Project	Department of Heavy Industry	24 th December 2018	2 years	Lien Principal Investigator	1700
9	Development of an Electric systems for Automatic Control of street lights	Alumni NITK Mr.Ramachadra Mr.Sukumar Hegde	6 th June 2019	2 years	Principal Investigator	0.25
10	A Novel Bidirectional Converter for Electric Vehicle to grid Applications	Alumni NITK Ms.Maitree.S Ms.S.M Naik MsNischita Kaza	6 th June 2019	2 years	Principal Investigator	0.4

PUBLICATIONS:**JOURNALS:**

1. Arjun M, V. V Ramana, Roopa V. D, B Venkatesaperumal, S.Mishra, “Effect of Partial

- Shading on PV fed Induction Motor Water Pumping Systems”, *IEEE Trans. on Energy Conversion*. Vol. 34, no. 1, pp- 530-539, March 2019.
2. V.V Ramana, Arjun M, Roopa V. D, **B Venkatesaperumal**, S.Mishra, “Global Peak Tracking of Photovoltaic Array Under Mismatching Conditions Using Current Controls”, *IEEE Trans. on Energy Conversion* Vol. 34, no. 1, pp- 313-320, March 2019.
 3. Arjun M, V.V Ramana, Roopa V. D, **B Venkatesaperumal** "Small Signal Model for PV fed Boost Converter in Continuous and Discontinuous Conduction Modes", *IEEE Trans. on Circuits and Systems II* (Early Access).
 4. Arjun M, V.V Ramana, Roopa V. D, **B Venkatesaperumal** “An Iterative Analytical Solution for Calculating Maximum Power Point in Photovoltaic Systems under Partial Shading Conditions”, *IEEE Trans. on Circuits and Systems II : Express Briefs*, Vol. 66, no. 6, pp- 973-977, June 2019.
 5. A. Karthikeyan, D.G.Abhilash Krishhna, Sushant Kumar, **B.Venkatesaperumal**,S. Mishra, "Dual Role CDSC based Dual Vector Control for Effective Operation of DVR with Harmonic Mitigation", *IEEE Trans. on Industrial Electronics*, Vol. 66, no. 1, pp- 4-13, January 2019.
 6. Chauhan.P, Chatterjee. J, B. Hareesh, **Perumal B** and S Dipankar, "Synchronized Operation of DSP Based Generalized Impedance Controller with Variable Speed Isolated SEIG for Novel Voltage and Frequency Control", *IEEE Transactions on Industry Applications*. Vol. 51, no.2, pp. 1845-1854, March/April 2015.
 7. **B.VenkatesaPerumal** and J.K.Chatterjee, “Voltage and Frequency control of a Stand Alone Brushless Wind Electric Generation using Generalized Impedance Controller”, *IEEE Trans. on Energy Conversion*. Vol. 23, no.2, pp. 632-641, June 2008.
 8. J. K. Chatterjee, B.V.Perumal and N.R.Gopu,”Analysis of operation of Self excited induction generator with Generalized Impedance Controller”, *IEEE Trans. on Energy Conversion*, Vol. 22, no.2, pp. 307-315, June 2006.

CONFERENCE(S)

1. Roopa Viswadev, **B. Venkatesaperumal**, Vanjari Venkata Ramana, Arjun Mudlapur and Sukumar Mishra “Modified Hysteresis Current Control for Single Phase Solar Grid-tie Z-Source Inverter”, IEEE Power Electronics, Drives and Energy Systems Conference, 18-21 December, 2018.
2. Karthikeyan A, Prabhakaran K K, Varsha S, Venkatesa Perumal B and S Mishra “Single stage PV fed reduced inverter based PMSM for standalone water pumping application”, IEEE Power Electronics, Drives and Energy Systems Conference, 18-21 December, 2018.
3. Jugal Vijay Kumar Parmar, Sai Krishna Reddy, Swaminathan BalasubramaniaSarma, Arjun Mudlapur and **B Venkatesa Perumal**, “A Novel Back to Back Inverter Configuration for Solar Water Pumping and Grid-tie Application”, IEEE International Conference on Environment and Electrical Engineering and IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe) ,12-15 June 2018.
4. Vanjari Venkata Ramana, Arjun Mudlapur, Roopa Viswadev Damodaran, **B Venkatesaperumal** and Sukumar Mishra, "Efficient Global Peak Tracking of PV system under Mismatching Conditions using searching Technique and Bisection Method", IEEE Engineer Infinite International conference, March 13-14 2018.
5. Roopa Viswadev, Vanjari Venkata Ramana, **B. Venkatesaperumal** and Sukumar Mishra, “Real & Reactive power control of Solar grid-tie inverter UNDER DISTORTED GRID CONDITIONS”, IEEE International Conference on Power, Instrumentation, Control and Computing - PICC2018, 18-20 January 2018.
6. Arjun M, Subrahmanya Adiga, Anusha R and **B. Venkatesaperumal**, “Experimental Investigation of the Effectiveness of the LC filter in PV fed Induction Motor Water Pumping Systems with

different type of Inductors”, IEEE International Conference on Power, Instrumentation, Control and Computing - PICC2018, 18-20 January 2018.

7. A. Karthikeyan, K K Prabhakaran, **B Venkatesa Perumal** and C. Nagamani, “Pseudo derivative feedback current controlled sensorless PMSM drive with flux-torque based mras estimator for low operation”, IEEE International Symposium on Sensorless Control for Electrical Drives (SLED -2017), 18-19 Sept. 2017.
8. K. K. Prabhakaran, **B. Venkatesa Perumal**, A. Karthikeyan and C. Nagamani, “Speed loop pseudo derivative feedback controller based direct torque controlled permanent magnet synchronous motor drive”, IEEE 7th Power India International Conference (PIICON -2016), 25-27 Nov. 2016.
9. M. Sriram Kasyap, A. Karthikeyan, **B. Venkatesa Perumal** and C. Nagamani, “DSC filter based unit vector estimator for reference generation and control of dynamic voltage restorer”, IEEE 7th Power India International Conference (PIICON -2016), 25-27 Nov. 2016
10. M. Sriram Kasyap, A. Karthikeyan, **B. Venkatesa Perumal** and C. Nagamani, “An effective reference generation and control of DVR using DSOGI-prefilter based PLL”, International Conference on Circuit, Power and Computing Technologies (ICCPCT -2016), 18-19 March 2016.
11. J.K. Chatterjee, P.J.Chauhan, D.Sarkar, H.Bhere and **B.V.Perumal**, “Evaluation of synchronized operation of isolated induction generator with DSP based Generalized Impedance Controller”, International conference on Power Electronics, Drives and Energy Systems (PEDES- 2010).
12. **B.VenkatesaPerumal** and J.K chatterjee, “SVPWM Implementation in dSPACE for Generalized Impedance Controller Used for Self Excited Induction Generation System”, International Conference on Power Electronics, Drives and Energy Systems for Industrial Growth-2006 (**PEDES-2006**), 12-15 December, 2006.
13. **B.VenkatesaPerumal** and J.K.Chatterjee, “Analysis of a Self-Excited Induction Generator with STATCOM/Battery Energy Storage System”, **2006 IEEE Power India Conference**, April 10-11,2006.

LIST OF PH.D’S STUDENTS :

1. Student Name :Mr. Arjun M, worked on “*A study on Effects of Partial Shading on PV fed Induction Motor Water Pumping Systems*” – **completed**
2. Student Name : Mr. Venkata R, worked on “*ENHANCED CONTROL OF PHOTOVOLTAIC POWER CONVERTERS UNDER MISMATCHING CONDITIONS*” – **completed.**
3. Student Name : Ms. Roopa D M, working on “*Efficient Control of Power Converter Interfaces For Solar Grid Integration under Non-Ideal Grid Conditions*”, **Ongoing .**
4. Student Name : Mr. K. Lokesh Achari, working on “*SRM controller design for Electric mobility*”, **Ongoing .**
5. Student Name : Mr. Mahesh Obannavar, working on “*New Generation MRI Gradient amplifier*”, **Ongoing .**

PROJECT GUIDED PG AND UG:

Sl.No	Level	Number of project guided
1	PG(M.Tech) Project	4
2	UG (B.Tech) Project	20

OTHER EXTENSION TASKS:

1. **MOU coordinator - Infineon Semiconductor Company in Bangalore for the power devices sample and there university program coordinator.**
2. **MOU coordinator TI Company for micro controller and DSP to get the some of the microcontrollers samples.**
3. **MOU coordinator - C-DAC**
4. **Member of Department Curriculum Committee (DCC) of Electrical Engineering Department , MIT, Manipal**
5. **Member of Department Curriculum Coimmittee(DCC) of Electrical and Electronics Engineering, RV college of Engineering, Bangalore**

SPECIAL LECTURERS:

Sl.No.	Title of Lecture/Lecture Series	Date, Place and Programme where Lectures delivered
1	Grid connected Solar water pump with power fed to grid	2 nd and 3 rd July 2015 SunEdison India Pvt. Ltd., Bangalore
2	Advanced Control system Design for Power and Energy Application	MIT Manipal, 7 th December 2017
3	5 level or above, architectures, controls and application	Infineon Bangalore, 12th April 2018

WORKSHOP COORDINATED :

Sl.No	Title	
1	System Design workshop –TI supported	March 2017
2	Low Dropout Regulator - TI supported	March 2017
3	iMotion Controller based control of BLDC – Infineon	Nov 2017
4	Power converter design - PANTech	7 th June – 11 th June 2018
5	Power System Analysis and Design - DigSilent Power Factory	2 nd -6 th July 2018
6	IOT with Machine Learning and artificial Intelligence - PANTech	9 th July – 3 rd Aug 2018
7	Workshop on solar inverters -SunGrow	2 nd Nov 2018
8	Real Time Simulation of Electrical Systems – OPAL-RT	14-18 th Nov 2018

ACHIEVEMENTS & AWARDS:

- 1 **IEEE senior member**
- 2 **IETE Student Project award -2018** for project guided “smart Charger(An Add- on module to solar irrigation pump)”
- 3 Received an **Innovative Students Project Award –2008 –Doctoral level for my PhD thesis** from **INAE (Indian National Academy of Engineers).**
- 4 **Stood first** in M.E (Power Electronics and Drive) of Bharathidasan university examination.
- 5 Landsteiner award for solving HFA control board issue in GE Healthcare.

6 **Team Work award** , Advanced solution –SunEdison – **May 2014.**

REFERENCE:

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