



# Aspire

Achievements in Sports, Projects, Industry, Research and Education

## Wishing you All a Very Prosperous New Year 2018

This monthly newsletter is in circulation since 2011.

From now on, we are including all Stakeholders in our mailing list.

To startwith, all Recruiters who consider coming to SSN have been included.

Respected Recruiters, this newsletter will showcase our student activity.

Kindly share with us any information that you think our students should learn / know.

The current first year students have been sharing their parents' mail id who will also be receiving this newsletter. We take this opportunity to welcome all parents.

Dear Parents, this newsletter is intended to shape the lives of your wards.

Please share whatever you think would improve the life skills of these youngsters.

### Tentative list of contents

#### For General Readers

The other side of Nobel worthy research p 2  
 Shiv Nadar Foundation news p 9  
 Dr.Sumantran's Book Launch Function p 13  
 SSN students win IEEE Best App Award p 22  
 Mech Marvel-Supersonic Car p 26  
 MSME Focus-Chennai Forge Products Pvt Ltd p 27  
 Amazing Innovations  
     Projection mapping / Augmented reality p 29  
     Jaguar ensures Safety of cyclists p 30  
     Smart Glass p 31  
     Vacuum Back Pack p 31  
 Inspiring Life Stories p 39  
 Corporate wisdom- Leadership Behaviour p 40

#### For Alumni

Campus Update p 3  
 Dept Update p 5

#### For Industry Members

Developing a First Time Right Culture in NPD p 19  
 TRIZ training at ZF Windpower p 20

#### For Faculty

Project News p 9  
 GIAN Course on Welding p 10  
 Anna University Central valuation p 11  
 Best Faculty Award p 12  
 Forthcoming Conferences p 14  
 Conference on Internal Combustion Engines p 16  
 FDP on Entrepreneurship p 17  
 Guest lecture info p 18  
 Forthcoming events p 34  
 DST call for proposals p38

#### For Mech Students

Book on Solar Energy p 15  
 Waste Management Conference write up p 21  
 Bosch certified Training p 23  
 Internship at IITs p 24  
 Alumni Tracking p 32  
 Innovation Challenges p 33  
 Student project competition p37

Tech Status Report on Electric vehicles- as Annexure

Nobel prize winning ideas are not always accepted by the community.

By definition, they are paradigm shifting, **revolutionary**.

Accordingly, many breakthroughs that are in our textbooks today were initially rejected, if not ridiculed, by the scientific community. Have a look at those Nobel worthy ideas that were initially rejected by Journals....

**1.Nobel Prize in Medicine (1953) awarded to Hans Krebs for: The discovery of the citric acid cycle (aka the Krebs cycle)**

Rejection-The Journal Nature rejected this paper saying "there are several letters waiting for publication"

**2.Nobel Prize in Physics (1969) awarded to Murray Gell-Mann for: "his contributions and discoveries concerning the classification of elementary particles and their interactions"**

Rejection- He says, "That was not my title, which was : Isotopic Spin and Curious Particles. Physical Review rejected "Curious Particles". I tried "Strange Particles", and they rejected that too. They insisted on : "New Unstable Particles". That was the only phrase sufficiently pompous for the editors of the Physical Review. I should say now that I have always hated the Physical Review Letters and almost twenty years ago I decided never again to publish in that journal, but in 1953 I was scarcely in a position to shop around."

**3.Nobel Prize for Physiology or medicine, 1975 , awarded to Howard Temin for proposing a reversal of the central dogma, wherein RNA could create DNA.**

Rejection- It was called "ludicrous" and his Nobel "came after a lonely battle to overcome derisive criticism from scientific leaders who refused to believe in his theory that some viruses carry their genetic information in the form of RNA, which is then copied into DNA in infected cell."

**4.Nobel Prize in Medicine (1977) awarded to Rosalind Yalow for: invention of the radioimmunoassay (RIA).**

Rejection-"Not acceptable in the Journal of Clinical Investigation. Experts in the field believe that you have not demonstrated....". For years after winning the Nobel Prize, Yalow proudly showed this rejection letter in her public presentations.

**5.The Nobel Prize in Physiology or Medicine 1978, awarded to Werner Arber, the scientist who discovered restriction enzymes .**

Rejection: He worked, "in a climate of almost total indifference, notably that of the committees and organizations tasked with allocating funds for research" .

**6. Nobel Prize in Chemistry (1986) awarded to John Polanyi for: elucidating the dynamics of chemical elementary processes.**

Rejection- *Physical Review Letters* rejected the paper as lacking scientific interest. Shortly thereafter they rejected T. Maiman's report of the first operating laser, on the same grounds. Polanyi read about this second

rejection, quite by chance, while holidaying on an island in Georgian Bay. On returning to Toronto in September of 1960 he submitted the identical manuscript to the [\*Journal of Chemical Physics\*](#), where it was promptly published.

**7. Nobel Prize in Chemistry (1991) awarded to Richard Ernst for: The development of high resolution nuclear magnetic resonance (NMR) spectroscopy**

Rejection- "The paper that described our achievements was rejected twice by the Journal of Chemical Physics to be finally accepted and published in the Review of Scientific Instruments"

**8. Nobel Prize in Chemistry (1993) awarded to Kary Mullis for: invention of the polymerase chain reaction (PCR) method**

Rejection- " Dan Koshland would be the editor of Science when my first PCR paper was rejected from that journal and also the editor when PCR was three years later proclaimed Molecule of the Year."

**9. Nobel Prize in Chemistry (1997) awarded to Paul Boyer for: Identification of the mechanism for the synthesis of adenosine triphosphate (ATP)**

Rejection-Boyer had been greeted with disbelief when he theorized that the previously mysterious process is the work of a "beautiful little machine" that operates within enzymes on the molecular level. His proposed resolution of a major unsolved problem in biochemistry threatened to "change the paradigm," Boyer remembers, and "the leading journal" in his field -The Journal of Biological Chemistry-declined to publish his work.

**10. Nobel Prize in Physics (2000) awarded to Herbert Kroemer for: "Developing semiconductor heterostructures used in high-speed and opto-electronics."**

Rejection-"I wrote up the idea and submitted the paper to *Applied Physics Letters*, where it was rejected. I was talked into not fighting the rejection, but to submit it to the *Proceedings of the IEEE*, where it was published, but ignored. I also wrote a patent, which is probably a better paper than the one in *Proc. IEEE*."

Website: <https://www.authorea.com/users/8850/articles/117724-nope-8-rejected-papers-that-won-the-nobel-prize>

Article link suggested by Dr.Muthsenthil Pandian Research Centre	Learning from these great lives...
	If only they had given up their stand to get their paper published, we might have lost some Laureates.  Their determination to explore what they believed, Brought them laurels.  Let us determine our path and stick to it.. Both in research and in Life.--VeA

## Info to Alumni- Campus Update

Amit Tyagi writes..



### SSN Research figures in The Hindu

An article has been published in today's (Dec 5) edition of The Hindu showcasing the research project on Prosthetic Limb carried out by the students and faculty of Biomedical Department.

<http://www.thehindu.com/news/cities/chennai/a-lightweight-prosthetic-hand-that-gives-amputees-a-sense-of-grip/article21262187.ece>

A.S.Sriram, Sr. Manager-Placements writes..

The Placement Orientation session for pre-final year students( all BE/B Tech and ME/ M Tech) was initiated on December 8th, 2017(Friday), There was a Placement Orientation Talk, followed by a Session with the Training Partners. Following this, Placement Registration process commenced for all 2019 batch students on the same day.

On December 9th, 2017(Saturday), all the students had diagnostic assessment tests for 4 hours(2 hrs in the morning and 2 hrs in the afternoon). Based on the diagnostic test, students were grouped for specific training.

Aptitude Training was conducted from December 11th to 14<sup>th</sup>.  
IT-related Technical training was conducted from December 15th to 18<sup>th</sup>.



Dr.P.Ramasamy, Dean Research, organized **SSN Doctorate Scholar Day** on December 1, 2017.

32 oral presentations and 83 poster presentations were made on that day. The winners were awarded by President and Principal. The long day of research interactions closed with a gala dinner.

**Student research projects for the year 2017-18 have been sanctioned. Mechanical dept has been awarded 24 student team projects, for a worth of Rs.5.83 Lakhs.---VeA**



Dr.Satheeshkumar Gopal was honoured with Best faculty award in Mechanical Engineering, by Nehru Group of Institutions . Detailed report under Faculty write up section (page 12).

## External Recognition

### Reviews



Dr.M.Nalla Mohamed, Asso.Professor, reviewed a manuscript titled "Anti-dripping fabrics of polyethylene terephthalate coated with graphene oxide" for the Journal of Industrial Textiles.

Dr. S. Soma Sundaram, Associate Professor, reviewed a paper for International journal of aeroacoustics.



Dr. N. Nallusamy, Professor, reviewed the following technical papers:

- (1) "Optimization of engine operating parameters suitable for Punnai Oil application in CI engine using Gray Relational Method" for journal of Energy & Environment.
- (2) "Performance analysis of solar chimney using mathematical and experimental approach" for International Journal of Energy Research.

Prof.V.E.Annamalai, was invited to review a research paper on "Knowledge Management, Supplier Integration and New Product Development", for the Journal ,Knowledge Management Research and Practice.



## Invited Lectures Delivered

Dr.M.Nalla Mohamed delivered a lecture on "AICTE sponsored FDP on Computational Fluid Dynamics" at SETHU INSTITUTE OF TECHNOLOGY, Kariapatti on the topic Finite Volume Method in CFD [6-12-2017]



Dr. A.K. Lakshminarayanan, Associate Professor, Delivered a lecture titled "**Solid state and resistance welding processes**" in the post conference tutorial FABWELD2018 organized by Indian Institute of Welding(IIW) [11-12-2017]

Dr. A.K. Lakshminarayanan, Associate Professor, Delivered a lecture titled "Application of Joining Techniques for Automotive industries" in a 14 days AICTE Sponsored FDP on "**Smarts Materials and Fuel Efficient Technologies for Automobiles**" jointly organized by Centre for Materials Joining & Research, Manufacturing Engineering and Mechanical Engineering, Annamalai University. [16-12-2017]

Dr. S. Suresh Kumar has delivered an invited lecture titled "high strain rate testing of naval materials" at Chemical Engineering Department of SSN College of Engineering. The title of the FDP Program was "**Green Chemical Technology and Application for Sustainable Developments in Chemical Industry.**" (4-12-2017)

The coordinators for the FDP Program are Dr. R.Anantharaj Dr. K.Sathish Kumar Dr. M. Subramanian of Chemical Engg Department.

Dr. S. Suresh Kumar has delivered an invited lecture titled "**High Impact Dynamics of Aircraft Materials**" at Bannari Amman Institute of Technology. Hands on experience was also given to the participant to work with Abaqus software. (7-12-2017). The FDP program was organized and sponsored by Aeronautical Engineering Department of Bannari Amman Institute of Technology, Sathyamangalam.



### Last month's activity SSK

Dr. S. Suresh Kumar has chaired a session in a National Conference titled "National Conference on Science, Engineering and Technology (NCSET 2017)". The conference was organized by VIT Chennai. (6-11-2017)

The session theme was "Recent advances in Engineering Materials".

The national conference was mainly focused for PG students to present their project work.

Dr. S. Suresh Kumar has delivered an invited lecture titled "**FE analysis of Plates and Shells, torsion of non-circular members**" at Panimalar Engineering College. (27-11-2017).The faculty Development Programme was organized by Mechanical Engineering Department and it has been sponsored by Anna University Chennai.

Dr. S. Suresh Kumar has delivered an invited lecture titled "**Computational fracture Mechanics and Fractographic Investigation**" at P.A. College of Engineering, Pollachi.The one day workshop was sponsored by Armament Research Board, **DRDO – ARMREB.** (28-11-2017).Around 30participants from various engineering colleges and a scientist from **ARMREB** were also attended the workshop.

## Programs Attended

Dr. N. Nallusamy, Professor, participated in 3rd National Seminar on Advanced Oxidation Processes (AOP' 2017) organised by BIT, Anna University - Trichy Campus.(17 to 19 December, 2017)

## Research Activity



Dr. K. Jayakumar, Associate Professor presented a paper with the title of "AWJM of polymer composite" in the 10th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN 10) organised by Department of Mechanical Engineering, Indian Institute of Technology (IIT) Madras (December 7 to 9, 2017)



Mr. C. Arun Prakash, Assistant Prof, Presented a paper titled, "Numerical Study of Blade Profiles of Vertical Axis Wind Turbine (VAWT) with Bi-directional Wind Flow in Highway Roads" at ICAER 17 organised by IIT Bombay. [12 to 14 December,2017]

Dr.M.Nalla Mohamed, Associate Professor, attended the DC meeting at Hindustan Institute of Technology and Science for the Scholar of Dr.Dalpir Singh, Asso.Professor, AERO, HITS (Scholar: Kalpit R.Kaurase,AERO) [21-12-2107]

## Doctoral Committee meetings



Mr. M.Gajendiran, part time research scholar (2915299735/Ph.D/AR4) under the guidance of Prof. N.Nallusamy has completed his Ph.D Viva-voce on 21-12-2017.

The title of the thesis is "Performance enhancement of Thermal Energy Storage system with nano fluids as heat transfer fluid (HTF) for solar heating applications"

Dr.G.Selvakumar, conducted PhD seminar of Mr. K. Velayutham (Registration no. 1514289156), part time research scholar, on 14<sup>th</sup> December, 2017.

The title of the seminar was "Multi-objective Optimization of Laser Cutting Process using Grey Relational Analysis"



1 Full Time and 9 Part Time scholars have joined us for Ph.D., during Dec 2017 session- VeA

## Publications

The paper titled , "**Assessment of Stress Corrosion Cracking Resistance of Activated Tungsten Inert Gas-Welded Duplex Stainless Steel Joints**" submitted by B. Alwin, A. K. Lakshminarayanan, M. Vasudevan, P. Vasantharaja, has been published in the Journal of Materials Engineering and Performance, Vol. 26 (12) (2017), pp 5825–5836 (Thompson Reuters Impact Factor: 1.331)

Mr. Raj Deelip, 4th year Mech B, presented the paper titled "**Comparison of performance and emission characteristics of DI Diesel engine fuelled with biodiesel blends of Chicha oil and Pine oil**" in the 6th International Conference on Advances in Energy Research - ICAER 2017 during 12-14, December 2017 organised by Indian Institute of Technology, Mumbai. Student co-authors: R. Nichiren, K. Santhosh Raj, S. Raghul (IV - Mech B)and Faculty: Dr. N. Nallusamy

## Other Activities

Dr. A.K. Lakshminarayanan, Associate Professor, Acted as an External Examiner for PG viva voce examination of M.E Welding Engineering and M.E Manufacturing Engineering, Annamalai University [18-12-2017]



Alphin

Dr Alphin M S, Associate Professor, served as one of the Chairman in Mechanical Engineering Board for Central Valuation at AC Tech, Anna University, Chennai [7-12-2017]

Dr.L.Poovazhagan, Assoc.Prof./Mech., invited as an Indian examiner for Ph.D viva-voce examination at the department of manufacturing engineering, Annamalai University, Chidambaram. [20-12-2017]



Poovazhagan

## Attended book release function

Dr. S. Suresh Kumar has attended the book launching function for the book titled "**Faster, Smarter, Greener – the future of the car and urban mobility**". The author of the book was Dr. V. Sumantran (Chairman, Celeris Technologies). The function held at Madras School of Economic Campus, Kotturpuram, Chennai.

(1-12-2017) **(details of the book and author are given in separate write up- p 13)**

## Guest Lectures

Dr.K.Mathiyazhakan, Assoc. Professor (Designate) in Mechanical Engineering, The Northcap University, Gurgaon, spoke on **Process improvement in Lean Six Sigma**, on 22-12-2017, addressing the Second year students.

Dr.Sriram(Ph.D) from Alfred University, New York and currently working in INTEL as a Supplier Accounts Manager, spoke on Challenges faced by Indians while managing in a global Environment, on 29-12-2017.

A guest lecture was conducted by Dr.Nalla Mohammed and Dr.Ananthapadmanaban for the III Year students, on 29-12-2017. The topic of the lecture was-**Challenges faced by Indians while managing in a global Environment**. The lecture was handled by Dr.Sriram(Ph.D) from Alfred University, New York and currently working in INTEL as a Supplier Accounts Manager.



## STUDENT ACTIVITIES:

Manickavel M, of third year mech, attended an Engine Workshop at BOSCH TRAINING CENTRE held at Rajalakshmi Engineering College [12/12/2017- 16/12/2017]

Niranjana K, of third year mech, Completed An Inplant Training In Valeo Lighting System India Pvt Ltd. [4/12/2017-16/12/2017]

Shami Jose, of third year mech, successfully completed an In-plant training at Ford India Private Limited [4/12/2017-8/12/2017]

## Project news

Dr. S. Suresh Kumar has submitted a project proposal titled **“Establishment of innovative digital teaching class room for GATE exam training of SC/ST students”** to AICTE under the scheme Prerana. (30-11-2017)  
The scheme mainly helps SC/ST Students to prepare for Higher education.  
The cost of the project proposal is 10 lakhs.



**Dr.N.LakshmiNarasimhan has submitted a project proposal to DST under the Nano-Mission program, titled “Studies on the solidification /melting of nano-pcms”, requesting a funding of Rs.9.5 lakhs.**

The project, "Design and Development of Crash Bumper for Two wheeler rider safety", submitted by the team of Nirmal Kumar A, Namratha G and Manoj S ( 3rd year Mech A), has been shortlisted as one among top 100 teams in KPIT Sparkle Innovation Challenge 2018. Project Guide: Dr. S. Suresh Kumar.

## Group News

The Newsletter of Shiv Nadar Foundation can be accessed at the site:



[http://blog.shivnadarfoundation.org/our-newsletter/the-foundation-post-q4-2017-shiv-nadar-foundations-newsletter?ct=\(EMAIL\\_CAMPAIGN\\_12\\_25\\_2017\)](http://blog.shivnadarfoundation.org/our-newsletter/the-foundation-post-q4-2017-shiv-nadar-foundations-newsletter?ct=(EMAIL_CAMPAIGN_12_25_2017))

## WRITE UP ON GIAN COURSE(DECEMBER 11<sup>th</sup> to 15<sup>th</sup>,2017)

### D.ANANTHAPADMANABAN

Five of the staff from Mechanical Engineering-Dr.S.R.Koteeshwara Rao, Dr.D.Ananthapadmanaban, Dr.K.L.Harikrishna, Dr.Damodaram and Mr.Ebenezer attended the GIAN (Global Initiative of Academic Networks) Course conducted by I.I.T,Madras from December 11th to 15th,2017.Three students-Mr.Hariramprasad and Mr.Padmanaban(II M.E student) and Ms.Srivasupradha (III B.E student)also attended the course.

The course covered latest research on welding and was well handled by Dr.Lin and Dr.Sudarshanam Suresh Babu from The University of Tennessee at Knoxville. It was a revelation to see the kind of advanced research carried out in the USA with active participation from industry.



SRK Rao



DAP



HariKrishna



Damodaram



Ebenezer

- What struck us was the state of the art equipment used, for example in situ crack measurements being made every 0.01 seconds.
- The lectures were interspersed with lots of videos and case studies. Many important Journal papers were mentioned, which could be used by us for use in our research.
- Special mention should be made of the case study on gas turbine blades and selective laser melting. There were a lot of healthy discussions too.
- Sometimes, complex problems could have simple solutions, as pointed out in a case study by Dr.Suresh Babu. The study involved making an extra fitting to partially take away the gaseous products formed due to laser melting. The idea for this innovation was ironically obtained from a toilet design in Chicago.
- A lab visit to the metal joining lab was also arranged and the participants were introduced to the cold metal transfer and Gleeble Simulation system ,which are available for use on payment basis.
- Dr.Suresh Babu, who was the foreign faculty also gave his e-mail id for further discussions and possible joint research work, the e-mail id being [sbabu@utk.edu](mailto:sbabu@utk.edu)
- On the whole, the course was well organized and well received by the participants.
- I strongly feel that some of our faculty can attend such GIAN courses every year and get in touch with foreign faculty .
- They can also develop new ideas by interactions with other participants.

## Anna University Central Valuation- December 2017- New Method

- Anna University Central Valuation was held between 7 December 2017 to 14 December 2017.
- As Per Previous Valuation Rule, the Answer Key was given only to the Senior Professor but from this time each Evaluator was provided with an Answer Key .
- There is a Chairman for each ten valuator (based on stream) to check the sample papers from each faculty.
- Everyday individual faculty should give undertaking that he/she has handed the paper in past two years which he/she going to evaluate.
- This will make the Valuation System lot more Perfect & this will avoid Faculties from awarding irrelevant marks to the Students.



Dr S Vijayan

Dr S Vijayan served as overall Chairman for the Mechanical Engineering Board (Zone 3) in December 2017 Valuation. He gave a briefing about the new valuation system and conducted the entire process in an effective and flawless way.

The faculty served as Chairman from Mechanical Engineering Department of our Institution are



Dr M Suresh	– Thermal stream papers
Dr M S Alphin	– Design (Dynamics, Kinematics, CAD, FEA, Engg Graphics)
Dr L Poovazhagan	– Manufacturing stream papers
Dr N Lakshminarasimhan	– Fluid Mechanics
Dr G Selvakumar	– Manufacturing & Industrial Engg
Dr D Ananthapadmanaban	– Metrology
Dr R Prakash	– Thermal stream papers

There in an Assistant Examiner under each Chairman to ensure correctness in mark entry

Dr.Satheeshkumar Gopal writes...



Kudos to the team of Nehru Group of Institutions for successfully running the programme for the 9<sup>th</sup> time after instituting the award commemorated in their loving memory of the founding member Shri P K Das, being a teacher himself. Established in 1968 at Coimbatore it has grown in to Kerala too with 18 institutes in total.

I was introduced to this award by my friend Mr. Om Prakash working as Assistant professor in their group.

- 1700 applications were received of which 1500 were accepted for more than 20 different categories, one of which is life-time achievement award.
- 116 were short listed to attend the interview on 03.12.2017 to Coimbatore.
- And finally 20 candidates were selected under different categories of which I was chosen for Mechanical (Junior) category (Cash Award of Rs.10,000)

Dr. Paula Banerjee, Vice-Chancellor, Sanskrit College and University, University of Calcutta (best known for her work on women in borderlands & women and forced migration, the President of International Association for Studies in Forced Migration) was the chief guest. Dr. B. Ilango, Former Vice-Chancellor, Bharathiyar University was the chief jury of the award committee. He claimed that the management has not interfered in his decisions and hence he has chosen to be in the jury for the 8<sup>th</sup> consecutive time. He also mentioned that some awards were left open for want of better candidates.

Dr. Porsezian, Pondicherry University with 3881 citations and 24 projects executed among others accomplishments, won the lifetime achievement award (Cash Award of Rs.25.000). He also mentioned that around 120 Ph.D scholars are working on his 'equation' for Tsunami, world-over currently.

I personally feel humbled and honored for having been blessed with their benevolence. 'Meticulousness' defines the effort made by the entire team towards the scheme of events. The hospitality and care showered upon our 'invited' family members during the event made us feel special. A teacher's soul does feel elated when recognized for their efforts. **This provides the much needed motivation and faith into the system where a teacher's role currently is being perceived as a point of negligibility.** I submit my heartiest wishes and prayers for them to keep up the great work for all the years to come.



Dr. S. Suresh Kumar attended the book launching function for the book titled **“Faster, Smarter, Greener – the future of the car and urban mobility”**. The author of the book is Dr. V. Sumantran (Chairman, Celeris Technologies). The function was held at Madras School of Economic Campus, Kotturpuram, Chennai (1-12-2017)

#### Profile of Dr.V.Sumantran



Dr Sumantran is Chairman of Celeris Technologies and an advisor to several leading Fortune-100 organizations in automobile, industrial equipment, defence and aerospace industries. He is a luminary in the Automobile industry.

He is an MISI Adjunct Professor at MIT (USA) and a Distinguished Visiting Professor of the Indian Institute of Technology, Madras.

Previously (2006-2014) he was Executive Vice-Chairman of Hinduja Automotive, UK, the auto and manufacturing sector holding company of the Hinduja Group as well as Vice Chairman of Ashok Leyland. For their joint-ventures, he was the Chairman of Ashok Leyland Nissan Ltd, and Chairman of Ashok Leyland John Deere Ltd. Prior to this (2001-2005), he was the chief executive officer of TATA Motors' Car business, reporting to Mr. Ratan Tata. During this time, he oversaw the concept development for their landmark projects including the Tata Nano and the Tata Ace.

Prior to joining TATAs, Dr. Sumantran had a 16-year career with General Motors in Detroit and subsequently served on deputation in Europe as Director, SAAB Automobile AB.

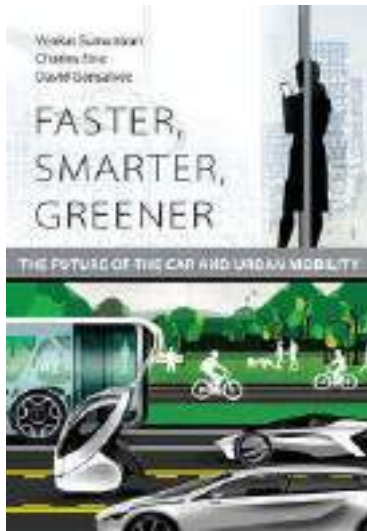
Dr. Sumantran has served on the Science Advisory Council of the Prime Minister of India and the Scientific Advisory Committee to the Cabinet of the Indian Government. He was a member of the National Manufacturing Competitiveness Council and served as Chairman, National Defence Council of the Confederation of Indian Industry until 2013.

Dr. Sumantran holds MS and Ph.D. degrees in Aerospace Engineering (Princeton University & Virginia Tech) and a Master's degree in Management of Technology.

He is a Fellow of SAE International and a Fellow of the Indian National Academy of Engineers. He is a licensed Pilot and possesses a FIA Racing Driver's Licence.



## About the book



By the end of the twentieth century, our society had accorded the automobile a central role in urban mobility.

In this century, even as mobility remains an essential aspect of development, we are obliged to confront the consequences of accelerating urbanisation, environmental impact, and sweeping changes to culture and user habits, triggered by a digitised world.

Innovation and entrepreneurship have endured as core skills in human adaptation and will continue to influence future strategies.

In their book, *Faster, Smarter, Greener*, the authors explore these issues and propose a scalable and adaptable framework that can help guide our society's efforts to transform urban mobility to becoming future-relevant.

### Faculty Write up

### Forthcoming Conference info



We would like to bring to your kind attention that the department of Mechanical Engineering is organizing one day national conference on "Sustainable Energy Resources for Thermal Systems (SERTS 2018)" on 16<sup>th</sup> March, 2018 at SSN College of Engineering, Kalavakkam, Chennai – 603110.



**The Keynote speakers for this conference are eminent academicians from IIT Madras and Anna University.**

This conference attempts to bring together various researchers, academicians and industrial experts under one roof to discuss about the recent developments on sustainable energy resources for thermal systems. This conference hunts for novel research in all aspects of research problems pertaining to sustainable energy resources for various thermal applications such as IC engines, energy conversion systems, HVAC systems, solar energy systems, fuel cells and alternate fuels etc.,

**All the papers will be published in the conference proceedings with ISBN. Selected papers will be published in International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) indexed in Scopus.**

We request you to submit full length papers to this conference and also help in circulating the information to your students, research scholars, friends and colleagues in Academia and Industry.

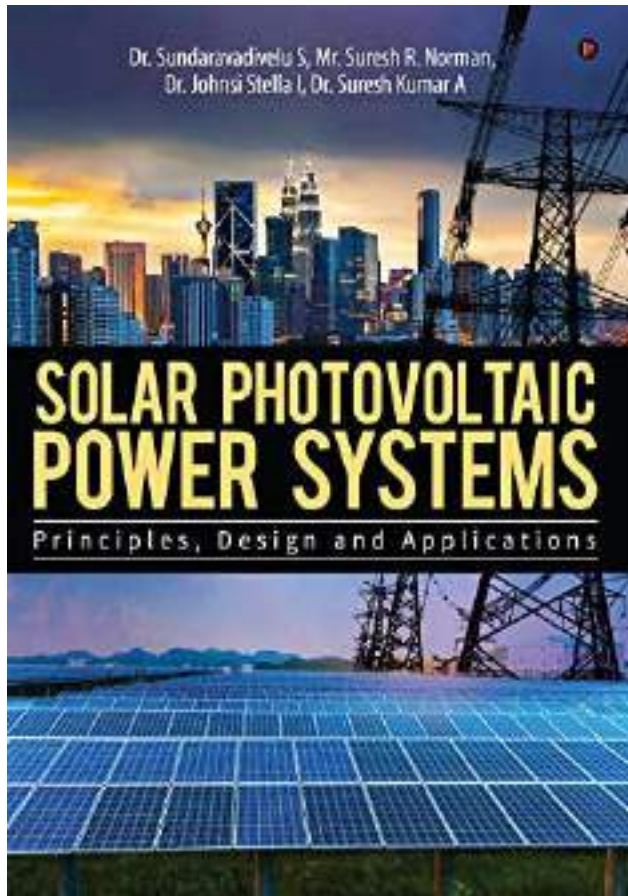
Please visit <https://sites.google.com/view/serts2018/home> for paper format, registration and other details.

Thanks and Regards,

**Dr S Rajkumar & R.Prakash**

## Book on Solar Energy by SSN Faculty

## Attention: ME Energy Students



Dr.S.Sundaravadivelu  
Professor, ECE, has  
co-authored a book in  
the field of Solar  
energy .



### Excerpts from their Introduction... VeA

This book is a solar energy technical manual - a road-map for solar energy professionals and amateurs. It is also written for the use of engineers & consultants , polytechnic , graduate & post-graduate engineering students, and industry technicians.

The reader is introduced to the theoretical concepts of solar cells and also the practical working of solar cells, solar modules, solar panels and solar arrays.

Also discussed are the components of a photo-voltaic power system such as MPPT charge controllers , storage battery systems and solar converter circuits. For the benefit of the reader, solar Photovoltaic systems are discussed , along with examples of existing systems .

Numerical examples and exercises are not included since it is not designed based on any University curriculum nor meant to be an academic text. If a few solar energy systems professionals and amateurs are benefited by this book , the Authors would be thankful that the purpose of this book has been served !

### Salient Features

- This book introduces the reader to the theoretical concepts and practical aspects of solar cells
- Imparts a working knowledge of solar cells, solar modules, arrays and panels to engineers and technical students
- The principles of MPPT charge controllers , storage battery systems , solar converter circuits and solar Photovoltaic systems are discussed , along with examples of existing systems
- This book is easy to read and clear to understand
- Many drawings and photographs have been used to make it interesting to read and easier to grasp and apply

### More details at

[Solar Photovoltaic Power Systems : Principles,Design and Applications](#)

by Mr. Suresh R. Norman, Dr. Johnsi Stella I, Dr. Suresh Kumar A , Dr. Sundaravadivelu S

**Report on 25<sup>th</sup> National Conference on Internal Combustion Engines and Combustion (NCICEC) 2017**

The 25<sup>th</sup> National Conference on Internal Combustion Engine and Combustion (NCICEC) was held on 15-17 December, 2017 at National Institute of Technology (NIT) Surathkal, Karnataka, India. The conference was under the auspices of the Combustion Institute Indian Section (CIIS). The conference was a grand event with about 100 paper presentations and six keynote speakers from eminent universities and industries in India.

The inaugural lectures were given by Mr. Sanjiv Singh, Chairman Indian Oil Corporation Ltd (IOCL) and Padma Bushan Dr. V. K. Saraswat, Chairman, Combustion Institute – Indian Section (CIIS). Mr. Sanjiv Singh discussed about the energy scenario in the nation and the future of the fuel industry with more emphasis on the emissions from combustion. Dr. V. K. Saraswat explained about the availability of coal in India and how it can be utilized. He suggested the next generation fuel would be methanol.



The keynote by various academic and industrial members were concentrating on the energy scenario in India, like,

- 1)improvement in the refineries for variable production;
- 2)using better fuel for better combustion;
- 3)effect of implementation of BS VI on automobile industry;
- 4)small and micro scale combustion.



## A Two-Week FDP on Entrepreneurship

Dr. K. S. Jayakumar has attended a two-week Faculty Development Programme (FDP) on Entrepreneurship organized by National Engineering College, Kovilpatti during 4<sup>th</sup>-16<sup>th</sup> December 2017 and FDP is sponsored by NSTEDB-DST, New Delhi.

The main aim of the FDP is to create entrepreneurial spirit among the engineering college students to create new startups through innovative products and services in order to create more new employment opportunities.

The FDP covers topics such as

- importance of entrepreneurship in nation's economy development,
- Role of EDII and NSTEDB-DST in entrepreneurship education and funding opportunities,
- Role of District Industrial Center (DIC) and Funding schemes for creating new start-up,
- methods of new product development and marketing strategies,
- need and importance of financial management in new start-up,
- preparation of business plan,
- loan opportunities in MSME, and
- promoting entrepreneurship skills among the students.

The training programme was very useful and it will help me to teach students about entrepreneurship and getting funds from NSTEDB-DST.



A guest lecture was conducted by Dr.Nalla Mohammed and Dr.Ananthapadmanaban for the III Year students, on 29-12-2017. The topic of the lecture was-Challenges faced by Indians while managing in a global Environment. The lecture was handled by Dr.Sriram(Ph.D) from Alfred University, New York and currently working in INTEL as a Supplier Accounts Manager.



- The lecture started with Dr.Sriram's background in Chennai and I.I.T,Varanasi and how he had to take decisions out of his comfort zone even during his college days.
- He talked about his direct Ph.D program in the U.S and how he had to be an effective time manager, while simultaneously doing internship and writing his Ph.D thesis.
- The management strategies in USA and Japan were briefly compared.
- While the Americans seem to be good at design and have a more open Management system, the Japanese seem to be good at manufacturing and follow a more Hierarchical Management system.
- Some business strategies followed by Walmart were also briefly touched upon.
- Queries were raised whether INTEL could offer internships to the students and Dr.Sriram promised to get back to help them.
- He can be contacted at [sridats@gmail.com](mailto:sridats@gmail.com) for any further questions on applying abroad.



## Industry Interaction



Product Development Management Association-India, the Indian affiliate of PDMA, USA in collaboration with Indian Institute of Technology Madras (IITM) organized a one-day “PDMA-India International Conference 2017” on 30th December 2017 at IITM.

The PDMA Conference primarily aims to link the researchers and practitioners from different branches of product development, innovation and engineering management to come to a common platform and showcase the best practices in the domain of New Product Development.

**Professor V.E.Annamalai was invited to speak on “Developing a First Time Right (FTR) Culture in New Product Development”**

### Abstract of the speech

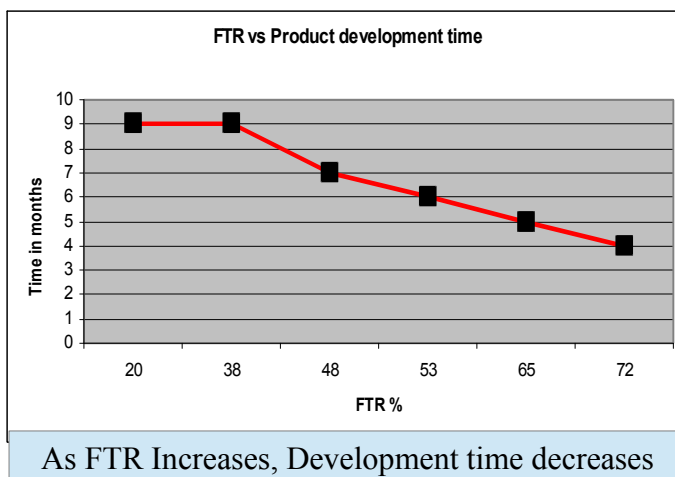
We are used to “End of Design” Metrics like , Time to Market ,New Product Sales and Number of products developed . Interestingly, none of these metrics throw light on the efficiency of the R&D person-for example, no one knows how many times the design failed in lab! There is no “In-Process” Metrics for NPD.

Under the cover of “Confidentiality” designs are not offered for any audit with openness. The designer has the luxury to fail “n” number of times. This will be captured only as **Less Sale of NPD** or **more time to market**, which are complex metrics that do not pin point the designer and his mistakes.

All available tools like QFD , DFM etc **can be subjectively manipulated** by the designer. He can continue to do what he wants to do, and still convince others that he follows tools! R&D goes through various stages. Assume there are five decision points (stages), in product development and that we are 90% efficient in all stages.

- F1 – Design Selection Accuracy (0.9)
- F2 – Effect Prediction Accuracy in Design (0.81)
- F3 – Inaccuracy due to non-relevant testing (0.729)
- F4 – Difficulty due to non-sustainable design (0.656)
- F5 – Uncertainty in Scaling up (0.59)
- F6 – Change in Release Norms (0.531)

**Even if we are  
90% efficient in each stage,  
our FTR is 53 % only**



All these six factors were considered in detail and a simple methodology was developed.

In spite of QFD and DFM tools, it was the attitude of the individual to follow rules, that mattered.

A four step process ensured we improved on First Time Right Designs.

The major shift was from “**end of design**” metrics to “**In-Process**” metrics.

## TRIZ Training at ZF Windpower Coimbatore

## Training on TRIZ at ZF Windpower

ZF Windpower , Coimbatore (of the German Corporate group ZF Friedrichshafen AG) had invited Professor V.E.Annamalai to conduct a hands on training on TRIZ (Inventive Problem Solving), during Dec 28 and 29. This company had evinced interest after seeing VeA's TRIZ video uploaded by CII in Youtube.



Mr. Deepak Pohekar, Executive Director, inaugurated the session and also came back to thank and wind up the session.

Dr.K.Eswaramurthy, Manager-Talent engagement and Development, organized the training.

The Teams deeply engrossed in an exercise to solve a problem with TRIZ techniques.



Srinivas Naidu

Senior members of the team, Mr.Partha Kumar Sarkar , GM Operations, Mr.Umakanth Papatla, GM Quality and Mr.Srinivas Naidu, Head R&D, sat through the entire two days.

After the methodology was practiced, Mr.Umakanth Papatla, GM Quality, facilitated a session on problems that can be taken up for TRIZ applications.

The Senior Management team is committed to Ensure application of TRIZ in full swing. Another session for the rest of the team is planned in Jan end.



## Scholar write up



P.Sabarinathan writes..

**Report for the 7<sup>th</sup> International Conference on Solid Waste Management, 7<sup>th</sup> IconSWM 2017** which was held at PJTS Agricultural University, Rajendranagar, Hyderabad, Telangana, India, December 15 - 17, 2017, Under the Aegis of: International Society of Waste Management, Air and Water (ISWMAW)

It was a wonderful experience , interacting with the resource persons in the area of waste management.

- Solid waste management societies from various countries are majorly concentrating towards the 3Rs which are REUSE, RECYCLE AND REDUCE.
- From the facts they agree with the term reduce instead of recycle, because if we recycle the waste it adds cost to the waste and process. So, they want the researchers to do research, how to reduce the waste production instead of recycle.

In this conference I have presented a paper titled "Recovery of abrasive grains from the used grinding wheel scrap". Co-authored by V.E. Annamalai, S. Sureshkumar and A.Xavierkennedy.





Student write up

Best App Award

### **IEEE Mobile Application Development contest 2017 : IEEE MadC**



Team: Adithya J (CSE), Aditya Manoharan (CSE), Vishwanath Jeyaraman (mech).  
Region 10, India, IEEE Madras Section, IEEE Student Branch of SSN College of Engineering  
Won the best app award from among 250 applications.

The competition was judged by a panel of judges, both from the corporate sector and academia alike. (<http://ieeemadc.org/judges/>) Each application was graded on four parameters: User Interface (UI), User Experience (UX), Usefulness, Availability/Accessibility.

The app we built primarily tackles the issues faced in the healthcare sector. The healthcare sector is one of the most overlooked sectors, especially in developing countries. In the current day and age, everything is being digitized. The healthcare sector is also being digitized, but this is mostly internal and not for the end user.

Medications still have to be bought manually, prescriptions and reports are still on paper, there's no structured method to look for blood donors. There's apps to order food from your phone, but the same isn't available for medicines. There have been apps made in the past that have made some things easier for the consumer.

The problem is that there is no streamlined experience for users. There's no single place the user can go to deal with all things health care and also have a great user experience. This is what we're trying to solve.

We've built an android application which we believe tackles some of these important but often currently overlooked issues and makes a better overall experience for the end user.

The app completely follows material-design guidelines. It has a simple tabbed UI which is intuitive, functional, yet simple to use. Even by senior citizens. The app also has a user-friendly introduction for first-timers that briefs on the capabilities of the app.

More info is detailed in a document here: <https://goo.gl/NbtlmAv>

Youtube link demo/promo: <https://youtu.be/EDdsUSuxibc>

Five III year Mechanical Engineering students, who were academically strong and economically weak were selected for BOSCH automotive training conducted by Rajalakshmi Engineering College. This internship was supported by Mr.Yogeswaran, a parent of passed out Alumnus (See last month Aspire). These students attended the training in December 2017.



Jayakumar



Manickavel



Manoj



Ankit Kumar



Debal Bhattacharjee

#### **A brief report from them.**

We learnt about basics of engines and their working. The fuel ignition system was demonstrated with real ignition pump of the vehicle. We practiced assembling and dismantling of both inline and distributor pumps and understood the concepts with ease.

We also learnt about working of governors in automobiles and understood the calibration of fuel pump. In auto electrical session, we had hands-on-experience on stator motor and alternator. We also learnt how to test a battery.

We were taught about CRDi and MPFi engines. We understood the concept of electronic control unit and different types of sensors and actuators used in automobiles. Another interesting learning was about vehicle system analyzer and we practically tested a diesel engine on vehicle system analyzer in order to check the working of different components and sensors in the vehicle.

**Jayakumar:** Overall it was a very useful training!

**Manickavel:** I was very happy to learn so many things about automotive systems within 5 days. I thank faculty and sponsors for choosing me.

**Manoj:** It was a great experience. Each and every session was worth the time and money. Every day we had a theory session followed by a practice session. So we had better understanding of all concepts.

**Ankit Kumar:** It was a very good training program which helped me to explore and learn a lot beyond book knowledge. I had a deep understanding of working and servicing of different parts of engine. It was worth the money. I am very thankful for sponsoring me to attend this workshop which was very helpful in exploring my visions towards automobile field. Hope to receive same in future as well.

**Debal Bhattacharjee:** The trainers Mr. Madhan and Mr. Ramanujan were very confident, articulate and knowledgeable. Because of them, we were able to grasp automobile basics, concepts and latest trends, splendidly. It would be apt to say that we gathered immeasurable knowledge about vehicle systems and their working. This would not have been possible by routine book reading. As a matter of fact, we now feel confident about the topics we once thought to be confusing and tough.



Student write up



Bharatharajan S, of Final year A Section,  
writes on his internship experience

I received an opportunity to work as a summer intern at The Indian Institute of Technology, Madras, under Dr. P. Ramkumar, during the period of June-July 2017. I worked under the field of Tribology and undertook a project titled "*Tribological Behaviour of Solid Lubricants on Copper Metal Matrix Composite Brake Friction Material*". The aim of the project is to identify the optimum combination of load, speed and reinforcement percentage to obtain a minimum wear while maintaining a moderate value of coefficient of friction.

Being a completely new field, it was initially a challenge to understand the basic concepts of tribology which required proper study of several journal papers. I was exposed to the powder metallurgy method of composite preparation. This project also involved the comprehension and application of statistical modelling methods such as Taguchi function, Response surface methodology to create the design matrix. This research internship was helpful in identifying my penchant in research. The project is still under progress.

Student write up



S, Karthik, Final Year Mech  
Writes on his Internship Experience

I worked on a research project titled '*Parametric Study of Heated Air Water Taylor Flow in Microchannels using the Eulerian Multiphase Model*' under the guidance of Dr. Manmohan Pandey, Professor, Department of Mechanical Engineering at the Indian Institute of Technology, Guwahati. The research work was carried out with a fellowship awarded by the *Indian Academy of Sciences* from June 2017 to July 2017.

Taylor flow is characterized by periodic formation of gas bubbles which are separated by liquid slugs. Heated air-water Taylor flow in microchannels has the ability to remove large heat fluxes and hence a parametric study will help in optimizing the performance of cooling equipment.

Computational Fluid Dynamics (CFD) was used to study the effect of two parameters, liquid superficial velocity and gas superficial velocity on the pressure drop and heat transfer characteristics of heated air-water Taylor flow in microchannels. The commercial code solver ANSYS Fluent v14.0 was used for this work. The Eulerian multiphase model was utilized to simulate the heated two phase flow.

The results obtained using the Eulerian model were validated with existing results reported for a simulation run using the Volume of Fluid (VOF) multiphase model with the same boundary conditions.

Then a parametric study was conducted by taking different values of liquid and gas superficial velocities. An increase in the pressure gradient and average Nusselt number was noted as the liquid superficial velocity was increased and a decrease in the two quantities mentioned was observed as the gas superficial velocity was increased. In the end, a report was prepared to document the findings and was submitted to the *Indian Academy of Sciences* for approval.



In the summer of 2017, I was awarded the Indian Institute of Technology (IIT), Madras Summer Research Fellowship, which allowed me to do research in the field of computational mechanics under the guidance of Dr. Sivakumar M. Srinivasan, at IIT Madras.

- Here I was exposed to GraFEA : An edge based approach to finite element analysis (FEA), which was a reformulation of the conventional FEA techniques from the traditional nodal analysis to an edge based analysis.
- My work focused on reformulating the Constant Strain Triangular (CST) element to obtain non local behavior of the continuum by using the differences in nodal displacements as the primary field variable.
- Over the course of the two months of this internship, I was able to apply my fundamentals in FEA into learning this new formulation and was able to derive the stiffness matrix in a solid mechanics domain for a CST element.
- I am now currently working on extending this work to larger domains which would be meshed using several triangular elements by Delaunay Triangulation.
- By doing so, I would be able to obtain the desired non local behavior of the considered domain and hence further apply this to facets of solid mechanics such as fracture mechanics or damage analysis.
- This experience has helped me understand the nuances of research and has helped me transition from looking for answers to a problem, into creating the problem statement itself.
- By obtaining this fellowship I was exposed to a new thinking process and this gave me insight into independent research.
- In conclusion, this fellowship program allowed me to further my interest in computational mechanics, which I wish to pursue as my field of interest for my masters program in mechanical engineering in the next year.
- This experience has truly made me well aware of the amount of dedicated work it takes to pursue research and has allowed me to merely scratch the surface, encouraging me to pursue a graduate degree in mechanical engineering in the near future.

The long-term objective for the team behind the Bloodhound Supersonic Car is to cross the 1,000-mph (1,600-km/h) threshold and set a new land speed record, which currently sits at 763 mph (1,228 km/h). The vehicle was conceived almost a decade ago, and powered by Rolls-Royce EJ200 jet engine with an equivalent thrust to 360 family cars is now edging closer to that goal.

The recent public test runs at Cornwall Airport Newquay saw the car shuttled to 210 mph (337 km/h) from a standing start in just eight seconds, pulling 1.5 G along the way. The team is now targeting transonic speeds of 500 mph (804 km/h) along the 12-mile (19-km) Hakskeen Pan track in Northern Cape, South Africa, in October 2018.

While still well short of the 1,000 mph mark, those speeds will see the Bloodhound SSC tested in new ways. At speeds between 400 and 500 mph (640 and 804 km/h), the vehicle's aerodynamics start to dictate its stability, rather than the wheels in contact with the desert surface, and things are expected to get extra shaky during this transition.



The team will collect hundreds of gigabits of data through 500 sensors integrated into the car. This will include information on the relationship between the solid aluminum wheels and base drag, which refers to the aerodynamic force generated by low pressure at the rear that pulls it back. Using these insights, the team will gain a better understanding of the power required to break the land speed record.

This run will also be the first time the Bloodhound SSC is running on its solid aluminum wheels, designed specifically for the desert surface. With a V-shaped keel, these dig 25 mm (1 in) into the baked mud surface when the car is stationary, but then rise up as speed increases, like a speedboat lifting out of the water. When it hits 500 mph, just a few millimeters of metal will touch the ground. The team is offering 500 all-access tickets for those interested in seeing all of this play out in person.

"Bloodhound 500 is a key milestone on the route to setting a 1,000 mph record," said driver Andy Green, who was at the wheel during the recent tests. "Building on everything we learned in Newquay this October, we'll learn a tremendous amount by going fast on the desert the car was designed to run on. We hope you can join us in the Kalahari desert to share this experience first-hand."

Source: [The Bloodhound Project](#)

Reproduced from Gizmag



The Company is a MSME Unit located in Plot No. New No. 57, (Old No.-67), SIDCO Industrial Estate, Ambattur, Chennai – 600 098, and was incorporated in the year 1975 as a Partnership Firm in the Name of FORGE PRODUCTS. This was changed in the year 2001 as Private Ltd. Company in the name and style of **CHENNAI FORGE PRODUCTS PVT. LTD.**

The unit has been planned to manufacture **steel forgings and machined components** for Automobile, Agricultural, Power, Earthmoving Equipments, Oil Sector and other Engineering Sectors. To mention a few, the unit produces Gear forgings, Rocker levers, Flanges, Jaw end, Eye end, Brake pedal pads, Cam bushes, small crank shafts and connecting rods, Levers of various descriptions, Sleeves etc. as per the requirements and specifications of the customers. The unit is capable of producing steel forgings ranging from 100 grams to 7 kilograms to cater to any end user.

They at present have Three Drop Hammers of 1.150 Ton, 0.750 Ton & 0.550 Ton capacity. They also have 200 ton Screw Press and 100 KW Induction Billet Heater. Their present forging capacity is of **2400 MT/annum**.

The Unit adheres to strict quality standards right from the purchase of raw materials to the actual despatch of components. Acceptance Rate by the customers is of the order of 99% to 100%. The company is certified by Ashok Leyland Ltd., for achieving **100 PPM** in Finished Components (Forging with Machining).

#### Let us Learn

Ppm-refers to parts per million. This is a term that denotes how many products are defective in production. 100 ppm means 100 parts in one million parts  
 = 100 out of 10 lakh parts =  $100 / 10,00,000$   
 As a percentage, it is  $(100/10,00,000) \times 100 = 1/100 = 0.01\%$  .  
 This means, the possibility of getting defective products is only 0.01%. Almost all auto component suppliers strive to achieve this magic number-so that when you travel in an automobile, the journey is safe and stable.- VeA

#### Vision

*" Strive to achieve Forging excellence with ability to understand customer needs and deliver unsurpassed quality and reliable products to meet customer (domestic & global) demands, with total dedication and commitment from our staff. "*

#### Facility

Their **Tool Room** catering to their Die making needs, has one BFW Vertical Machining Centre (VMC), two Spark Erosion Machines, TOS Milling Machine & HMT Milling Machine, two Shaping Machines, one Lathe and one Drilling Machine.

The company put up a separate **Machine Shop** Unit for supply of Finished Components (Machined). The unit has 25 CNC machines, 8 VMCs, 2 Cylindrical Grinding Machines, 3 Broaching Machines and other Conventional machines.

Chennai Forge Products Pvt. Ltd., had obtained ISO 9001 certification since the year 2003. In the year 2014, they completed the **ISO/TS 16949: 2009 certification by TUV-SUD**.

#### Let us Learn

TS 16949 is a third party audit that certifies that we have processes to reduce cost without affecting the quality of the product. In fact, each supplier to automotive companies has to agree that he will reduce the cost of his component 5% year after year, without changing the raw materials. This is strictly monitored by TS 16949.- VeA



## Products

Automotive Products  
Clutch Operating Levers  
Gear Forgings  
Rocker Levers (Engine)  
Lever on shaft  
Hub end  
Output Flange  
Flange Coupling  
Eye end  
Levers/Gear Shift Levers/Clutch Levers  
Hub Fans



For Agricultural Sector  
Crank Shaft  
Cam Shaft  
Connecting Rods



For Earth Moving  
Fork Forgings  
Lever Forgings

Full list of products can be seen at <http://www.chennaiforgeproducts.com/photo-gallery.php>

## Customers

- **Ashok Leyland** Ltd, Ennore, Hosur, Alwar, Bhandara & UTK
- **TVS Sundaram Fasteners – Autolec Div**, Chennai
- **Lucas TVS Ltd**, Chennai
- **B. H. E. L**, Ranipet & Chennai
- **Bharat Earth Movers** Ltd, Mysore, Pallakkad & KGF
- **L&T Valves** Ltd, Kancheepuram, Coimbatore
- **Wabco-TVS** India Ltd, Chennai
- **Pennar Industries**, Chennai

For more details, pl visit

<http://www.chennaiforgeproducts.com/images/CHENNAI-FORGE-PRODUCTS-PVT-LTD-Profile.pdf>

“Skullmapping” is an artistic collective founded in 2010 by Filip Sterckx and Antoon Verbeeck. Filip is an award-winning filmmaker and visual artist, and Antoon is a fine arts painter who runs his own gallery. Skullmapping creates projection mapping projects, VR (virtual Reality) experiences and holograms. Their passion is to develop stories and present them in a new way, in order to surprise their audience. As a pair with similar goals in art and story-telling, they love to experiment with the latest technology, and push beyond what has been done before.

One possibility of using augmented reality is showcased by Skull mapping – Restaurants can entertain their guests with augmented reality using 3D projection to keep the customer engaged till their food order is being prepared.

Filip Sterckx and Antoon Verbeeck over at SkullMapping put on a wonderful show for their dinner guests.

As you sit down, preparing to gobble down your meal, a mini chef arrives at your plate ready to serve! In the author’s own words:

For this project, we experimented with projection onto a dinner table. By making use of a combination of 3D animation and motion capture, a miniature chef turns your dish into a projected grill. Bon appétit!



The chef then picks up all the ingredients, even going as far as cutting down a broccoli tree to make sure guests get the very best:



Watch the amazing animation video at <https://youtu.be/sJhXAfkyUHs>

See more such possibilities of Projection Mapping at their You tube channel

<https://www.youtube.com/user/Skullmapping/feed>

Don't miss the skeleton dance at <https://youtu.be/K9g3spPAM5U>

Adoption of this technology can  
Revolutionise understanding of mech concepts

Jaguar Land Rover is developing a range of new technologies that use colours, sounds and touch to alert drivers to potential hazards, preventing accidents involving bicycles and motorbikes.

The Bike Sense system includes car-mounted sensors that will detect when a bicycle or motorbike is approaching, then make the driver aware of the potential hazard before it is visible.

Rather than using a warning icon or sound, which takes time to process, Bike Sense makes use of instinctive human reactions using lights and sounds associated with potential danger – for instance, the audio system will sound a bicycle bell or motorbike horn through the speaker nearest a vehicle to identify its direction.

If a bike or motorcycle is overtaking or coming past on the inside, the top of the car seat will extend to ‘tap’ the driver on the appropriate shoulder. As the cyclist gets closer, LED lights on the windowsills, dashboard and windscreen pillars will glow amber and then red. On a busy urban street, the system could intelligently prioritise the nearest hazard.



Bike Sense would also be able to identify an oncoming pedestrian or cyclist obscured by a stationary vehicle. If the driver ignores the warnings the system could make the accelerator pedal vibrate or feel stiff. Passengers opening doors could also be warned about approaching cyclists, motorbikes or cars through sound and light inside the vehicle.

‘It could be ready within 5-10 years as a fully functional system and we are working with suppliers to identify and develop the technology to help make this a reality,’ said Lee Skrypchuk, human machine interface technical specialist at JLR. ‘Some aspects may be possible to get to market sooner. We are working on a demonstrator vehicle with the haptic pedals at the moment.’

More info at

<https://www.theengineer.co.uk/issues/january-2015-online/jaguar-land-rover-to-add-bike-sense-to-road-safety/>

Watch Video demo of the system capabilities at [https://youtu.be/\\_rw3Cia9WZ0](https://youtu.be/_rw3Cia9WZ0)

## Amazing Innovation- 51

## Smart Glass



The glass in its retroreflective state (left), and its clear state (right)  
(Credit: Keith Goossen, University of Delaware )

A new liquid-activated "smart glass" is being developed at the University of Delaware.

The glass consists of a sheet of 3D-printed plastic, over top of which is a regular sheet of clear glass – there's a thin gap between the two.

When there's nothing but air in that gap, the pattern on the plastic causes it to be retroreflective, not unlike a bicycle reflector. Once an inexpensive fluid known as methyl salicylate is pumped in to fill the gap, however, the plastic turns transparent. This is because the fluid matches the refractive index of the plastic, essentially cancelling out its retroreflective quality.

Unlike electrochromic glass which turns dark on activation, this glass can be clear and non absorbing of heat. A paper on their research was recently published in the journal [Optics Express](#).

## Amazing Innovation- 52

## Vacuum Backpack

It's always nice if you can get away with just taking a carry-on bag when travelling by air – you avoid waiting around at the baggage carousel, you don't pay any extra fees, and you don't risk losing your luggage. Getting a whole trip's worth of clothes in a carry-on-sized bag can be a challenge, though ... which is why the GoBag backpack was created.



The pack features an airtight dry bag that can be inserted into the main compartment, with your clothes inside of it.

The air is then removed from that bag either by hand or using a vacuum cleaner, literally vacuum-packing your clothes so that they take up much less space.

It has some other features that make it handy for air travel, as well.

One of these is a removable pouch that's designed to carry your gels and liquids, so they can easily be taken out when going through security. That pouch is sealable, so if there are any shampoo or toothpaste eruptions, the mess will be contained.



Alumni Info

Alumni Tracking 2017 batch



Vishal Vijayakumar (13-17)  
Graduate Engineering Trainee at  
Renault Nissan Technology and  
Business Centre India Private  
Limited



Deepak A (13-17)  
Mechanical Engineer at  
MRF Tyres



Monish Manoj (13-17)  
Design Engineer at Rotork  
Controls, Inc.



BHASKAR P (13-17)  
Executive Trainee  
Ashok Leyland



Guru Pranesh (13-17)  
GET at Mytrah Energy



Sathianandan Dharmaselvan  
(13-17)  
Graduate student at  
Colorado School of Mines



Arjun Anantharaman (13-17)  
Masters Student - Mechanical  
Engineering  
Delft University of Technology



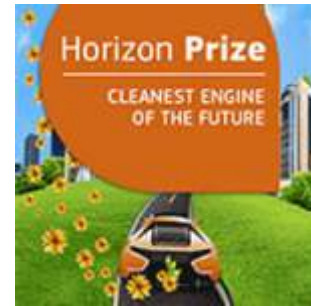
Keshavakrishnan.S (13-17)  
cleared the All India ISRO exam  
recently and did a great job in the  
tech interview of ISRO. He got  
placed in ISRO Mahendragiri &  
was asked to join duty on Dec  
29<sup>th</sup>.

## 1. Cleanest Engine of the Future

*Deadline: 2019-08-20 Award: € 3.5 Million*

*Open to: Individuals, SMEs, universities, etc.*

The purpose of this prize is to stimulate the development of next generation engine and powertrain technologies using conventional fuels. This should reduce emissions of pollutants in real driving conditions to the lowest level possible in order to improve air quality issues in European cities, while at the same time delivering better fuel economy and lower CO2 emissions under the same realistic test conditions.



Health impacts due to air quality issues in European cities need to be addressed in the long term along with the decarbonisation of transport.

This prize aims at reducing the pollution produced by future new vehicles using either gasoline or diesel fuels and their low biofuel blends available on the market. While hybridisation and electrification are expected to play an important role, the reduction of emissions by conventional engines will still be important.

The Horizon Prize for the Cleanest Engine of the Future will be awarded to participants coming up with a solution integrated in a system prototype, which will be able to demonstrate reduction of emissions of pollutants and lowering fuel consumption in real driving conditions without affecting the operational capabilities of the vehicle.

**Enter Contest Here:** [Cleanest Engine of the Future](#)

## 2. The NACHA Challenge

*Deadline: 2018-02-16 Award: \$25,000*

*Open to: Everyone*

The NACHA Challenge, a team competition, worth \$25,000 in prize money, is designed to foster new ways to leverage and create innovative solutions to improve efficiencies and added capabilities within the payments ecosystem.

This year's "challenge" focuses on innovative solutions that enable consumers to securely and easily supply enrollment information for ACH payments.



Automated Clearing House (ACH) is an electronic *network* for financial transactions in the United States. ACH processes large volumes of credit and debit transactions in batches. ACH credit transfers include direct deposit, payroll and vendor payments. New technologies and business processes, and evolving customer behavior and expectations are transforming the payments industry.

NACHA is challenging the marketplace to submit solutions — existing or proposed — that enable even more consumers, businesses and governments to use and benefit from ACH payments. Teams are encouraged to think big and creatively. Submission topics are not limited other than they should have direct relevance in whole or in part to the use of ACH. Enter Contest Here: [The NACHA Challenge](#)

### 3.Touch of Genius Prize for Innovation



*Deadline: 2018-01-12 Award: \$20,000*  
*Open to: Everyone*

Innovation is the central point for the Touch of Genius Prize. The Touch of Genius Prize was established to recognize an individual or group of individuals who contribute to innovation in the field of tactile literacy for blind people. The Prize can be granted for innovative, accessible computer software, Android applications, iOS applications, or tactile hardware that promotes braille and/or tactile literacy for blind people. The \$20,000 prize is provided through support from The Gibney Family Foundation and National Braille Press.

We hope that this Prize fosters new thoughts, new creations, and thinking outside the box that will improve the lives of blind persons. The Prize can be granted for professional software & apps, educational software and apps, gaming software or apps that promote tactile and braille learning, and braille or tactile-related hardware.

**Enter Contest Here: [Touch of Genius Prize for Innovation](#)**

Forthcoming Events

Forthcoming Guest Lectures

#### **Forthcoming Guest lectures at SSN Mechanical**

##### 1.Lecture on **Dual Fuel Engines**

**Dr. Sundar Rajan Krishnan**

**3<sup>rd</sup> Jan 2018 (Wednesday) at 11 AM**

Associate Professor of Mechanical Engineering,  
University of Alabama, Tuscaloosa, Alabama, USA.

[https://scholar.google.co.in/citations?hl=en&user=V0Xf7GwAAAAJ&view\\_op=list\\_works](https://scholar.google.co.in/citations?hl=en&user=V0Xf7GwAAAAJ&view_op=list_works)

##### 2.Lecture on **Advances in IC Engines**

**8<sup>th</sup> Jan 2018 (Monday) at 11 AM**

**Dr. Kalyan Kumar Srinivasan**

Associate Professor of Mechanical Engineering,  
University of Alabama, Tuscaloosa, Alabama, USA.

<https://scholar.google.co.in/citations?user=tFXA-5wAAAAJ&hl=en>

Editorial Member – Energy Reports (Elsevier)



Organized by  
Dr.A.S.Ramana and  
Dr.M.Nalla Mohamed



## January 2018

- Hindustan Inst. of Tech & Sciences, Padur, Chennai., is conducting an International Seminar on "Challenges in Manufacturing of Metal Castings for Automotive Components" - 8 & 9 Jan 2018. (<https://hindustanuniv.ac.in/assets/pdf/ADI%20Flyer-11%20Dec%2017.pdf>)
- The Department of Mechanical Engineering of S.A.Engg College, Chennai, is organizing 2 Days **SERB sponsored** National Workshop on "**Latest trends in Fabrication, Characterization & Analysis of Composite Materials**" during **30<sup>th</sup> & 31<sup>st</sup> January 2018**. The major highlights of the Workshop include:  
Live Demonstration on preparation of different composites using advanced Bottom type Pouring Stir Casting Machine; Hands on Training on fabrication of composites using Vacuum Bagging & Wet Techniques by Industrial Experts; Real time practice on Testing & failure analysis of various types of composite materials using NDT techniques.

## February 2018

Bharathidasan Institute Of Management (BIM), Trichy is conducting, **ATHENAEUM FOR YOUNG SCHOLARS.**, at IIT-M campus coming **February 9th and 10th, 2018**. Last date for abstracts-Jan 5<sup>th</sup>, 2018. More details at <https://athenaeum.bim.edu/>

## March 2018

- Short Term Training Programme on Ultra High Precision Machine Tools - Design and Characterization (UPMT-2018), 5-10 March 2018, Manufacturing Engineering Section, Indian Institute of Technology Madras (IIT-M), Chennai-600036, Tamilnadu. Request registrations by Jan 28.
- The Biomedical and Mechanical Engineering Departments of SSN College of Engineering, jointly organise an **International Short Course on Biomechanics, during March 19 - 21st, 2018**. Speakers from Drexel University USA, NTU Singapore, IIT Madras, NIT Shillong, DRDO, SRMC and Autodesk are delivering lectures in various advanced topics of Biomechanics. The details of the workshop can be found at <https://sites.google.com/view/biomechanics-ssn>

## January 2018

- PG and Research Department of Physics, Sri Vijay Vidyalaya College of Arts and Science (Affiliated to Periyar University, Salem), Nallampalli, Dharmapuri-636807, Tamilnadu is organizing International Conference on Recent Trends in Materials Science and Technology (ICRTMST-2018) during 19-20th January 2018. Abstract submission by Jan 10, 2018. Details at [http://www.svvcas.com/physics/department\\_about.html](http://www.svvcas.com/physics/department_about.html)

## February 2018

- SRM Institute of Science and Technology - Vadapalani campus in association with National Institution for Quality and Reliability (NIQR), Chennai Branch is organizing a one day National Conference entitled "Electric Mobility – Opportunities and Challenges" on the 23rd February, 2018 (Friday).



- One Day National Conference on Chemistry Driven Clean Process and Alternate Energies - Scope and Challenges (NCCP-2018), 7th February 2018, Department of Chemistry & Centre for Clean Energy and Nano Convergence, Hindustan Institute of Technology and Science, Padur, Chennai- 603103, Tamilnadu
- The Department of Chemical Engineering, SSNCE, is organizing the 3rd International Conference on Recent Advancements in "**Chemical, Environmental & Energy Engineering (RACEEE-2018)**" during 15-16 February 2018. Details at [www.raceee2018.in](http://www.raceee2018.in). Accepted papers will be published in reputed Journals of Elsevier and Springer..
- The Department of Mechanical Engineering, SSN College of Engineering, is happy to announce an International conference on Engineering Materials, Metallurgy and Manufacturing (ICEMMM2018), Feb 15-16, 2018. Details at [www.icemmm2018.com](http://www.icemmm2018.com) Accepted papers will be published in reputed Journals .

### March 2018

- The Dept fo Physics, SSNCE, is organising a "NATIONAL CONFERENCE ON PROCESSING AND FABRICATION OF ADVANCED MATERIALS, (NCPFAM-2018) " during 1 & 2 March 2018 at SSN College of Engineering, Kalavakkam, Chennai – 603110. abstracts by Feb 1,2018.
- The department of Mechanical Engineering of SSN College of Engineering, Kalavakkam, Chennai, is organizing one day national conference on “Sustainable Energy Resources for Thermal Systems (SERTS 2018)”on 16<sup>th</sup> March, 2018 at
- SRM University , Chennai (Madras), is organizing the 2nd International Conference on Advances in Mechanical Engineering (ICAME 2018, <http://mysrm.srmuniv.ac.in/icame-2018>) from March 22 – 24, 2018. For additional information please visit the conference website at <http://mysrm.srmuniv.ac.in/icame-2018>. Prospective authors are invited to electronically submit abstracts of 500 - 1000 words via Email: [icame2018.srm@gmail.com](mailto:icame2018.srm@gmail.com)
- International Conference on Inventive Research in Material Science and Technology (ICIRMCT 2018) is being organized on 23-24 March, 2018 by the RVS Technical Campus, Coimbatore,India and Inventive Research Organization, India at Hotel Arcadia, Coimbatore,India.  
**Paper Submission Due** 28 January, 2018 **Website link:** <http://icaiet2017.com/>  
**Accepted papers will be published in Scopus Indexed Journals only.**  
**Paper Submission Link:** <http://icaiet2017.com/submission.html>
- International Conference on Inventive Research in Material Science and Technology (ICIRMCT 2018) is being organized on 23-24 March, 2018 by the RVS Technical Campus, Coimbatore,India and Inventive Research Organization, India at Hotel Arcadia, Coimbatore,India. **Paper Submission Due 28 January, 2018. Accepted papers will be published in Scopus Indexed Journals only.**  
**Paper Submission Link:** <http://icaiet2017.com/submission.html>

### April 2018

- Saveetha University is organising ICDAMS2018 - International Conference on Design, Analysis, Manufacturing and Simulation . Lst adte for Abstracts is Jan 5<sup>th</sup>, 2018. Details at [www.icadms2018.com](http://www.icadms2018.com)
- 2<sup>nd</sup> International Conference on Tribology (TURKEYTRIB'18) is planned during April 18-20, 2018. Details at <http://www.turkeytribconferences.com/>

## May 2018

- [International Conference on Progress in Automotive Technologies \(ICPAT 2018\)](#) MAY 10-12, 2018, at Elite World Prestige Hotel located in the center of Taksim in Istanbul.

CONFERENCE LINK: <http://www.icpat2018conference.com/>

Selected manuscripts will be considered for publication in Journal of Thermal Engineering and International Journal of Advances on Automotive and Technology.

Deadline for Abstract Submission: April 02, 2018

## July 2018

- The 13th International Forum on Knowledge Assets Dynamics on the theme: "*Societal Impact of Knowledge and Design*". The IFKAD 2018 will take place at the Delft University of Technology, (Netherlands), on 4-6 July 2018. Deadline for abstract submission is: 20 January 2018. <https://www.ifkad.org/>
- 7<sup>th</sup> International Conference on Fracture Fatigue and Wear, FFW 2018 Ghent, Belgium, 9-10 July 2018. Abstract submission (deadline 12 January 2018) to FFW 2018 secretariat: [ffw@ugent.be](mailto:ffw@ugent.be) Conference website: <http://www.ffw.ugent.be/>

## September 2018

- The 4<sup>th</sup> International Conference on BioTribology (ICoBT 2018) will be held in Montreal, Canada, on 26-29 September 2018. Submit abstracts by 20 April, 2018. <https://www.elsevier.com/events/conferences/international-conference-on-biotribology>

## December 2018

- The All India Manufacturing Technology, Design and Research (AIMTDR) conference 2018, will be conducted during **13<sup>th</sup>-15<sup>th</sup> Dec 2018 – at Anna University**. Submission of paper 31 March 2018. <http://aimtdr2018.com/theme/>

### Research News from MSP

### Project Competition

1

**The School of Commerce, Bharathiar University, is organising** Anveshan: Student Research Convention (South Zone) on 21-22 February 2018. The two day Research Convention is Jointly Organised by the Association of Indian Universities (AIU), New Delhi & School of Commerce, Bharathiar University, Coimbatore, Tamilnadu on February 21 - 22, 2018, at the Bharathiar University, Coimbatore,, India.



Dr. K.L. Harikrishna  
SSN Research Centre

The Conference will be a platform for the Young Research Scholars & academicians to share their research ideas and research findings. We invite best research proposal under the broad areas of the convention themes [through Proper Channel / Institution](#).

Attention-Students

**Only five projects per Institution are allowed.**  
**Those who want to register can meet Dr.K.L.Harikrishna.**  
**Last date for registration is Jan 7<sup>th</sup>, 2018. ---- VeA**

2

## SSN Research Scholars' Day



SSN Research Scholar Day was conducted on December 1, 2017.

Congratulation to the winner of the **Best Poster Presentation Award-2017**.

The award was won by **M. J. Hepsi Beaula**, Research Scholar of Prof.V.E.Annamalai for their paper "**Effect of aligning internal pores in a grinding wheel**". The award photo is attached.

3

### DST - Call for Project Proposals for Device Development Programme - 2018

**Following areas have been identified and project proposals may be submitted for development of device in the following areas: -**

- Measuring/ Monitoring devices/instruments, • Food adulteration detection devices
- Plants diseases detection devices, • Environmental monitoring devices/ Early warning Systems
- ⊞ Low cost kit for automobile exhaust emission measurement. ⊞ Instrument for pollution measuring and monitoring systems
- IoT enabled industrial systems:- • Disaster management in sewages and Man-holes:-
- ⊞ Novel systems for detection and monitoring of hazardous gases like Methane and Hydrogen Sulphide in sewage and man-holes.

The Project Proposal could be submitted through ONLINE MODE ONLY ([www.online\\_dst.gov.in](http://www.online_dst.gov.in)). In addition, two (2) hard copies of the project proposal should be submitted in the enclosed format to DST.

**Last Date of Submission: 31st January, 2018** Website:

<http://www.dst.gov.in/callforproposals/call-proposal-device-development-programme-2017>

4

Govt of India has released R&D statistics at <http://www.nstmis-dst.org/Statistics-Glance-2017-18.pdf>

5

**DST - Call for Project Proposals - Science & Heritage Research Initiative (SHRI) - 2018**  
**LAST DATE OF SUBMISSION THROUGH e-PMS ([www.onlinedst.gov.in](http://www.onlinedst.gov.in)) is January 15, 2018.**

Website: <http://www.dst.gov.in/callforproposals/call-proposal-science-heritage-research-initiativeshri>

**A man was asked to paint a boat.**

**He brought with him paint and brushes and began to paint the boat a bright red, as the owner asked him.**

**While painting, he noticed that there was a small hole in the hull, and quietly repaired it.**

**When finished painting, he received his money and left.**



Mr/Kishore Babu  
Schwing Stetter

**The next day, the owner of the boat came to the painter and presented him with a nice cheque, much higher than the payment for painting.**

**The painter was surprised and said "You've already paid me for painting the boat Sir!"**

**"But this is not for the paint job. It's for having repaired the hole in the boat."**

**"Ah! But it was such a small service... certainly it's not worth paying me such a high amount for something so insignificant."**

**"My dear friend, you do not understand. Let me tell you what happened. When I asked you to paint the boat, I forgot to mention about the hole. When the boat dried, my kids took the boat and went on a fishing trip. They did not know that there was a hole. I was not at home at that time. When I returned and noticed they had taken the boat, I was desperate because I remembered that the boat had a hole. Imagine my relief and joy when I saw them returning from fishing.**

**Then, I examined the boat and found that you had repaired the hole! You see, now, what you did? You saved the life of my children! I do not have enough money to pay your 'small' good deed."**

**Moral of the story: No matter who, when or how. Just continue to help, sustain, wipe tears, listen attentively and carefully repair all the 'leaks' you find, because you never know when one is in need of us or when God holds a pleasant surprise for us to be helpful and important to someone!**

**Contribution: Mr. C.R. Malligarjuna, Assistant Officer, HRD, Tamilnadu News Print & Paper Ltd., Manapparai, Trichy.**

**Thanks & Regards –**

**Kishore Babu**

**HR - Department**

**SCHWING Stetter India Private Limited**



In his delightful little book, *The Art of Thinking Clearly*, Rolf Dobelli tells an interesting story. It's a story that provides a fascinating insight into leadership behavior. And could hold a lesson for all of us.

The story goes that every morning in a little town, a man in a yellow shirt with a red hat would come to a busy traffic junction. Just before nine o'clock, he would wave his hat around wildly. And after ten minutes of frantic waving, he would disappear. One day, a policeman went up to him and asked: "What are you doing here?"



"I am keeping the giraffes away!" said the man. "But there aren't any giraffes here," said the cop. "See, I am doing such a good job!" said the man.

The story might bring a smile to your face. And if you think about it, you might even be able to relate it to what we see our leaders doing! Leaders like to believe they are in control and are making things happen. Leaders are quick to attribute outcomes to their own actions — even when there may be no real correlation. Seen that happening? Yes? Thought as much. Why does that happen? How can leaders avoid this trap? Here are four simple tips to ponder:

1. **Get over the illusion of control.** Accept that you don't control everything. Not everything that happens around you happens because of you. No one really needs you to prove that as a leader you are in control of everything. You don't have to control everything. It's OK, it really is.
2. **Change. Break away from tradition.** You may have been doing things a certain way for many years — but if it doesn't make sense today — stop doing it. 'We have always done it this way' is not enough reason to continue doing it that way forever. Be willing to be challenged. Stop waving your favorite red hat if there's no evidence to warrant it now.
3. **Don't look for credit.** Let go of the apparent need to take credit. You don't need to be able to link every success to your own effort. The sales team doing well does not have to be entirely because of what you said to them at the conference last year. Or last week. That intern who left you ten years ago and is now a CEO elsewhere — maybe it's because he or she is really good and not because of what you taught him or her while he or she was working with you for a year. It's not always about you.
4. **You don't have to have a reason for everything.** Stop searching for an associated reason for everything that happens. Accept that sometimes, things just happen. The need to attribute a cause often compels leaders to look for tenuous connections between their own actions of the past — and the outcomes they are seeing. And once they find a link — however phoney — they shut out the evidence and lose sight of the real reason why something's happening — or not happening.

**As leaders we are all guilty of occasionally spending, nay wasting, company resources waving the red hat and believing that's what's keeping the giraffes away.** Next time you see a leader waving his red hat, you should do something too. Wave a red flag! Stop it.

Have a great day & wonderful week ahead

R.Ramakrishnan