EEE

NEWSLETTER

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Department of Electrical and Electronics Engineering

$\mathcal{D}$ear Buddies,

"Genius is one percent inspiration and ninety nine percent perspiration" says Thomas Alva Edison. Hope this newsletter provides an opportunity to our students to develop their talents in technical areas, logical thinking and share their ideas with others.

Education imparted should instill in one, the spirit of creativity, dynamism, enthusiasm and develop the strength of character. Our department provides integrated education thereby equipping our wards to face the challenges of this globalised world.

This newsletter gives the students handful of information about our association activities, Special Interest Group, GATE forum, Mini project forum, Entrepreneur Cell and so on…

It also furnishes the students achievements, Technical article by Staffs and Students. I feel the achievements of my people are the basement for vision 2020. Thank you readers for your encouragement and feedback. So let's cherish in reading this newsletter.

Happy Reading…!!!!

– Ms.A.Dhanushya

Prefinal Year EEE

CONTENTS

STAFF ACTIVITIES/PUBLICATIONS/ACHIEVEMENTS

ACTIVITIES:

S.No.	Name of the Staff	Events/Guest Lecture	Topic/Event	Date	College
1.	Dr.M.Willjuice Iruthayarajan, Prof & Head	Guest Lecture/ ISCT '16	Introduction to GA and PSO	04.08.2016 to 06.08.2016	National Engineering College, Kovilpatti
2.	Dr.L.Kalaivani, Asso. Prof(SG)	IEEE Madras Section	IEEE Coimbatore Hub Congress	30.07.2016 & 31.07.2016	Jansons Institute of Technology, Coimbatore
3.	Dr.L.Kalaivani, Asso. Prof(SG)	Guest Lecture/ ISCT '16	FLC and its Implementation	04.08.2016 to 06.08.2016	National Engineering College, Kovilpatti
4.	Dr.R.V.Maheswari, Asso. Prof	Guest Lecture/ ISCT '16	Introduction to MATLAB & Implementation of SVM using MATLAB	04.08.2016 to 06.08.2016	National Engineering College, Kovilpatti
5.	Dr.L.Kalaivani, Asso. Prof(SG)	Guest Lecture / (PRML): Tech. and its application	Neural pattern recognition with hands on training	11.08.2016	National Engineering College, Kovilpatti
6.	Mr.P.Samuel Pakianathan, Mr.M.Bakrutheen & Mr.M.Gengaraj, Assistant Professor	IEEE – CIS Madras Chapter Sponsored Three Days Workshop	Implementation of Soft Computing Techniques using MATLAB - ISCT '16	04.08.2016 to 06.08.2016	National Engineering College, Kovilpatti
7.	Mr.A.Pandiyarajan, Assistant Professor	ISTE Sponsored Seminar	Power Electronics Converters for Smart Grid Functionality using MATLAB	29.07.2016 & 30.07.2016	K.L.N. College of Engineering. Pottapalayam
8.	Mr.J.Sivadasan, AP(SG) & Mr.M.Sivapalanirajan, Assistant Professor	Industrial Know - How	Advanced Learning Platform and Solutions	24.05.2016 to 28.05.2016	iWave System Technologies Pvt Ltd, Bangalore

PUBLICATIONS:

- ✓ ***K.Gowthami and N.B.Prakash,*** "Automatic Vehicle Collision Avoidance System – A Survey", Research Journal of Pharmaceutical Biological and Chemical Sciences, Vol. 7, Issue 1, pp. 1046 -1053, 2016. - **Annexure – II**

DEPARTMENT ACTIVITIES

EEE ASSOCIATION - ACTIVITIES
BASICS OF MATLAB

A workshop on **"BASICS OF MATLAB"** was conducted on 09.07.2016 and 20.08.2016 by **Mr.M.Gengaraj, Assistant Professor/EEE** at Research Simulation Lab was organized by EEE Association. The objectives of the session are:

• Basics about MATLAB Software
• How to do mathematical & logical operation using MATLAB coding
• How to rectify the errors while executing the MATLAB coding

ALUMNI INTERACTION

"*Successful persons don't do different things, they do things differently*"

Alumni interaction program was organized and conducted on 20th July of 2016 in EEE seminar hall with ***Mr.Rajagopal, Service delivery Head KAAR Technologies, Saudi Arabia*** and alumni (2007) of EEE department for an hour. During the interaction session, the alumni shared his experience. The students interacted with him and gained more knowledge. They also clarified their doubts regarding placement. The motivational speech of him made the students to think about achieving great success in life. While his fantabolus lecture he lined out his life history and the ways he took to reach the heights in his carieer. The students were inspired by his speech. He also gave tips for cracking the interview for the students. He advised the students to be confident enough to face any kind of interview. He encouraged the students to actively participate in extra curricular activities. On the whole, the one hour session was very useful and the students gained many ideas about interview skills.

SPECIAL INTEREST GROUP

CONTROL AND INSTRUMENTATION

Session 1 (10.30AM to 11.30 AM)

For academic year 2016-17, SIG activities oriented to C&I group were initiated on 16.07.2016. As an introduction class for the pre-final year students of EEE, **Mr.R.Muniraj** gave the basic concepts of control engineering which is the irreplaceable domain of any engineering design for any system and its proper operation.

Session 2 (11.45AM – 12.45PM)

Mr.J.Sivadasan gave a demonstration class for the students with the Twin Rotor MIMO System (TRMS) model available in our department C&I laboratory. He gave the general idea of system and their modeling and correlated the system modeling concept adopted for the TRMS model using MATLAB.

POWER ELECTRONICS AND DRIVES

A seminar on "Introduction about Power Electronics" was conducted on 16.07.2016 by **Dr.L.Kalaivani, Associate Professor (SG)/EEE** at H4 Class for Special Interested Group (SIG) members. She explained the importance of drives in industry.

Then the session was handled by **Mr.M.P.E.Rajamani, AP(SG)/EEE** with the topic of "Features of Power Electronics and Drives". The objectives of the session are:

- Importance of Power electronic devices.
- Modern trends and recent advancements in industrial drives.

Then the session was handled by **Mr.M.Gengaraj AP/EEE**. The objectives of the session are:

- Introduction about Semiconductor devices.
- Application of Power electronic devices in Industry, Renewable energy etc.,

HIGH VOLTAGE ENGINEERING

A brief introduction about "Various parameters affecting the performance of mineral oil" was given by **Mr.P.Samuel Pakianathan, AP/EEE**. Then he explained about,

- Basic need for the insulating materials in power transformers
- Various insulating materials used in power transformers
- Various properties like BDV, Viscosity, flash point, fire point, pH, Conductivity

The session was continued by **Mrs.G.Shunmuga lakshmi, AP/EEE**. She gave a lecture on "Electric field analysis on different insulating materials". Then she explained

- Different insulating materials used in HV Apparatus
- Basic procedures of FEM analysis
- Modeling of insulators using ANSYS software

EMBEDDED SYSTEMS

A Hands on Training on Proteus software was conducted on 30.07.2016 by the Embedded systems - Special Interest Group (SIG) of EEE department. Around 18 third year EEE students was participated in the session. The session was conducted by **Mr.B.Venkatasamy, AP/EEE**.

In this session, a brief introduction and special features about the Proteus software was discussed. The Applications of the software in real time electronic circuit simulation and embedded systems was also discussed.

In the simulation, various tools and components of the "Proteus" was explained and demonstrated. A hands on training was given to the students for the simulation of simple electronic circuits such as power supply unit etc. The conversion of the given schematic into Printed Circuit Board (PCB) was also practiced by the students.

POWER AND ENERGY SYSTEMS

The first session of 'Power system and Energy SIG' was held on 30/07/2015 at seminar hall of EEE department. It was handled by **Mr.G.Kannayeram, AP(S.G).** He gave an introduction about conventional grid and smart grid and also discussed the present power scenario in Tamil Nadu. Comparison of smart grid over conventional grid and the need of smart grid had also been discussed.

The second session was handled by *Mr.B.Sahul hameed*, AP/EEE. He gave an introduction about power system optimization. Historical development of optimization and the application of optimization in real world problems had been discussed. Role of optimization in power systems had also been discussed.

JOINING HANDS

We are indeed glad that our *Alumni Batch 1999* have rendered their helping hands to support our 2nd year student *Ms. Sethana Devi.K (Second year C)* who has good academic performance and prevail from less economic background they have offered to pay the full academic fee for her 2nd 3rd and final year until graduation

"We shall receive when we decide to give others"

TASTE OF VICTORY

I am S.SURIYA of third year EEE. I engaged myself in a national level platform of ICTACT. We were initially a crew of 26,677 students from various colleges. We were screened initially for 5 levels. I came first in our region and competed with 5 finalists from the other zones. Top 3 students were selected for a free trip to Singapore. It was a trip for 3 days. We visited ORACLE and EMC^2 and had a chance of interacting with software experts knowing the working of different sectors and their interface between the people and the government.

The second and third day we went around lavishing lands of Singapore. Trip to Night safari, Universal Kingdom, Merlion and Singapore flyers were unforgettable. It was a great opportunity to mingle with people of different culture and attitude. Flying to a country for free with the privilege of being an Indian and moreover an NECian was indeed awesome. There is nothing strong without a proper foundation. I thank our Principal , Director, HOD and my Department for supporting all my way for success

"Success is never readymade

But the ingredients required to bake it to our taste are our abilities

Taste or waste depends on attitudes"

USEFUL LINK ONLINE VIDEOS - EEE

1.Working Principle of Diode
https://www.youtube.com/watch?v=TFgWDcBp-uY

2. Principle of Capacitor
https://www.youtube.com/watch?v=BIDB4OWsiVc

3.dc motor
https://www.youtube.com/watch?v=fWyzPdyCAzU

4. principle-of-transformer
https://www.youtube.com/watch?v=Nf3WhMakPho

5. Law of resistance
https://www.youtube.com/watch?v=FoTWEuOSxSg

APTITUDE TRICKS – C PROGRAM

- *R.Bavithra (Final EEE)*

```
1. .#include<stdio.h>
int main()
{
   int i=0;
   for(;;)
      printf("%d",i);
   return 0;
}
```

Answer: Infinite Times

```
2.#include<stdio.h>
int main()
{
   int a = 100, b = 200, c = 300;
   if(!a >= 500)
      b = 300;
   c = 400;
   printf("%d,%d,%d",a, b, c);
   RETURN 0;
}
```

Answer: 100,200,400

```
3.#include<stdio.h>
int main()
{
   int x = 10;
   float y = 10.0;
   if(x == y)
      printf("x and y are equal");
   else
      printf("x and y are not equal");
   RETURN 0;
}
```

Answer: x and y are equal

```
4.#include "stdio.h"
int main()
{
   char arr[100];
   printf("%d", scanf("%s", arr));
      return 1;
}
```

Answer: 1

```
5. #include "stdio.h"
int main()
{
 int x, y = 5, z = 5;
 x = y == z;
 printf("%d", x);

 getchar();
 return 0;
}
```

Answer: 1

```
6. #include <stdio.h>
int main()
{
 int a = 10, b = 20, c = 30;
 if (c > b > a)
   printf("TRUE");
 else
   printf("FALSE");
 return 0;
}
```

Answer: False

GOVERNMENT JOB OPPORTUNITIES FOR EEE DEPT

- *R.Bavithra (Final EEE)*

GOVERNMENT JOBS BASED ON EEE GRADUATION ARE.

EEE graduates can apply for jobs in following government organizations :

- Indian Space Research Organization (ISRO) http://www.isro.gov.in/
- Defence Research and Development Organization (DRDO) http://www.drdo.gov.in/drdo/English/index.jsp?pg=homebody.jsp
- Oil and Natural Gas Cooperation (ONGC) http://www.ongcindia.com/wps/wcm/connect/ongcindia/home/
- Indian Railway (RRB) http://www.indianrailways.gov.in/railwayboard/
- Electricity Board http://www.tneb.in/
- Bharat Electronics Limited (BEL) http://www.bel-india.com/
- National Fertilizer Limited (NFL) http://www.nationalfertilizers.com/
- Steel Authority India Limited (SAIL) https://www.sail.co.in/
- Hindustan Petroleum Corporation Limited (HPCL) http://www.hindustanpetroleum.com/
- Bhabha Atomic Research Center (BARC) http://www.barc.gov.in/
- Larsen and Tubro Limited (L & T) http://www.larsentoubro.com/
- Bharat Heavy Electronics Limited (BHEL) http://www.bhel.com/home.php
- Hindustan Aeronautics Limited (HAL) http://www.hal-india.com/
- Indian Oil Corporation Limited (IOCL) https://www.iocl.com/
- National Thermal Power Corporation Limited (NTPC) https://www.ntpc.com/

GATE FORUM

BENEFITS OF GATE

Recruitment in PSU's

Many Public Sector Undertaking like NTPC/ONGC/NHPC/IOCL/GAIL/PGCIL/CONCOR /BHEL/BEL/MECON/DDA/BPCL/HPCL/HECL etc. have indicated their interest in GATE qualified candidates. From coming years it is expecting that all state level companies will considered GATE exam for their hiring process.

Research Institutes

GATE qualified candidates in the Engineering discipline are also eligible for the award of Junior Research Fellowship(JRF) & Senior Research Fellowship(SRF) in CSIR Laboratories. JRF & SRF are stipend bases fellowships. The stipend amount generally lies between **Rs 15000/- to Rs 20000/-** for CSIR laboratories.

Stipend in BARC

Reputed Institutes like BARC also considering or Specify GATE SCORE CARD mandatory for their various courses offered by institute. It is also stipend based course with average stipend of **Rs 15000/- to Rs 20000/-** for GATE qualified students. Some courses named as self supporting courses also asked for valid GATE Score Card in BARC.

Scholarships in ME/M.Tech

To enhance/promote the master education in India the Scholarship/ Assistance ship is likely to be **Rs 15000/- per month** is paid from MHRD to GATE qualified student. It is financial assistance for candidates so that they can easily afford their needs during their course and thesis work.

Library Funds

The candidates who get admission in various universities (approved by UGC or AICET) will be eligible for library funds to accommodate their needs of Books/Notes/CDs during their masters in technology/engineering. The allowances of Rs 5000/- per year will be paid to every eligible candidate.

Master in Technology/Engineering

It is an opportunity for students to earn Masters in Technology degree in their area of interest subjects, for those students who they have missed their train of IIT's , IIIT's and NIT's in their JEE Advance or JEE or AIEE exam.

WAY TO MSc IN NTU/NUS

VENKAT SUBRAMANIAN ARUMUGA PERUMAL

NEC-EEE Alumni- Batch 2015

NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE

SCHOOL OF ELECTRIAL AND ELECTRONICS ENGINEERIING

MASTER OF SCIENCE IN COMPUTER CONTROL AND AUTOMATION

My Course details:

Since I love to work in the area of Internet of Things (IoT) and Machine to Machine(M2M) Communication, a term which includes sensors, controllers, communication protocols to connect all the devices in the world provided with a secured network connectivity to make auto-decisions, I took this course to enrich my experience in the field of IoT to the next level. This course basically covered some mandatory fields viz., Robotics and Intelligent sensors, Computer Control Networks, Computer Control Systems, Process control, Advanced Digital Signal Processing, System analysis, Machine Vision and some elective courses. In order to satisfy the requirements of my master degree I also undertook a dissertation titled "SMART OFFICE WIDE MONITORING SYSTEM USING INTERNET OF THINGS". The overall objective of the project is to contribute to the development of a automation system inside the office premises using the data obtained from the smart sensors in order to provide a green environment to the employees with efficient energy usage and reduced wastage. Here, different types of sensors and devices viz., occupancy sensors, multimode sensors and smart plug plays a vital role in creating a smart environment inside the office premises to create a happier working environment to the workers.

For those who wish to pursue MSc in NTU/NUS:

Duration of the course: The total duration of this full-time course is minimum 1 year and maximum 3 years

Requirements: Good CGPA above 8.5, IELTS/GRE, student members in some Professional bodies like IEEE etc, and maintain good resume with some curricular achievements.

The above specified are not the only requirements for the admission, everything will be on case by case basis. If you satisfied these requirements, then your chance of getting in to NTU/NUS is High. For more details, I advise you to look into the corresponding websites of the universities.

All the very best to you students!!!

Current Designation**: Research Associate**

Company Name**: ERI@N**

Area of research**: IoT based Intelligent Building automation and Analytics.**

TIME TO KNOW OUR ALUMNI

- *Mr.Kanagavalli. M,*
Big Data Architect – TCS, Bangalore,
Batch: 2003

PROFILE SUMMARY

Present working environment:

✓ Working in Tata Consultancy Services as Big Data Architect , Bangalore, India from 28.09.2005 to till date.

Present role in Tata Consultancy Services:

✓ Big Data Architect and ETL Lead for an Amazon Cloud Application
✓ ETL Lead handling a team of 7 members
✓ End to End guidance to the team on the application development, onsite/offshore coordination, requirement gathering, liaison between business and TCS.

Special training under gone:

✓ Expertise in Cloud BI Datawarehousing and Cloud ETL tools
✓ Trained in the current technologies like Hadoop, Talend, Pig, redshift , Hive, Tableau and also expertise in Oracle, informatica and Unix

Students Achievements/Activities

Students Achievements

Second Year – BEC Course

Preliminary Level

S.NO.	NAME OF THE STUDENTS
1	Govinda Prasad.S

S.NO	NAME	CLUB	DATE
1	A.Nithyashree	Junior Jayce Wing (Motivational Talk)	19.8.2016
2	M.Ani Nithusha		
3	K.Kanika		
4	M.Gowsalya		
5	M.Suganthi		
6	M.Mohmamed Farook		
7	S.Muniraj		
8	S.Srinivasan		
9	I.Jebish Gnanadebam		
10	M.Anju Abinaya		
11	D.R.Divya		
12	R.Anandhi		

S.NO	NAME	CLUB	DATE
1	K.R.Jeniba	Youth Red Cross	03.08.2016
2	K.Kanika		
3	P.Maha Swetha		
4	M.Jothi Basu		
5	R.Aravindhan		
6	S.Aariharan		

7	S.Manikanda Prabu	(YRC) - Blood donation camp	
8	G.R.Shankar Ganesh		
9	D.Sudharsan		
10	K.Rajkamal		
11	M.Mohammed Farook		
12	Mohideen Shajith		
13	C.V.Suryakumar		
14	M.Velmurugesan		
15	K.Yogesh		
16	V.T.Vasasantha Kumar		
17	P.Vignesh		
18	J.Saravanan		

S.NO	NAME	EVENT (HI-TECH FEST-16)	PRIZES	DATE
1	R.Ananthi	Paper presentation	1st	10.08.2016
2	A.Jothi Meena			
3	M.Anitha	Participated in paper presentation		
4	R.Pavithra			
5	R.A.Ranjitha			
6	N.Rishika			
7	A.Aasha	Participated in code shuffle, Code pattern		
8	M.Anju Abinaya			

Third Year A

Co-curricular Activities

Paper Presentation

S.NO	NAME	TITLE OF PAPER	VENUE	DATE
1	S.Mohamed Sarjun	Water Droplet Processor	Kamaraj College of Engineering and Technology	09-08-2016
2	U.Iswaramoorthy R.Dinakar Raja	Bio Sensor	Velammal Engineering College	09-08-2016
3	M.Hariharan R.Dinakar Raja	Hydrogen Fuel Generation From Solar Energy	Kamaraj College of Engineering and Technology	19-08-2016
4	S.Madhupriya	Haptic Shoe	Kamaraj College of Engineering and Technology	09-08-2016
5	S.Kumari M.Krishna Kumari	Bladeless Wind Turbine	Ramco Institute Of Technology	19-08-2016
6	M.Maragatha Lakshmi S.Maheswari	Virtual Reality	Hitech Feast2k16-CSI-Department – NEC	10-08-2016
7	T.Manonmani J.Jesina	E-Ball Technology	Hitech Feast2k16-CSI-Department – NEC	10-08-2016
8	S.Jerin Lincy M.Kandha Lakshmi	Augmented Reality	Hitech Feast2k16-CSI-Department – NEC	10-08-2016

Project Presentation

S.NO	NAME	TITLE OF PROJECT	VENUE	REWARDS	DATE
1	B.Mathana Gopal and S.Prabhu	Obstacle Rejection Robot	Ramco Institute of Technology	1st Prize	19-08-2016

Seminar

S.NO	NAME	TOPIC	VENUE	DATE
1	S.Meenakshimeyyammai S.Bala Abhirami A.Dhanushya	Jaycee Club	National Engineering College	19-08-2016
2	G.Gowsalya Devi S.Bala Abhirami	Space Research-Present And Future	VOC College of Arts And Science	20-08-2016

Workshop

S.NO	NAME	TOPIC	VENUE	DATE
1	S.Mahalakshmi	Video Launch And Photoshop	ISTE Club-NEC	20-08-2016
2	V.Krishnakumari	Video Launch And Photoshop	ISTE Club-NEC	20-08-2016
3	O.Chitra	Video Launch And Photoshop	ISTE Club-NEC	20-08-2016

Camp

S.NO	NAME	CLUB	VENUE	DATE
1	K.Bowsiya S.Harini K.Karunya Prabhu	EDC Cell	National Engineering College	13-06-2016 To 15-06-2016
2	V.Manikkavasuki S.Meenasanjeevini M.Maragathavalli	EDC Cell	National Engineering College	09-08-2016 To 11-08-2016
3	D.Franklin M.Aswanth Navamani S.Divyaprithi	NSS Camp	Paanchalakurichi	19-08-2016

Competitions

S.NO	NAME	EVENT	VENUE	DATE
1	S.Madhupriya	Ad-Venture	Kamaraj College of Engineering and Technology	10-08-2016
2	M.Hariharan R.Dinakar Raja	Hero On You	Ramco Institute of Technology	19-08-2016

Extra Curricular Activities

Sports

S.NO	NAME	SPORT	VENUE	REWARDS	DATE
1	A.Ashik	Shuttle Badminton	Dr.Sivanthiathithanar College	Bronze (3rd Prize)	18-08-2016 To 19-08-2016

S.NO	NAME	EVENT	VENUE	REWARDS	DATE
1	S.Mohamed Sarjun	1.Minute To Win It 2.Cracking Mind	Kamaraj College of Engineering and Technology	1st Prize	09-08-2016

2	U.Iswaramoorthy R.Dinakar Raja	Technical Quiz	Velammal Engineering College	2nd Prize	09-08-2016

Third Year B

SI NO	NAME	EVENT	VENUE	PRIZE	DATE
1.	S.Suriya	Oration	Ramalingar association-Chennai	Participated	24/07/16
2.	R.Nikkitha	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
3.	K.Pandiselvi	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
4.	S.Ranjitha	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
5.	A. Sangeetha	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
6.	S. Rohini	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
7.	R. Srithar	Paper presentation	KCET, Virudhunagar	Participated	10/08/16
8.	S.Prabhu	Paper presentation	Ramco Institute of technology, Rajapalayam	2nd Prize	19/08/16
9.	P.R.Prakash	Paper presentation	Ramco Institute of technology, Rajapalayam	2nd Prize	19/08/16
10.	S.Prabhu	Circuitronics	Ramco Institute of technology, Rajapalayam	1st Prize	19/08/16
11.	P.R.Prakash	Circuitronics	Ramco Institute of technology, Rajapalayam	2nd Prize	19/08/16
12.	S.Prabhu	Project Expo	Ramco Institute of technology, Rajapalayam	1st Prize	19/08/16
13.	R.Narain Krishna & B.Mohan Raj	Paper Presentation Project Expo,	Ramco Institute of technology, Rajapalayam	Participated	19/08/16

		Circuitronics			
14.	P.R.Prakash	Project Expo	Ramco Institute of technology, Rajapalayam	Participated	19/08/16
15.	P.Rama Chandra Bharathi	Paper Presentation	Ramco Institute of technology, Rajapalayam	Participated	19/08/16
16.	L.RaechelAnnisha Angel	Paper Presentation	Ramco Institute of technology, Rajapalayam	Participated	19/08/16
17.	G.Ponmala	Paper Presentation	Ramco Institute of technology, Rajapalayam	Participated	19/08/16
18.	N.Shameema farhana	ICTACT-Youth talk	Ponjesly college of Engineering	Selected for top 10	17/08/16

National Cadet Corps

SI.NO	NAMES	EVENT	VENUE	DATE
1. 2.	K. Vinoth Kumar M. Munis Kumar	Army attachment camp	Secundrabad	1/08/2016 TO 20/08/2016

Entrepreneurship Development Camp

S.No.	PARTICIPANTS	VENUE	DATE
1.	P .Pavithran S.S. Siva Shankar G. MuthuPandi R.MurugaPerumal @ Subash P.Rama Chandra Barathi	National Engineering College, Kovilpatti.	09/08/2016 to 11/08/2016

TECHNICAL ARTICLE BY STAFF MEMBER

Performance analysis of DSTATCOM using LMS based control algorithm

Mr.B.Sahul Hameed

Assistant Professor

Department of Electrical and Electronics Engineering

ABSTRACT

This article describes about a leaky least mean square based control algorithm for a three-phase distribution static compensator (DSTATCOM) to mitigate multiple power quality problems such as reactive power, current harmonics with self-supporting dc bus voltage of voltage source converter used as a DSTATCOM in three phase three wire distribution system. The proposed control algorithm is implemented for the extraction of tuned weighted values of fundamental active power component and reactive power components of distorted load currents which are major components in reference supply currents. This is used to generate gating pulses. These gating pulses are given to the voltage source converter modeled using universal bridge thereby the VSC generate the appropriate converter current which is injected at point of common coupling in the three phase three wire distribution system through interfacing inductor. This injected converter current supplies the nonlinear component drawn by the nonlinear load thereby source does not need to provide any nonlinear component. Total harmonic distortion (THD) at the load current is high, but due to harmonic elimination provided by DSTATCOM total harmonic distortion at source current will be minimized to low value. Developed DSTATCOM is operated under nonlinear load where the nonlinear load is modeled using universal bridge as diode rectified type nonlinear load and its performance is found satisfactory.

INTRODUCTION

Nonlinear loads generate multiple power quality distortions at the point of common coupling (PCC) in the supply system and these problems are responsible for waveform deviation.These nonlinear loads include adjustable speed drives, solid state voltage controllers, rectifiers with filter inductance, switchmode power supplies, and so on.They affect the ac mains because of distorted current flow through the different impedances in the supply system. Jain and Singh discussed various control algorithms for the estimation of harmonics and their components. Therefore, harmonic currents are the primary components that are responsible for poor power quality. It is used for compensation of load reactive power, harmonics distortion, and

load balancing. In the applications of an active shunt compensator, the first requirement is an accurate and fast cancellation of power quality distortions under varying loads. Many control algorithms have been used DSTATCOM.

An adaptive control is one of the new areas that can be used for the control of DSTATCOM because an algorithm belonging to this area contains feedback system with self-adjustment of internal parameters of a controller and monitors the response of the system in the presence of parameter disturbances. Alam described block least mean square algorithm in the application of phasor parameter estimation, such as amplitude and phase without any matrix inversion. A neural network-based adaptive control is proposed in where the learning rate is obtained usingLyapunov stability to obtain convergence of learning.

Douglas reported on implementation of filtered-X LMS algorithm which is computationally efficient for reducing this output delay from the error signal used to update the internal parameter of the controller. Rigling and Schniter have discussed various types of LMS algorithm, such as leaky, circular leaky,and subspace leaky and analyzed their performance. Mayyas and Aboulnasr also described convergence analysis of the leaky LMS algorithm based on mean square error (MSE), and exact as well as approximate expressions are presented for the steady-state condition with MSE. Kamenetsky and Widrow proposed variable LMS algorithms in many areas of adaptive signal processing and control. It has solved the problem due to the sluggish convergence response of standard LMS in cases of high input eigenvalue spread. Douglas reported implementation of the leaky adaptive filter in the area of signal processing with the addition of random white noise in supply signals and explains the range of leakage factors for satisfactory performance of control algorithm. This leaky control algorithm has potential in the application of power quality where sensed non sinusoidal signals are processed for the extraction of reference signals and switching pulses of the compensator. This algorithm can be implemented based on the adaptive error signal processing with the leaky factor. In this algorithm, it is not necessary to extract an accurate amplitude of the input distorted signal because of the introduction of the leaky factor.

STUDENT ARTICLES

NEXT ALTERNATIVE SOURCE IS TOMATO

Every year, the state of Florida throws out nearly 400,000 tons of tomato waste.

The sludge is a mixture of damaged or worm-eaten tomatoes as well as unwanted skin and seeds from processed products like ketchup. It goes into landfills where it can produce dangerous methane gas, or ends up in waste water.

A group of researchers at South Dakota School of Mines & Technology has found a way to treat the problematic waste and turn it into something useful: electricity.
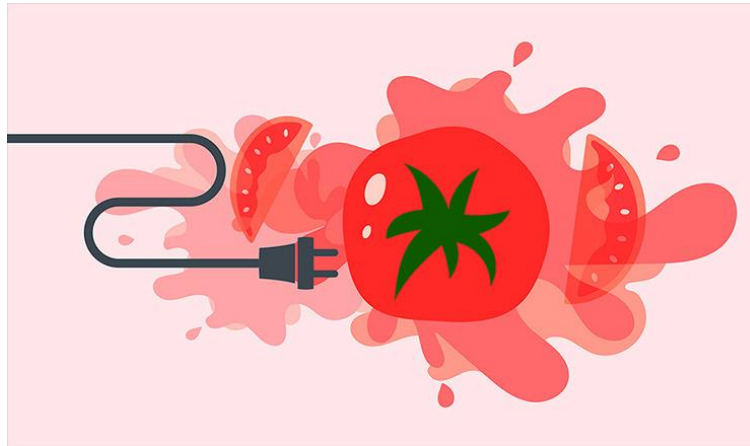
The researchers have developed a special microbial fuel cell to process the waste and turn it into electricity. It uses bacteria to break down the organic material in the tomato waste, oxidizing it and generating an electrical charge. The process also neutralizes the waste so that it no longer emits greenhouse gases.

As a waste water treatment or a renewable energy source, the concept wouldn't have much appeal. But accomplishing both things at once could make tomato power a viable option for agricultural communities like Immokalee, the tomato farming community in Florida that produces the bulk of the state's tomato waste.
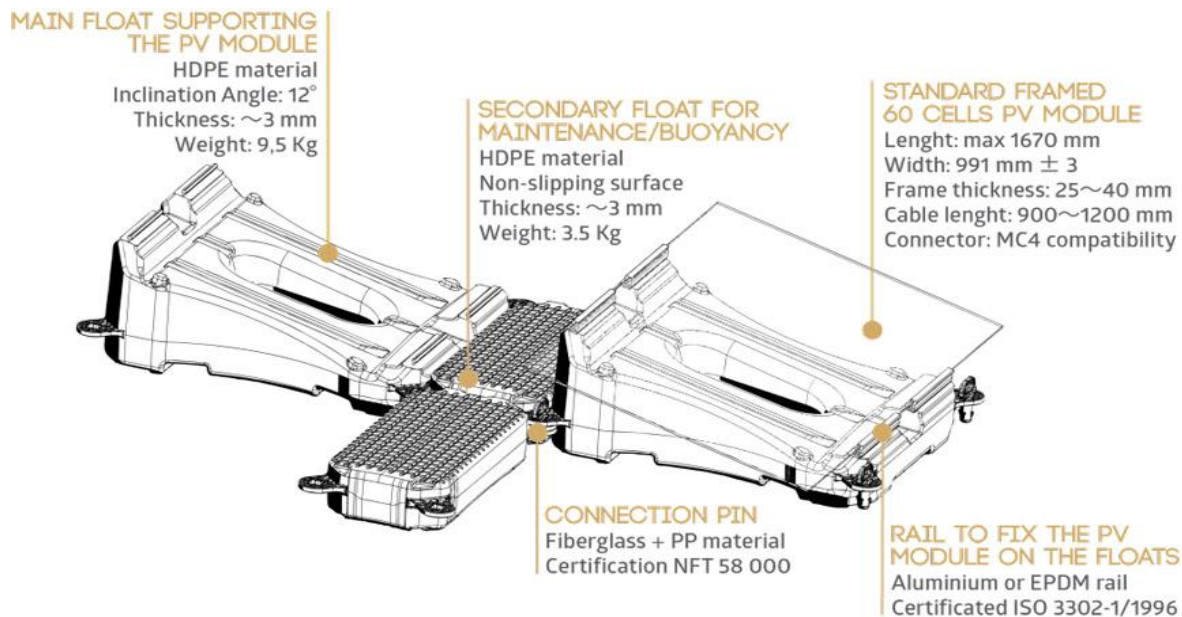
- *S. Vinoka Sanjeevini (Third year EEE)*

FLOATING SOLAR PANELS

Since 2011, French Company Ciel & Terre has been developing large-scale floating solar solutions. Their innovative Hydrelio Floating PV system allows standard PV panels to be installed on large bodies of water such as: drinking water reservoirs, quarry lakes, irrigation canals, remediation and tailing ponds, and hydro electric dam reservoirs. This simple and affordable alternative to ground-mounted systems is particularly suitable for water-intensive industries who cannot afford to waste either land or water.

How it works:

The main float is constructed of high-density thermoplastic (HDPE) and is set at a 12 degree angle to support a standard 60 Cell PV solar module. A secondary non-slip HDPE float is then used to link the main floats together and provide a platform for maintenance and added buoyancy as illustrated below.

MAIN FLOAT SUPPORTING THE PV MODULE
HDPE material
Inclination Angle: 12°
Thickness: ~3 mm
Weight: 9,5 Kg

SECONDARY FLOAT FOR MAINTENANCE/BUOYANCY
HDPE material
Non-slipping surface
Thickness: ~3 mm
Weight: 3.5 Kg

STANDARD FRAMED 60 CELLS PV MODULE
Lenght: max 1670 mm
Width: 991 mm ± 3
Frame thickness: 25~40 mm
Cable lenght: 900~1200 mm
Connector: MC4 compatibility

CONNECTION PIN
Fiberglass + PP material
Certification NFT 58 000

RAIL TO FIX THE PV MODULE ON THE FLOATS
Aluminium or EPDM rail
Certificated ISO 3302-1/1996

According to Ciel & Terre, the system is easy to install and dismantle, can be adapted to any electrical configuration, is scalable from low to high power generation, and requires no tools or heavy equipment. It is also eco-friendly, fully recyclable, has low environmental impact and is cost effective..

-    *B.Radha (Second EEE)*

BEE POLLEN COULD BOOST BATTERY PERFORMANCE

Pollen – the pesky, sneeze inducing stuff that makes allergy sufferers everywhere miserable. The pollen grains and their unique and micro structures could be put to use as a more efficient type energy storage unit.
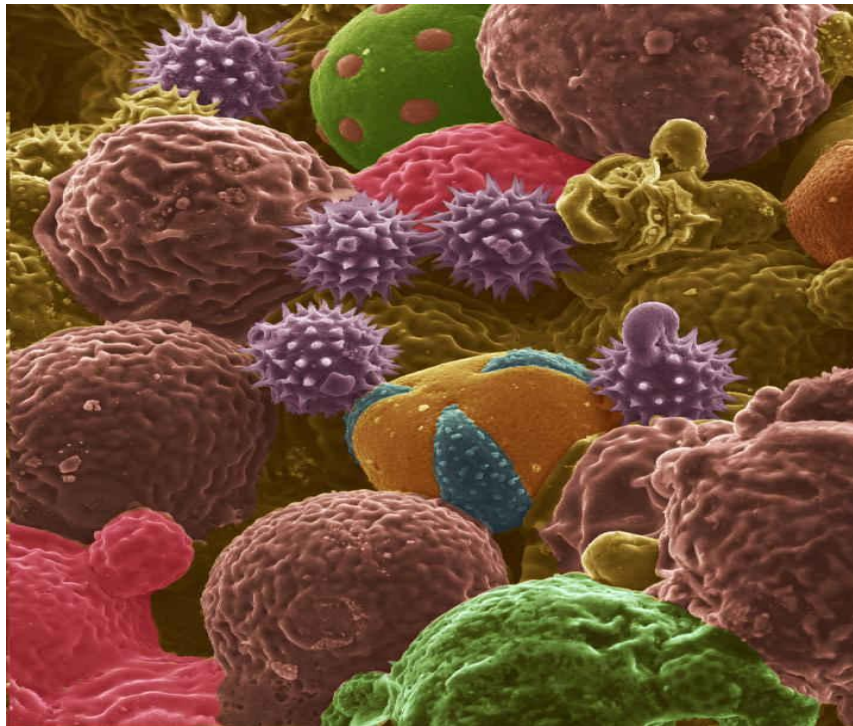
Batteries are made up of three main parts: electrodes, an electrolyte, and a separator. Each battery has two electrodes one is cathode positively charged which is positively charged end of battery and other one is anode or negatively charged end of the battery .The electrolyte runs through anode and the cathode , divided by a separator ,to create a current of electricity.

Lithium-ion batteries, which are the types of batteries used in cell phones and laptops. It has an anode made of carbon usually graphite – and a cathode made of lithium cobalt oxide. The electrolyte that runs through the battery is made of lithium salts.

The researchers found that they could turn pollen into a carbon anode that might be able to create a battery with ability to store more energy. The scientist took pollen from honey bees and pollen from cattails (plant found in water bodies in North America) and turned them into
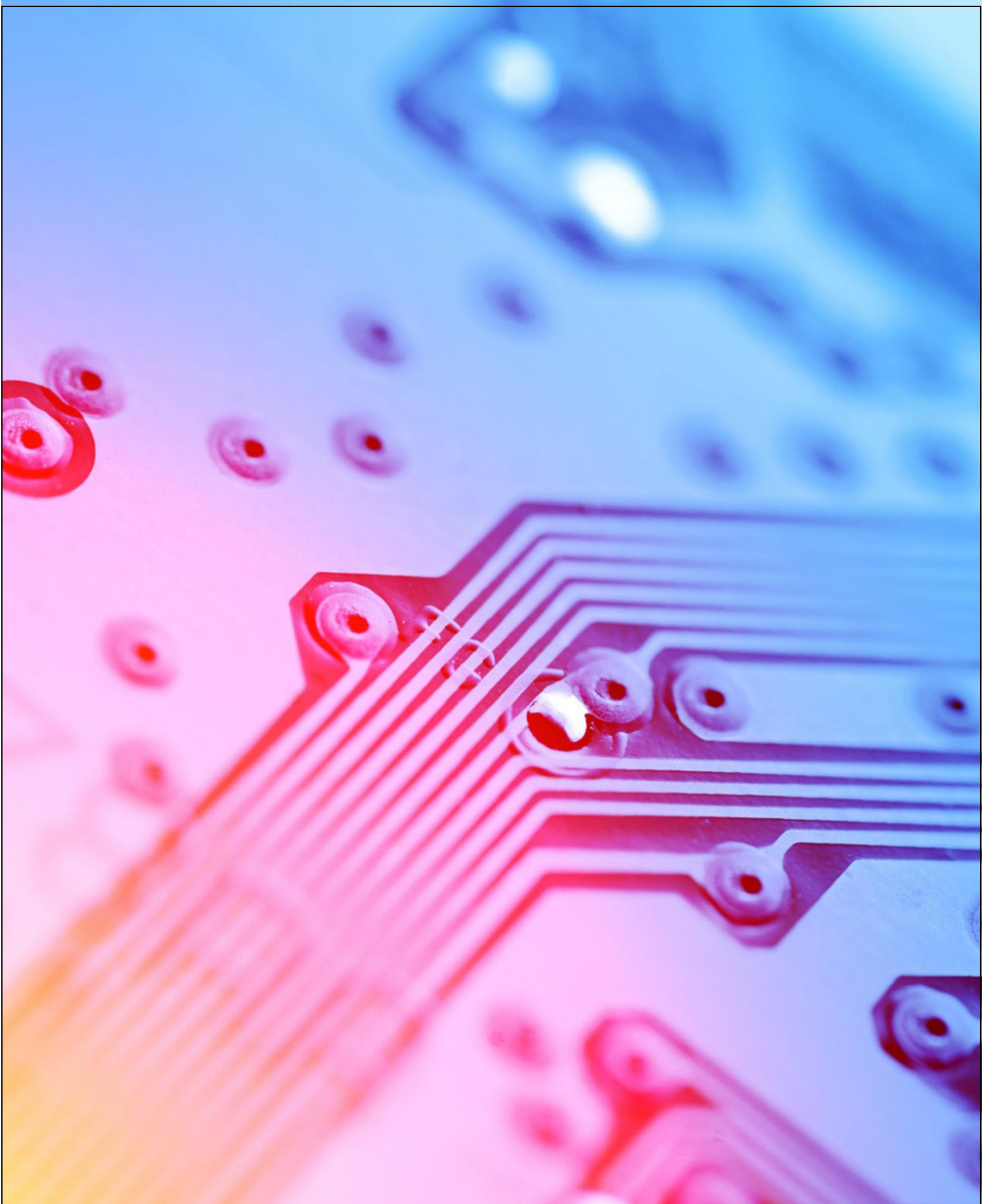
pieces of carbon by superheating the section of bee pollen and cattail pollen to 1,112 degrees Fahrenheit (600 c) in a space that was filled with argon gas.

The researchers tested the types of pollen based carbons in lithium-ion batteries and found that cattail pollen based carbon based had more energy storing capacity than bee pollen has more uniform structure and it is made up of one kind of pollen. Bee pollen on other hand comes from many different plants visited by honey bees and has more irregular structure.

- *Bavithra, (Second EEE)*

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