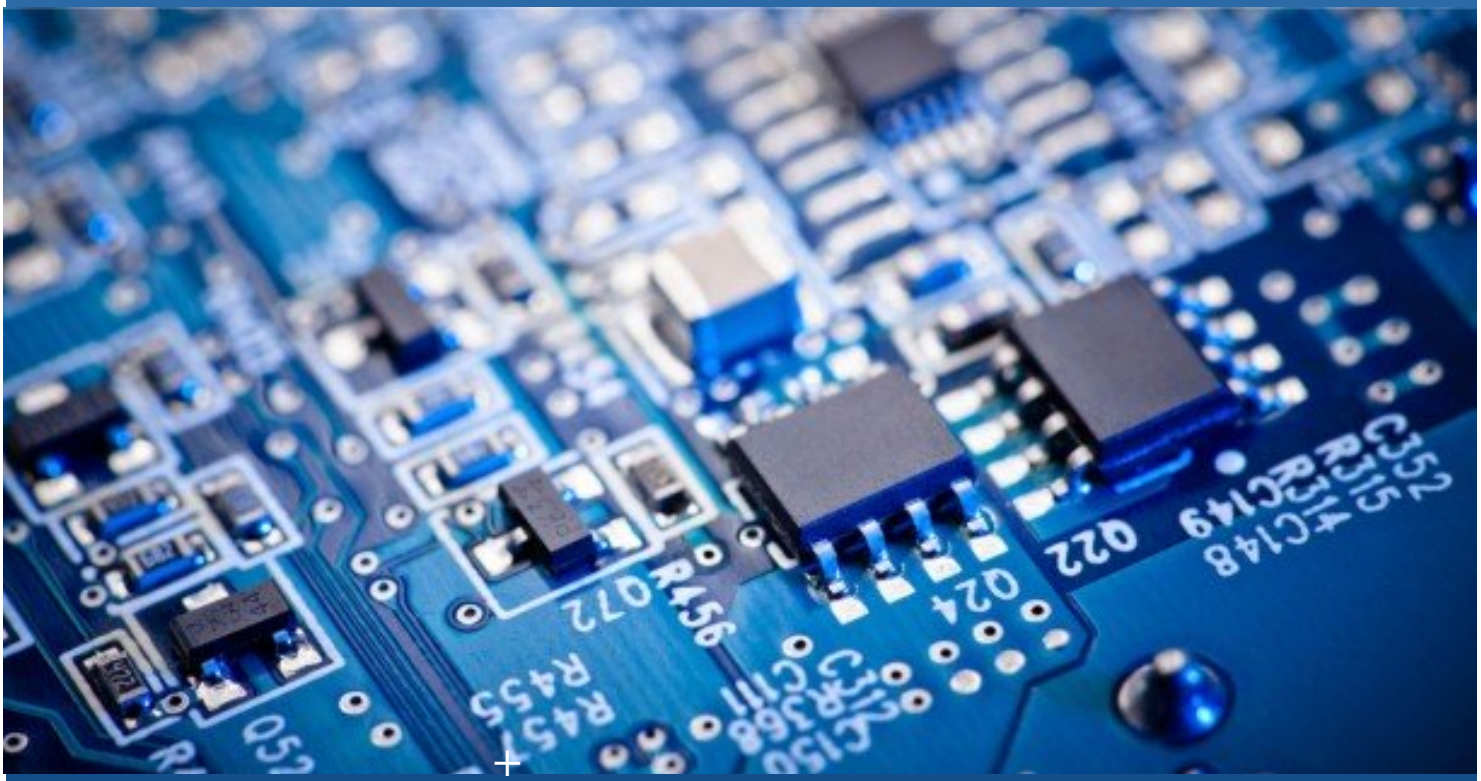
VOLUME 6 ISSUE 1

REDEEM

Quarterly Newsletter

Electrical & Electronics Engineering Department

SSN College of Engineering



Details on interns student have attended this summer

HOLOGRAMS

All about it

Learn how ceiling fans work!

FROM THE HOD'S DESK

I am glad that our institution has been accredited A+ grade after the NAAC peer team visit during June 19-21, 2017. At the outset I thank the coordinators Dr.M. Devesh Raj, Dr.U.Shajith Ali, Mr.V.Thiagarajan and everyone who extended their support in the process.

Our existing collaborations with industry have strengthened during this period. DST-SERB has granted a project entitled "Design and development of Reluctance Synchronous Machines". I appreciate the effort of Dr.M. Balaji and Mr. V.S. Nagarajan for their effort in this work.

Congratulations to Mr. P. Saravanan, Ms.S. Malathy and Ms.J.Anitha Roseline who were awarded with Ph.D.

Congratulations to Dr. Ranganath Muthu, Dr. M. Senthilkumaran, Dr.N.B. Muthuselvan and Dr. M. Deveshraj for conducting student centric training programs in the field of control systems and power systems.

Appreciation to Mr.V.Vignesh who won the Kaizen Robotics Program Competition held in IITM Research park on June 17th, 2017.

Happy to note the achievement of C.Kowshik in the Inter Zonal Table Tennis Tournament(First Place-VNR Vijet College Hyderabad- Doubles Event First Place VIT Vellore Team Event-2nd Prize VIT Chennai-2nd Prize). Appreciation to K.Aravind who won Mumbai Mayor's Cup 5th Place.

I wish to thank and appreciate all the faculty members and the students who have contributed to the progress of our Department.

CONTENTS

PREFACE

Early childhood programming is the deepest programming known to the mind, and it is extremely powerful because of the tremendous grip it has over the psyche. The most significant thing to do is to become aware; to boldly claim our wounded selves and ruthlessly examine our thoughts, words and actions without allowing in self-pity. The transition happens only when we awaken to our real self. One has to allow oneself to be vulnerable to life and gradually and consciously let go of the memories of the past experiences. Then we have to re-assess some definitions – of love, success and control. We have to learn to define our success and not let others to define it. We do not want to prove our worth to anyone. We just want to lead a happy and meaningful life. Admitting one's fears and insecurities can help a great deal. Writing down the hurts and pains experienced in childhood can help us understand our patterns in adulthood.

When expectations piled on and comparisons with peers increased, we begin to find life an uphill task. Schools and teachers, books and parents, friends and relatives, all try to mould us into acceptable forms. And it wasn't easy. We had to work hard and sacrifice many pleasures to achieve all that. Some could live up to these expectations while others could not, but what we gradually realize is that life is a painful movement against our natural impulses. Out of compulsions is born a lack of will. One cannot have willpower and growth in a compulsive state. Most feel this compulsion most acutely when they enter the job market and take up jobs their heart is not into, or when the challenges of everyday living, responsibilities, worries of the present, and future begin to bog them down. Waking up every day to face demands from children, boss, spouse and society, a barrage of self-critical inner dialogue, and fear of failure or success can sap the joy out of living.

If we deeply look at life, we realize that we are driven by our 'perceptions' – of people, situations, and experiences.

As Carl Jung has aptly said, "Your vision will become clear only when you can look into your heart. Who looks outside, dreams; who looks inside, awakens." The deepest healing comes from the healing of the wounded inner child. When we acknowledge our wounded inner child and give it the recognition, love and compassion that were once denied, we begin to heal. When our wounded inner child heals, we become emotionally honest. We set ourselves free from societal norms and conditions. We stop living a routine, mechanical life, and we stop chasing money and success incessantly. The moment you come in alignment with its natural rhythm, you fall into the realm of effortlessness. Since fears, stress, anxieties, and worries keep us from being in touch with the flow of universal energy throbbing in our being, we mostly miss its refueling and energizing force. Endless thoughts, worries, anxieties, ambition and desires can make us overwrought.

Happiness is nothing but using one's natural abilities and intuition to flow with one's environment. The happier we are, the more energetic our bodies and lives and we become highly spontaneous. When we are deeply involved in trying to reach a goal, or an activity that is challenging but well suited to our skills, we experience a joyful state called 'flow.' One may find still greater happiness experiencing 'flow' in working towards long-term, meaningful goals. In this state you touch the very bliss of human existence. The highest states are natural and spontaneous, when your mind and thoughts do not impede the flow of life gushing through you. When one is fully engaged with what one is doing, one begins to act effortlessly, and one's whole mindset changes from fear and avoidance to that of engagement and openness. When you enjoy the process of working instead of thirsting for the fruit of your labour, life becomes joyful, free flowing and effortless.

Some people want it to happen, some people wish it would happen, others make it happen. ---- Michael Jordan.

DOCTORATES CONFERRED

Dr. P. SARAVANAN
Associate Professor, EEE

Dr. S. MALATHY
Associate professor, EEE

Dr. J. ANITHA ROSELINE
Associate Professor, EEE

We congratulate them for getting Doctorate and promotion to Associate Professor on behalf of the EEE Department.

HONOURS

Dr. R. Ramaprabha, Asso.Prof./EEE acted as one of the judges for Project Exhibition 2017 at Sri Sai Ram Engineering College, Chennai on 28.03.2017.

Dr. U. Shajith Ali, Asso.Prof./EEE has been appointed as Technical Program Committee member in IEEE TENSYMP 2017 -International Conference on Technologies for Smart Cities organized by IEEE Region 10, Kerala on 31.03.2017.

Dr. R. Ramaprabha, Asso.Prof./EEE is nominated as one of the Organizing members for 3rd International Conference on Applied Science Engineering and Technology Anekal, Bengaluru on 05.04.2017 which will be held on 18th-19th, May 2017, organized by Sri Sairam College of Engineering, Anekal,Bengaluru and Institute for Engineering Research and Publication (IFERP)

Dr V Rajini Prof/EE met with president reg NIRF ranking on 13.04.2017.

Dr V Rajini Prof/EEE met with president and HOD regarding NIRF ranking on 20.04.2017.

Dr. R. Ramaprabha, Asso.Prof./EEE is nominated as one of the Technical committee members for 3rd edition of Biennial International Conference on 'Power and Energy Systems: Towards Sustainable Energy (PESTSE-2018)' on 20.05.2017. This conference is going to conducted by Department of Electrical and Electronics Engineering, Amrita School of Engineering, Bangalore, Amrita VishwaVidyapeetham during January 2018.

Dr. R. Ramaprabha, Asso.Prof./EEE has been selected for official 2017 Albert Nelson Marquis Lifetime Achievement Award by selection committee of Marquis Who's Who, NJ on 20.06.2017

PAPER PUBLICATIONS

Dr. N. Pandiarajan reviewed a paper for "Renewable Energy" - Elsevier Publishing Campus. Topic –"A novel concentrating photovoltaic/thermal solar system combined with thermoelectric module in an integrated design" on 01.04.2017.

Dr. N. Pandiarajan reviewed a paper for "Renewable Energy" - Elsevier Publishing Campus. Topic – "Focusing on the right targets: Economic factors driving non-hydro renewable energy transition" on 10.04.2017.

A. Sivakumar, N.B. MuthuSelvan published research article, "Reduction of source current harmonics in ANN controlled induction motor", in Alexandria Engineering Journal, Elsevier, Available online 19 April 2017. http://dx.doi.org/10.1016/j.aej.2017.03.048 (Annexure - II Anna University)

K. Kanchana, V.Rajini Prof/EEE, published a paper titled" Experimental Design of Low Loss Filter to mitigate Overvoltage for Long Cable Fed Induction Motor Drive", International journal of electrical engineering, vol 17, No1, 2017, ISSN no 1582- 4594(Annexure 1) on 20.04.2017.

R. Kavitha, V.Rajini and S.Krishnaveni, published a paper titled "Analysis of Front-End High Gain DC-DC Converters for Pulsed Electric Field Application", International Journal of Electrical and Electronics Engineering (SSRG-IJEEE) ,Volume4 Issue-3, 2017,pp 14-19, ISSN: 2348-8379 on 22.03.2017.

Krishnaveni S AP/EEE, Subhashini R AP/BME, Rajini V Prof/EEE, published a paper titled "Inactivation of bacteria suspended in water by using high frequency unipolar pulse voltage" on 05.05.2017. Journal of Food Process Engineering. 2017;00:e12574. https://doi.org/10.1111/jfpe.12574. ISSN:1745-4530.(Indexed in Scopus and Thomson Reuters)

R.Kavitha, V.Rajini Prof/EEE, published a paper titled "Design and Implementation of a High Gain DC-DC Converter with Built-in Transformer Voltage Multiplier Cells", International Journal of Electrical Engineering & Technology ,Volume 8, Issue 2, March- April 2017, pp. 71–80,ISSN Print: 0976-6545 and ISSN Online: 0976-6553 on 05.05.2017.

Aslam Amir BE Student, T.M. Jifry Shaheem BE Student, and MuthuSelvan N B ASSP/EEE, published a paper titled "Study of Distribution Factors for Allocation of Power Transaction in a Deregulated Market" International Journal of Advances in Natural and Applied Sciences, Vol.. 11(6); pp: 708-715, April 2017 (Annexure – II Anna University SJR Indexed) on 19.05.2017.

Thiyagarajan V., AP/EEE, published a paper titled, "Modified Seven Level Symmetric Inverter with Reduced Switch Count" in "Advances in Natural and Applied Sciences", ISSN : 1995-0772,Vol.11, No. 7 (2017), PP 264-271. (Anna University Annexure 2, Scopus Indexed) on 30.05.2017.

Dr P Saravanan AP/EEE published a Paper titled, "Analysis of Neural Network Approaches for Nonlinear Modeling of Switched Reluctance Motor Drive" in Journal of Electrical Engineering and Technology, Vol.12, No.4, pp:1548-1555, June 2017 on 05.06.2017.

S. Krishnaveni AP/EEE, Dr. V. Rajini. Published a paper titled "Resonant Gate Driver for Series Operation of MOSFETs", in Energy Procedia. 117C (2017): pp. 38-45. SJR factor 0.47. (Scopus indexed) on 20.06.2017.

M. Venmathi (FT Research Scholar/EEE) and Dr. R. Ramaprabha, Asso.Prof./EEE, published a paper on 23.06.2017,titled "Fuzzy-PI-based centralised control of semi-isolated FP-SEPIC/ZETA BDC in a PV/battery hybrid system", International Journal of Electronics, Vol. 103, No. 11, pp. 1909-1927, 2016, Taylor & Francis, UK, (ISSN: 0020-7217, 1362-3060) Scopus Index 0.4 (DOI: http://dx.doi.org/10.1080/00207217.2016.1138541) Listed in Thomson Reuters - Published online: 01 Feb 2016

J.AnithaRoseline Asso.Prof./EEE , M.SenthilKumaran Asso.Prof./EEE , Dr.V.Rajini, , Prof/EEE, Published a paper on 29.06.2017 titled " Unified Algorithm for Multilevel Inverters" in IET Power Electronics, Vol.10, issue 7, pp. 808-816, June 2017.

PAPER PRESENTATIONS

Dr.R.Seyezhai Asso.Prof./EEE and D.Umarani AP/EEE presented a paper entitled “Inverted Sine Hybrid Pulse Width Modulation for Quasi Z-Source Multilevel Inverter” in the International Conference on Frontiers in Engineering, Applied Sciences and Technology (FEAST 2017) organized by National Institute of Technology, Trichy and won Best paper award on 31/3/2017-01/04/17

K. EzhilVenthan, II year ME-PED student and Dr.U. Shajith Ali, Asso.Prof./EEE presented a paper titled "Application of Photovoltaic Fed Luo Converter for Air Conditioner," in International Conference on Sustainable Environment and Energy (ICSEE'17) held at Hindustan University, Chennai on 06.04.2017 & 07.04.2017.

Dr.U. Shajith Ali, Asso.Prof./EEE participated and presented a paper titled "Performance Enhancement of Modular Multilevel Inverter Using Trapezoidal PWM Control," in International Conference on Circuit, Power and Computing Technologies (ICCPCT-2017) held at Baselious Mathews II College of Engineering, Kollam, Kerala on 20.04.2017 and 21.04.2017.

Kavitha, Rajini Prof/EEE, Krishnaveni AP/EEE, presented a paper titled " High step up interleaved converter with built in transformer voltage multiplier cells for pulsed electric field generator" in International Conference on SUSTAINABLE ENVIRONMENT & ENERGY,ICSEE’17 6th -7th, April 2017

Premkarthik, V,Rajini, presented a paper titled " preparation and charaterization of nano based electrodes from spent lead aid battery paste", International Conference on SUSTAINABLE ENVIRONMENT & ENERGY,ICSEE’17 6th -7th, April 2017

Joselinejebamalar, V.Rajini, presented a paper titled " Investigations on a novel triple-input dual-output boost converter", in International Conference on SUSTAINABLE ENVIRONMENT & ENERGY,ICSEE’17 6th -7th, April 2017

MEETINGS

Doctoral meeting was held in respect of Ms. Anitharoseline AP/EEE and panel of experts recommended to University for the conduct of viva Voce exam on 10-4-2017

Dr. R. Ramaprabha, Asso.Prof./EEE conducted synopsis meeting for the full-time PhD candidate Ms. G. Ramya (JRF, SSNCE) on 27.04.2017 at 10.30 am at EEE Seminar hall.

Dr. R. Ramaprabha, Asso.Prof./EEE, attended a meeting as one of the invited faculties with team of experts from Fine tuning Academy LLP to discuss the possibilities for a partnership in conducting training to students as per industry requirements on Friday the 28th April 2017 between 9.30 a.m. and 10.30 a.m. in the Admin Conference Hall.

Synopsis meeting in respect of part time research scholar of Dr V Rajini, Ms. AbithaMemala was conducted on 22.05.2017.

Synopsis meeting in respect of full time research scholar Ms. Margaret Amutha was conducted on 24.05.2017

Dr.V.Rajini Prof/EEE, attended the APQC meeting held at conference hall on 24.05.2017.

Dr. R. Ramaprabha, Asso.Prof./EEE & Dr. S. Malathy, Asso.Prof./EEE, presented the internal fund progress in the evaluation meeting on "Completed Internally Funded Faculty Projects" on 22.06.2017.

PHD

Dr V Rajini Prof/EEE received thesis report of Ms. Anitha Roseline on 08.04.2017.

Dr. R. Ramaprabha, Asso.Prof./EEE conducted PhD Viva-voce examination for her part-time candidate Ms. S. Malathy, AP/EEE on 17.05.2017. Her thesis was highly recommended for the award of degree.

Viva Voce Examination of Ms. Anitha Roseline was conducted on 18.05.2017. Dr. Anupkumar Panda, professor, NIT Rourkela was the Indian examiner and Dr. Aravindha Babu, Professor, Annamalai University was the subject expert on 18.05.2017

Ms. M. Venmathi full-time PhD candidate of Dr. R. Ramaprabha, Asso.Prof./EEE has received PhD degree in Anna University 37th convocation held on 19.05.2017.

Mr P Saravanan AP/EEE defended his Ph.D thesis titled, “Intelligent controllers for Switched Reluctance Motor Drive” on 17.05.2017. The Indian examiner Dr. M. Sudhakaran and the Subject expert Dr. M. SomaSundaram has examined and recommended for the award of Ph.D degree.

OTHER ACTIVITIES

Dr Devesh raj Asso.Prof./EEE Delivered guest lecture on "Power System Operation and Control" at Rajalakshmi Institute of Technology, Chennai - 600124 on 31st March 2017.

Dr.U.Shajith Ali, Asso.Prof./EEE, performed as the organizing committee member in Smart India Hackathon'17 held at SSN College of Engineering on 1st and 2nd April,2017.

Dr. Kamaraj V, Prof/EEE, Dr. MuthuSelvan N B, ASSP/EEE and Dr. Devesh Raj M, Asso.Prof./EEE, conducted Three Day National Level Short Term Training Program on, "Advanced Softwares for Power System Simulation Studies" during 3rd – 5th May 2017.

Dr. Ranganath Muthu Prof/EEE & Dr. M. SenthilKumaran Asso.Prof./EEE were coordinators for Three-day Hands on Workshop on "Dynamics and Control: An Enthralling Journey with the Aerothrust Pendulum" held at EEE department, SSN College of Engineering on 14th to 16th June 2017. The Workshop was jointly organized with Student Coordinators Rama Seshan C and Srihari P V.

1 kW PV array in EEE department is revamped after Vardha Storm. This work was supported by internal funding. Now the power generated by this array is used for partial powering of Solar Energy Research Lab and Control Systems Lab of EEE department. This work was completed by Dr. R. Ramaprabha, Asso.Prof./EEE & Dr. S. Malathy, Asso.Prof./EEE on 15.06.2017.

WORKSHOP CONDUCTED

Dynamics and Control: A Journey with the aero thrust pendulum.

A 3 day Workshop

This workshop primarily focused on imparting practical knowledge and understanding of dynamics and control into the younger minds. It further enlightened them on robotics through practical demonstrations on modeling, design, control and analysis of a small robot (The aero thrust pendulum).This workshop was intended for students who have a craze for robotics but do not know where to start amongst the exotic materials of complicated dynamic equations, planning and control algorithms that command mastery over complicated programming and sophisticated mathematical techniques.The tech club Students for Students (S4S) organized it9's first event to bridge this gap between robotics aspiration and mastering fundamentals through a three day workshop (or an adventure) titled "Dynamics and control: A Journey with the aero thrust pendulum" from June 14 to 16, 2017 at EEE department of SSN College of Engineering. The Fee was 500 rupees per participant.

The Event saw a huge number of interesting participants rounding around 28 from first year, Second year, Third year and Final year of Electrical Engineering and few others form other colleges also. The key skills that were imparted in the workshop were Dynamic modeling, System identification, digital design, systems and control theoretic viewpoint of the world. The practical skills that were imparted in the workshop were System generator based FPGA Programming, Python Programming from control view point, Measurement techniques (Encoder data acquisition, Analog to Digital Converter data acquisition), Control techniques of BLC motor on a practical platform.(the aero thrust pendulum)

The faculty organizers of this event were Dr. Ranganath Muthu (Professor) and M.Senthil Kumaran (Associate Professor). The student organizers of this event were RamaSeshan and Srihari from Final year EEE Department. The feedback of the participants has proved the efficiency of knowledge transfer that has been achieved in this workshop and has also initiated for the next course on "Nonlinear dynamics: A Journey with the Self balancing BOT" as requested by the participants.

OVERALL THE WORKSHOP WAS A GREAT SUCCESS

THREE DAYS NATIONAL LEVEL SHORT TERM TRAINING PROGRAM ON "ADVANCED SOFTWARES FOR POWER SYSTEM SIMULATION STUDIES"

The Department of EEE, SSN College of Engineering in association with ISTE organized a three days National Level Short Term Training Program On "Advanced Softwares for Power System Simulation Studies" during May 3-5, 2017.

COORDINATORS: Dr. V. Kamaraj, Dr. N. B. Muthu Selvan & Dr. M. Devesh Raj

Number of Participants: 45

Details of Sessions & Speakers:

Day 1

Inauguration: Inaugural address by Dr. K. Manivannan, Vice President, ISTE & IFEES (USA) Professor, Dept. of CSE, R.M.K. Engineering College

Session 1: Expert Lecture on *"Recent Trends in Power System studies"* by Dr. R.P. Kumudini Devi, Professor, Dept. of EEE, Anna University

Session 2: Expert Lecture on *"Transmission system expansion and planning"* Dr. G. Balamurali, Technical Research Associate Appadurai Chair for Power System, Anna University, Chennai

Session 3: Case study - *"Load flow analysis and Reactive Power Compensators"* - Hands on practice using PowerWorld Simulator and ETAP, by Dr. N. B. Muthu Selvan, Associate Professor, Department of EEE, SSNCE

Day 2

Session 1: Lecture on *"Preventive maintenance scheduling of generator"* by Dr. S. Tamil Selvi, Associate Professor, Department of EEE, SSNCE

Session 2: Case study - *"Fault analysis"* - Hands on practice using PowerWorld Simulator, by Dr. M. Devesh Raj, Associate Professor, Department of EEE, SSNCE

Session 3: Expert Lecture on *"Importance of load flow in Power System studies",* by Dr. P. Somasundaram, Professor, Department of EEE, Anna University, Chennai

Day 3

Session 1: Expert Lecture on "*Power Transformers - Design Aspects"* by Mr. S. Sivakumar, Scientific Officer 'F", Indira Gandhi Centre for Atomic Research, Kalpakkam.

Session 2: Case study - "*Transient stability analysis"* - Hands on practice using PowerWorld Simulator by Dr. N. B. Muthu Selvan, Associate Professor, Department of EEE, SSNCE

Session 3: Case study - " *Transients in Transmission Lines and ALFC "* - Hands on practice using EMTP-RV and MATLAB, by Dr. M. Devesh Raj, Associate Professor, Department of EEE, SSNCE

PLACEMENT DETAILS

Sivaramkrishnan	Soliton
Anirudh C	Mu Sigma
Mirudhulla B	
Mohammed Haris T	
Siddharthan	

INTERNSHIP DETAILS

1) Ramanan Sekar, Final Year B Section – Raman Research Institute

I worked at Raman Research Institute, Bengaluru for a period of two months as a research fellow under the Indian Academy of Sciences' Summer Research Fellowship Program, 2017, on quantum cryptography. Specifically, I worked on the sub-problem of quantum key distribution, or QKD. The status quo of current cryptographic schemes, say the encrypted link established between a bank's server and your computer when you're doing online transactions, relies on intractable problems of the modern computer. The security is based on the fact that current computers would take an indefinite amount of time to decode the encrypted messages that are being exchanged. This however, is obviously subjected to change due to the evolving nature of computers. A message that was supposed to be kept secret which is encoded using today's schemes will be vulnerable to decryption when they are stored and decoded using computers of the future which undoubtedly be faster with better performance. To prevent this, we wish to bind the security by the laws of physics themselves so that no matter how much technology adapts and evolves, what is prohibited will be prohibited unless the laws themselves change. This is the fact that QKD is based upon. Key distribution is the process of exchanging secret keys between two parties so that the sender would encrypt the message with the key, which would then be decrypted by the receiver with that same key. QKD uses the fundamental laws of quantum mechanics to ensure secure key distribution. A protocol by the name of BB84 was the first QKD protocol to suggest distributing keys between two parties exploiting the quantum nature of light itself, and the crowning achievement of the protocol was that it showed any eavesdropper could be detected as the act of the eavesdropper measuring the quantum state of the light fundamentally alters it and introduces errors, thereby revealing the presence of the said eavesdropper. I, during these two months, worked on an extension of this concept, called Decoy State QKD, where fundamental problems regarding the practicality of establishing secure communications with photons is addressed in an innovative way. Security of the original BB84 protocol depends on sending only single photons through the channel, which one can imagine to be unsustainable and working only for a short distance. Decoy state QKD circumvents this problem by allowing usual hardware providing

multiphoton signals to be used and also significantly enhances the number of secure keys and the distance by several orders of magnitude. Decoy state QKD has been implemented over 400 km in fiber optic cables in as recent as 2016, and strides are being taken to implement it on ground-satellite communication systems. The landmark achievements and advantages of using QKD are as follows. Firstly, the notion of unconditional security of your message is attractive to any party with the necessity of such security, and the obvious application being in military purposes. The military of several countries, including India, Canada the United States, are investing heavily in QKD for secure communication purposes. Secondly, the prospect of using light for exploiting its quantum nature for this unconditional security is also attractive as fiber optic cables exist readily as the means for transportation. However, one can only go so far with these cables. The gold standard for QKD would be satellite communication to provide global interconnection, where light will be sent from the ground station to the satellite, which would then communicate it to another ground station say half way around the Earth. It was my privilege and pleasure to work at Raman Research Institute where the first steps for QKD are being taken in the entire country and the things that I learnt about fundamental research and the "procedure" of doing science is something that I will remember, cherish and utilize for the rest of my life.

2) Rajanandhini N , Final Year B – FORD

I did my intern at Ford India Private Ltd located in Maraimalai Nagar, 45km from Chennai. I submitted my resume during the 5th semester of third year and received a call letter from Ford on 6th semester. They assigned me a project titled "Study and analysis of Energy Losses" along with a co-intern for a period of two months. We had orientation on our first day where they gave us instructions and how to proceed further. Some of them were wearing safety shoes, goggles and ear plugs while entering shops and storage devices were not allowed inside the factory. And then we met our guide and he explained us about our project. Our working place was at the substation of the factory. Our task was to calculate transmission and transformer losses for the whole manufacturing unit. The Ford manufacturing unit in Chennai is built upon an area of nearly 400 acres. The factory receives supply from 110KV TNEB supply yard. And it is stepped down to 11KV in the Ford substation and is distributed to various shops by further stepping it down. It consists of 6 shops for the process of manufacturing cars. It even has its own engine assembly plant. We were provided with data to calculate losses from daily energy consumption right from TNEB supply (HV side) to the sub panels (LV Side) in every shop and to ensure whether the losses are within the limits. Finally we had to provide them with a solution to reduce the losses. I had a very good experience at Ford and also found it very useful as I got to work with experienced people, gained knowledge practically during my field work.

3) Sajna G , Final Year B – DOW Chemicals

I'm currently interning at DOW chemicals (Electrical discipline). The experience is truly amazing. I'm glad this company came to our college. They shortlisted a few candidates based on CGPA ,after which we had an interview process at their office. We had a technical test , group discussion and a personal interview. I got select from the electrical department. I'm currently working with power systems studies. I get to practically implement what I've studied in Power System Analysis and Power System Operation and Control. I've also met a lot of new people and learnt a lot of things in this short span of time.

4) Ramyaa Rathna Kumar , Third Year B – IISc Bangalore

During the semester end break, I was lucky to have been given the opportunity to undergo an internship at IISc, Banglore. It was an amazing learning experience. I was placed in the High Voltage Department, of Electrical Engineering. The domain concerned was to use High Voltage discharge (corona discharges, Dielectric barrier discharges) and several techniques of Non -Thermal plasma discharges for reducing the concentration of pollutants from the exhaust of vehicles and develop suitable reactors for it. The fuel was either biodiesel (which prepared in CPRI) or diesel and the exhaust pollutants mainly focused were of nitrogenous oxides . This research work is one of a kind in India, which is carried out the department. I had been given the tasks of observing and carrying out experiments involving high voltage apparatus to estimate the efficiency of reactors used in the experiments and was assigned to concentrate on large literature survey , on existing methodologies and proposed designs to understand the processes and was asked to prepare reports on several sub sections. I was involved with the newer initiative of eliminating hydrocarbon wastes using the above methodology following which I had to carry out few analyses. I also had the privilege to visit the laboratories of the electrical department and view the DRDO projects on lightening surges. As a part of the research work, I was introduced with the software Origin to carry out plots . Invaluable experience included gaining knowledge and practical insights from various PhD students. This has generated higher interests in me to learn on incorporating HV to eliminate exhaust in light vehicles, with advancements in power electronics and control strategies.

5) R Jyothiraditya, Third Year B – BOSCH

For about a month I did an internship at Bosch limited located at Adugodi in Bangalore from the 8th of June until the 10th of July 2017. Bosch is a multinational mechanical-cum-electronics and electrical company .It is the world's largest supplier of automotive components as of the year 2011.

I worked at the Adugodi plant of Bosch, which is devoted mainly to the production of fuel injection pumps. This suited the current degree, which I'm pursuing as it is primarily based on electrical engineering, and helped me get a practical idea of how various theoretical techniques that I had learnt were actually implemented in a production line. Through this internship, not only did I gain a lot of knowledge, I also had a great chance to sharpen my skills in a professional working environment.

I worked in the TEF department, which basically deals with electrical and electronics. This department was divided into three sectors- Gauges and sensor department, motor and PMI (preventive maintenance inspection) department and electronics department. The gauges and sensor department worked on the instruments to be used in honing, ID grinding, OD grinding and FMG (Face Match Grinding). In motor and PMI department, I learnt about the types of mounting of motors(face, flange and foot) .And all the motors used in the plant were 3phase/1phase squirrel cage induction motor . They explained about the important components for control like relays, mcb, mpcb, contactors and PLC. The hardware used for the purpose of our learning was the Siemens S7-200 while the updated and advanced S7-1200 is used in the plant. The Step7 application is used as the major software for interfacing the S7 PLC with a laptop. In PLC, I learnt about DOL, Dual direction motor , Star-Delta conversion and simple delay and counter circuits

Thus during the duration of this internship, I as a student have learnt several practical uses of the theoretical subjects and topics that I have learnt during the 2 years of my bachelor degree. This has been very helpful as I can go forth in my studies with added confidence of not only practical knowledge but also the experience of working at a world-renowned organization, which features several facilities and cutting edge technology.

6) Pavithraa ST, Third Year B – VOLTECH

I was lucky to attend the in plant training at VOLTECH MANUFACTURING COMPANY LTD. Kumaran nagar, kovur, chennai 128. Voltech is a leading manufacturer in Transformers and Switch gear .

I had a great opportunity to learn about the types of relays , SMD devices , Directional and nin directional relays High tension circuit breakers , Megger testing and transformer testing.

7) Vignesh V , Third Year B – Bharat Electronics Limited

Attended In-Plant Training in BHARAT ELECTRONICS LIMITED from 24-06-2017 to 30-06-2017. BEL Chennai makes the electronic components for various MILITARY TANKS (T 90, T 72) and ARTILERIES (L 70) for the INDIAN DEFENCE. Was part of a team in the Development and Engineering wing which dealt with tracking enemy aircrafts using video processing, stabilization of turrets and, tank and armored fighting vehicle electronic system etc. Also been in Testing, Quality Management

STUDENT ACHIEVEMENTS

1) Vignesh V from third year B section won the Kaizen Robotics Program Competition held **in IITM Research park** on June 17th, 2017. There were 4 problem statements given and the first team to finish were declared as winners. The problem statement included the making of **INTELLIGENT MAZE SOLVER, INTELLIGENT LINE FOLLOWER, REMOTE CONTROLLED BOT WITH ROBOTIC ARM and GESTURE CONTROLLED BOT.**

SPORTS ACHIEVEMENTS

1.K.ARAVIND

Mumbai Mayor's Cup
5th Place
20K cash award was awarded

2.C.KOWSHIK

Inter Zonal Table Tennis Tournament –First Place
Vellore

VNR Vijet College Hyderabad- Doubles Event
First Place

VIT Vellore Team Event-2nd Prize

VIT Chennai-2nd Prize

SOLAR ENERGY

On June 3, two days after President Trump announced that the United States would withdraw from the Paris climate accord, Indian Prime Minister Narendra Modi exchanged a hug with French President Emmanuel Macron during an official visit to Paris. Modi and Macron pledged to achieve emissions reductions beyond their nations' commitments under the Paris Agreement, and Macron announced he will visit India later this year for a summit on solar power.

For observers who equate India's energy production with a reliance on coal, this exchange came as a surprise. Modi's internationally visible pledge would put India three years ahead of schedule to achieve its "Intended Nationally Determined Contribution" to the Paris climate agreement. Instead of shifting to 40 percent renewables by 2030, India now expects to surpass this goal by 2027.

As the United States retreats from international action on climate with a bewildering lurch toward coal, other countries are assuming leadership in the most far-reaching energy transformation since the beginning of the Industrial Revolution. China is cementing its role as a dominant producer of solar panels and wind turbines, and a number of European countries are continuing their slow move away from fossil fuels.

India, meanwhile, is emerging as a major market for renewable energy, laying out aggressive plans for investments in solar and wind. This shift is not about a starry-eyed prime minister seeking to garner international goodwill. It is the result of a fundamental energy and economic transition already underway, which India's leadership has recognized.

An energy pricing revolution

Prime Minister Modi's renewable energy agenda aims to increase India's grid-tied renewable energy capacity from roughly 57 gigawatts in May 2017 to 175GW in 2022, with most of the increase coming through a major expansion in solar. India's installed capacity for solar energy has tripled in the last three years to its current level of 12GW. It is expected to jump by more than 100GW over the next six years, and increase further to 175GW before 2030.

Coal currently provides nearly 60 percent of India's of total installed electricity generating capacity of 330GW, but the government projects it will decline substantially as solar power ramps up. In May 2017 alone, the states of Gujarat, Odisha and Uttar Pradesh canceled thermal energy plants – that is, those powered by coal – with a combined capacity of nearly 14GW of power.

Price decline is perhaps the biggest reason India is shelving its plans for new coal-based power plants. Over the past 16 months, the cost of producing utility-scale solar electricity in India has fallen from 4.34 rupees per kilowatt-hour in January 2016 to 2.44 rupees (a little over 3 cents) in May 2017 – cheaper than coal. For the moment, large-scale solar and wind are roughly similar in price and lower than nuclear and fossil fuels.

Prices this low for utility-scale renewable power in emerging economies are unprecedented but also exciting. Only last year, when the Indian state of Rajasthan held an electricity solar power auction, energy analysts deemed one company's bid to supply solar power for 4.34 rupees per kilowatt-hour too low, and possibly leading to project failure. But solar energy prices are still falling as a result of fierce competition, lower costs all along the supply chain and favorable interest rates.

Large, credible international companies such as SoftBank Group of Japan, Taiwan's Foxconn Technology, and India's Tata Power are jumping into this highly competitive market. And the shift is not just happening in India. Solar prices in Chile and the United Arab Emirates fell below 3 cents per kilowatt-hour in 2016. Indeed, where emerging economies are installing new power generation capacity, the economic argument in favor of renewables is strong and getting stronger.

Additional drivers of this revolution include the local and global pollution costs of extracting, transporting, refining and consuming fossil fuels. In opting for renewables, India and China are responding to widespread local protests against air and water pollution and the human health impacts of continued reliance on fossil fuels.

For poor countries, domestic solar power generation has another side benefit. It saves them foreign exchange by substituting solar energy for imports of oil, gas and coal.

Three key conditions

Three conditions are critical for this structural shift to continue in India and globally: growth in energy demand, innovation to make electricity grids more reliable and adequate land for installing solar modules.

Per capita electricity use in India is among the lowest of the emerging economies. Therefore, it is likely that demand will continue to rise to meet increasing availability of electricity.

India's national grid came into existence relatively recently in 2013 with the connection of its different regional grids. The grid must become more robust to cope with the range and intermittency of some forms of renewables-based power. One silver lining, however, is that high electricity demand periods in India for commercial activities and air conditioning occur during the day, when solar production is at its peak.

India's high population density means that freeing up land for solar installations will require careful zoning and land use planning. National policy should require greater emphasis on land areas that are less critical for other productive uses or for biodiversity conservation and ecosystem management.

Solar diplomacy

Renewable power offers a relatively low-cost solution to energy security challenges, conserves scarce foreign exchange and reduces fossil-fuel-based pollution. These benefits led India and France to propose an International Solar Alliance for "sunshine" countries in the tropics at the Marrakech climate change conference in November 2016. These countries receive strong solar radiation that fluctuates very little throughout the year, thereby providing favorable conditions for low-cost solar power generation.

ISA is a treaty-based intergovernmental organization that already counts 123 countries as members. It is committed to increasing adoption of solar power production by sharing technological knowledge and by mobilizing $US1 trillion in financing from international development banks and the private sector by 2030. The Modi-Macron embrace extends far beyond France and India.

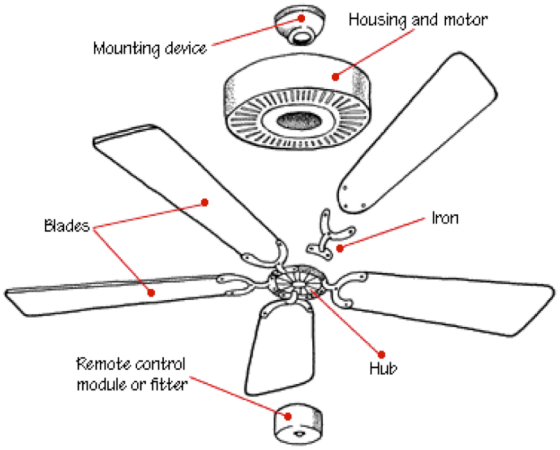
Broader adoption of renewable power production in emerging economies is not the only solution to climate change challenges. But it is a central plank in global strategies to manage climate change-related problems. Countries such as India, China, France and ISA members are demonstrating that a failure of U.S. leadership need not stand in the way of a renewables revolution.

By , S.Dev Ganesh , second year

HOW A CEILING FAN WORKS

Ceiling fans can make life a great deal more comfortable. Since Philip Diehl's invention of the first electric ceiling fan in 1882, ceiling fans have evolved to become the most widely used and efficient cooling systems. A ceiling fan is defined as a mechanical fan, usually electrically powered, that is suspended from the ceiling of a room that uses rotating paddles to circulate air. But does that really explain what a happens in a ceiling fan that brings so much comfort to life?

A ceiling fan consists of a few basic parts, namely an electric motor with a housing, blades and the "irons" that hold most types in place, and a downrod or other mounting device.



Principle behind the Ceiling Fan

The electric motor is the electric machine within the ceiling fan that converts electrical energy into mechanical energy. The ceiling fan capacitor torques up the electric motor, allowing it to start and run. An electrical current reaches the motor and then enters coils of wire that are wrapped around a metal base. As this current passes through the wire, a magnetic field is caused that expends force in a clockwise motion that actually changes the electric energy into mechanical energy. This action causes the motor coils to spin. As the coils are spinning, the fan captures this spinning motion, transferring it to the fan blades.

The slicing of the air caused by the fan blades is what pushes the air downward, causing the breeze created by the ceiling fan. This whole process circulates the air through the room, as air moves in to replace the air that has been pushed down from the ceiling. Ceiling fans work are so effective because of the fact that hot air rises. As the hot air reaches the ceiling, it builds up the heat in the entire room. A fan mounted on the ceiling forces this hot air away from the top of the room, and this action leaves room for more hot air to rise, thus circulating the air in the room causing the breeze. It is this action that can make ceiling fans effective in any season.

By , Vignesh R , Second year

HOLOGRAMS

The phenomenon of holography is based on the principle of interference. It's that one small idea that has been exploited and has found it's presence in various places and has really cool applications.

A hologram is a physical structure that diffracts light into an image. The term 'hologram' can refer to both the encoded material and the resulting image. A holographic image can be seen by looking into an illuminated holographic print or by shining a laser through a hologram and projecting the image onto a screen. Other methods of projecting and reflecting images are often described as holographic – or even misleadingly *holograms*, because they have an optical presence and spatial quality.
For example: THE PEPPER'S GHOST TECHNIQUE

It uses a partially reflective surface to mix a reflection with the scene beyond. John Henry Pepper demonstrated the technique in the 1860s with it being used to overlay visual elements (often a figure – 'ghost') onto a physical set or stage.

HOLOGRAPHY is based on the principle of interference. A hologram captures the interference pattern between two or more beams of coherent light (i.e. laser light). One beam is shone directly on the recording medium and acts as a reference to the light scattered from the illuminated scene.

The hologram is the recorded interference pattern of constructive and destruction of the superimposed light-wavefronts. By using a coherent laser light-source and a stable geometry the interference pattern is stationary and can be recorded into the hologram's photosensitive emulsion. The hologram is then chemically processed[2] so that the emulsion has a modulated density, freezing the interference pattern into 'fringes'.

Looking at holograms

Viewing a hologram print, the image changes as you move around. As if you were looking through a window onto a scene. This is because holography records the scene through an area of perspective.

The development of holography

The two basic geometries for holograms are – transmission – where light is shone through the hologram, and – reflection – in which the hologram reflects light. The recording of transmission and reflection holograms were developed from two different fields of enquiry and have distinct optical aesthetics.

DIFFERENT TYPES OF HOLOGRAPHIC TECHNIQUES

1. LASER VIEWABLE TRANSMISSION HOLOGRAMS
2. PULSE LASER
3. INFEROMMETRY
4. OPTICAL ELEMENTS
5. WORKING WITH COLOUR
6. DOT MATRIX

APPLICATIONS

1.NON DESTRUCTIVE TESTING

It's a technique used to reveal structural faults and for the mechanical testing of materials.

2.Holographic Optical Elements (HOE)

They perform the same functions as lenses, mirrors, gratings and diffusers. They can also combine several functions together which isn't possible with conventional optical elements.

3.Anti Counterfeiting in credit cards

They are also used in money bills. Some credit cards for telephone calls (Yes, a separate card for telephone bills) use erasable holograms. A 5000 Shilling note of Austria is printed with a golden hologram of Mozart on it (Erasable Holograms)

4. Head Up Display

They are military aircraft windshields and companies are working on it to make it more commercial ever for land transports such as cars.

5.Holographic Scanners

6.Holographic Microfiche (high density information storage)

And it goes on and on and on.

CONCLUSION

Holograms are becoming an essential part of technologies and the amount we've exploited isn't enough. Scientists are working on 3D Plasma based Holograms which you can touch and use as you might've seen in Batman games ,Avatar and so on. But there is a lot of factors which have to be looked into and optimized before that becomes an hopefully eventual reality. The Back To The Future's 2015 version might be far away from reality but we have come off good with these Holograms.

By, Abinandhan R , 2nd year EEE A

RF Transmitter and Receiver

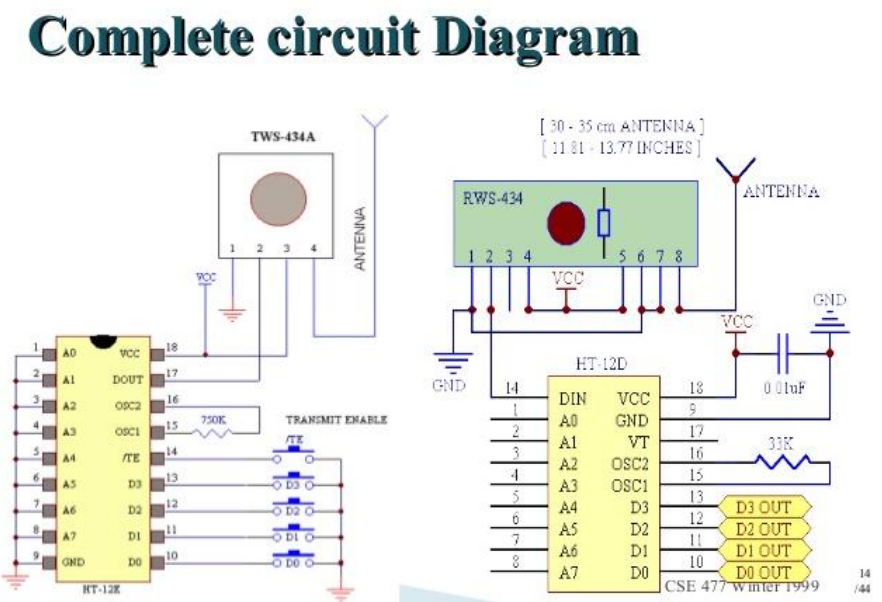
While it may seem like a trivial idea to create a wireless on/off switch, the design, implementation and understanding that goes into such a thing is actually much more invovled than you would first think. For many years I have wanted to build an RF transmitter and RF receiver pair from scratch but it always proved too difficult. This time things will be different!

In this article we'll explore what it takes to build a simple rf transmitter at 27 mhz, the different stages that go into the transmitter, how those stages interact and we'll test it out with some measurement equipment. The ultimate goal will be to pair this transmitter with a receiver, so that when we transmit, the receiver turns on an LED. Simple as that.

Materials required :

1) RF Transmitter + Receiver Pair 433 / 434 MHz 2)HT-12D and HT-12E Ic 3)Push Button 4)LED

5)9 volt battery 6)Bread board 7)connecting wires

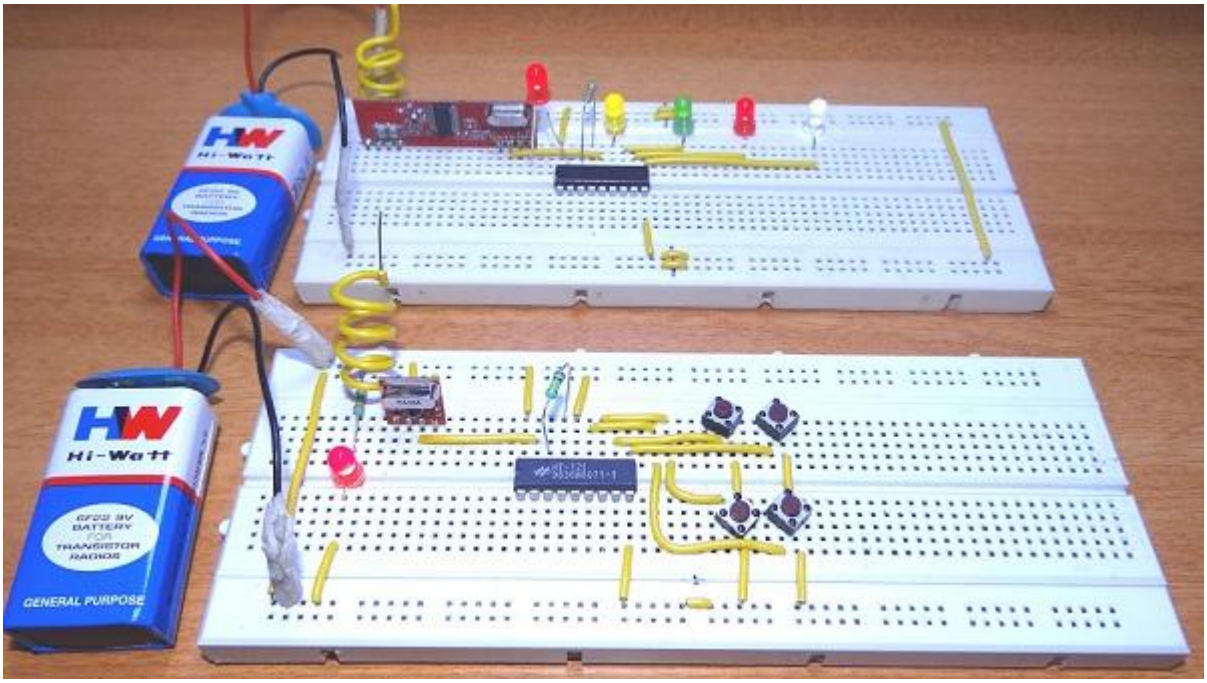


Working :

HT12E Encoder IC will convert the 4 bit parallel data given to pins D0 – D3 to serial data and will be available at DOUT. This output serial data is given to ASK RF Transmitter. Address inputs A0 – A7 can be used to provide data security and can be connected to GND (Logic ZERO) or left open (Logic ONE). Status of these Address pins should match with status of address pins in the receiver for the transmission of the data. Data will be transmitted only when the Transmit Enable pin (TE) is LOW. 1.1MΩ resistor will provide the necessary external resistance for the operation of the internal oscillator of HT12E.

ASK RF Receiver receives the data transmitted using ASK RF Transmitter. HT12D decoder will convert the received serial data to 4 bit parallel data D0 – D3. The status of these address pins A0-A7 should match with status of address pin in the HT12E at the transmitter for the transmission of data. The LED connected to the above circuit glows when valid data transmission occurs from transmitter to receiver. 51KΩ resistor will provide the necessary resistance required for the internal oscillator of the HT12D.

->Finally it looks something like this



By , Ritika S , Second Year

THROUGH THE LENS

The phrase “Seeing is believing” has woven its way through centuries of mankind, with its meaning deteriorating and misinterpreted at each pass of history. The original interpretation can be traced or thought of as the vision of a person being realised through his own eyes, for the entire world to see. Visionaries aren’t confined to politics and science alone, but find themselves dedicated to the field of art quite often. Throughout the last century, these visionaries have envisioned their world through the camera for the rest of the world to experience.

Throughout the ages

The path of fame and riches sought George Eastman out when his patent for the roll film camera finally came through. It was amazing what a bunch of sub-atomic particles (electrons, of course), could converge and produce something as simple as a picture, yet totally revolutionise the way an average human being sees the world. From then on, it was a clear flow. Various inventors went to achieve impossible feats in the field of picture capturing and developing.

The next goldmine struck when the concept of moving pictures stuck on in inventors’ mind. In In contrast to a still camera, which captures a single snapshot at a time, the movie camera takes a series of images; each image constitutes a "frame". This is accomplished through an intermittent mechanism. The frames are later played back in a movie projector at a specific speed, called the frame rate (number of frames per second). While viewing at a particular frame rate, a person's eyes and brain merge the separate pictures together to create the illusion of motion. Instances of miracles came through in the following years, when these cameras were replaced by the digital movie cameras and later by the world famous IMAX cameras, which cost around half a million dollars apiece.

Conclusion

There has been a major transcendence in the way each person visualises the world. Predestination was not the goal. The inception of the idea within the minds of these great visionaries gave them insomnia, and throbbed their hearts to give a memento of their far from normal lives out to the world. It is actually possible to conceptualise Interstellar travel following the invention of the revolutionary Hubble space and other ground breaking inventions. Prestige was what motivated them and is what will motivate us and the entire world through time. For them, all they needed was a couple of lenses in the right combination. Their minds did the rest.

By , Aadhitya Pillai , Second Year

DO IT YOURSELF

Simulation of Half Wave converter in Simulink and PSIM

To simulate the power converters, software like Simulink and PSIM are most commonly used because of their ease in simulating and analyzing the results. This tutorial will help in simulating power converters in Simulink and PSIM.

Half wave converter

It is the simplest converter. It is also called as one pulse converter as there is only one pulse in one cycle of input waveform. The circuit contains only one switch, which is a thyristor.

Design values

Input: 24V AC

Load: R – 10 ohm, L – 10 milliHenry.

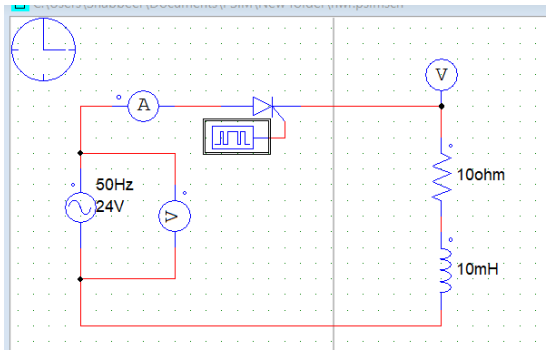
$\alpha = 36^{\circ}$

Alpha should start at 36˚=2ms and end at 180˚=10ms.

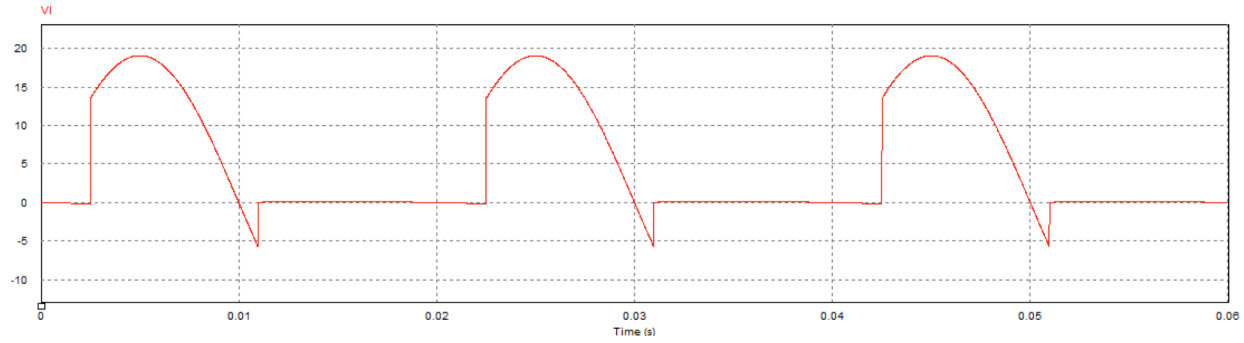
Steps to simulate in PSIM

1. Open the PSIM software. You'll find the required tools on the bottom part of the window.

2. Place the parts from the tool box or find the required elements from the menu **Elements**.
3. Form the circuit as shown.

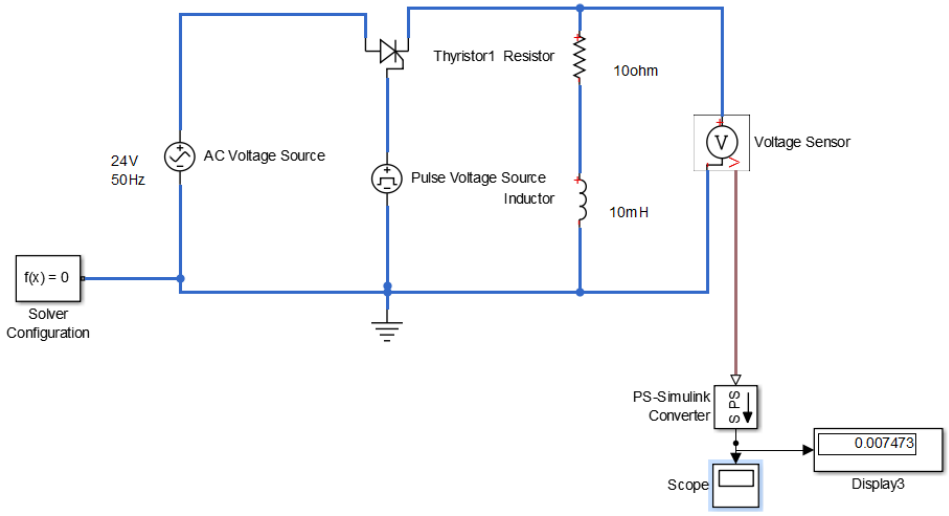


4. Place the voltage measuring probes wherever necessary.
5. Enter the alpha values in the gating block.
6. To start simulation, goto **Simulate --> Simulation Control**, and place the clock shown in the fig inside the workspace.
7. In the simulation control box, set the necessary time values.
8. Simulate the circuit.
9. You'll get an output something like shown below.

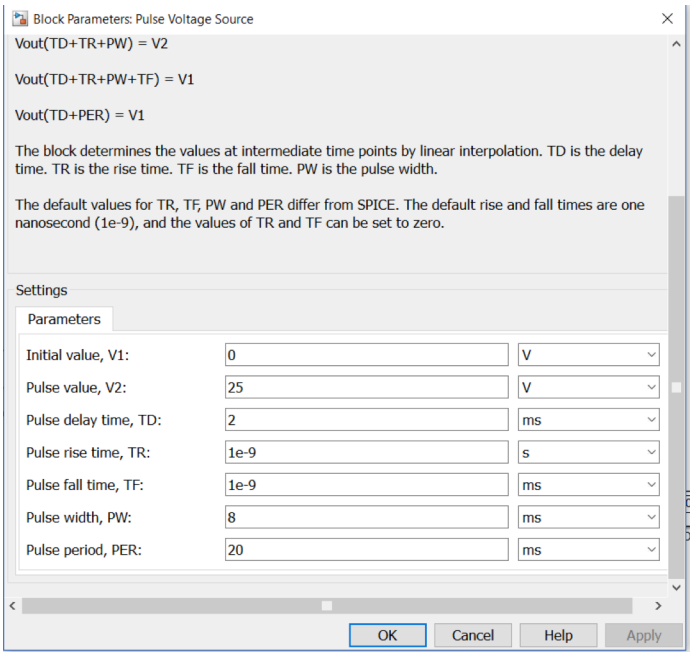


Steps to simulate in Simulink

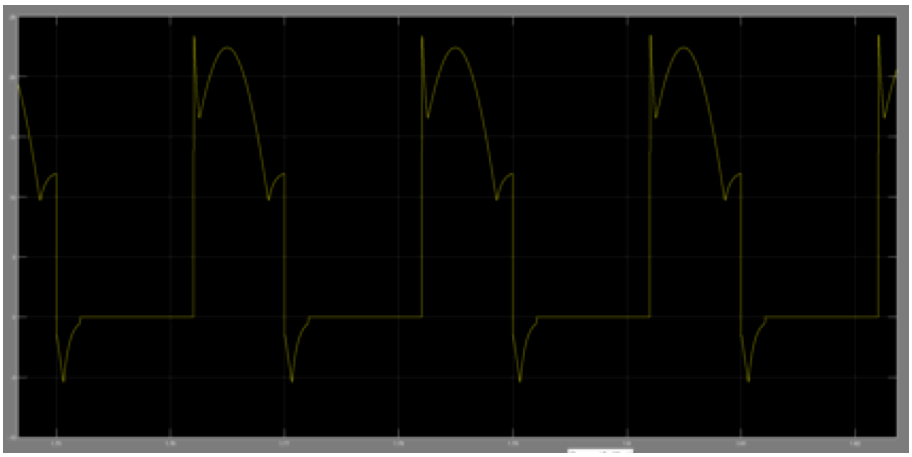
1. Open a new Simulink model in MATLAB.
2. Electronic circuits can be simulated in two ways, SimPowerSystems and in SimElectronics. The circuit simulated by me is of SimElectronics.
3. Open the Simulink library and search for the elements.

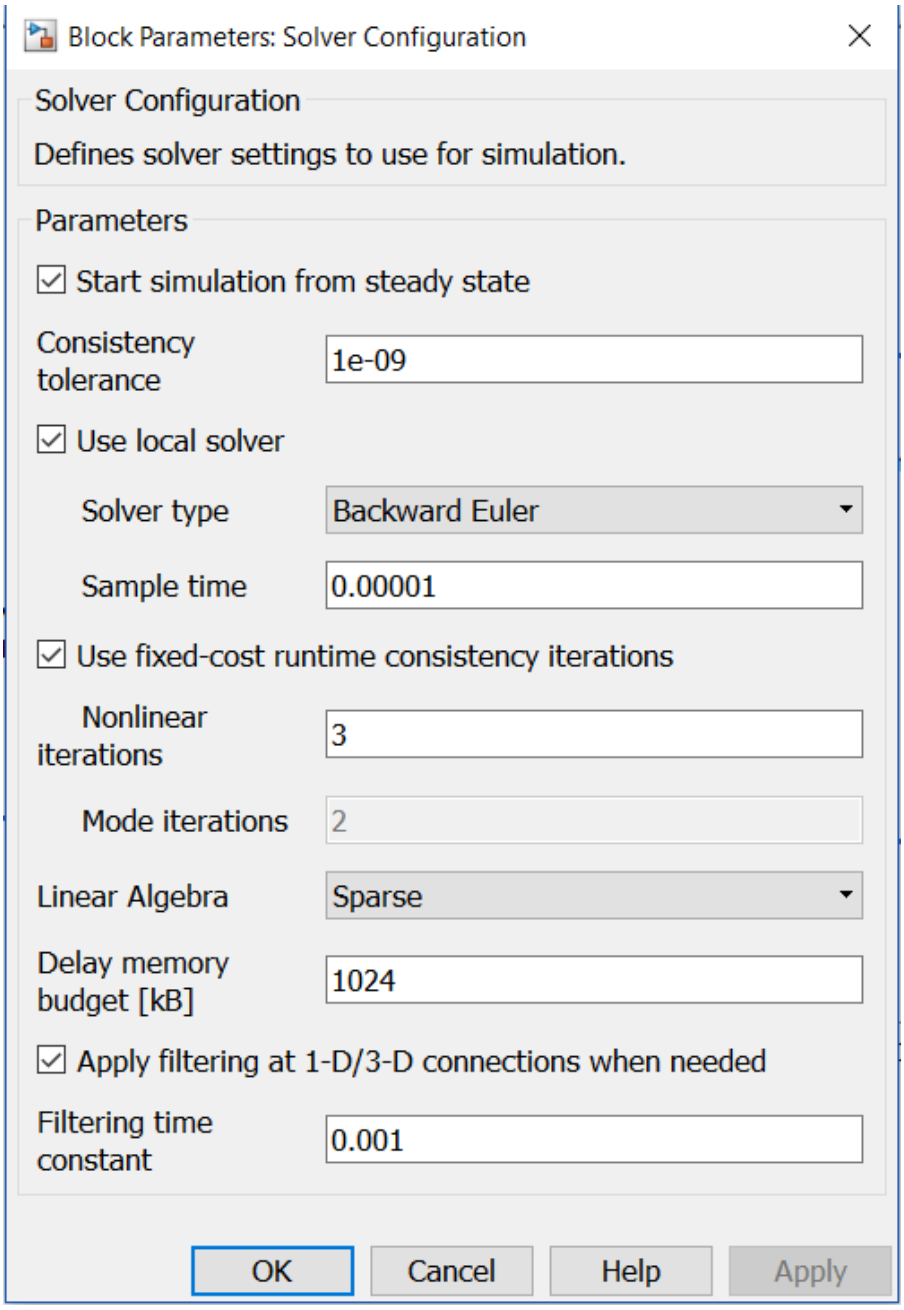


4. The solver configuration block is necessary to simulate the elements of SimElectronics library whereas Powergui is necessary to simulate the elements of SimPowerSystems library.
5. For the pulse generation,



6. Sometimes when there are non linear elements like thyristors and diode, Simulink might not work in continuous domain. It will throw errors. To rectify it make changes in Solver configuration block.
7. On simulating you'll get the following output





9. Try simulating in both the software and explore beyond this circuit.

By, Shabbeer Basha G , Final Year B

ALUMNI TALK

"Irrespective of whether you have talent or not, one has to work hard. Just being talented doesn't mean anything; You can end up wasting it before you realize" – Virat Kohli.

After a hard fought battle against the core subjects in the 5th semester, I finally decided I wanted to do MBA. I felt bad for missing out on IITs and I decided I wanted to get into an IIM. I proactively attended demo classes and finally zeroed in on 'Dream Chasers', T.Nagar (Contact Mr.Sri Ganesh 9941436511). I started going to classes from September 2015. As time passed by, the intensity with which I started had subsided. Since I was already comfortable with Quants (Maths) and Logical Reasoning / Data Interpretation section, I became overconfident. I enrolled myself in the Mock Test series provided by TIME and IMS, Chennai. That till date is the best decision I had taken in my CAT preparation journey.

The very first test I took, I scored a meager 82, and it was a reality check for me. My weakness in English section became quite evident. I did not spend time on it straight away, instead I decided to make my strengths even stronger and then work on nullifying my weaknesses. My scores gradually increased with time. My CAT preparation helped me a great deal during the campus placements. I got placed in the second company I appeared for, Fidelity Investments. **Tip 1: I would advise my juniors to concentrate on aptitude even if you are not preparing for competitive exams. I have seen many students, even toppers, struggling to clear the first round during the placement process.** Once I got placed in Fidelity Investments, again my CAT preparation got derailed. **Tip 2: Take your placements very seriously. It's hard to explain in words how it feels walking out of the interview room being rejected again and again. Put in a lot of effort into making your CV, prepare for GDs and practice Mock interviews amongst friends.** I took a month off from preparations, but I kept giving mocks. Coming back from the break afresh, I slowly but steadily marched towards the 99 percentile mark in mocks and I started feeling confident after 35 mocks.

December 4, 2016, The D-Day had arrived sooner than I expected. According to my plan, I had practiced English hard towards the end of my preparation and hence I managed the first section pretty well. Second section was a nightmare. Data Interpretation, my forte, sadly couldn't find a place in the question paper. I failed miserably in my strongest section and it had adverse effects on the third section as well. My dreams of making it to the IIM slowly crumbled in front of my eyes.

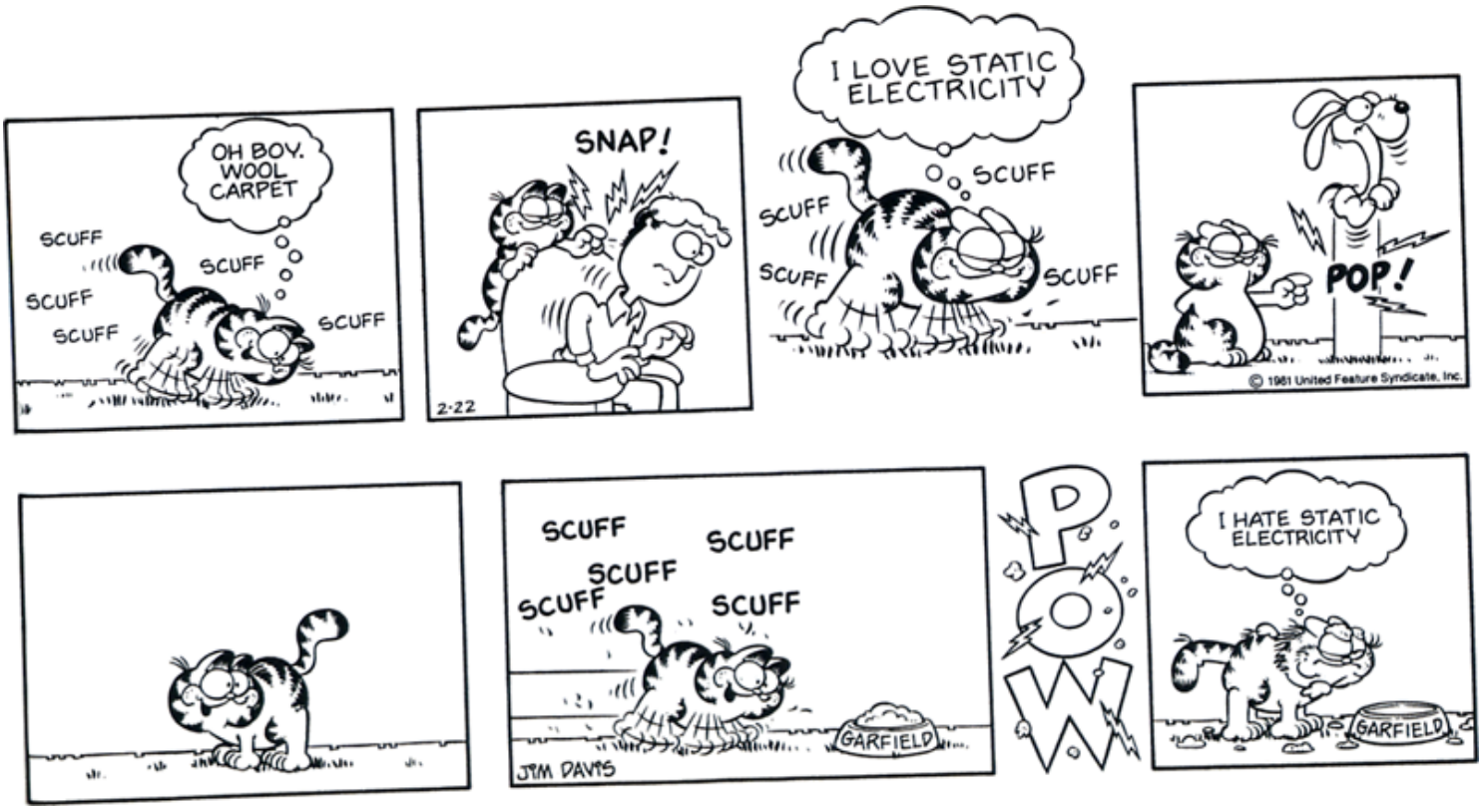
To my surprise results turned out to be good, relatively. I couldn't score the 99 percentiles like I did in the mocks, but still I managed 96.19 percentile. I got calls from all the top IIMs except Bangalore because of my relatively low CGPA (7.74). **Tip 3 : There will be people telling you CGPA is not important for life. Trust me , it is. I know you all worked extremely hard in your class XII to reach SSN , don't lose the intensity, just keep the momentum going and score well. CGPA is important even for placements in IIM if you are targeting finance.**

I joined Career Launcher, Tambaram , for interview preparation. I did not want to leave it to the competition to perform badly to get me through this time like it did for CAT. I prepared sincerely for around 7 hours a day for a month. I read the newspaper daily, attended mock GDs and mock interviews in all the centers across Chennai. Those two months were really enlightening. Pressure got to me during the IIM-A interview.

I nailed the IIM Calcutta interview and now here I am writing this article from my hostel room at IIM Calcutta. The academic rigour is extremely high here, but you will start enjoying it. Yes, I do miss SSN , and I owe a huge share of my success to the college. SSN and EEE department in particular gave me the freedom to pursue what I wanted to, the very freedom on which I thrived upon. I would like to thank every single teaching and non-teaching faculty of the EEE department for their constant support and guidance.

It feels great to help people navigating towards a goal. So feel free to contact me for any help related to CAT or placements. Mail me at manov2019@email.iimcal.ac.in. Good luck juniors, hoping to see a large SSN contingent at IIM C next year.

By, Mano Venkatesh Rajaselvan (BE BATCH OF '17)



EDITORIAL TEAM