

## **Amit Kumar Gupta (+91-9167528151)**

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**Summary : Currently working as a Research Scholar at IIT Bombay** on the development of grid interactive high power PV inverters. I am working on various aspects of study and development of power electronics products from the past 5 years.

### **Skill areas**

- Design of high power inverters.
- Study of various critical aspects of transformerless inverters.
- Development of PV inverters for standalone and grid connected applications.
- Design of control aspects of various power electronic converters.
- Simulation & analysis of various control loops for power electronic converters.
- PSPICE simulation for Analog circuits.
- Proficient in board design using ORCAD.
- Microcontroller programming and control applications.
- Design of magnetic components .
- Teaching and laboratory installation.

### **Work experience**

#### **IIT-Bombay, Mumbai, India**

##### **Project Engineer**

**Jan. 2013 – till date**

I am responsible for development of grid connected transformerless 3kW PV inverter under National Solar Science Fellowship programme. This program is sponsored by MNRE, Govt. of India. My responsibilities are as below:

- Simulation and analysis with PSPICE and MATLAB-Simulink.
- Board design, development and testing.
- Equipment procurement and component purchase.
- Co-ordination with other team members and lab-mates.

#### **IIT-Bombay, Mumbai, India**

##### **Teaching Assistant**

I am responsible to assist a professor in teaching activities.

- TA for "Machine Laboratory"
- TA for "Introduction to Electrical Systems"

Jan. 2014 – Apr. 2014

July 2014 – till date

#### **Capgemini India PVT LTD, Mumbai, India**

##### **Senior Software Engineer**

**Aug. 2011 – Jan. 2013**

- SAP support
- Worked as a resolver reception group.

#### **SVITS, Indore, MP, India**

##### **Lecturer**

**Feb. 2008 – May. 2009**

- Teaching of various subjects of electrical engineering.
- Lab renovation work.
- Guided projects to undergraduate students of electrical and electronics.

**LKCT, Indore, MP,**

**Aug. 2007 – Feb. 2008**

**Lecturer**

- Teaching of basic subjects of electrical engineering.
- Lab installation.

## **EDUCATION**

**PhD in Electrical Engineering**

**(Specialization: Power Electronics)**

**2013 –till date**

Indian Institute of Technology, Bombay, India

**M.Tech. in Electrical Engineering**

**(Specialization: Power Electronics)**

**2009 –2011**

Indian Institute of Technology, Bombay, India

**B.E. in Electrical & Electronics Engineering**

**2004 –2007**

Rajiv Gandhi Technical University, Bhopal, MP, India

**Diploma in Electrical Engineering**

**2001 –2004**

Rajiv Gandhi Technical University, Bhopal, MP, India

## **PUBLICATIONS & PRESENTATIONS**

Amit Kumar Gupta, Saurabh Chanana and Ashwani Kumar, "A Smart Uninterruptible Power Supply based on Frequency Linked Pricing Mechanism," in IEEE International Conference on Industrial and Information Systems (ICIIS), IIT Madras, Chennai, India, Aug 6-9, 2012.

## **PROJECTS UNDERTAKEN**

### **▪ Industrial Project – Uninterruptible Power Supply**

- Market Survey about the available products and technology used.
- Research on the methodology that can be best suited in terms of efficiency, pf, performance etc.
- Study of various control loops.
- Design a product controlled by microcontroller including best suited control loop.
- Fabrication the product after designing.
- Testing and performance measures; if found okay? Manufacturing.

### **▪ M.Tech Project: "Smart UPS System Based on ABT incorporating NCES"**

- A Smart 'Uninterrupted Power Supply' system has been designed and developed based on the technology of Embedded System (Microcontroller-ATmega8) and Power Electronics, so that it is fully automatic and intelligent itself.
- It works based on the concept of **Availability Based Tariff (Indian real time pricing)**, where Non-Conventional Energy Sources (NCES) are also included.
- It helps in efficient utilization of electrical energy by switching among supply mains, storage system and load intelligently. The system is checked and verified for multiple system operating conditions depending upon Supply frequency, Battery level and NCES.

- The objectives, to reduce peak demand at the grid and consume electricity at the lowest cost within available resources and without affecting the comfort of consumers can be achieved by it.
  - This system is able to achieve most of the objectives of Smart Grid Technology at a very low installation cost comparatively. This technology is adopted by most of the developed countries and also an emerging subject of research around the world.
- **Speed Control of DC Motor using Microcontroller (AT-89C51).** (Major Project of B.E. in 2007)
  - **Industrial Project at Tata International Limited Dewas, MP.** (Industrial Project of B.E. in 2007).
  - **Speed Control & Change of Direction of Rotation of DC Motor.** (Minor Project of B.E. in 2006)
  - **Light Operating Relay.** (final year project in Diploma in Electrical Engineering in 2004)

### **INDUSTRIAL TRAINING**

- Bharat Heavy Electrical Limited (BHEL), Bhopal, MP. (from 20/07/06 to 02/08/06)
- Electric Loco-Shed (West-Central Railway), Itarsi, MP. (from 04/02/04 to 18/02/04)
- Satpura Thermal Power Station (MPSEB), Sarni, MP (15/01/04 to 28/01/04)
- Coach Rehabilitation Workshop (West-Central Railway), Bhopal, MP (from 25/06/03 to 02/07/03)

### **EXTRA CURRICULAR ACTIVITIES**

- Organized a 2 day workshop on ROBOTICS at NIT Kurukshetra as the head coordinator of PG Society.
- Organizer and Coordinator of an Event ‘SEMINAR DAY’ (a technical event) at SVITS, Indore, MP.
- Worked as a Head Coordinator of P. G. Society of NIT Kurukshetra, Haryana and organized many Technical, Cultural, Social events including an International annual techno-cultural fest i.e. SURGE-2011.
- Organizer committee member of the SURGE-2010 (a national level techno-cultural fest) at NIT Kurukshetra.
- Worked as a coordinator of sponsorship team in SURGE-11 (The annual technical and cultural fest of PG).
- Student Placement coordinator at IES, IPS Academy (RGTU), Indore, MP
- Participation in Fashion Shows and competitions in various cities.
- Perform a work in students’ welfare and of good coordination during my diploma in electrical engineering as a secretary of all 59 polytechnics of Madhya Pradesh, India.
- Business & Transport work Experience in family business (from 1997 to 2001)
- Articles Published in Magazines on social issues.

(Amit Kumar Gupta)