Newsletter

Volume 5, Issue 7, July 2015

Mechanical Aspire

Achievements in Sports, Projects, Industry, Research and Education

All About Nobel Prize-Part 19

Get to know the inspiration for research

Prof.May Brit who was awarded the Nobel Prize in Physiology / Medicine in 2014 has been inspired by her mother. Read her story...

As a little girl, she was raised on a faraway island. Her town is small, deeply religious. Dancing is forbidden; family members speak of spirits, and superstitions abound. Her parents are not well-off, do not attend university.

But her mother, who once dreamed of being a doctor, wants better for her daughter. She insists the girl study hard. She reads her fairy tales in which heroes overcome poverty with their smarts.

" Don't care about material things," she tells her daughter. "**Instead, follow your passion**."

Flash-forward forty years. The little girl has become "the queen of neuroscience." With a beaming smile, May-Britt Moser rose to accept the Nobel Prize in physiology. Her work helped solve a problem "that has occupied philosophers and scientists for centuries," the Nobel committee wrote, and she was the **only woman to receive a Nobel Prize in the sciences in 2014.**

And like most great fairy tales, there was a love story. Moser attended high-school with her husband-to-be, Edvard, but they barely knew each other. By chance, they chose the same university; they met again, married as undergraduates, and together created first a family, then a research lab.

When May-Britt rose to receive her Nobel, Edvard also stood. He had won too.

"We have a common project and a common goal," Edvard Moser told the *New York Times*. "We both **intensely burn for it**. And we depend on each other for succeeding."

Both May-Britt and Edvard were raised on islands in Norway's "Bible belt." Their prize-winning work was the discovery of so-called grid cells that make up "the GPS of the brain," the internal mapping and navigation system that helps animals identify where they are and where they have been. May Brit says...

"Of course, everyone knows that there are some odors that send you directly back to memories of your childhood -- odors from Christmas time and so forth.

We were able to demonstrate this in the lab. We set up a task where we taught rats that if they smell chocolate, they should go to one position, and if they smell banana, they should go to a different position. So you're talking about odor memories and space at the same time. Then we went into the brain and tried to determine, what happens in the brain when the animal is learning these associations?

We were able to show that a part of the brain -- not the part that contains the grid cells, but its sister, the lateral entorhinal cortex -- receives odor information and then sends this information to the hippocampus [a part of the brain that plays a critical role in memory formation]. When they start to oscillate together at a certain range, the lateral entorhinal cortex is teaching the hippocampus about this odor."

Later, when the rat would sniff chocolate, for example, a spatial map was expressed in her hippocampus that sent her to the right position. Her reaction to the Nobel Prize can be seen at https://youtu.be/bY_9gjEECOo

Info to Alumni – Campus Update

Admission Counseling was held during 17-19 of June and selections have been announced. Students are joining now. As usual, there has been a good response from Engineering Aspirants.

SSN Rankings...

A Survey by The Week has ranked SSN as

7th in South Zone among Private Engg Colleges,

11th among Private engg colleges at All India level and

46th among all engg colleges including IITs and NITs.

TOP 99 Private engineering colleges

RANK 2015			Composite score 2015
1	Birla Institute of Technology & Science (BITS)	Pilani	520
2	International Institute of Information Technology (IIIT)	Hyderabad	360
3	Vellore Institute of Technology (VIT)	Vellore	350
4	Birla Institute of Technology (BIT), Mesra	Ranchi	334
5	Thapar University	Patiala	307
6	Veermata Jijabai Technological Institute (VJTI)	Mumbai	302
7	PSG College of Technology	Coimbatore	297
8	Manipal Institute of Technology	Manipal	296
9	R.V. College of Engineering	Bengaluru	294
10	SRM University	Chennai	287
11	BMS College of Engineering	Bengaluru	279
11	SSN College of Engineering	Chennai	279

Info to Alumni – Department Update

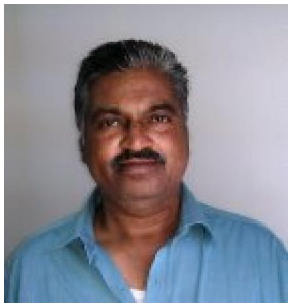
External Recognition

Dr M S Alphin has been invited as Technical Review Committee Member for 2nd Intl. Conf. on Information Engineering, Management and Security 2015 to be held at IIT Madras research park August 13 - 14, 2015

Dr. A.K.Lakshminarayanan, delivered a Lecture on “Solid state and resistance welding” in a Three days welding course on “Welding Technology Quality Assurance and Metallurgy (WTQM 2015) Jointly organized by Indian Institute of Welding (IIW) and American Welding Society Indian Section during 4-6th June 2015.

Dr.K.S.Vijay Sekar reviewed a research paper titled "An Introduction to Computational Frontal Static Stress Analysis of a Baja Car" for Institution of Engineers - Series (C) Journal, published by Springer.

Faculty Development Program



Dr.K.Subbaiah attended three days welding course on "welding technology quality assurance and metallurgy (WTQM-2015) jointly organised by IIW and AWS chennai chapter (4-6-2015)

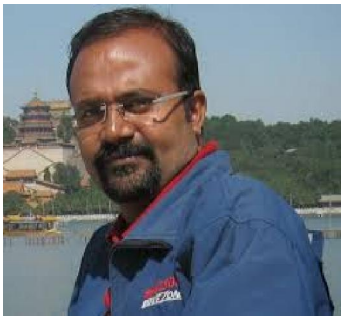
On 17th June, Dr. A.K.Lakshminarayanan, Associate Professor, Delivered a lecture on "Materials selection in Design" in a 14 days FDP on Computer Aided Product Design organized by Department of Mechanical Engineering, SSN college of engineering during 15-27 June 2015.

On 23rd June, Dr.K.S.Vijay Sekar delivered a lecture on "Computer Integrated Manufacturing", in the FDP on Computer Aided Product Design organized by Department of Mechanical Engineering, SSN college of engineering between 15-27 June 2015.

Research

Ph.D.Completed

Hari Krishna KL succesfully completed Ph.D public viva voce on 05.06.2015 at JNTUK under the guidance of Dr. S.R.Koteswara Rao, Prof., SSN College of Engineering



Dr.K.S.Vijay Sekar co-authored a paper titled " Machinability Studies in Drilling of Inconel 718 Super alloy", along with Vimalesh M, Srikanth Prabhu (B.E. Mechanical, SSN), which was published in Applied Mechanics and Materials, Vol. 787 (2015) pp 480-484

Dr.K.S.Vijay Sekar co-authored a paper titled " Investigation of thrust forces, torque and chip microstructure during drilling of Ti-6Al-4V Titanium alloy", along with Sushinder K, Shivaram PR, Nivedh Kannaa SB, Nisarg Gupta (B.E. Mechanical, SSN), which was published in Applied Mechanics and Materials, Vol. 787 (2015) pp 431-436.

Dr.K.S.Vijay Sekar co-authored a paper titled " Sensitivity Analysis of Material Constitutive Model Parameters in Numerical Simulation of the Orthogonal Turning Process" along with Dr.M.Pradeep Kumar, Associate Professor, Anna University which was published in Advanced Materials Research, Vol. 1119 (2015) pp 591-596.

Dr.K.S.Vijay Sekar co-authored a paper titled " An investigation of the effects of fiber orientation in GFRP machining using FEM", along with PG students, M.V.Siddharth and K.Anand and Dr.S. Suresh Kumar, Asso. Professor, which was presented in the International Conference on Advances in Materials and Mechanical Engineering (ICAMME-2015),E.G.S Pillay Engineering College, Nagapattinam on 8, 9 May 2015.

Dr. N. Nallusamy, Professor, published a technical paper titled "Application of solar thermal energy storage for the enhancement of marine heavy fuel oil systems" in the Journal of Chemical and Pharmaceutical Research, 2015, Vol. 7(5), pp. 434-438. Co-author is Mr. M. Gajendiran, Faculty of Mech. Engg., Sri Venkateswara College of Engineering, Sriperumbudur.

Dr. N. Nallusamy published a technical paper titled “Experimental study of spray characteristics using dimensionless analysis”, Journal of Chemical and Pharmaceutical Sciences, JCHPS Special issue 7: 2015, pp. 116-120. (ISSN: 0974-2115) Co-authors are Raghu P., Gowtham R., Srinivasan R., Sri Venkateswara College of Engineering, Sriperumbudur.

Dr. S. Soma Sundaram co-authored a paper titled "Experimental investigation and analysis of chevron tips on fuel consumption in Bunsen burner" along with Mr. L. Venkatraman, M.E. (Energy) student, which was presented in "International conference on sustainable energy systems and energy management", held at "Department of Mechanical Engineering, BIT campus, Anna University, Tiruchirappalli", on 04.06.2015-05.06.2015

AICTE sponsored Faculty Development Program

Co-ordinator
Alphin

The two weeks Summer school on Computer Aided Product Design was conducted by Department of Mechanical Engineering. Among the 90 application received for the Program all over India. 50 faculties are shortlisted for the training program.
The program was well executed with Lectures, hands on training Lab sessions and Industrial Visits. This was red by AICTE for a funding support of Rs.6 lakhs.

Program was held in New Central seminar hall of SSN College of Engineering. The Lab sessions was held in Mech., IT Dept. and MCA Labs.
The industry Visited are

Butterfly India Ltd
Halla Visteon Ltd
Super Autoforge Ltd

The experts who delivered training sessions are
Dr. Janardhana Reddy, VIT Univ.
Dr. Ve Annamalai
Dr. Sree Sharmila, IT Dept.
Dr. Arun Tom Mathew, VIT Univ
Dr. Alphin M S
Dr. Chandrasekaran K, Former Prof Anna Univ
Dr Baranidharan, VIT Univ
Dr Lakshminarayanan
Dr Babu K
Dr Subash Babu, MCA
Dr K S Vijaysekar
Dr Vijayan
Dr, Jayabal K, IIITDM
Dr .K Sankaranarayanasamy, NIT T
Dr S Suresh kumar
Dr C Jebaraj, Former Prof Anna Univ
Dr. Gnanasubramanian, TAFE
Mr Johnson Ashok Kumar, Saipem India Ltd.
Ms Rajeshwari
Dr K S Jayakumar
Dr G Sateesh Kumar
Dr Selvaraj M
Dr M.Nalla Mohammed
Dr Koteshwara Rao
Dr. K Rajkumar
Dr Kungsly Jeba Singh, SRM Univ.
Mr Vimal Sam Singh

Co-ordinators
Nalla Mohamed , Selvaraj and Sureshkumar

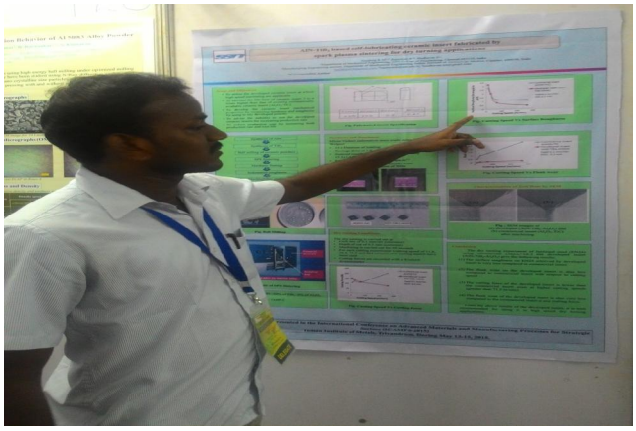
The participants expressed the usefulness of the program and quality of training provided at SSN.

Karthikeyan E, Our Alumni,
Now in Product development in Visteon

Our thanks to Mr.M.Suresh Kumar, Manager Product development at Visteon and Karthikeyan Elangovan , our alumni , for their support during the industrial visit to Visteon.

At Visteon...

Student Report



I K.M.NAMBIRAJ from final year M.E Manufacturing Engineering, have immense pleasure to share my experience at the International Conference on Advanced Materials and Manufacturing Process for Strategic Sectors,**ICAMPS 2015**), held at the Indian Institute of Metals, Trivandrum on May 13-15 with you all. I have presented a paper on **AlN-TiB_2 based self-lubricating ceramic insert fabricated by spark plasma sintering for dry turning applications.**

The key note speaker's inspiring speech on advanced materials in defence, fire protection and bio materials grabbed the audience. The conference was so benefitted by many people as lectures had been given by many Scientists and Professors (especially 1. **Dr. Baldev Raj**, Director, NIAS, Banglore 2. **Dr. Amol A Gokhale**, Director, DMRL, Hyderabad 3. **Dr. GanganPrathap**, Director, CSIR-NIIST, Trivandrum 4.**Prof. B.S. Murthy**, Dept. of Metallurgy and Materials Engineering, IIT-madras) from various parts of the country.

The speech given by foreign delegates namely, 1. **Prof. Thirumany Sritharan**, NTU, Singapore 2. **Prof. Gin Jose,** University of Leeds, UK 3. **Dr. M. Gupta,** NUS, Singapore were also very useful. It was an excellent opportunity for me to meet many people and to enhance knowledge in my research area.

I have learnt many new things, related to my area of research and what others are doing related to my area of research. We shared our experiences mutually to benefit everyone. I realized the main difference between **Institutional research and Industrial research**. The chair persons advised all participants to do research which would help the society. My sincere thanks to my guide **Ms.R.Rajeswari** for her continuous encouragement and support to participate in these events. Also many thanks to our Management for funding this project.

I would wish to say that our paper is accepted for publication in the journal Materials science forum-Trans Tech Publications, with **ISSN**: 02555476 of impact factor 0.25.

SAEINDIA The Engineering Society For AdvancingMobility Land Sea Air and Space

SOCIETY OF AUTOMOTIVE ENGINEERS INDIA

Visveshwar N-III Yr B sec, was chosen as Student Executive Member For SAE ISS (India Southern Section). He attended the SEC workshop conducted by SAE ISS on 28th June 2015 at their office in Guindy.

Internships Data

S.No	Name /Batch	Activity /Organisation	Date
IV year	MECH A		
1	Haripriya P	Inplant Training at METTUR THERMAL POWER PLANT Stage I and II	18-5-2015 to 22-5-2015
	Arun K V J		
	Magesh S		
	Kali Avudaiappan A		
	Ganesh P		
2	Diwakar M	Internship at UV Krishna Mohan Rao Associates,Madippakam	15-05-2015 to 13-06-2015
3	Naveen D	IPT at Madras Atomic Power Station ,Kalpakkam	8-6-15 to 20-06-15
4	Chandra Shekar K	Intern at Brakes India Ltd,Foundary Division,Sholinghur	1-06-15 to 29-06-15
5	Adithya Vignesh J	Intern ar Ashok Leyland technical (R and D) on critical Bolts	26-05-15 to 25-06-2015
	Aswin Raja		
6	Akshay M	Intern at Nissan - leyland Joint Venture	9-06-15 to 29-06-15
7	Akash V S	IPT at PORT Trust Of Chennai,Chennai Harbour	May 18 -25,2015
	Hanush M		
	Arun Kumar R		
	Kathiravan K		
	Kathiravan M		
	Jamal Mohammed		
	Jaya prakash		
	Laxmi Gandh		
	Dinesh Kumar J		
	Manivannan s		
	Madhan Kumar S		
	Hariharan		
	MECH B		
8	Vignesh M	Inplant Training at METTUR THERMAL POWER PLANT Stage I and II	2-06-15 to 5-06-15
	Sakthivel B		
	Raghul B		
	Parthiban A		
	Vinayagavel		
	Suganesh		
9	Sameera Kumar	Inplant at Neyveli Lignite Corporation	26/5/15 to 1/06/15
	Ramesh K		
	Sathya Raj K		
10	Sankar Raju N	CD adapco ,Star CCM Software	29/05/2015 to 26/06/15

III year	MECH B		Internships Data
1	Surya Bharathi T	Prigma Automobile Overhauling Workshop,Chennai	June 9 -15 ,2015
	Siddharth N S		
	Vignesh V		
	Vishnu Keshav S		
	Surya raghavan A		
2	venkatraman R	IPT at TVS sundaram Motors	
3	Vishakaraj S	IPT at L and T Infotech	June 8-24
4	Shashaank S yogesh	IPT India Pistons	June 8-19
5	Padma Shravan	IPT at L and T valves	June 10-16
6	Velchandru M	IPT at Tuticorin Thermal Power Plant	June 15-19
	Rexton Pravin Raj S		
7	Sai sriram V	Indian Railways Central Workshop,Ponamalai,Trichy	June 15-20
	Prasanna Venkatesh M		
	Siddharth M		
	vignesh R		
	Sathish Kumar R		
	Yogeshwar A		
8	Radha Krishnan V	IPT at AshokLeyland	May 25-June 20
	MECH A		
9	Megadeepan	G.O.C, Ponmalai	
	Hari Krishnan		
	Mathan Kumar		
	Karthick S		
	Guhan Krishnan		
	Balaji S R		
10	Bhaarath Ramesh	IPT at Atomic Power Plant Kalpakkam	
	Avinash		
	Bharath A G		
	Aravind Balaji		
	Manikandan B		
	Anandh R		
	Aravind Kumar R		
11	Keshava Krishnan	IPT at TNSTC ,Chennai	
12	Aravind S	SVP Laser Ltd	
	Bhoopal G		
13	Abishek Ram	IPT at India Pistons	
14	Anand S	IPT at Electro Magnets	
15	Mohmmed Shajeeth S	IPT at Rane Industries	
16	Karthick S	IPT at Wheels India	
17	Arjun A	IPT at Besmark Companies	

Other Activities during vacation

II Year	MECH A and B	
1	Aravind M	Workshop in virtual Trading
2	Jose Rohan A N	Project in Suction Bot and Music Direction for Short Film
	Dhruv P	
3	Durga M	Project on Wall Climbing ROBOT for Corona
4	Gurunathan N	Workshop on Virtual trading and Keyboard Music Competition
5	Gowtham N	Played in Under - 16 District Cricket Competition
III Yr B	Akshay B	Reached Finals in All India Tennis Tournament at Trivandrum

Alumni news 1

Siddarth Rajan of 2009-13 batch completed M.S. at the University of Texas at Dallas, USA. Now he is Mechanical Engineer Intern at Lennox International. Lennox International is a Consumer goods industry .Its brands include Lennox, Allied Air, Armstrong Air, Heatcraft, Ducane, Air-Flo, AAC Commercial, and Friga-Bohn , providing climate control solutions

Alumni news 2

Thanga Saravana Raj, of first batch (2007-11), did his MBA in LIBA in 2012-14, after one year of service at CTS. After MBA, he is now Asst Manager, Markets at JLL [Jones Lang LaSelle]. Chennai.

JLL (NYSE: JLL) is a professional services and investment management firm offering specialized real estate services to clients seeking increased value by owning, occupying and investing in real estate. With annual fee revenue of $4 billion, JLL has more than 200 corporate offices and operates in 75 countries worldwide.

On behalf of its clients, the firm provides management and real estate outsourcing services for a property portfolio of 3 billion square feet and completed $99 billion in sales, acquisitions and finance transactions in 2013. Its investment management business, LaSalle Investment Management, has $48.0 billion of real estate assets under management. JLL is the brand name of Jones Lang LaSalle Incorporated. For further information, visit www.jll.com.

Alumni news 3

Shanmugasundaram, of M.E. Mfg, First batch, who interned at TVS Srichakra Limited, Madurai, has been absorbed as Post Graduate Trainee in the same company.

Alumni news 4

Gobivel (2012-14) batch of ME-MFG, interned at TVS Srichakra Limited, Madurai. Now he has received a job offer as an Assistant Professor in the Department of Mechanical Engineering from KCG College of Technology, Karapakkam. He will be reporting for duty on June 22, 2015.

Alumni news 5

Yuvaraj from the 2007-2011 batch, has got into Purdue University (Industrial Dept)

Alumni news 6

Suneesh Kaul of 2008-12 Batch, is now Business Process Analyst at KLA Tencor, San Fgrancisco Bay area, USA. He met HoD on 1-6-2015,to discuss funding support to mech students.

Alumni news 7

Pranav Prakash of 2010-14 batch writes..

I hope this email finds you well. It seems like just yesterday that I graduated and already, the next batch of brilliant youngsters are almost on their way out of college. Time does indeed fly !

I had the wonderful opportunity to be part of Instincts this year as judge for the ELC's flagship event, the SSN Debates, and nostalgia kicked in from the moment I stepped through the new gates. That euphoria will, I think, remain undiminished for a lifetime.

I write this email with the utmost pride to inform you that I have been accepted to the **Young India Fellowship**, Class of 2016. The fellowship is an advanced multidisciplinary program with a competitive 1% acceptance rate that brings together the brightest young leaders from across the country to help them develop into change agents for the society. The year-long course is in Delhi and commences in July this year.

I owe a huge debt of gratitude to SSN for the extraordinary opportunities that it offered in the last four years and for the ones to come. Thank you very much. I hope to see you soon.

Here's the **link** for your perusal .
http://www.youngindiafellowship.com/

With the warmest regards,
Pranav Prakash

Forthcoming events-1

2015 IIER 6th **International Conference on Recent Innovations in Engineering and Technology** will be held in Dubai, UAE, during August 9, 2015, as the Conference of ICRIET-2015.
Website: http://theiier.org/Conference/Dubai/6/ICRIET/
Deadline for abstracts/proposals: 5th July 2015

Forthcoming events-2

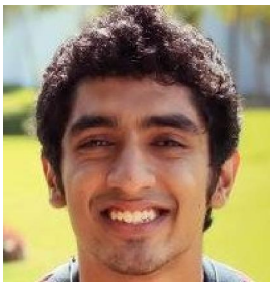
International Conference on Mechanical, Aeronautical and Industrial Engineering (MAIE'2015) Pattaya

10th to 11th August 2015 , Pattaya, Thailand .Website: http://maie.eamae.org/
Contact person: Conference Secretary: Ms. Aamanda JOHNSON

The Proceedings of the Conference will be published by Emirates Research Publishing with ISBN number. Each Paper will be assigned Digital Object Identifier (DOI) from CROSSREF. Hardcopy of Proceedings will be available at the time of Conference. Check the event website for more details.

Mech Marvel

Article selected by Shashank, Alumni 2009-13, now Graduate Intern at SKF Automotive Development Center



This Robot Can 3-D Print A Steel Bridge In Mid-Air

http://www.fastcodesign.com/3047350/this-robot-can-3-d-print-a-steel-bridge-in-mid-air

Autodesk and MX3D have teamed up on a robot that can actually "draw" city infrastructure, on location and without human intervention.

In 2017, Dutch designer Joris Laarman will wheel a robot to the brink of a canal in Amsterdam. He'll hit an "on" button. He'll walk away. And when he comes back two months later, the Netherlands will have a new, one-of-a-kind bridge, 3-D printed in a steel arc over the waters.

Steel rods being printed directly

This isn't some proof-of-concept, either: when it's done, it will be as strong and as any other bridge. People will be able to walk back and forth over it for decades.

That's the plan, anyway. To make his dream a reality, Laarman has created a new research and development company called MX3D, which specializes in building six-axis robots that can 3-D print metal and resin in mid-air.

The tech allows for large-scale objects like infrastructure to be printed in the exact spot where they'll live, which has radical implications for the construction industry and opens up a wealth of new design possibilities.

MX3D isn't some high-tech concept; it actually works. In February 2014, Laarman showed off the MX3D system's ability to 3-D print gravity-defying metal sculptures in mid-air. But printing out a bridge on location is a decidedly different challenge than 3-D printing something in a lab.

"We thought to ourselves: what is the most iconic thing we could print in public that would show off what our technology is capable of?" Laarman says in a phone interview. "This being the Netherlands, we decided a bridge over an old city canal was a pretty good choice. Not only is it good for publicity, but if MX3D can construct a bridge out of thin air, it can construct anything."

The finished bridge will be around 24 feet long, support normal Amsterdam foot traffic, and feature a beautiful, intricate design that looks far more handcrafted than the detailing on most bridges. Because 3-D printing allows for a granular control of detail that industrial manufacturing does not, designs can be much more ornate, and almost bespoke in appearance.

Most 3-D printers use resin or plastic to construct objects. MX3D's bridge will be made of a new steel composite that the University of Delft created. As strong as regular steel, it can be dolloped out by a 3-D printer, drop by drop. The result? A 3-D printed bridge as strong as any other, Laarman says.

As for the printer: it isn't much like a Makerbot or any other desktop 3-D printer. For one thing, it has no printer bed. Instead, it works like a train. Except instead of running along existing tracks, it can actually print out its own tracks as it goes along. An additive printing technology that is more like welding than squirting out drops of plastic means that the tracks can go in any direction: not just horizontally, but vertically and diagonally as well. That allows the MX3D to cross gaps, like the empty space between walls, or the banks on a river, just by printing its way across them. A useful skill for a robot to have if it wants to 3-D print a bridge, or any other large structure, for that matter.

If MX3D can construct a bridge out of thin air, it can construct anything.

Laarman isn't going this alone. He turned to architecture and engineering software company Autodesk to help give MX3D some much-needed smarts. According to Maurice Conti, head of Autodesk's Applied Research Lab, Autodesk wanted to work with MX3D because it would help tackle other problems inherent to 3-D printing.

Take error control. Most 3-D printing occurs in a print bed under pretty stable conditions, but even so, mistakes happen. A drop of additive gets misplaced, and because the printer doesn't know how to compensate for that, the next drop gets added to the wrong place, too. The results of such errors range from the comical to the Lovecraftian. Not exactly the kind of thing you want on a bridge that's meant to handle foot traffic. Since the MX3D will be building in public, it needs to be able to compensate for a wide range of errors, from big fluxes in temperature that expand the metal to kids hurling beer bottles at the robot.

"Robots tend to assume that the universe is made of absolutes, even though that's not true," Conti says. "So we need to program them to have real-time feedback loops, and adapt in real-time, without even being told to."

That's a big challenge, but one Autodesk thinks is worth solving. Not just because the advances would also be applicable to other types of 3-D printing, but also because it opens the door to an amazing future. "Imagine some day in the future, just going somewhere, dropping off a robot, and coming back two months later to have this huge piece of infrastructure there, without any human intervention at all!" Conti marvels. The MX3D bridge project is an opportunity for Autodesk to not just flex its artificial intelligence muscles, but to test the results in the real world.

When it's built over the course of two months in fall of 2017, the MX3D's finished bridge (it doesn't have a name yet, and even the exact location is still being determined) will be the first step toward that future. If it works, who knows what's next? Ten years from now, we might watch skyscrapers be built by massive 3-D printing cranes, lifting themselves up as they squirt massive industrial steel girders beneath themselves.

But the challenges ahead are also great. Despite teaming up with some of the best bridge engineering companies in the industry, and running lots of test, MX3D won't know if their great plan will work until they actually do it. With two years to go before they're ready, a lot is riding on their preparations, and their work with Autodesk...not least of which are the first people who actually walk over the first 3-D printed bridge in the world.

You can find out more about MX3D here.

Watch these unbelievable videos..

3D printing against gravity https://youtu.be/8cIs_KFO9Ms

steel composite printing
https://youtu.be/umcSJ2A_KuU

what is new https://youtu.be/-yUV8582HNY

bridge visualisation https://youtu.be/m8OgC-bopDg

Corporate Profile 7 - Bonfiglioli

They design, manufacture and distribute a **complete range of gearmotors, drive systems, planetary gearboxes, inverters and photovoltaic solutions** to satisfy the most challenging needs in the fields of industrial automation, mobile machinery and renewable energy. They **offer tailored solutions**, whose strength lies in the **advanced content** of each product and the intelligent integration of different technologies.

As a leader in global power transmission and control, they are committed to satisfying their customers' requirements by supplying high quality products and providing excellent service on an increasingly wide scale.

History

Clementino Bonfiglioli founded the company that still bears his name in Bologna in 1956, in response to a growing demand from engineering companies for spare parts and precision components for agricultural machinery and motorcycles, two rapidly developing areas at the time.

Clementino Bonfiglioli was a genuine pioneer. In just a few years he put into practice his decision to develop and produce all-new products, and designed and patented the RAE series of two-stage planetary gearboxes.

Distributed first locally and then nationwide, these products were increasingly well received.

In 1975, Bonfiglioli's success led to the acquisition of Trasmital, a company that is now a leader in planetary gearboxes for excavators, road construction machines and wind turbines.

Throughout the 1980s and 1990s, the Bonfiglioli Group successfully expanded into the international market and, driven by continuous product innovation, opened directly controlled subsidiaries and production plants in a number of countries.

The new millennium saw yet more additions to the Group with the acquisition of Vectron, a leader in electronic control systems, and Tecnoingranaggi, a manufacturer of precision, low backlash gearboxes.

In its 50th anniversary year, Bonfiglioli renewed its commitment to internationalisation and the green economy, and confirmed its role as a major player in the global market.

When Clementino Bonfiglioli passed away in 2010, his daughter Sonia, already a driving force in management, assumed control and continued the process of re-launching and consolidating the group's progress around the world.

Business Areas:

They cater to four different Business Areas:

- **Industrial** (incorporating mechatronics and power transmission divisions),
- **Photovoltaic** (which also develops regenerative solutions),
- **Wind** and
- **Mobile** (focusing on applications for construction, agricultural and earth moving machinery, etc.).

These four distinct sectors develop specific solutions and applications in response to the varying needs of the increasingly complex and technologically advanced markets.

Vision, Mission & Values

Designing and manufacturing innovative and **reliable solutions for power transmission and control** in the **industrial**, **mobile** and **renewable energy sectors**.

Encouraging and promoting sustainable and shared development worldwide, through dynamic, responsible, prompt and customer-oriented services.

Values

Providing the power to serve mankind.

Energy can be neither created nor destroyed. It can only be transformed. Over fifty years of experience, competence and professionalism have allowed them to integrate electronic, hydraulic and mechanical technology for transforming energy into power to serve mankind.

Bonfiglioli offers excellent and international solutions for power transmission and control.

They design, manufacture and distribute a complete range of gearmotors, drive systems, planetary gearboxes, electric motors, servomotors, frequency drives, regenerative inverters and photovoltaic inverters. Their solutions are used in a vast range of applications all over the world, in industry, mobile machinery and construction, to improve the quality of life and work on a daily basis.

Bringing power and energy under control.

Power control is the ability to harness, manage and use power. Bonfiglioli designs, develops and manufactures solutions for the widest range of applications, from heavy industry to renewable energy, and from earth moving machines to precision electronics.

Their ideas are the result of intensive training, experience in the field and advanced specialisation. The group recognises and appreciates everybody's contribution, and respects the different cultural identities that inevitably make up a large international team. They all share the common aim of producing tangible results and competitive benefits for their customers, by working together with them and by developing wealth and wellbeing together.

Mfg facilities are at **Italy**, **India**, **Slovakia**, **Germany**, **Vietnam, China, USA and Brazil**.

R&D

This commitment to innovation has led to the creation of a research centre in Rovereto, **BMR (Bonfiglioli Mechatronics Research)**, dedicated to the development of **integrated mechatronic solutions for industry**.

Bonfiglioli Vectron is the Group's specialist centre for **power and control electronics and the development of high efficiency products** for energy conversion in the industrial and photovoltaic sectors.

Located in Krefeld, Germany, and with over 25 years of experience, Bonfiglioli Vectron employs a team of over 50 specialist technicians and engineers to develop highly reliable and efficient solutions for frequency converters and photovoltaic systems.

On top of all of this, the experience and know-how in **mechanical design** has allowed Bonfiglioli to dominate the power transmission market for over 50 years.

Their two centres of excellence, in **Bologna** and **Forlì**, have different but complementary technical and design skills, and allow the Group to offer innovative, high-tech solutions that integrate fully with Bonfiglioli's product offering.

This range of competence, integrated into a common approach and strategy, is one of their key strengths in the development of effective and innovative solutions for customers.

Corporate Social responsibility

Supporting children and young people in their education and growth and trying to offer a healthy and stimulating environment, even characterized by positive values, means for Bonfiglioli helping to create a future built on those same principles, a more just society, a better world.

Driven by the need to achieve something concrete the Project CheerFutureLand Bonfiglioli was born in 2008, thanks to an agreement between NAMASTE', an Italian non-profit association and PREMA VASAM, an Indian charitable association.

CheerFutureLand welcomes both children mentally and physically disabled and children without a family with the aim to give them a chance to learn and improve in their education using and developing their specific abilities in spite of their limitations.

Thanks to the generous assistance of friends and business partners, Bonfiglioli built near Chennai, India, a home that now houses 45 children and adolescents otherwise in situations of extreme poverty, giving them emotional and cultural support in a family atmosphere.

CheerFutureLand also collaborates with the headquarters of Prema Vasam which houses another 180 children, including both healthy young people and children with physical or mental diseases, to which are provided special assistance, such as physiotherapy, occupational therapy and support to their education.

A tangible sign of Bonfiglioli will to contribute to all social, economic and cultural aspects of India, where Bonfiglioli has important production facilities, laying the foundations for a future of growth and development for all.

Specialising in wind energy

Thanks to the advanced technology of Bonfiglioli Trasmital, leader in planetary gearboxes for wind turbine yaw and blade pitch control, Bonfiglioli can design, construct and distribute essential components for wind energy.

The quality of our highly innovative gearboxes and inverters, combined with the excellence of our services have made Bonfiglioli a leading player in wind energy. This leadership is confirmed by a number of large on-shore and off-shore wind farms, including Alpha Ventus in the North Sea, which consists of 12 towers, each about 150 metres high, generating a total of 60 MW.

read the 46 page company profile at

http://www.bonfiglioli.com/media/filer_public/4f/5e/4f5eb810-d881-44d0-9a4c-c442d9b62cbd/br_cat_cmprf_std_eng-por_r01_2.pdf

Service team-Bonfiglioli BEST

Bonfiglioli's BEST (*Bonfiglioli Excellence Service Team*) programme has built up the most **modern sales organisation** in the field of power transmission.

BEST uses the **services of Bonfiglioli's preferred business partners**.

The **business partners who join the BEST programme conform** to strictly **enforced service levels**, and are **provided with** all the **tools** they need for the autonomous development of their markets and for the distribution of Bonfiglioli products and services **according to a shared and agreed strategy**.

For the first time ever, **manufacturer** and **distributors** are **working together at the product assembly stage** and in the **design** of new applications, in a sharing process that sees one party transferring know-how and technology and the other partly providing a thorough knowledge of the local market.

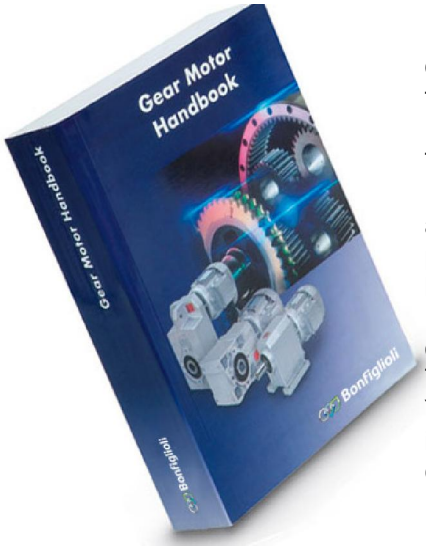
Distributors admitted to the scheme are granted the right to use the BONFIGLIOLI BEST name and are given all the support they need to develop their businesses.

Gearmotor handbook

As a leading supplier of gearmotors, **Bonfiglioli commissioned four experts** of international repute **to write this handbook on power transmission**.

The **publication covers a range of topics** including the **history of power transmission**, **mathematical** and mechanical **formulae**, advanced design tools and production process quality control.

The **handbook** is essential reading for anyone interested in **power transmission technology**, from university students to sector professionals.



The manual is divided into five parts.
In **part 1**, Darle W. Dudley provides a historical overview of developments in power transmission technology spanning four millennia.
In **part 2**, Jacques Sprengers introduces the latest theories in mechanical engineering.
Part 3 is dedicated to a thorough treatment of gears and gearboxes, from sophisticated theories to the practical development of ring gears, shafts, casings, bearings, etc..
Part 4, edited by Dierc Scröder, focuses on all forms of electric machines.
The **last part of the handbook**, written by Haijme Yamashina, describes the reliability standards imposed by Bonfiglioli and the quality control system created to maintain those standards.

http://www.bonfiglioli.com/en/industrial/customer-support/pre-sales/gearmotor-handbook/

Industrial Applications

Bonfiglioli's success stems from its **ability to find valid solutions** to the **needs of many different areas of industry**. In the field of power transmission, Bonfiglioli's know-how produces **integrated solutions for numerous industrial applications**.

The **vast number of applications** served by Bonfiglioli include, by way of example: extruders, turntables, feedscrews, palletisers, lifting equipment, dosing machines, mixers, mixer-stirrers, pumps, movement systems and conveyors.

India operations -Bonfiglioli India grows!

New production facility in Bengaluru dedicated to the photovoltaic solutions.

Bonfiglioli India was established in the year 1998 and provides employment for more than 650 strong workforces. Bonfiglioli India is currently having 2 manufacturing units in Chennai and Mannur for industrial gearboxes and motors.

The new plant, whose name is **Bonfiglioli Renewable Power Conversion India Private Limited (BRPC India)**, has been incorporated in Bengaluru, India, on November 2013 to address to the complex and the ever increasing demands of the Indian Photovoltaic Markets.

The plant in Bangalore is going to be the 2nd largest PV inverter's manufacturing setup for Bonfiglioli after the one in Germany - Bonfiglioli Vectron - as it is going **to produce 1MW+ Size inverters with an annual production capacity of more than 300 MW.**

The company is a joint venture between Bonfiglioli Vectron GmbH Germany and Cubic Control Systems with a majority stake-holding of Bonfiglioli.

Bonfiglioli Renewable Power Conversion India Private Limited (BRPC India) is having the best infrastructure with highly skilled workforce to manufacture PV inverter Panels. BRPC India is also having an extended infrastructure to supply the complete package to the customers with Solar inverter panels with e-house, transformers, DC distribution and Medium Voltage Panels. The existing facility includes also the infrastructure dedicated to manufacture Automation panels, PCC, MCC, Drives and Control & Relay panels, which is the traditional Cubic Control Systems know-how.

The facility has been audited and approved by major players in the field of electrical industry.
With the incorporation of Bonfiglioli Renewable Power Conversion India Private Limited (BRPC India), Bonfiglioli renews its promise to provide the state-of-the-art technology manufactured indigenously and provide better service to its customers in India and to countries located in South East Asia.

Bonfiglioli as a preferred partner for solar PV inverters in India

From 185 MW in 2011 to 600+MW in 2014, Bonfiglioli Regenerative & Photovoltaic Business Unit in India has exhibited tremendous growth in the Indian Solar PV market.
With a 24% market share and increasing, Bonfiglioli Inverters are customized to the Indian conditions and being the most preferred choice for the customer. Actually, most of Bonfiglioli installations in India have achieved an uptime of more than 99.7% and many Bonfiglioli products are already operational across the Indian geography.

Host of downloads on various subjects relating to their business areas at
http://www.bonfiglioli.com/en/company/news-media/downloads/

Amazing Innovations -1

Jump in the air like a Grasshopper....

As a kid, pogo-sticks always looked like fun, but were inevitably disappointing to use. US-based Vurtego, however, designs pogo-sticks for adults and they're a bit more on the extreme side. Its new V4 can launch users up to 10 ft (3 m) into the air and is ideal for a mid-life crisis.

Vurtego owner Ian Britt explains that the company's original aim in redesigning the pogo-stick was to create a "portable trampoline" that would let users get big air, but that could be easily carried around. The V4, which is somewhat similar in form and function to the Flybar we featured way back in 2004, is the most recent culmination of that vision.

Designed to be be robust, the V4 comprises an aircraft aluminum casing, a shock absorber to soften impacts and a stainless steel slide-shaft. The V4 uses an air-spring that is adjustable for anyone over 75 lb (34 kg). Users add or release air to change the stiffness of the bounce. This means that people of radically different weights can use the same V4 by adjusting the internal air pressure accordingly and that the bounce-height can be adjusted to a user's preference.

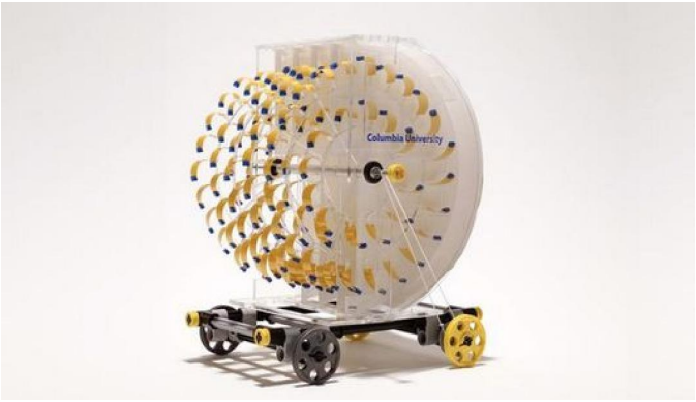
Air is added using a pump and released by simply pressing a button. By pumping more air into the V4, users can jump higher and, by releasing air ... well, you get the idea. The V4 can also be folded down for transportation by releasing all of the air.

Watch the safety aspects when in action at https://youtu.be/O52NI43hWjk

Amazing Innovations -2

Evaporation driven car

Researchers have discovered an unlikely source of renewable energy, the naturally-occurring cycle that is water evaporation. Scientists at New York's Columbia University replicated this process in the laboratory and harnessed its energy to power tiny machines, one of which was a moving, miniature car. The team says the technology could potentially to be scaled up to one day draw power from huge resting bodies of water such as bays and reservoirs.



The research stems from work carried out last year by Ozgur Sahin, associate professor of biological sciences and physics at Columbia University. Sahin had discovered that when bacterial spores shrink and swell as a result of changes in humidity, that motion could be used to move other objects. He drew inspiration from his finding that, pound for pound, these spores actually pack more energy than some materials already used for moving objects in engineering.

He then teamed up with other scientists at Columbia to see if he could use the force of swelling spores to power small machines needing only moist air to operate. How, exactly? The secret is planting a series of these bacterial spores onto a flexible tape. As the tape is exposed to dry air, the spores shrink causing the tape to contract, while moist air causes this tension to be released, just like an artificial muscle.

To multiply the effect, the researchers created a device where many pieces of tape were positioned alongside one another inside a plastic container topped by shutters. With water poured into the base of the container, the air inside became humid, adding length to the tape and opening the shutters on top. This in turn would release the humid air, shrink the spores, shorten the tape and close the shutters once. From there, the air would become humid and the process would start over again, creating an ongoing source of power.

The researchers dubbed this an evaporation-driven piston, and were able to hook it up to a generator and cause a small light to blink. An interesting proof of concept, but they didn't stop there.

The team's second evaporation-powered engine is called the Moisture Mill. This is essentially a plastic wheel covered in pieces of the flexible, spore-covered tape where half is housed inside a humid environment and the other half exposed to the dry, outside air. As half the spores expand with humidity and the other half do not, an imbalance is created in the weight of either side of the wheel which causes it to spin, again creating a constant energy source so long as the imbalance is maintained.

The possible applications for this are many, Sahin notes, but to demonstrate its potential his team applied the force to a small vehicle. Simply attaching the axle of this large spinning wheel to smaller wheels that you might find on a toy car served to channel the motion into a moving, miniature vehicle.

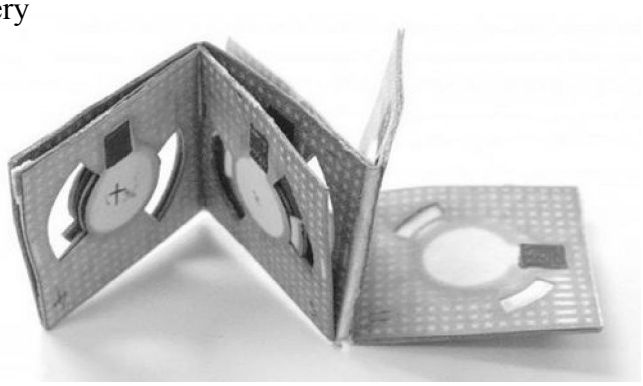
Watch the fun at https://youtu.be/d_VkSPV7d2I

Amazing Innovations -3

Paper Battery

A foldable, inexpensive paper battery that can generate a small amount of electricity brings a new sense of power to origami, the Japanese art of paper folding.

An engineer at Binghamton University in New York has developed a battery that creates power through the process of microbial respiration in a drop of dirty water on paper.



In the system, explained in the July issue of the journal *Nano Energy*, liquid containing bacteria can be used to power a paper-based sensor, which could be especially useful in areas and situations where access to electricity and resources are scarce.

The battery can fold down into the size of a matchbook and utilizes a cheap air-breathing cathode made of liquid nickel sprayed onto one side of a regular piece of paper. Actual origami techniques were used to create three-dimensional, stackable battery structures from the original, two-dimensional paper batteries.

The system doesn't require specially engineered nanomaterials . Some also see potential for the portable paper power tech to create diagnostic tools for disease control in the developing world. The bacteria that essentially acts as the ultimate power source can come from just about any easily available source, including local wastewater, biomass or watersheds.

Source: Binghamton University

Amazing Innovations -4

Transparent Trucks from Samsung

When driving behind big semi-trailers, people regularly take risks overtaking them because they often have to first move out from behind the truck to see if the road ahead is clear before passing. This is particularly dangerous on single-lane highways because such a maneuver can mean driving into the path of oncoming traffic. Now Samsung Electronics has come up with a way to help reduce this problem by mounting cameras on the front of a truck and large screens on the rear to display to following drivers a clear view of the road ahead.

the prototype video system on "Safety Truck" comprises a front-mounted camera to capture view of the road ahead of the truck. Rather than wirelessly send a live feed to a transparent LCD screen installed in a trailing driver's car, Samsung's solution transmits a continuous view of the road in front of the truck to exterior monitors mounted on the rear.

This view is enabled both day and night, and is said to have the potential to significantly reduce overtaking accidents, as well as providing trailing drivers with information on road hazards ahead well in time for them to react.

Watch how it works at https://youtu.be/6GNGfse9ZK8

Forthcoming events 3

2015 **International Conference on Chemical, Metallurgy and Material Science Engineering** (CMMSE-2015)
August 10-11, 2015 Pattaya, Thailand

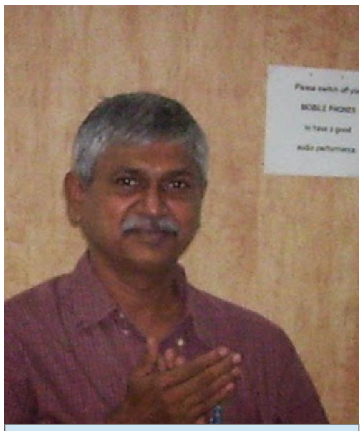
Website: http://cmmse.eacbee.org
Contact person: Alissa Matthew

The Proceedings will be will be archived in ERPUB's Digital Library. Each Paper will be assigned Digital Object Identifier (DOI) from CROSSREF. Later, the Proceedings of the conferences will be submitted to ISI Thomson/SCOPUS for review

Organized by: EACBEE

Check the event website for more details.

The Power of Trust



KVR Kishore Babu
HR Head, Schwing Stetter

Once there was a man who did not make it to university. However, his mother got him married.

After the marriage, he worked as a teacher in a primary school. Due to the lack of experience, he was squashed by the students in less than a week.

When he returned home, his wife dried his tears. She comforted him with these words. 'You should not be too sad about it. Probably there is a more suitable job waiting for you out there.'

Later on, he found another job and not for so long, he was fired due to his slowness. This time, the wife commented. 'There are always people who are skilful and not so skilful. Some have experience from their years of work. As for you, you were in school all this while. So, how could you acquire these needed skills?'

He went for a number of jobs but never stayed long in those jobs. Each time, he would return home with a dejected spirit. His wife would always comfort him and never for once, she was disappointed or resentful.

He was in his thirties when he acquired a flair in languages. He became a counselor in a school for the deaf and mute. Later on, he opened a school for the disabled. A few years later, he set up chain stores in different cities and provinces selling apparatus & equipment for the disabled. He became a multi-millionaire. He was John Doe!

One day he asked his wife. 'When I was looking bleak at my own future, what's the reason that you had so much faith in me?'

His wife gave him a very simple reply. She said, 'When a piece of land is not suitable for planting wheat, we could try planting beans. If the beans are not growing well, we could try planting fruits or gourds. If the vegetation is not economical, we can instead scatter buckwheat seeds. These seeds will one day bloom into flowers. On this land itself, there will be some seed that will germinate and grow.'

His wife's faith, love, patience and persistence in him created the miracle on this piece of land!

Moral of the story:

"**In this world, there's no one person who is useless. It is just that they have not positioned themselves firmly in the right place**"

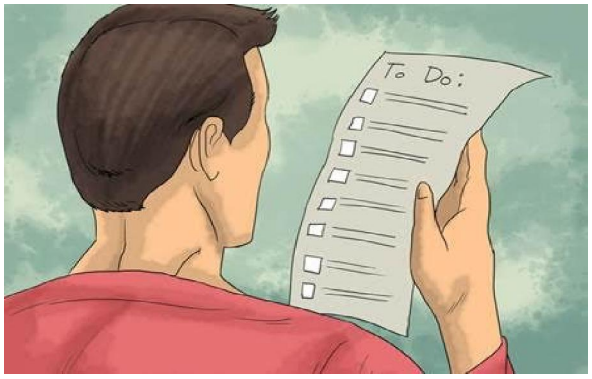
Contributed by Mr. Kishore Babu, HR – Department, SCHWING Stetter India Private Limited

Corporate Wisdom -19 – Avoiding Procastination

R.Ramakrishnan

About 100 years ago, a man named Lvy Lee went to President of Bethlehem Steel, Charles Schwad, and made deal with him. Lee told Schwab he could increase Schwab's productivity as well as the workload of his team members.

What is more, Lee told Schwab's executives produce a significant amount more if he could just spend 15 minutes with each of them. To make the offer especially enticing, Lee told Schwab he would not charge anything at all unless his advice worked. " Then, after 3 months, " Lee told Schwab, " if my advice proves profitable, send me a check for whatever you think it is worth". They struck a deal.



Here is how productive he was – Lee actually spent only 10 minutes with each executive .

Here is what he told them " I want you to promise that for the next 90 days, before leaving your office at the end of the each day, you will make a list of the 6 important things you have to do the next day and number them in order of importance.

The executives were shocked that was all they were asked to do.

That is it , Lee said " Scratch off each item after you finish it. Then go on to the next item on your list. If something does not get done, put it on the following day's list."

Each of the executive agreed to follow Lee's instructions. 3 Months later, Schwab studies the results. He was so pleased, he sent Lee a cheque for US $ 35000.

Many people follow Lee's advice today. Mary Kay the founder of Cosmetics company with turnover of US $ 2.2 billion as said she follows this process and it has greatly helped her.

- Before you go sleep tonight, figure out what you need to do tomorrow.
- Write down the 6 important things you need to accomplish.
- Not only will you start tomorrow ready to go, but subconsciously , you will also be working on those 6 things while your sleep.
- Then knock those tasks out from hardest to easiest.
- Don't let your time get snuffed out by what appears to be an innocent killer! Stand guard .
- When you guard your time, you guard your life. For time is the stuff that life is made of .

Have a wonderful day & great week

Ramki