



VOLUME 3, ISSUE 5 / AUGUST 2019

# LIVEWIRE!

BMS INSTITUTE OF TECHNOLOGY &  
MANAGEMENT



## DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

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WE ARE GLAD TO PRESENT VOLUME 3, ISSUE 5 OF LIVEWIRE!, THE ELECTRICAL AND ELECTRONICS DEPARTMENT NEWSLETTER. THIS ISSUE CONTAINS REPORTS REGARDING DEPARTMENTAL ADVISORY BOARD MEETING AS WELL AS REPORTS ON THE VARIOUS ACTIVITIES CONDUCTED WITH THE OBJECTIVE OF OVERALL STUDENT DEVELOPMENT BY THE EEE DEPARTMENT, BMSIT&M. THIS ISSUE ALSO CONSISTS OF TECHNICAL, NON-TECHNICAL ARTICLES, ACHIEVEMENTS AND OTHER CREATIVE WORK BY THE STUDENTS OF THE DEPARTMENT.

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## Vision of the Department

To emerge as one of the finest Electrical & Electronics Engineering Departments facilitating the development of competent professionals, contributing to the betterment of society.

## Mission of the Department

Create a motivating environment for learning Electrical Sciences through teaching, research, effective use of state of the art facilities and outreach activities.

## Program Educational Objectives (PEOs)

Graduates of the program will,

PEO1	Have successful professional careers in Electrical Sciences, and Information Technology enabled areas and be able to pursue higher education.
PEO2	Demonstrate ability to work in multidisciplinary teams and engage in lifelong learning.
PEO3	Exhibit concern for environment and sustainable development.

After the successful completion of the course, the graduate will be able to,

PO1: Engineering knowledge	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2: Problem analysis	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3: Design/development of solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4: Conduct investigations of complex problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5: Modern tool usage	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

<b>PO6: The engineer and society</b>	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
<b>PO7: Environment and sustainability</b>	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO8: Ethics</b>	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO9: Individual and team work</b>	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO10: Communication</b>	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
<b>PO11: Project management and finance</b>	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
<b>PO12: Life-long learning</b>	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes:**

The Graduates of the Program will be able to

<b>PSO1:</b>	<b>Analyse and design electrical power systems.</b>
<b>PSO2:</b>	<b>Analyse and design electrical machines.</b>
<b>PSO3:</b>	<b>Analyse and design power electronic controllers for industrial drives.</b>
<b>PSO4:</b>	<b>Analyse and design analog and digital electronic systems.</b>



### Alumni Interactive Session

To sensitize the students about GATE preparation and to have a career guidance interaction with current 4<sup>th</sup> and 6<sup>th</sup> semester students, an Alumni interaction session was organized on 16.02.2019 by Department of Electrical and Electronics Engineering. About 40 students attended this session. Department Alumni Mr. B Tejesh, from the 2018<sup>th</sup> Batch was chosen to talk about GATE preparation. The second speaker of the session was Mr. M Vignesh, 2018 batch alumni, currently working as a software associate at M/s Moolya Software. Mr. Vignesh mainly concentrated on attitude and skill aspects of young graduates.



Mr. Aranya Khinvasara, Program Analyst, M/s Cognizant, Bengaluru gave a Talk on "Savings and Investments" Organized by IEEE Student Branch and Dept. of EEE, BMSIT&M on 02-03-2019 from 10:30 AM to 12:00 PM. To sensitize the students about investment opportunities for current 4<sup>th</sup> and 6<sup>th</sup> semester students, an Alumni interaction session was organized on 02.03.2019. About 60 students from 4<sup>th</sup> and 6<sup>th</sup> Semester attended this session. This talk was planned and executed in association with BMSIT IEEE Student Branch.



Department of Electrical and Electronics Engineering organizes regular Alumni Interactions to promote a healthy relationship that nurtures the bonds of alumni with their alma mater.

We believe that through regular alumni interactions our students will be able to know more about job trends, technology trends, higher education perspectives etc .  
I welcome all our department alumni to share their experiences through these meets. Feel free to contact me in case of any clarifications.

Ozwin Dominic Dsouza  
Dept. Alumni Coordinator  
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### **Open Courses:**

Open course on Transformers and Armature Winding Design was offered for B.E students by Department of Electrical and Electronics Engineering from 12.02.2019 to 16.02.2019. The resource persons for the FIVE DAY open course are Dr. Madhu Palati, Mr. Manjunatha Babu P, Mr Ozwin Dsouza, Assistant Professors, BMSIT&M. The main objective of the course was to exploring the students in the field of Transformer and Armature Winding Design. A total of 22 students had participated in this course. This course was planned to provide theoretical knowledge, Hands on Experience and field visit.



Open course on Programmable Logic Controllers (PLC) was offered for B.E students by Department of Electrical and Electronics Engineering from 12.02.2019 to 16.02.2019. The resource persons for the FIVE DAY open course are Mr. H D Kattimani, Associate Professor and Rajnikanth, Assistant Professor, BMSIT&M, Mr. Shivashankar and team from Prolific Systems & Technology Pvt. Ltd. A total of 42 students had participated in this course. Students were made to work with PLC hardware trainer kit and Delta PLC software due to this all students gain the knowledge of how to interface PLC hardware with software.



A Memorandum of Understanding (MOU) between EEE, BMSIT&M and Prolific Systems & Technologies Pvt Ltd, has been signed on 01<sup>st</sup> February 2019. Dr. Narapareddy Ramarao, HOD, Department of Electrical & Electronics Engineering and Mr. Shivashankar Director, Prolific Systems can be seen, with prof H. D. Kattimani.



Memorandum of Understanding (MOU) between EEE-BMMSIT&M and EKZEN ROBOTICS has been signed on 28.03.2019. Dr. Narapareddy Ramarao, Mr. Shashank Ranebennur, Co-Founder EKZEN ROBOTICS and other staff members of the Department can be seen.





### **KSCST Project Funding:**

Project titled “Computer Mouse control for Physically challenged using Brain signals (BCI)” by final year students Mr. Abdul Azeez, Mr. Henry Ruben and Mr. Skanda Prasad under the guidance of Mrs. Suma Umesh, Assistant Professor, Dept. of EEE has been funded Rs. 7000/- from KSCST. The project deals with computer mouse control using gestures like eye ball movement and other brain signals captured through electrodes. This is useful for persons with physical disability who find it hard to use mouse control.

### **NBA Committee Visit:**

The E&EE Program got an extension of the NBA Accreditation till July 2022. The NBA Expert Committee visited the Department on March 5<sup>th</sup> 2019 in response to our application for Accreditation. The Committee was headed by Dr. Ekram Hussain. The Committee verified various OBE Activities in the Program, and appreciated the efforts in improving the Teaching Learning Process. The program had submitted the Compliance Report to the NBA in January, 2019.



### **Parent - Teacher Meeting:**

Parent - Teacher Meeting (PTM) was organized on 23<sup>rd</sup> March, 2019 from 10.30 am to 1.00 pm in the department of Electrical and Electronics Engineering. Dr. Narapareddy Ramarao, HOD, welcomed the Parents and briefed about the department activities and development process. After HOD address Parents met proctors of their wards and discussed the performance and academic status of their wards and gave the feedback to the department. Many parents expressed thankfulness to the institution and the department for providing excellent facilities and good support to the students of BMSIT&M.





### **ISA Activity:**

Department of Electrical and Electronics Engineering under BMSIT&M ISA Student Section conducted Technical Session on “Introduction to Arduino Platform and Programming” on 21st March 2019 in CR401, BMSIT&M, Bengaluru from 1:45pm to 3:15pm. The session intended to introduce the Hardware Programming Platform using Arduino Microcontroller Board and motivate the students to take up the projects and involve themselves in learning the programming concepts practically. The resource person was Mr. Rohan Chinni student of 6th Semester EEE, BMSIT&M, Bengaluru. The total number of students present was 64 from 4th Semester Electrical and Electronics Engineering.



### **Visit to IISc during Open Day:**

A visit was organised by Dept. of Electrical and Electronics to IISc Open Day, Bangalore on 23<sup>rd</sup> March 2019. IISc open day drew a big crowd, students from the 2nd semester EEE department

were also present to see the demonstrations in the various departments, having been transported to the locale by bus from BMSIT&M at about 10.00 am. The following departments were visited in a group: High voltage engineering (HV), Department of Electrical Engineering (EE), Instrumentation, and Department of Electronics Systems Engineering (DESE). In HV, there was a demo of breakdown of air under high voltage, which was new to some of the 2<sup>nd</sup> sem students who had not the opportunity to see similar labs before. In the EE department there was a model of linear motor with levitating stator, which can be used to make high speed monorail transport. There was another motor with levitating rotor, which can be used to make magnetic bearings.



Dr. Madhu Palati, Assistant Professor, Dept. of EEE have attended a 3 Days workshop on “HVDC transmission systems-Recent Trends” at MSRIT during 21<sup>st</sup> to 23<sup>rd</sup> March 2019.

An industrial visit was organised by Dept. of Electrical and Electronics to Sharavathi hydroelectric plant and Linganamakki dam and power station 26-04-2019 for 4th semester students accompanied by the staff Dr. Sanjay Lakshminarayanan and Mr. Rajanikanth. The plant was like in a textbook, all the various parts were visible. The control room was also visited, where we were told how the output power can be controlled in seconds unlike in a

thermal power plant after which we went to the Linganamakki dam and its power plant. This involved a nice trek through wooded and hilly terrain to the power plant below the dam.



Solar and Wind energy Quiz was conducted under Akshay Urja Club on 27<sup>th</sup> April 2019 at the institute level for all students of the college in the class room CR 302. Akshay Urja Club was formed and the student co-ordinators Ms. Awati Spandana and Ms. Nikitha Chouhan of EEE 6th semester took the lead in organizing the event along with few volunteers of 6th EEE semester students. The quiz questions were prepared and happened in two rounds. There was good response since 50 teams participated with 2 students per team. In first round there were 20 questions which consisted of audio clipping as well as multiple choice questions. About 10 teams qualified for the second round. The second round was rapid fire round in which two teams were given with two prizes. The photos of the event are below.



Mr. Kattimani H D, Associate Professor, Dept. of EEE Published a paper titled " Object Detection for pick & place Industrial Robots using open CV-Python" in IJETIR



(International Journal of Emerging Technologies and Innovative Research) April 2019, Volume 6, Issue 4, (ISSN: 2349-5162)

Mr. Kattimani H D, Associate Professor, Dept of EEE presented a paper titled " A review on RF Energy Harvesting" in National Conference on "Recent Trends in Electrical & Electronics Engg (NCRTEEE-2019)" on 30, April 2019, held at MVJ College of Engineering, Bangalore.

Mr. Ozwin Dominic Dsouza, Prajwal, Arjun S, Manjunath, Tassmiya published a paper titled " Design of a Single Phase Inverter for Aircraft Applications" in International Journal of Innovative Technology and Exploring Engineering (IJITEE), ISSN: 2278-3075, Volume-8 Issue-9, July 2019.

Mr. Manunatha Babu P, Pallavi, Vivek Kumar, Shalabh, Roohullah Yasini published a paper titled " Computer Aided Rib Suppression on Chest Radiographs", in International journal of Innovative research in Technology (IJIRT), ISSN:2349-6002 .

Madhu Palati, Balaji Deveesha, Anand Venkiran, Haripriya S and Raksha Bowade presented a paper titled " Automation of Chess: A survey of Approaches" in National conference on Recent trends in energy conservation in power systems on 3rd of April 2019 at East Point College of Engineering, Bangalore.

Madhu Palati, S Balajee Devesha, Anand Venkitaramana, Haripriya S, Raksha , "Chess automation System using GRBL and XY plotter system" in International Journal of Innovative research in Technology,ISSN:2349-6002, Volume 6 Issue 2 ,July 2019,pp.258-263

Madhu Palati, published a paper on "Application of fuzzy logic for capacitor placement suitability in distribution system" in International Journal of Electrical and Electronics Research (IJEER), ISSN 2348-6988, Vol. 7, Issue 3, July - September 2019.

Mr. Babu Naik G, Sagar P, Mohammed Jalil, Dawood Rasa, jai Krishnan published a paper titled " Power Grid synchronization failure based on voltage and frequency variations beyond limit" in International Journal of Engineering Research and Applications(IJERA), ISSN:2248-9622, Vol-9, issue 6, series 6, June 2019.

Mrs. Shilpa G, Sheetal S R, Leelankitha N, Rahul Kumar, Srihari Sadasivan published a paper titled "FIRE ACCIDENT DETECTION AND PREVENTION IN A TRAIN USING GSM AND



GPS BASED ALERT” in International Journal of Innovative Research in Technology (ISSN: 2349-6002) Volume 6 , Issue 1, June-2019.

Mrs. Manjula B K, Arvind Bharadwaj, Bindu S, ManasaRao G R, Shalini K N, published a paper titled Solar Power Generation, Utilization and Monitoring using Internet of Things, in International Research Journal of Engineering & Technology, (e-ISSN: 2395-0072) Volume 6, Issue 6 June 2019.

Mrs. Suma Umesh of EEE Department contributed a chapter titled "Methods to Optimize the Performance of an Existing Large-Scale On-grid Solar PV Plant" in Springer Electrical Notes series.

Mrs. Suma Umesh of EEE Department completed NPTEL online certification course titled "Microprocessor and Microcontroller" with Elite-Silver medal certificate, April-2019.

Dr. Prashant A. Athavale of EEE Department completed the NPTEL online course titled "Designing Learner-Centric MOOCs" with 73% score, April-2019.

Mr. Babu Naik G, Assistant Professor, Dept. of EEE successfully completed the NPTEL Online Certification Course on “Advances in UHV Transmission and Distribution” April 2019, Indian Institute of Science, Bangalore.

Dr Madhu Palati, Assistant Professor, Dept. of EEE successfully completed the NPTEL Online Certification Course on “Design of PhotoVoltaic Systems” October 2018, Indian Institute of Science, Bangalore.

Mr. Vikram Chekuri, Assistant Professor, Dept. of EEE successfully completed the NPTEL Online Certification Course on “Computer Aided Power System Analysis” April 2019, Indian Institute of Technology Roorkee.

Dr. Sanjay Lakshminarayanan, Professor, Dr. Madhu Palati, , Mrs. Suma Umesh, Assistant Professors, Dept. of EEE, have attended two days workshop on “Deliberation of 3-8th semester 2018 scheme and syllabus” at BNMIT, Bangalore from 29-04-2019 to 30-04-2019.

**Parent - Teacher Meeting (PTM)** was organized on 27 April, 2019, from 10.30 am to 1.00 pm in the department of Electrical and Electronics Engineering. The parents' of all the students of the department were informed regarding the PTM well in advance by the respective proctors through e-mails, BIMS System and personal calls and SMSs. HOD, EEE welcomed the Parents and briefed about the department activities and development process. After HOD address Parents' met proctors of their wards and discussed the performance and academic status of their wards and gave the feedback to the department. The feedback by the parents are received and recorded in the department register. Many parents expressed thankfulness to the institution and the department for providing excellent facilities and good support to the students of BMSIT&M.



### **Open day /PBL exhibition:**

The exhibition and evaluation of projects conducted under PBL was held during the Open Day on 13.05. 2019 at the Department of Electrical and Electronics Engineering. The students of 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> Sem exhibited the projects under PBL. The final year students showcased the Term end Projects. Mr Mithun Muddan, CTO and cofounder of Paperwiff and Dr Chayapathi, Professor, RVCE were the invited judges for the event.



Dr. Madhu Palati, Assistant Professor, Dept. of EEE delivered Guest Lecture to II-PU students, Sri Chaitanya PU College, Vidyaranyapura, Bangalore on "Electric Shock" during 26-6-2019.

Dr. Madhu Palati, Assistant Professor, Dept. of EEE delivered Guest Lecture to II-PU students, ICBio Mahesh PU College, Yelahanka, Bangalore on "Electric Safety Measures" during 27-6-2019.

Mr. Vikram Chekuri, Hamidullah Sahak, M. Yosuf Mosavi, Zahidullah Qadiri, Abdul Satar Fatah published a paper titled "Home Automation Using IOT and Prosumer Based-Energy Sharing and Management (PESM)" in International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, ISSN: 2278 - 8875, Vol. 8, Issue 6, June 2019.

Mr. Manjunatha Babu P, Assistant Professor, Dept. of EEE presented a paper titled "Effect of Equivalent Electrical Distance and Voltage Stability Improvement Using DSTATCOM in Radial Distribution System" in First International Conference on Advanced Technologies in Intelligent Control, Environment, Computing & Communication Engineering (ICATIECE - 2019) at DSATM, Bengaluru, Karnataka on 19<sup>th</sup> & 20<sup>th</sup> March 2019.

Mr. Prashanth N. A, Assistant Professor, Dept. of EEE published a paper titled "Performance analysis of Grid SCIG and DFIG during faults" in Journal of Emerging Technologies and Innovative Research (ISSN: 2349-5162) Volume 6, Issue 3, March-2019.

Mr. Nagaraj D C, Assistant Professor, Keerthana H. N., Loka Abhiram A., Meghana K., Naveen B. from Dept. of EEE published a paper titled "Selection of Motor and Motor Drive

System for Electric Auto-Rikshaw” in International Journal of Innovative Research in Technology, Vol. 6, Issue 1, June 2019.

Mr. Manjunath Babu P, Assistant Professor, Dept. of EEE published a paper titled “Computer Aided Rib Suppression on Chest Radiographs” in International Journal of Innovative Research in Technology, Vol. 6, Issue 1, June 2019.

Mrs. Manjula B K, Assistant Professor, Dept. of EEE published a paper titled “ Solar Power Generation, Utilization and Monitoring using Internet of Things” in International Research Journal of Engineering and Technology, Vol. 6, Issue 6, June 2019.

Mr. Vikram Chekuri, Assistant Professor, Dept. of EEE attended six days FDP on “Recent Trends in Power Electronics Applications in Smart Grid, Electric Vehicles and Renewable Energy” organized by E&ICT Academy, NIT Warangal from 17th June to 22nd June, 2019.

Mr. Nagaraj D C, Assistant Professor, Dept. of EEE attended six days STTP on “Hands on Training on DSP and Embedded Controllers” at NMIT, Bengaluru from 17th June to 22nd June, 2019.



PhD Viva Voce Exam of Mr. Prashant A. Athavale was held at the VTU Regional office, Bengaluru on 3rd June, 2019. The research work is titled “Computer Aided Diagnosis in Chest Radiography for Solitary Pulmonary Nodules Detection and Characterization”. (L-R: Prashant A Athavale, Dr S K Srivatsa, Madras Institute of Technology, Guide Dr P. S. Puttaswamy, PESCE, Mandya, and Prof H. D. Kattimani)



# Placement Details

1. In every semester, 18 hours of placement training is given to the students on various topics like aptitude, vocabulary, communication skills etc. The training is provided by the training institute Innovation Unlimited (IU).
2. Various core companies like Siemens, KPIT, WEG etc. visited for the placement in the past years.
3. The placement percentage of the department for the last three years as follows

Graduating Year	2017	2018	2019
Total Students in the final year	63	60	59
Number of eligible students	39	32	48
No. of students placed	31	31	33
Percentage	79.49	96.88	68.75

# ARTICLE SECTION

**LIVEWIRE**



BETTER THAN THE BOOKS

# ONE LIFE.

-GAUTAMA BHARADWAJ (1BY16EE019, 7<sup>th</sup> SEM)



The red setting sun is shimmering off the waters of the lake. There are mountains around the lake lit up by the half-light of dusk. The birds are chirping. You're sitting on a rocking chair by your lake-side shack breathing in the fresh crisp air. Your end is near. You've lived a long life. You've accomplished a lot. But you're not ready to go yet. You feel sad. The world is so beautiful. People are so beautiful. You're going to miss this. You're overwhelmed by emotions yet you don't feel content. You could have done more. You could have lived better.

You regret not grabbing that opportunity to go travelling. You regret treating people bad. You regret shouting at people you care about. You regret being lazy and not enjoying every moment of your life. You realise that you accomplished a lot of things that were not a part of your goals. You were deviated from your goal.

If you had another shot at life, you would work hard. You would love more. You would not criticise people, you would complement them. You would recognise that everybody is different and everybody is good at something in their own way. You would find more joy in talking to people and travelling than watching movies. You would work hard to prove to yourself that you're worthy to have a picturesque death. You would feel content. You feel like you have accomplished your life's purpose.

The skies open up and pulls you towards it. You had one life. You close your eyes in sadness. If only you had another chance. As if the mountains and the skies heard you, you suddenly feel younger. You're rocketing backwards in time. You're in your

twenties now. You've been given another chance to live your life. Now **how would you live it?**

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## **THE DEBATE- IS RENEWABLE ENERGY, THE FUTURE?**



**-Dr. SANJAY LAKSHMINARAYANAN**

If you ask most people, how they think the world will be in 2050, it will be something like this: rooftops of houses will be covered with solar panels, deserts will be covered with solar arrays, wind-swept areas covered with windmills, transport will be with electric cars charged using solar energy from home. This is indeed an optimistic picture, but this is being challenged by some activists like Michael Shellenberger from the USA.

In a YouTube video, Shellenberger points out that very large areas of land are required to meet the demand for space for the solar panels, this would mean the destruction of a lot of fauna and flora. It is an ecological disaster for animal and plant life, which is already dwindling in numbers. He points out that windmills for instance are already killing migratory birds and bats in places where they have been installed.

The process by which solar panels are manufactured, is also not clean and releases CO<sub>2</sub> and greenhouse gases. Also recycling used solar panels is not easy either and may poison the surroundings with trace elements. The main contention is that, renewable energy is bad for the ecology of the planet. Shellenberger is a pro nuclear activist. He points out that nuclear fuel (Uranium) the size of a Rubik's cube is all that is necessary to support the energy needs of one person throughout his life time. So this prevents tones of CO<sub>2</sub> emission, the only catch here being the spent fuel is radioactive and has to be stored carefully.

Germany and France are given as examples of the policies taken up by their governments. Germany is the world leader in renewable energy, but they are finding it difficult to price their electricity. On the other hand, France opted to go nuclear, which is now resulting in lower CO<sub>2</sub>, cleaner environment and lower electricity prices. Studies in Bangalore now found that 1 square meter of solar panel can produce 1.5 units (1 unit=1kWH) of energy per day, which can be fed to the grid. If half the roof



top area of a 30 feet X40 feet house can be covered with solar panels, we can work out how much electrical energy can be obtained in a day. About 81 units can be generated which is a good amount of energy. The problem is that this energy is available only during the day when the demand for power is low. The problem of storage has to be worked out. However this calculation shows that Shellenberger is wrong about the space required for future solar installations, it will be possible for cities to power themselves using renewable energy without encroaching on wildlife, and plants.

Another argument against Shellenbergers support for nuclear power is that with the population reaching billions, millions of spent nuclear fuel the size of a Rubik's cube will have to be disposed off. The cubes will have a half-life of a million years and will have to be handled with care. In the USA, the radioactive wastes are kept in tunnels in the Nevada hills area.

Shellenbergers main objection to renewable energy, is that it is a very dilute supply of power compared to that from a nuclear reactor. Also it does not match the demand and supply of energy. He points out that even the Chernobyl accident though severe, killed only 200 which is nothing compared to other accidents.

I feel there is hope for renewable energy, with all the research going on, there will be a solution. Just like how computers evolved and changed with technology, there will be similar phases in the area of renewable energy including solar, wind, biomass, geothermal and tidal etc.

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## **FINDING ENTREPRENEURIAL MOTIVATION IN JOB**

**-DEBANSHU PODDAR (1BY18EE015, 3<sup>rd</sup> SEM)**

An ongoing Randstad Workmonitor study uncovered that an incredible 83% of the Indian workforce longs for being an entrepreneur – a figure that is significantly higher than the worldwide normal of 53%. The same number of as 56% individuals in the overview said they were thinking about leaving their present occupations to go into business.

In any case, stopping your present position to break out on your own includes a specific measure of risk that not every person can bear to take. Likewise, not every person has the characteristics you need to have to turn into a fruitful entrepreneur. That doesn't mean you need to abandon your fantasy, you simply need to change it a bit. A Business Insider article, talked about how the meaning of an entrepreneur is advancing. "A noteworthy move is occurring, supplanting the run of the mill meaning of an entrepreneur – 'somebody who begins an organization' – with a more up to date definition, one dependent on the natural outlook of an individual who sees openings and seeks after them."

To keep your entrepreneurial soul alive and proceed with your activity, you simply need to develop the correct mentality. Here's the manner by which you can be an "intrapreneur", or somebody who innovates, inside an organization.

### **Perceive openings and snatch them**

An individual with an entrepreneurial attitude rushes to spot or search out circumstances. Their psyche is receptive to seeing the promise in things and how they can improve things for themselves as well as other people. How would you spot one? A decent open door is one that flashes thoughts, gets vitality, fits guiding principle and conveys its own force. The absolute most dominant inquiry you should pose to yourself about an opportunity is identified with timing. Is correct now the opportune time for this thought? There are a ton of good thoughts that don't wind up incredible opportunities until time looks good for them.

At work, look for an open door that allows you to conceptualize and design things from scratch – another venture or a significant presentation – and request to assume responsibility.

### **Get settled with risks**

Risk taking is an inevitable piece of the entrepreneurial adventure. So it's imperative to figure out how to gauge/evaluate chance and become OK with it.

It might sound scaring, yet going out on a limb once in a while is the thing that brings huge prizes. In any case, before you make the jump, discover what you are getting into. By doing your examination, you'll gain trust in your basic leadership process just as your capacity to oversee things. Focus on what could turn out badly and have a Plan B set up, in the event that something goes wrong.

### **Work on your skills**

You might be the best cooperative person at work, yet that doesn't state much for your entrepreneurial attitude. Most entrepreneurs will in general be imaginative issue solvers, and apply unusual tools and ways to deal with existing difficulties. Their examination and appraisal aptitudes let them see difficulties, openings and results when looked with any circumstance. All things considered, they anticipate change and are adaptable and versatile – this is basic when confronting difficulties, obstacles or new situations. If you aren't sure your abilities are sufficient, search for a mentor and join yourself solidly to him/her to jump on the entrepreneurial track. All things considered, if opportunity doesn't knock, you have to manufacture an entryway. So think like an entrepreneur; think big!

# INTERNET OF THINGS (IoT) – SECURITY & PRIVACY

-SAYAN GHOSH (1BY18EE050, 3<sup>rd</sup> SEM)

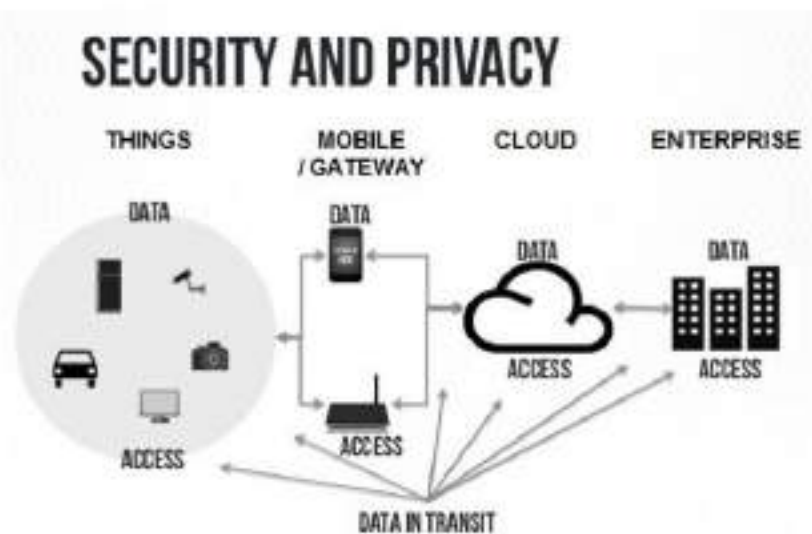
If you want to understand Internet of Things (IoT), let's have a look at the term "thing." Any physical device can be a "thing" (in terms of IoT). For example, it could be smartphones, washing machines, televisions, wearable devices, lamps, headphones, vehicles, buildings and anything possible that can be thought of. In the near future, it'll be true that "anything that can be connected will be connected."

Once we know what a "thing" is, let's examine the "Internet" part.

The things are embedded with software, sensors and other electronic components that help them send and receive data. The inter-connectivity of these devices to the Internet and each other makes IoT a giant network of connected "things." People are part of the network too. There are three kinds of relationships in an IoT network: things-things, people-things and people-people.

Now imagine a situation where we learn how the "things" are connected. Say you are returning from your office and wish that your air conditioner could be switched on before you reach home. What will you do? I know you will call your flat mate, mom or anyone who is present in your home to switch it on.

Now, let's think about the situation in terms of IoT. You will have a control station in your home, like a tablet or smartphone, to which you will send a message to switch on the air conditioner, and the smart device will communicate with the air conditioner and switch it on for you. This is the change that will be brought about by IoT. The connection between everything is IoT, sometimes referred to as Internet of Everything (IoE).



## IoT security and privacy concerns

Although IoT is rapidly growing, it still faces security and privacy issues:

### Security Risks

- IoT devices are connected to your desktop or laptop. Lack of security increases the risk of your personal information leaking while the data is collected and transmitted to the IoT device.
- IoT devices are connected with a consumer network. This network is also connected with other systems. So if the IoT device contains any security vulnerabilities, it can be harmful to the consumer's network. This vulnerability can attack other systems and damage them.
- Sometimes unauthorized people might exploit the security vulnerabilities to create risks to physical safety.

### Privacy Risks

- In IoT, devices are interconnected with various hardware and software, so there are obvious chances of sensitive information leaking through unauthorized manipulation.
- All the devices are transmitting the user's personal information such as name, address, date of birth, health card information, credit card detail and much more without encryption.

Though there are security and privacy concerns with IoT, it adds values to our lives by allowing us to manage our daily routine tasks remotely and automatically, and more importantly, it is a game-changer for industries.

### Trends in IoT

If we adopt IoT, it will improve digitization of our society and economy by connecting objects and people with each other via a connected or communication medium. If we consider about device-to-device interaction, IoT helps people to manage their daily lives with more control with efficient monitoring. Let's see the trends in IoT app development areas.

- **Wearable gadgets:** Wearable devices have been a hot topic across the tech world since the release of smartwatches and smartglasses. Today there are many wearable gadgets on the market, from fitness trackers to GPS shoes.
- **Connected Car:** This is a quite new concept and expected to come into the limelight slowly. Generally, app development for the automotive industry takes two to four years. Everyone from large-scale automobile companies to small-scale start-ups is working on connected car solutions. If BMW and Ford do not announce Internet-connected car solutions soon, the tech giants such as Google, Apple and Microsoft are set to develop and release the next generation of connected car solutions.



- **Smart Home:** IoT provides us a space where we find comfort and can manage our routine tasks easily in our daily busy life. There are various popular devices for the smart home; include smart thermostat, connected lights, smart fridge, smart television, smart door lock etc.
- **Smart City:** Smart city helps people to avoid the issues of traffic management, social security, environment monitoring, waste management, water distribution etc. Improved IoT apps will help resolve various issues related to traffic, noise pollution, air pollution, etc., and make cities safer.
- **Smart Grid:** It is a vital niche of IoT. It provides information about consumers and electricity providers in an automated way. It always helps improve the efficiency, economics and electricity steadiness.

Along with these trends, the IoT market is booming with other emerging trends such as smart retail, industrial Internet, connected health, smart supply chain, smart farming, smart energy and so on. Even Artificial intelligence (AI) has the capacity to enhance IoT with the help of the cloud platform.

IoT is also the chief enabler of Robotic Process Automation (RPA), systems that translate business processes into software-driven, rule-based decision trees. RPA provides cost savings and scalability advantages for businesses and shorter transaction times for customers.

The rapid evolution of communication technologies, particularly in the area of IoT, involves also possible challenges far beyond the technological aspects, such as data protection and privacy are the upcoming challenges. Thus, the development of IoT offers the whole world an extended amount of opportunities.

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## **SEEK DISCOMFORT.**

**-GAUTAMA BHARADWAJ (1BY16EE019, 7<sup>th</sup> SEM)**

Before I was introduced to the concept of seeking discomfort, life to me has always been about avoiding discomfort. To stay in my own little comfort zone. To be surrounded by the people that I am comfortable with and sticking to routines and habits that I am familiar with and does not cause me any stress whatsoever. It was a good thing for me since being comfortable would keep me happy in my little comfort zone and there wouldn't be any reason to take any risk at all. This is all fine until you acquire a hunger to grow.

Seeking discomfort is a concept that believes that you grow personally and learn things only when you step outside your comfort zone. You learn so many things when you do and experience things that you wouldn't usually do. It is in fact quite fascinating how doing simple things that put you out of your comfort zone, changes

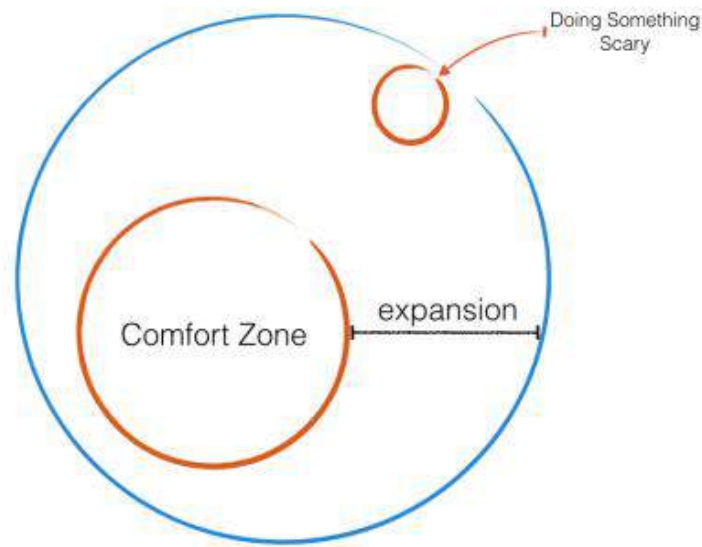
you. Small changes incorporating discomfort in your regular comfortable routines and habits will go a long way. By being accustomed to being out of your comfort zone, you will start tackling problems and obstacles which you would have previously shied away from.



### *1- Stepping out of your comfort zone*

As an example, let us suppose that you have a fear of public speaking. You are given an opportunity to speak to a huge crowd about something that you have knowledge of. Now you have a choice. You can either decline and remain in your comfort zone. That way you won't have any anxiety, no stress, you'll be in your comfortable routine and you won't be risking anything. Or, you could seize the opportunity, and put yourself in discomfort. By doing so, you're not only overcoming your fear, but you're also gaining experience and confidence in your abilities. You develop personally, and acquire experience and learn through the entire course of being in discomfort.

So, how do you start? Change your monotonous routine. Do something different for a while. What does that mean? Do something that you wouldn't usually do. For example, take up a challenge for a week or a month. Try greeting everybody you meet with a smile for a week. Everybody includes your auto drivers, shop keepers. Make a list of your fears. Then overcome them by doing exactly what you fear. Put yourself on the spot. Then take up another challenge, then another, then another.



## *2- Expanding your comfort zone*

If you keep doing things that you're not accustomed to doing, or if you're not comfortable doing, then you tend to expand your comfort zone. You will notice your productivity increase, you will see and grab more opportunities that come your way, and more importantly, you'll enjoy your life by being addicted to discomfort. I insist you to think about this, and take the first step. Take up a challenge, and do it every day for a week. You will understand how rewarding discomfort truly is.

## **ORBIT'S CONVENTION**

**- ANUSHA SRIDHARAN (EEE Alum)**

Before I begin,  
I know to the land of faith,  
Some believed to be good;  
Yet marked a state of doubt.

I sail through my thoughts,  
Some leave me confused;  
Some keep me enlightened.  
I strike a balance, to keep;  
My thinking a practice.

By with my orbit's convention,  
I play around;

With my brains;  
And the things I think about.

The more concentration I try to gain,  
Slightest part of trials is still a vain.  
Brings my incision to depth,  
Building a willingness to hold.

Up again, I embark, a journey;  
An orbit to regard,  
Tenacious by the guild,  
A brain map to discover.

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# PHOTOGRAPHY SECTION

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LIVEWIRE



A picture's worth a thousand words

**-ANUSHA SRIDHARAN (EEE Alum)**



**-J.P. JAIPUNEETH (1BY18EE025, 3<sup>rd</sup> SEM)**









**-MANGESH KUMAR (1BY18EE033, 3<sup>rd</sup> SEM)**



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**LIVEWIRE!**

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