CURRICULUM VITAE

Nindra Sekhar M.Tech., Ph.D.
Thumaburu (Village and Post),
Narayanavaram (Mandal),
Chittoor (District),
Andhra Pradesh-517581, India.
Cell: +91 9791596989
Mail id: sekhar8143@gmail.com

CAREER OBJECTIVE

I look forward to associate myself with an organization where there is an opportunity to share challenging avenues, where my educational potential matches organization's growth, to carve a niche for myself to contribute and upgrade my knowledge.

ACADEMIC QUALIFICATIONS

Doctor of Philosophy (Ph.D.) in Electrical and Electronics Engineering

Title	:	Design and operation of a new hybrid system employing wind-driven DFIG, solar PV panels and bio-gas driven SCIG using power electronic controllers
Years	:	2016-2021
Institute	:	National Institute of Technology (NIT), Tiruchirappalli, Tamil Nadu, India.
Status	:	Ph. D. (Thesis submitted)
Abstract	:	This thesis work describes the local installation of a combination of three renewable energy sources, namely, a wind driven DFIG, a solar PV unit, a biogas driven squirrel-cage induction generator (SCIG), and an energy storage battery system. Initially, this work investigates the operation of wind driven doubly fed induction generator (DFIG) with solar photovoltaic (PV) system for supplying isolated loads. A simple control strategy has been developed to maintain a set voltage and frequency at the DFIG stator terminals which is envisaged as a virtual grid for

supplying loads. This is achieved by effective closed-loop control of a PV fed sinusoidal pulse width modulation (SPWM) inverter connected at the rotor terminals of DFIG. A boost converter is interfaced between solar PV panels and battery to enable maximum power extraction from PV panels. A single sensor-based maximum power point tracking (MPPT) algorithm has been developed for solar PV system. The MPPT algorithm monitors only the output current of the boost converter, as the output voltage of boost converter is held at a constant value by the battery bank. In order to demonstrate the successful working of the proposed hybrid system, a prototype has been fabricated in the laboratory and tested under different operating conditions.

In addition, investigation has been carried out by appropriately adding a capacitor bank and a DSTATCOM, to share the reactive power requirement of the hybrid power system. Here, hybrid power system consisting a wind generator, solar panels, battery bank, and a biogas driven generator has been considered for installation in isolated locations. Four different modes of operation of the system based on energy generation by the different sources and reactive power support provided by capacitor bank and DSTATCOM, have been studied. Under each mode again, different cases are considered, in respect of the nature of speed of the generators and the magnitude and power factor of the load. In all these modes and their sub cases, the solar irradiation is varied from one level to another linearly. Performance of various modes of operation of this coordinated scheme has been studied through simulation. In all the cases, it is shown that, irrespective of the variation in irradiation, the inverters and controllers designed and operated in the system, maintain constant voltage and frequency at the load terminals. Further, the real and reactive power balance is accomplished through the closed loop control of a PV fed SPWM inverter at DFIG rotor.

Master of Technology (M.Tech.)

Specialization : Power Systems

Years : 2014-2016

Percentage : 85 (First class with distinction)

Institute : National Institute of Technology (NIT), Tiruchirappalli, Tamil Nadu, India

Bachelor of Technology (B.Tech.)

Branch : Electrical and Electronics Engineering

Years : 2008-2012

Percentage : 75 (First class with distinction)

University : JNTU Hyderabad, Telangana, India

Intermediate (Class XII)

Subjects : Mathematics, Physics, Chemistry

Years : 2006-2008

Percentage : 94 (First class with distinction)

Board : Board of Intermediate education, Andhra Pradesh, India

Secondary School Certificate (SSC)

Year : 2006

Percentage : 95 (First class with distinction)

Board : Board of Secondary education, Andhra Pradesh, India

RESEARCH INTEREST

- Renewable energy electric conversion systems
- Hybrid renewable power system
- Distributed generation
- Micro grid
- Smart grid
- Electric vehicles

EXPERIMENTAL SKILLS

- Circuit design
- Fabrication and testing of micro grid, PV-MPPT system, DSTATCOM

- Electronic Troubleshooting
- Operation and Control - Controlling operations of equipment or systems
- C, VHDL and HDL Programming Languages
- MATLAB
- Recording and evaluating test data
- Hands-on experience at electrical systems like electrical machines, measuring equipment

AWARDS AND GRANTS

- Received Pratibha award in the year 2006 for securing district 2nd rank in SSC
- MHRD fellowship for M.Tech. programme in NIT Tiruchirappalli (2014-2016)
- MHRD fellowship for Ph.D. programme in NIT Tiruchirappalli (2016-2021)

ACHIEVEMENTS AND EXTRA CURRICULAR ACTIVITIES

- Received a merit certificate in district level zonal games and sports meet in 2005
- GATE qualified in 2013, 2019
- Best paper award- 2017 IEI Conference, NIT Tiruchirappalli, India
- IEEE student branch treasurer, NIT Tiruchirappalli from May 2017 to December 2019
- IEEE member from 2017
- Completed ISKCON disciples course in 2017
- Volunteered for 33rd National Convention of Electrical Engineers Conference (NCEE - 2017)' organized by IEI Tiruchirappalli & National Institute of Technology- Tiruchirappalli, Tamil Nadu, India
- President of DHRUVA club from 2017 to 2019 NIT Tiruchirappalli chapter, a character & value-based personality development club.
- Hospitality team member of '20th National Power System Conference (NPSC-2018)' organized by National Institute of Technology- Tiruchirappalli, Tamil Nadu, India
- Hospitality team member of '09th National Power Electronics Conference (NPEC-2019)' organized by National Institute of Technology- Tiruchirappalli, Tamil Nadu, India
- Volunteered for 34th National Convention of Production Engineers Conference (NCPEC -2019)' organized by National Institute of Technology- Tiruchirappalli, Tamil Nadu, India

- IEEE Student branch Executive Committee Member, NIT Tiruchirappalli from December 2019 to August 2021

LIST OF PUBLICATIONS

Journal Publications

1. **N. Sekhar**, P. Lakshmana Rao, N. Kumaresan, M.P. Selvan (2019) "Experimental investigation on a new hybrid system employing wind-driven DFIG and solar PV panels". Journal of The Institute of Engineers (India) Series B 100: 561-574
2. **Nindra Sekhar** and Natarajan Kumaresan (2021), "Operation and control of a stand- alone power system with integrated multiple renewable energy sources", published online on June 16, 2021, in Wind Engineering journal

Conference Publications

1. **N. Sekhar**, P. Lakshmana Rao, N. Kumaresan, and M. P. Selvan (2017), "Experimental Investigation on Operation of Stand-alone Wind-driven DFIG-Solar PV System". Proceedings of NCEE 2017, pp.182-186. – (secured best paper award)
2. **Nindra Sekhar**, M S Suhanya, N. Kumaresan (2019), "Operation and control of a stand-alone power system with multiple energy sources", Proceedings of NCEL 2019 & National Seminar on "Storing Energy for a Sustainable Future – Future Energy in any Isolated World", held on 7-9th November 2019 at Chennai, Tamil Nadu
3. Vakani M H partha Sarathi, **Nindra Sekhar**, and Natarajan Kumaresan (2021), "A novel control technique for single-phase five level inverter for a grid-connected photovoltaic system". Submitted to NPEC 2021 conference.

CONFERENCES/WORKSHOPS ATTENDED

- The mock interview on 27th March 2010 in 'Clarion 2k10' an event organized by 'THUNRIANZ' a EEE Department Association of JBIET.
- The Rajiv Gandhi Vidyutikaran Yojana (RGVY) Franchisee Training Programme conducted by ministry of power during 23-25th June 2011.

- Lecture series on “Off-shore Wind Farms and Smart Grid” given by Janaka B Ekanayake, Institute of energy, Cardiff University, UK, during 6-7th April 2015.
- The Software training workshop on Java, Matlab, Microsoft Suite, Web Designing conducted by KONSOFTECH SERVICES, Pune from 11th may to 6th June 2015.
- The 33rd National Convention of Electrical Engineers (NCEE 2017) & National Conference on “Hybrid AC/DC Power Systems for Effective Utilization of Renewable Energy” organized by IE(India), held on 24-25th November 2017, at National Institute of Technology, Tiruchirappalli.
- The All-India Workshop on “Power Quality Enhancement in Distributed Generation”, jointly organized by The Institution of Engineers (India) and National Institute of Technology Tiruchirappalli during 19-20th July 2019.
- The 35th National Convention of Electrical Engineers (NCEL 2019) & National Seminar on “Storing Energy for a Sustainable Future – Future Energy in any Isolated World”, held on 7-9th November 2019 at Chennai, Tamil Nadu.
- The AICTE Training And Learning (ATAL) Academy Online FDP on "Energy Engineering" from 2020-12-28 to 2021-1-1 at National Institute of Technology, Tiruchirappalli.

PERSONAL DETAILS

Name	: Nindra Sekhar
Fathers Name	: N. Muni Subramanyam
Mothers Name	: N. Anuradha
Date of Birth	: 05th August1990
Gender	: Male
Marital status	: Married
Nationality	: Indian
Languages known	: Telugu, English, Tamil, and Hindi
Address	: Thumburu (Village and Post), Narayan avaram (Mandal), Chittoor (District), Andhra Pradesh-517581, India.

Cell : +91 9791596989

E-mail : sekhar8143@gmail.com

DECLARATION

I hereby declare that all the above-furnished details are correct to the best of my knowledge.

Yours faithfully

Nindra Sekhar