



Department of Electrical and Electronics Engineering  
National Institute of Technology Tiruchirappalli



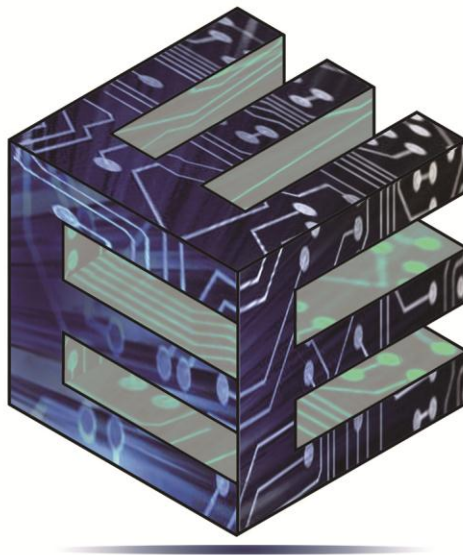
# EEE NEWSLETTER





# • CONTENTS •

Editorial .....	1
EEE Student Activities	
Workshops.....	2
Alumni interaction and Seminars by Ph.D Scholars .....	3
Conference Publications by our faculty and students .....	4
Centre Cover	
Time for Reminiscence.....	6
Some Glorious Moments.....	7
Journal Publications by our Faculty members.....	8
Projects by student members of EEEA	
Sangam Projects at Pragyan 2012.....	9
Texas Instruments Analog Design Contest.....	11



# EDITORIAL

The Department of Electrical and Electronics Engineering, NIT, Tiruchirappalli was started in the year 1964. It offers Under-Graduate programme, Post-Graduate programmes in Power Systems and Power Electronics and also research degrees (M.S. and Ph.D.) in the various fields of Electrical and Electronics Engineering. After the institute became NIT, the department has grown not only in terms of student and faculty strength, but also in improving the laboratory facilities for the teaching and research purposes.



The department is recognized for excellence in research, teaching and service to the profession. In recent years, the department has carried out noticeable research projects funded by MHRD, DST, AICTE and NaMPET (under the aegis of DIT). Further, the high quality of research by this department is evident from the research publications in reputed journals such as IEEE, IEE/IET and Elsevier. The faculty members have strong sense of responsibility to provide the finest possible education for both graduate and undergraduate students. The academic strength of the faculty is reflected by the alumni, many of whom are in the top echelons of industry and academia both in India and abroad.

As an added feather to this department, it brings out the newsletter for disseminating and sharing the major achievements / activities of the students, staff and faculty members among the peers, academia and industries. On behalf of the department and on my own behalf, I congratulate and appreciate the efforts made by all the members to bring out the first issue of the newsletter. I wish this newsletter gains greater height in days to come.

A handwritten signature in purple ink, which appears to read 'N. Kumaresan'.

(N. Kumaresan)  
Head of Department, EEE

## EDITORIAL BOARD

Head of the Department	:	Dr. N. Kumaresan
Faculty Advisory Committee	:	Dr. S. Moorthi
	:	Dr. M. P. Selvan
	:	Ms. M. Venkata Kirthiga
Chairman	:	Sri. Prashanth V
Treasurer	:	Sri. P. Suresh Kumar
Design	:	Sri. R. Karthik Balaji
	:	Sri. T. Arima Vu Ram
	:	Sri. H. Murali Krishnan
Chief Editors	:	Sri. Sowmya Hariharan
	:	Sri. Karthik R. Ingersoll



# MATLAB WORKSHOP

A beginners course on MATLAB was conducted from 12<sup>th</sup> to 19<sup>th</sup> September, 2011 for the second year students. The course was spread over a span of 5 days handled by different faculty members of EEE. Each day had a different topic and the students were taught how MATLAB could be used appropriately in the different domains. The spectrum of topics that were taught included Machine modelling which covered both AC and DC machines, Mathematical modelling of Electric circuits and analysis of the same.

Introduction to MATLAB was given by Dr.M.Jaya Bharata Reddy. After having the chance to build a strong foundation on MATLAB, the students were then taught "Mathematical modelling and analysis of Electric circuits" by Mr.P.Raja in two separate sessions. The students enjoyed these sessions in particular and their perspective towards the subject got better once they could see the broader picture of how their day to day academic studies can be used to solve pragmatic problems faced at the substations, generation units, etc.

This was then followed by two sessions on "Machine Modelling using equations". The first of this series was taken by Mr.S.Senthil Kumar followed by Dr.G.Saravana Ilango on the next day. There was free snacks at the end of each session on each day, not to mention, which the students kept looking forward to, with much anticipation and hunger.

The students felt good after this great opportunity of learning the nuances of MATLAB. Many of them said that they are highly excited to apply this newly acquired knowledge in their upcoming projects. They also added that this workshop will definitely give them an edge over other students, who missed such an opportune chance to have fun learning one of the most sought software in the field of EEE.



*Ms.M.Venkata Krithiga issuing certificates at the MATLAB WORKSHOP*



*Dr.S.Moorthi handling classes during PSPICE WORKSHOP*

# PSPICE WORKSHOP

The idea for an workshop on PSPICE was initiated by the final year batch of our EEE Association and the workshop commenced on 21<sup>st</sup> February, 2012 with high hopes of reaching this mostly untouched (by the department) yet the most sought (by students) software to the sophomores with maximal pellucidity.

## Day 1:

Ms.S.Sujitha taught the students how to use the various tools in ORCAD and then took it to the next level of simulating any circuit using PSPICE.

## Day 2:

Day 2 was taken over by Dr.S.Moorthi. With a specialization in VLSI, he taught the newbie's (relative to VLSI :P ) about CMOS inverters, low pass and high pass, active and pass filters and then he also taught them how to simulate these inverters and filters using PSPICE.

The final year batch students (2008-2012) also took some responsibility and taught the students on both the days of the workshop. They taught their juniors on operational amplifiers, precision and differential amplifiers, various rectifiers, etc., which they felt important for taking part in any contest such as TI contest or for any electronics project for that matter.

The workshop ended with a bang on 22<sup>nd</sup> February, 2012. Both the electronic-savvy and the dweeb sector were more than content after this workshop. After all, they can now simulate any circuit which is in their imagination before going on to the bedevilling breadboard and the thwarting PCB's.



# ALUMNI INTERACTION

A technical presentation on “Next Generation Microprocessor Technology Challenges and Solutions” was given by one of our distinguished alumnus, Dr.Ramkumar Krishnamurthy, Senior Principal Engineer and Director, High performance and Low Voltage Circuits Research Lab, Intel Corporation, USA on 21<sup>st</sup> October,2011. The lecture was presided by our honourable director Dr.Srinivasan Sundarrajan.

Bringing down someone to our campus, someone from one of the top-notch electronics industries to share their hands-on experience on the oh-so modish technology was a huge step by the EEE Association. It was worth an effort to cite.

Enough light was thrown on the new challenges in the microprocessor technology and also on the Moore’s ways of solving these challenges with optimization maxima and the least cost factors. All those who attended the workshop left feedbacks of positivistic spin when they left our magnanimous EEE auditorium.

Suffice to say, that this lecture has clearly raised the bars of “EEE Association’s Guest Lecture Series” and along with it has catapulted the expectations of the students towards the upcoming events.



## SEMINAR PRESENTATION BY OUR PH.D SCHOLARS

Sl. No.	Title	Name of the scholar	Name of the Guide
1.	Analysis and control of SEIG – converter systems with battery loads	Mr. R. Karthigaivel	Dr. N. Kumaresan
2.	Investigations on distributed generation planning & certain grid interaction issues of wind turbine generator system	Mr. K. Vinoth Kumar	Dr. M.P. Selvan
3.	View – based subspaces for learning & retrieval of faces	Mrs. M. Alarmel Mangai	Dr.N. Ammasai Gounden
4.	Investigations on performance of UPQC	Mr. S. Srinath	Dr. M.P. Selvan
5.	Swarm based parallel computational models for PBUCP	Mr. K. Chandra Sekaran	Dr. Sishaj P. Simon
6.	Application of power electronic controllers in induction machine / renewable energy systems.	Mr. K. Vijaya Kumar	Dr. N. Kumaresan
7.	Feedback controller design for buck & boost converters using modified particle swarm optimization technique	Mrs. Devi.V	Dr.K. Sundareswaran
8.	Impact of solar water pumping in urban domestic sector on distribution network.	Mrs. Padmavathi. K	Dr. S. Arul Daniel
9.	Swarm based parallel computational models for PBUCP	Mr. C. Christopher Columbus	Dr. Sishaj P. Simon

# CONFERENCE PUBLICATIONS BY OUR FACULTY AND STUDENTS

1. Anish, N.K., Deepak Krishnan, Moorthi, S. and Selvan, M.P., "FPGA Based Microstepping Scheme for a Stepper Motor in Solar-Tracking Applications", International Conference on Renewable Energy Utilizations (ICREU-2012), 04-06 January, 2012, CIT Coimbatore, INDIA, pp. 245-251.
2. Vinothkumar, K. and Selvan, M.P., "Analysis of Power Conversion Losses in Dynamic Slip Control Topologies of Grid Connected Small Wind Generators", International Conference on Renewable Energy Utilizations (ICREU-2012), 04-06 January, 2012, CIT Coimbatore, INDIA, pp. 109-115.
3. Renugadevi, Raja P, "Precise Modeling of Induction Motor Drive for Load Flow Analysis", International Conference on Renewable Energy Utilization (ICREU-2012) at CIT Coimbatore during January 04 – 06, 2012.
4. M.Rajasekaran and M. Venkata Kirthiga, "Investigations on Modern Self-Defined Extinction Advance Angle Controller for CCC based HVDC Systems " – paper got selected for presentation in the Third International Conference on Control, Communication and Power Engineering to be conducted between April 27<sup>th</sup> – 28<sup>th</sup> 2012, in Bangalore organized by Springer.
5. Venkatraman, K., Selvan, M.P. and Moorthi, S., "Performance of Series Active Filter under Non Sinusoidal Supply and Non Linear Loading", IEEE International Conference on Power and Energy Systems (ICPS -2011), 22-24 December, 2011, IIT Madras Chennai, INDIA, pp. 1-6.
6. Venkatraman, K., Selvan, M.P. and Moorthi, S., "Performance of Series Active Filter in Low Voltage Distribution System with Non Linear Loads", IEEE International Conference INDICON-2011, 16-18 December, 2011, Hyderabad, INDIA, pp. 1-6.
7. M.Venkata Kirthiga, S.Gurunathan and S.Arul Daniel, " Optimal Re-configuration of Micro-grids based on Ranking of Buses", at the IEEE International conference on Smart Grid Technologies in Kollam, Kerala, India, 1<sup>st</sup> – 3<sup>rd</sup> December 2011.
8. Srinath, S. and Selvan, M.P., "Dynamic Voltage Compensator: Transformationless Control Perspective", IEEE International Conference on Innovative Smart Grid Technologies-India (ISGT 2011-India), 01-03 December, 2011, Kollam, INDIA, pp. 1-6.
9. Karthikeyan, A.; Nagamani, C.; Aritra Basu Ray Chaudhury; 'An Implicit Sensorless Position/Speed Estimator for the speed control of a Doubly Fed Induction Motor ', Presented at IEEE PES Innovative Smart Grid Technologies – India, December 2011.
10. Karthikeyan, A.; Nagasekhara Reddy Naguru.; Nagamani, C.; 'Laboratory implementation of Feedback Linearization Control Based Power Control of Grid Connected DFIG', in Proc IEEE INDICON Engineering Sustainable Solutions – India, Page(s): 1 – 4,December 2011.[Received Best paper award]
11. M.Ashfaq Thahir and M.Venkata Kirthiga, "Investigations on Modern Self-Defined Advance Angle Controller for Hybrid HVDC Systems", at the IEEE TENCON Conference, Bali, Indonesia, 21<sup>st</sup> – 25<sup>th</sup> November 2011.



12. Vivek Ramakrishnan; Gopal, N.S.; Ashok, R.; Moorthi, S, "FPGA based DC servo motor control for remote replication of movements of a surgical arm", IEEE TENCON Conference, Bali Indonesia, 21-25 November 2011.
13. S. Moorthi, D. Meganathan, N. Krishnaprasad, J. Raja paul perinbam, "A Novel 14 ~ 170 MHz All Digital Delay Locked Loop with Ultra Fast Locking for SoC Applications", IEEE Conference on Recent Advances in Intelligent Computing (RAICS 2011), Trivandrum, September 2011.
14. S. Moorthi, D. Meganathan, M. Shankar, R. Sridhar, J. Raja paul perinbam, "A Low- Jitter Phase-Locked Loop Architecture for Clock Generation in Analog to Digital Converters", IEEE Conference on Recent Advances in Intelligent Computing (RAICS 2011), Trivandrum, September 2011.
15. R. Karthigaivel, N. Kumaresan, and M. Subbiah, "Analysis and control of three-phase SEIGs supplying battery charging loads through single-phase converters" Proceedings of the 6th IEEE International Conference on ICIS 2011, 16th – 19th August 2011, Sri Lanka.
16. N. Kumaresan, R. Karthigaivel and M. Subbiah, "Single-phase Self-excited Inductor Alternators For Renewable Energy Electric Conversion Systems" Proceedings of the 6th IEEE international Conference on ICIS 2011, 16th – 19th August 2011, Sri Lanka.
17. M.Ashfaq Thahir and M.Venkata Kirthiga, " Investigations on Modern Self-Defined Advance Angle Controller for HVDC Systems", at the IEEE international conference on Process Automation, Control and Computing in Coimbatore, India, 20th – 22nd July 2011.
18. S.Ranjith Kumar, S.Surendhar, Ashish Negi, Raja P, "Zig Zag Transformer Performance Analysis on Harmonic Reduction in Distribution Load", IEEE International conference on Electrical, Control and computer Engineering at Malaysia during 21st and 22nd June 2011.
19. Arka Bhattacharya, Raja P, A. Pavan Kumar, "Modeling and simulation of a controlled DC – AC converter system using sliding mode controller mechanism", IEEE International conference on Process Automation Control and Computing at CIT Coimbatore during 20th – 22nd July 2011.
20. Pramodkumar Muppiddi and M. Venkata Kirthiga , "Line contingency ranking based on detection of accidental islands for autonomous micro-grids", paper got selected for presentation in the Third International Conference on Control, Communication and Power Engineering to be conducted between April 27th – 28th 2012, in Bangalore organized by Springer.



# SOME GLORIOUS MOMENTS...





# TIME FOR REMINISCENCE...



Participants of ISTE Workshop on Solar Photovoltaics



Currents



Currents



EEEAA Members



# JOURNAL PUBLICATIONS BY OUR FACULTY AND STUDENTS

1. Karthikeyan, A.; Aritra Basu Ray Chaudhury Nagamani, C.; Ilango, G.S; "An implicit position and speed estimation algorithm without the flux computation for the rotor side control of Doubly-Fed Induction Motor Drive ", IET Electric Power Applications,- Accepted for publication.
2. Arungalai Vendan, S.; Manoharan, S.; Buvanashakaran, G.;Nagamani, C; "Strength Assessment Using Destructive Testing On MIAB Welded Alloy Steel Tubes And Subsequent Techno-Economical Evaluation", in Press, Corrected Proof, Available online 20 January 2012 Journal of Manufacturing Processes, 2012.
3. Arungalai Vendan, S.; Manoharan, S.; Nagamani, C; "MIAB welding of alloy steel tubes in pressure parts: Metallurgical characterization and non destructive testing" Journal of Manufacturing Processes, vol 14, Issue 1, January 2012, Pages 82-88.
4. B.Indu Rani, G.Saravana Ilango, C.Nagamani, "A power flow management system for Photovoltaic systems feeding DC/AC loads", accepted for publication in Elsevier Renewable Energy.
5. P.Raja, N. Kumaresan and M. Subbiah, "Grid-connected Induction Generators using Delta-Star Switching of the Stator Winding with a Permanently Connected Capacitor", International journal of Wind Engineering (Accepted for publication).
6. K. Vijayakumar, N. Kumaresan and N. Ammasaigounden, "Operation and closed-loop control of wind-driven stand-alone DFIGs using single inverter-battery system", IET Electr. Power Appl., (Accepted for publication).
7. J. Naizath Amirtharaj, K. Siddharth, S. Moorthi and N. Kumaresan, " Voltage control Scheme for a Single Phase Voltage Source Inverter (VSI) using FPGA", Australian Journal of Electrical and Electronics Engineering (publication due on January 2012).
8. Srinath, S. and Selvan, M.P., "Effect of Reference Generation Schemes on the Performance of Shunt Active Filter : A Comparison", Advances in Electrical Engineering and Electrical Machines, Springer Lecture Notes in Electrical Engineering Vol. 134, 2011, pp.253-259.
9. Srinath, S. and Selvan, M.P., "A Combined Mode of Control for UPQC Connected to a Low Voltage Distribution System", Australian Journal of Electrical and Electronics Engineering, Vol. 8, No. 3, 2011.
10. Srinath, S. and Selvan, M.P., "Performance Analysis of UPQC with Heterogeneous Control during Load Power Factor Variation", European Transactions on Electrical Power, 2011, Published online in Wiley Online Library DOI: 10.1002/etep.616.
11. B. Vasumathi, S. Moorthi, "Implementation of hybrid ANN-PSO algorithm on FPGA for harmonic estimation" Engineering Applications of Artificial Intelligence, Volume 25, Issue 3, April 2012, Pages 476-483.



## PROJECTS BY STUDENT MEMBERS OF EEEA

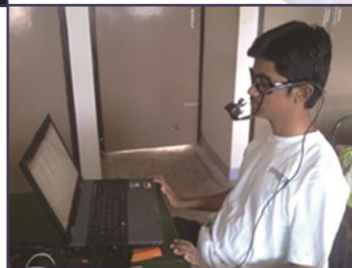
### iMOUSE

Our basic aim was to develop a way by which the computer knows the users intention by itself rather than using a mouse or a keyboard to input the user's command, so the idea of iMouse came up. iMouse is basically a project aimed to design a device that could control the cursor (mouse pointer) using user's eyeball movement i.e. to have the cursor at the point the user is looking at rather than using your hand to control the mouse .we achieved that by creating a device using a webcam and a sunglass. Now the webcam actually focuses the user's eye, that could track the movement of the pupil, by using opencv libraries in a C++ platform, we came up with the algorithms for the same. The left click is achieved using the blink of the eye (natural blink and intentional blink in differentiated based on time duration for which the eyes are closed).

This project could help physically handicapped people to use computer, as it doesn't require your hands. It could also be used in defense aircrafts to for locking the enemy targets. This could also have an enormous effect on the gaming world."GAMING BECOMES REALISTIC"...



**iMOUSE**  
SURIYA NARAYANAN L.  
ARJUN PRASATH  
HARI SUDHAN P.  
SANDEEP NITTAL DAVID



### CONTROL OF APPLIANCES OVER A LAN

We live in a fast moving world where automation is spreading like wild fire. Automation can be extended to our houses where a secondary control can be provided to control the state of appliances in addition to the two way switch. A network covering the house forms the backbone of the control system. A laptop/computer in the house is used to set up the network to which any client can connect. The form data containing the device and room specifications are forwarded to a Ethernet board that handles the incoming traffic and it generates a character code corresponding to the received data and forwards the data to microcontrollers in every switch box. The switches are interfaced with relays triggered by the microcontrollers. Each controller handles a specific number of characters to toggle the devices and ignores the rest. After toggling the device the microcontroller generates a feedback that is reported back to the board which in turn sends a form request to the server with the appropriate feedback. The manual switch has no pre-defined state of ON or OFF. It is merely used for toggling the state of the appliance. Any change of state manually is also reported back to the server by the microcontroller as it has a pin dedicated to checking the switch position. The client has complete knowledge of the state of all his appliances and can extend his control over any of them from any location with network connectivity. Unnecessary wastage of electricity is prevented and energy audit can also be implemented. This system can be expanded to include internet control and data logging facilities with future scope extending as far as monitoring of electricity grids from internet and GPS feedbacks.

**LAN**  
B. KOWSHICK  
VIVEKANANDAN B.  
P. DINESH  
MANIKANDAN A.  
P.KISHORE





## WALKING MOTION – THEO JANSSEN MOTION

This project was inspired by the Mr. Theo Jansen's "beach monsters". The TheoJansen mechanism is a modified 4 bar mechanism. It is used to simulate walking/legged motion.

The advantage of this mechanism over a wheel for locomotion is prominent when we consider the surface over which the system is going to move. On a flat hard even surface, wheels win hands down, but when we consider an uneven, sandy, erosive surface, the Theo Jansen Mechanism is much more efficient and smooth.

The ratio for the size of each leg was published by Mr Jansen in the early 90's. They were the results of his genetic algorithm to find the most stable combination that would work. The model that I made had 12 legs, 6 on each side, each set powered by a separate PMDC motor. This was to enable the use of differential.

**Salient features of the mechanism:**

8 links. One stride for every 120 degrees of rotation of crank shaft. 3 pairs of legs for proper stability, each driven by the same motor, with each leg 120 degrees ahead of the other.

**Practical Applications:**

1. Multi terrain personal transport (segway)
2. Robotic house pets
3. Multi terrain wheel chair
4. Beach vendor carts steering.



-Sethu Chidambaram

## SOLAR POWERED WATER PUMPING

It's always nice to use renewable energy in our day to day life which will cut short our monthly electricity bills. So here, our main idea is to use it for a day-to-day work such as water pumping.

The water is pumped from the sump to the overhead tank using a centrifugal pump driven by a Permanent Magnet DC (PMDC) motor powered by Photo-Voltaic Panels. A boost converter is used to increase the DC voltage level. The Maximum Power Point Tracking system is implemented using a microcontroller – AVR Atmega 8. A current sensor and voltage sensor is used to achieve closed loop control. If the tank is fully filled, the power supplied by panels is used for charging a battery.

Why water pumping? While loads like refrigerators, lights, fans, etc require a constant power supply for its proper operation, however it's not the case here. Our ultimate aim is to have water in the tank, so it's not a problem if the discharge of water into the tank changes due to the variable input.

**Key points:**

- A DC motor can be directly coupled to the PV panels. In case of an induction motor, we need an inverter and the efficiency falls due to the extra power conversion.
- At low power ratings, DC motors perform much better than the conventionally used induction motors.
- No storage (batteries) is needed here. The energy is utilized then and there and water is pumped.

**Scope:** This system is very effective and can be implemented in each and every home. It will definitely help a lot in fighting the power shortage we face today.



-Ramesh.K.Govindarajan & Pankaj Raghav.P



# LOW COST DC-DC CONTROLLERS FOR ELECTRICALLY POWERED VEHICLES

Since the day we saw the poster of Analog Design Contest 2011 by Texas Instruments, put up on our department notice board we have been excited about participating in it. Today after around 9 months we feel good about ourselves having completed our proposed project successfully and expectantly wait for the results which should be announced in a few weeks. Our project topic is "Low Cost DC-DC Controllers for Electricity Powered Vehicles". We are deeply indebted to our mentor Dr. N. Ammasai Gounden for his constant support, insights and motivation. We owe our project to him and everybody else in the department who have helped us at every stage of the completion of the project.

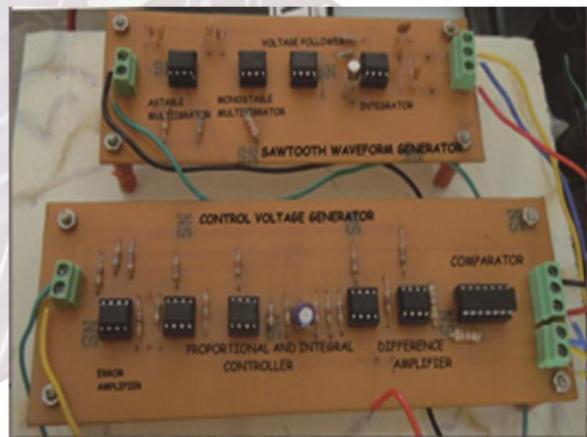
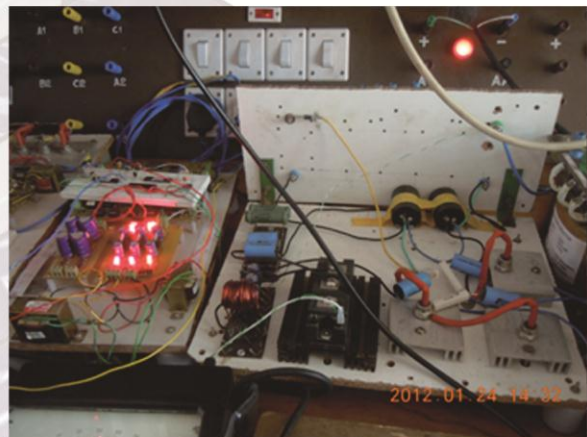
The experience we gained throughout the journey has been invaluable. It has been a unique endeavour for each one of us. Starting from the point when we decided on the topic to the point when we witnessed our controller working properly, every moment has been exceptional. It taught us as to how to work as a team. We also learnt to finish our targets to meet different deadlines at various stages of this contest. The speciality of our project lies in the fact that it is completely solar powered. We used a DC Shunt motor in the Power Converter Research Laboratory of our Department to test our controller and the power supply was from the solar panels.

We did face many difficulties throughout the course of the project. Finding time for the project beyond our class hours and properly coordinating with each other pulled us through. We had to limit our working hours only till 5pm when there was proper sunlight. Debugging the circuit has been tough. It was amusing at times when one part of the circuit started working; there was somehow a loose connection at some other part of the circuit. But the trick lied in being patient. It did pay off well at the end. The instant our controller started working, we were literally jumping with joy. The moment was priceless.

We have gained a lot from this journey. We

acquired a deeper understanding of analog electronic concepts, while building the various modules of our Analog Controller. Moreover all of us are amateurs to Power Electronics but we had to fabricate a DC-DC converter. It was an enriching experience for us.

Three projects got selected from our department for the second phase of the contest. That is a very admirable number since the contest is at the national level. We would really want our juniors to continue the legacy.



*Varsha Padhee (EEE)*  
*Harini M (EEE)*  
*R. V. Layamrudhaa (CSE)*  
*S. Harini (ICE)*



# CRANE CONTROL MECHANISM FOR LIFTING HEAVY LOADS

Our idea for the “TI Analog Design Contest” was somewhat inspired from the show “Extreme Engineering” telecasted by Discovery Channel. Along with it, we also studied major technical problem faced by the Construction Industry and shipment Industry using current crane control mechanisms.

The aim of the project was to provide an efficient solution to address the industrial needs. Most of the present crane controllers depend upon manual intervention, but with increasing penetration of automation in every sector, an automated crane controller is the need of the present. It’s not an extension of an existing project as per our knowledge. It does address social problems in the manner that risk factors involved in the construction and shipment sectors are reduced. The proposed model provides a fast, automated and efficient crane controller. Using this, the objects can be lifted and placed more precisely and accurately and any chance of accident is reduced. Our goal was to use our technical knowledge to help design and model an innovative solution to serve industrial requirements. The model provided an improvement at the end of both power and performance.

The industries face a serious problem during crane control where due to wind turbulence and manual error, there is difficulty in accurate

materials, human life and time. Moreover, human labour is also required for the process. So, our solution is to provide automated crane control system that could bring down disadvantages in present systems and labour cost involved.

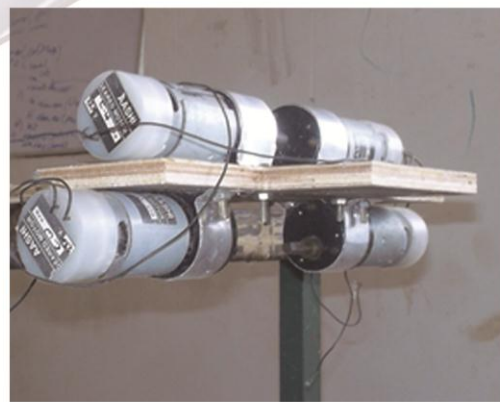
**System description:** Depending upon the present tilt of the crane arm (that is holding the object), the signals corresponding to the acceleration in x, y and z directions in space are taken as inputs and sent to further circuitry for further error calculation. Based upon these errors, respective motors are given control signals (PWM signals) in order to produce zero acceleration in each of the axes.

The project comprised of four D.C. motors to be controlled by microcontroller MSP430G2553 with DRV8814 as motor driver to operate the motors at the given power rating. The microcontroller analyzes the data based upon analog input from the accelerometer. TLC3574 converts the analog input into digital and microcontroller generates PWM signals for the motor such that the block to be lifted by the motors does not swing and maintains a steady upward speed.

Till now no one uses the technique of balancing the blocks using accelerometer. It is an entirely new attempt to make a stable crane lifting mechanism.



Perspective view of block



Perspective view of motors alignment

*Ankit Anand (EEE)*  
*Amit Jain (EEE)*

*Gaurav Kumar (EEE)*  
*Atif Nabil (Mechanical)*

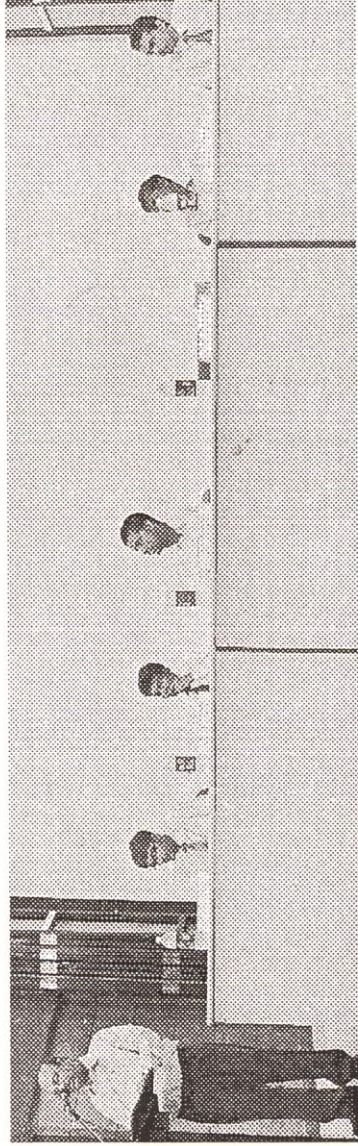


# NITT Dean Stresses on Efficient Energy Management Policies

## Express News Service

**Tiruchy:** Formulate and implement efficient energy management policies within the campus, V Ramprasad, Dean-Faculty Welfare, National Institute of Technology, Tiruchy (NITT) said speaking at the inauguration of the Electrical and Electronics Engineering (EEE) Association of NITT here on Thursday.

Ramprasad urged the students to formulate and implement efficient energy management policies within the campus and required the department to initiate an energy management group to address the issue of energy inadequacy within campus.



**V Ramprasad, Dean-Faculty Welfare, NITT, addressing the inaugural gathering of EEE Association in Tiruchy on Thursday**

Citing the example of mercury in CFL lamps, Ramprasad expressed the inevitability of a trade-off between energy efficiency and environmental sustainability and reiterated the need for development of green technology.

He also emphasised

on the need for research on enhancement of quality of life through green energy.

The Association functions as the executive student body responsible for the organization and management of its flagship symposium - CURRENTS -

diverse technical workshops and several industrial visits throughout the year.

V Prashanth, Chairman of Association, S Arul Daniel, HoD, S Moorthi, Faculty Advisor of the Association and heads of other departments took part.



# CURRENTS '12 GUEST LECTURES



## Mr. RAJASEKAR MAMIDANNA

Stand-up comedian

An Infotainment show by Mr. Rajasekar. He has worked with Max Newyork life as a trainer before choosing to become a stand up comedian. He is the winner of District 82 Humorous speech contest held by Toastmasters, 2011. He has done various shows at IIT-M, NIFT, Capital IQ .



## Mr. V. PATTABHI RAM

A light-hearted mananagerial lecture on *how to get the best out of your college*. Mr. V Pattabhi Ram, is a chartered accountant by qualification, a writer by passion and a teacher by accidental choice. He is also an author of 5 books including *Advantage CA, Get the best out of college*.



## Mr. SOYEB NAGORI

Head, Video Algorithm Group, TEXAS INSTRUMENTS

An insight on the role of DSP algorithms in Digital Video applications. Soyeb Nagori holds three US patents in the area of entropy decoding for embedded system and has filed over 20 other patents in the area of video encoding quality.



पावरग्रिड

## Mr. R. R. MURALI

Manager, POWERGRID Trichy

Lecture on Extra High Voltage (EHV) lines. Mr. Murali has been the manager of the 440 kV Trichy substation for over 20 years. He has experience in the construction, operation and maintenance of substation and transmission lines.