We make you shine

St.Joseph's Institute of Technology

St.Joseph's group of Institutions

OMR, Chennai-119

TRIPLE 'E'

CHRONICLE '19

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

(Accredited by NBA)

25th ANNIVERSARY

DEPARTMENT NEWSLETTER

MESSAGES

Dr.B. BabuManoharan M.A., M.B.A., Ph.D.,
Chairman

It gives me a great pride in giving credits to the staff and the students of the Department of Electrical and Electronics Engineering, St. Joseph's Institute of Technology for the excellent package "TRIPLE 'E' CHRONICLE '19". This newsletter speaks about the active merits and milestones accomplished by the department. I sincerely hope that the efforts help in unleashing their hidden potentials and thereby paying rich dividends for their future endeavors.

Mrs. S. Jessie Priya M.Com.,
Managing Director

"TRIPLE 'E' CHRONICLE '19" true to its name is bold in its contents. It gives me immense delight to see the exceptional forte of the students of the Department of Electrical and Electronics Engineering, St.Joseph's Institute of Technology. I congratulate the staff and the students for bringing out their newsletter "TRIPLE 'E' CHRONICLE '19" a road to success.

Mr.B.ShashiSekar M.Sc.,
Director

I am very happy that our institution shows a marvelous presentation of the activities through "TRIPLE 'E' CHRONICLE '19". I am sure that the newsletter would reach the further enhancement in the academic activities. I congratulate the staff and students of the Department of Electrical and Electronics Engineering, St.Joseph's Institute of Technology for their excellent effort. I wish the newsletter would reach a great success.

Dr.P.Ravichandran M.Tech., Ph.D.,
Principal

I take this opportunity to laud the efforts of all those who were involved in the making of this newsletter "TRIPLE 'E' CHRONICLE '19" from the Department of Electrical and Electronics Engineering,St. Joseph's Institute of Technology. I am overwhelmed by the tenacity of the team in crafting their innovative and informative ideas into the newsletter. I whole heartedly believe that this constant effort will earn them more laurels.

Dear Reader,

We bring you yet another tantalizing issue of the "TRIPLE 'E' CHRONICLE '19". We being in the crux of our academic period should constantly explore ourselves to the subtle nuances of the industry. We are sure that this magazine will quench the technical thirst of the students. It also unveils the college's accomplishments in the past one year.

We express our gratitude to our ChairmanDr. B. BabuManoharan M.A.,M.B.A., Ph.D, Managing Director Mrs. S.JessiePriya M.Com., Director Mr.B.ShashiSekar M.Sc., (Intl.Business), Principal Dr. P. Ravichandran M.Tech., Ph.D, Dr. D. Kirubakaran,M.E., Ph.D, HOD (Staff and Students Affairs), Dr. S.Hemalatha,M.E.,Ph.D, HOD(Lab Affairs), and staff for providing us a podium to express our innovation and encouraging us in completing this edition of "TRIPLE 'E' CHRONICLE '19".

THE EDITORIAL BOARD

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Hariharan Baskar III EEE
ErickV III EEE

COVER PAGEDESIGNER

Sooraj Kumar S IV EEE

The Management and Staff Members Congratulate Department of Electrical and Electronics Engineering Students who secured the rank in Anna University Examinations

Mr. T. RAVINDRA BABU
Rank: 15
CGPA: 8.97
S/O Mr. TAMMINENI SEETHARAM
Mrs. TAMMINENI LAKSHMI

Ms. R.VENKATA JYOTSNA
Rank: 26
CGPA: 8.85
D/O Mr. R.V. SHIVAKUMAR
Mrs. R. AKEELA

Ms. S. SWETHA
Rank: 32
CGPA: 8.79
D/O Mr. S SRINIVASAN
Mrs. S SRIRENGAM

CASH PRIZE: Rs 25,000/- each

Hard work pays off and you have proved it!!!!!!!!!!!

Vision of the department

To become a well renowned department in the field of Electrical and Electronics Engineering by imparting knowledge and inculcating ethical values to serve the global society.

Mission of the department

The department strives to

M1:To inculcate knowledge of fundamental principles and make the students competent in the field of Electrical and Electronics Engineering.

M2:To upgrade students technical knowledge through industry-interaction.

M3:To enhance the professional skills of designing, leadership, management with ethical standards for a successful career.

M4:To provide research and intellectual resources for the challenges faced by the industry and mankind.

Program Specific Objectives

PSO 1: Our graduates will be able to understand the basic concepts related to engineering and technology with enhanced problem solving skills.

PSO 2: Our graduates, with high proficiency in Electrical and Electronics Engineering will be able to exhibit technical knowledge in industrial and entrepreneurial focus.

PSO 3: Our graduates can translate the effects of professional values and ethics in accordance with Electrical and Electronics Engineering domain, to create sustained environment for social growth.

Index

Industrial Visit

Industrial Visits are arranged from time to time by our college for all the students to interrelate on a consistent basis with Industries and top software companies. The intention of these visits is to boost the student's understanding of information expertise. Such visits will help the students to get a comprehensible thought of the happenings and to extend their career in the high tech industrial requirements. An index of some companies, which our students have visited as part of Institution-Industry-Interface.

S.NO	SEMESTER/YEAR	DATE OF VISIT	PLACE OF VISIT	NO.OF STUDENTS ATTENDED
1.	III/II-A	16/ 07/2019	Diamond Engineering Pvt. Ltd, Mambakkam(Kelambakkm),Chennai	35
2.	V/III-A	22/ 07/2019	Neyveli Lignite Corporation, Neyveli	55
3.	V/III-B	24/07/2019		53
4.	VII/IV-A	01/ 07/2019	North Chennai Thermal Power Station, Ennore	43
5.	VII/IV-B	03/ 07/2019		41
6.	VII/IV-C	09/ 08/2019	Modern Bakers(Automation Appliances), Madhavaram	37


INDUSTRIAL
VISITS
IS/ISO 9001:2015
வட சென்னை


THERMAL POWER

GUEST LECTURES

Guest Lecture

Guest Lecture is a way of enriching our students with the latest updates about the rapidly developing technologies. The Students are imparted with the knowledge of Industry needs, latest technical updates, Avenues for Higher studies etc. Guest lectures by eminent personalities, academicians, leading industrialists, chief executive officers and managers are held by the department at regular intervals to provide valuable information to our students.

S.No	Year	Date	Name & Designation Of The Expert	Topic
1.	IV	20.6.2019	Dr.S.Venkatanarayanan Professor, Energy consultant K.L.N College of Engineering Madurai	Energy conservation and its importance
2.		2.7.2019	E.Arun kumar Vice president Retech Solutions Pvt.LtD	Machine Learning
3.	IV&III	23.7.2019	Saravana VP- Engineering Qmax Systems India Pvt Ltd	E-Vehicle
4.	III	26.7.2019	Mr. Nivin Sr. R & D Engineer - Pantech Group - EMD Dept.	Microcontrollers & Its Applications - Industry Perspective
5.	III&II	25.7.2019	Dr.J.Balamurugan Assistant Engineer TANGEDCO	Implementation of industrial automation using industy 4.0
6.	II	26.7.2019	Dr.S.Ramareddy Professor& Dean Jerusalem college of Engineering Chennai	Electromagnetic Fields

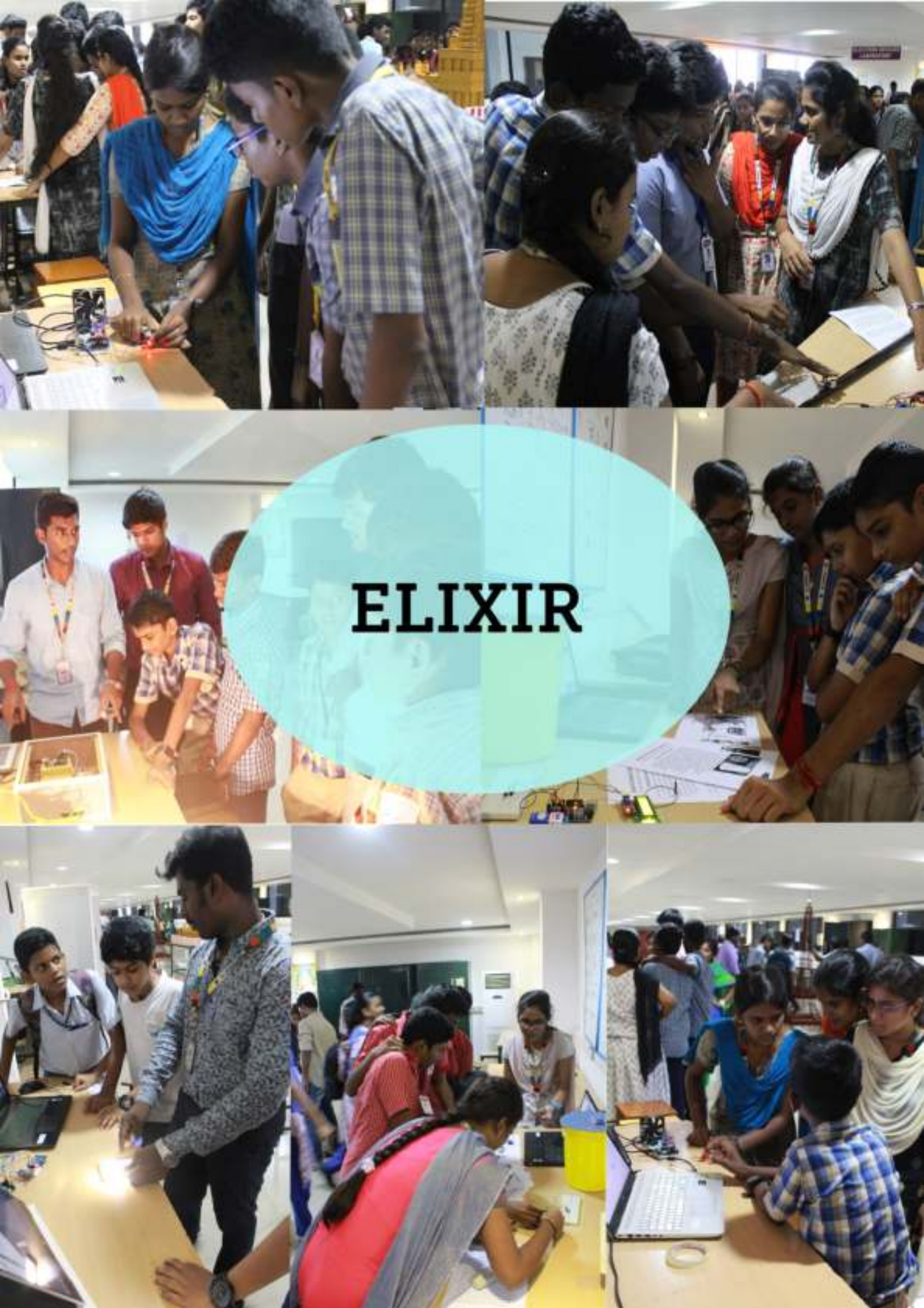
Distinguished Guest Lecture

The Distinguished Lecture on "Electric Vehicle" by Dr. Sheldon S Williamson, Professor, University of Ontario-Institute of Technology, Canada, was organized by the Department of Electrical and Electronics Engineering in association with IEEE Students Branch, Power and Energy Society. It was inaugurated in the presence of Dr. P. Ravichandran, Principal, St.Joseph's Institute of Technology; Dr.Vaddi Seshagiri Rao, Principal & Dr. B. Parvathavarthini, Dean, St.Joseph's College of Engineering.

The presentation has been focused on the current status and future opportunities within transportation electrification and electric energy storage systems. The presentation also includes:

- Electric energy storage systems
- Smart charging infrastructures
- E-mobility/mass transit electrification
- Electric machines and motor drives.

DISTINGUISHED GUEST LECTURE


ELIXIR

Academic Enrichment

As a part of curriculum, academic Enrichment program is conducted for the students to broaden their educational experience in both innovative and traditional ways. Our third year students had presented their innovative ideas in the form of mini project at the "Elixir" event held at St.Joseph's College of Engineering on 03/7/2019.

S.No	Name of the student	Title
1	Sharumathi S	Gas Leakage Detector
2	Mithunraj S Mohamed Gouse K H	IOT Based Controller
3	Srilekha J Saretha B Sajanya S	Smart Blind Stick
4	Monica M	Smart Dustbin
5	Sahithya J	Remote Control Light & Arduino Based Game
6	Sharvesh G Rahul Verma	Gesture Automatic Control

We are proud to inform that 77 students have been selected by the Core / Product Companies Soliton, ZOHO & Odessa through campus recruitment drive held June and July for the academic year 2018-19 with an annual salary package, starting from 4.2 Lakhs to 6.6 Lakhs

PLACEMENT DETAIL 2018 – 2019

Department Placed Students Name & Companies Details

S.NO	NAME OF THE STUDENT	COMPANY PLACED
1.	POOJITHA J	Cognizant Infosys TATA WIPRO
2.	VIGNESH R	Cognizant Infosys TATA
3.	SRINIVASAN R	Cognizant Infosys Agilysys
4.	VIJAY S	Soliton TATA
5.	GOWTHAM B	FULL VVDN TECHNOLOGIES
6.	RENISHA RAASAM L	YES BANK IDBI FEDERAL
7.	VENKATESH E	Cognizant TATA
8.	SRI ASHWATH K	
9.	DHAARANI N	Cognizant & Infosys
10. s	DIWAKAR S	
11.	KAMALEE G	
12.	LALITH KISHAN S	
13.	MEJORLINE SANJITHA B	
14.	MOHAMED IMTHIYAS K	
15.	PRIYADHARSHINI R	
16.	RAJASRIDEVI V	
17.	SANGEETHA S	
18.	PRAISY GOLD G	Cognizant WIPRO
19.	YAMUNA DEVI G	
20.	ROBIN R	ZOHO
21.	JAYA KRISHNA KUMAR S	VVDN TECHNOLOGIES
22.	NAVEEN SUDHAN K	Cognizant

23.	ARUN JOHNSON J	Cognizant
24.	BALAJI L	
25.	BUVANESH A P	
26.	DEVACHITHAM CIBIRA V	
27.	DINESH KUMAR K M	
28.	GOKULAKRISHNAN M	
29.	ROSHINI P	
30.	SANJANA R	
31.	SARAVANAN P	
32.	SINDHUJA E	
33.	SUDHAN S	
34.	TEJESHWAR N	
35.	VIJAY BALA V	
36.	JEN BERNARD J	Infosys
37.	AVINASH R	
38.	RACHAEL PELSHIA R	
39.	SHERLLY J	
40.	SAI PRIYA L	
41.	SURYA R	
42.	TEENA BIBIANA K	
43.	RUBAN RAJA A	WIPRO
44.	ELAMATHI R	
45.	GOWSIKA M	
46.	TRYPHENA W	L&T Infotech
47.	PAVITHRA P	
48.	SIVAGAMI B	
49.	AADITHYA B	SIX PHRASE
50.	JAWAHAR J N	
51.	SOUNDAR A	
52.	LINGAM V	ninjacart
53.	PRADEEPKUMAR K	
54.	VENKAT D	
55.	SUBASHINI S	NTT DATA Global IT Innovator
56.	KIRUTHIKA R	
57.	SIVASHANKARI R	
58.	KEERTHANA JONNAFER X	eNoah
59.	RAMYA S	
60.	SIVADHARSHINI R	
61.	JENUSHA THERESE A	
62.	NEELA T	

63.	ROSHAN KUMAR D	Valued Epistemics
64.	PAVITHRAN S	
65.	KEVIN STEWART M	IDBI FEDERAL
66.	ABARNA S	
67.	DHARMARAJ S	
68.	AISHWARIYA S	netfish
69.	CRYSTALIN A	
70.	PHAMINI L S	
71.	UMAYAL L	YES BANK
72.	VARUN BASKARAN B	Mindtree
73.	RAHMATHULLAH M F	BLUE CODE
74.	THANUJA B	Mphasis
75.	SAHAYA GEORGE BRUSLY A	SRISHTI
76.	SRI AISHWARYA S	PRIDE TECH
77.	AJAI S	SPIC Nourishing growth

Stay positive and happy. Work hard and don't give up hope.
Be open to criticism and keep learning.
Surround yourself with happy, warm and genuine people.

SUBJECT TOPPER

2018-2019(Odd semester)

Batch	Year/sem/ sec	Subject Code	Subject Name	Register Number	Name	Grade
2018 -2022	I/I	GE8152	Engineering Graphics	312418105002	Akshaya V	O
2017 -2021	II /III/ A	EE8391	Electromagnetic theory	312417105043	Karthik R	O
2016 -2020	III /V/B	EE6501	Power system Analysis	312416105055	Kowsalya V	S
		EE6504	Electrical Machines II	312416105056	Krishna Balu C	S

2018-2019(Even semester)

Batch	Year/sem/ sec	Subject Code	Subject Name	Register Number	Name	Grade
2018 -2022	I/II	EE8251	Circuit Theory	312418105023	Madhu Bhashini N R	O
2017 -2021	II /IV/A	MA8491	Numerical Methods	312417105043	Karthik R	O
				312417105055	Mahalakshmi A	
		EE8402	Transmission and Distribution	312417105043	Karthik R	O
				312417105015	Ashwin kumar S	
		EE8403	Measurement and Instrumentation	312417105043	Karthik R	O
2016 -2020	III/VI/B	EE6604	Design of Electrical Machines	312416105073	Nithya M	S

BRANCH TOPPERS LIST

2018-2019(Odd semester)

Batch	Year/Sem/sec	Register Number	Name	CGPA
2017-2021	II /III/A	312417105043	Karthik R	8.90
	II /III/B	312417105073	Pooja N	8.67
2016-2020	III/V/ B	312416105055	Kowsalya V	8.51
	III/V/C	312416105100	Sherya Deep Dubey	8.72

2018-2019(Even semester)

Batch	Year/Sem/sec	Register Number	Name	CGPA
2017-2021	II/IV/A	312417105043	Karthik R	8.98
		312417105015	Ashwin Kumar S	8.53
2016-2020	III/VI/B	312416105055	Kowsalya V	8.52
	III/VI/ C	312416105100	Sherya Deep Dubey	8.71

100 % Attendance

2018-2019(Odd semester)

Batch	Year/Sem/sec	Register Number	Name
2018-2022	I/I/A	312418105002	Akshaya V
		312418105005	Aswin Kumar D P
		312418105008	Chandru G
		312418105011	Gokul Nathan D
		312418105012	Govarthanan P I
		312418105014	Janani T
		312418105018	Jevitha T
		312418105019	Kalpana J
		312418105024	Manobharathi D
		312418105027	Ponnien Selvi L
		312418105029	Ramachandran K
2017-2021	II/III/A	312417105002	Abinaya Priya M
		312417105009	Angelin K
		312417105010	Anosh Shaju
		312417105018	Balaji M
		312417105030	Eshvara Devan R
		312417105037	Janani T
		312417105044	Karthika N
	II/III/B	312417105061	Mithranguna M
		312417105071	Parithiselvan J
		312417105095	Shrikkumar V
		312417105112	Yazhini S
		312417105114	Yuvaganesh S
2016-2020	III/V/A	312416105021	Devarahini S
	III/V/B	312416105069	Narender M
		312416105072	Nithersana S
	III/V/ C	312416105113	Suruthi K

2018-2019(Even semester)

Batch	Year/Sem/sec	Register Number	Name
2018-2022	I/II	312418105002	Akshaya V
		312418105019	Kalpana J
2017-2021	II/IV/A	312417105018	Balaji M
	II/IV/B	312417105114	Yuvaganesh S
2016-2020	III/VI/A	312416105035	Harshine V
	III/VI/B	312416105047	Karthikeyan R
		312416105054	Kishore P
		312416105072	Nithersana S
		312416105078	Pavithra R
		312416105086	Raghul Srinivas R
	III/VI/C	312416105099	Sharmy S
		312416105106	Sowbakyam S A
		312416105123	Vinoth Kumar Stanley

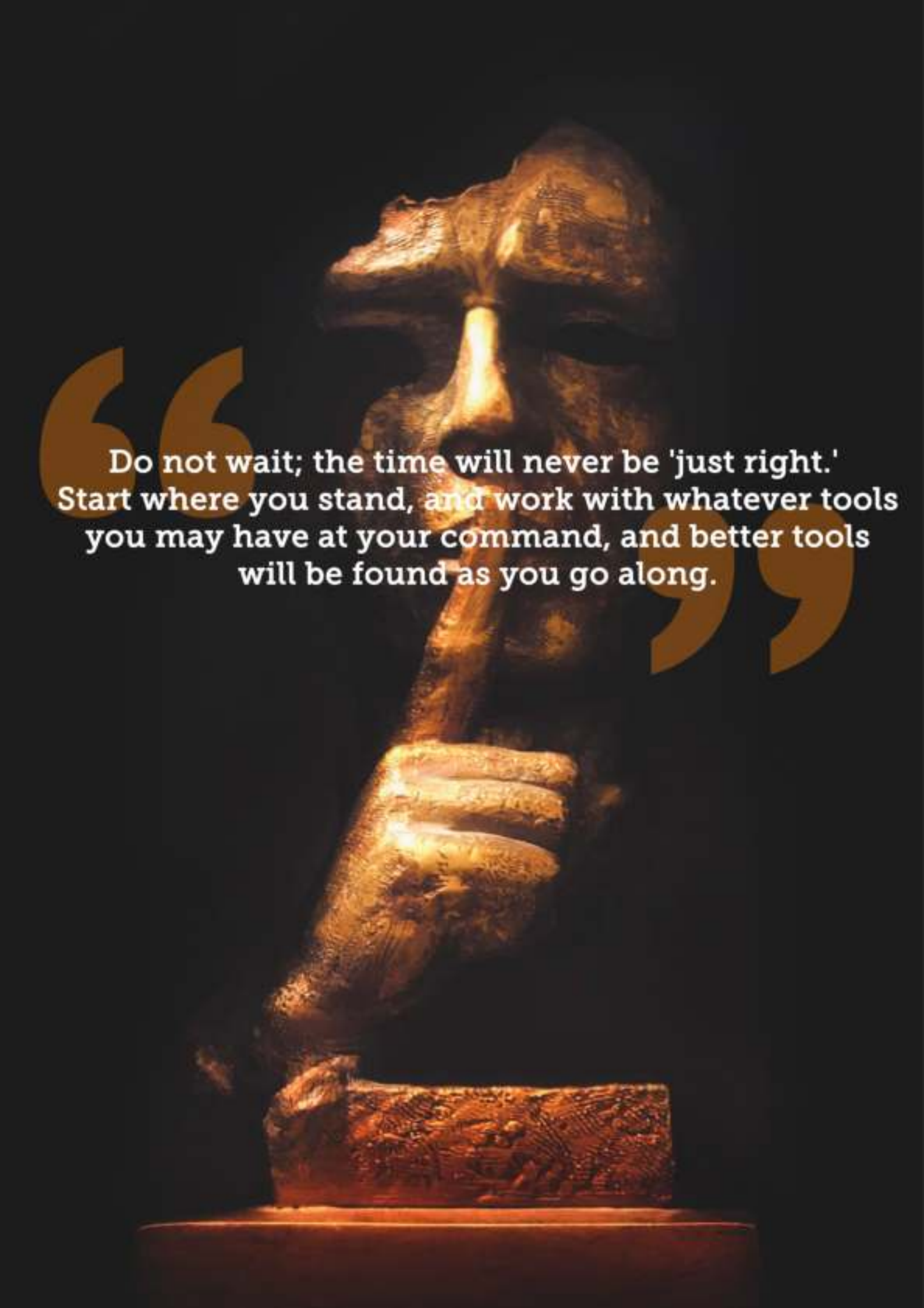
CONQUISTA 2019

DISTRIBUTION OF PLACEMENT ORDERS TO THE PLACED STUDENTS

CONQUISTA'19 - the word that makes us feel honoured with pride of our achievement. CONQUISTA is the ceremony of issuing offer letters to the students who were recruited through campus placement. The event was held on 30thMarch, 2019 with grandeur. The function was presided by Mr.K. Chetan, Associate Director -HR, Cognizant who handed over the offer letters to the students in the presence of Dr. B. Babu Manoharan, Chairman, Mrs. S. Jessie Priya, Managing Director & Mr. B. Shashi Sekar, Director and Dr. Vaddi Seshagiri Rao & Dr. P. Ravichandran, Principals of St. Joseph's group of Institutions. Human resources - Campus Hiring from Cognizant were also present as 'special invitees'.

The Management & the Department of Training & Placement do not get just pleased with placements of students alone. Our primary concern is more on helping students establish themselves in their career by building 3S – **Survival, Sustainability** and **Success** thereby get a firm footing in both profession and personal lives. We want to achieve not only quantitative placement, but more of qualitative one in the years to come.

We are proud to inform that we have reached a placement of 1579 added to this year. It is indeed a golden feather added to St. Joseph's Group of Institutions cap.


Do not wait; the time will never be 'just right.'
Start where you stand, and work with whatever tools
you may have at your command, and better tools
will be found as you go along.

Career Opportunities After Electrical and Electronics Engineering Degree

Are you an Electrical Engineering graduate or pursuing it? Are you're stuck thinking that what to do after your electrical engineering? Don't worry this blog is for you. Electrical engineering is one of the highly demanded sectors of engineering. It involves the study of electricity, electronics and electromagnetism along with their applications. After B.E or B.Tech. in electrical engineering, you become eligible for career in various fields. Some of them are like electricity, electronics, and other different sectors related to electricity.

We all know that how the technology has groomed over the past years. In today's generation, we all are based on electronics and electrical equipment. That's why due to high demand of electrical engineers. The infinite jobs are waiting for the talented and skilled candidates. You can also get a chance to work with international companies in Korea, Japan, China, etc. depending upon your opportunities. To make electrical engineering students more skilled and knowledgeable, there are various optional professional courses to do after electrical engineering course.

*Electrical Engineers can make career in the below industries;*Chemical

- Aerospace
- Power generation
- Materials and metals
- Oil and gas
- Defence
- Telecoms
- Railway
- Electronics
- Automotive
- Marine
- Pharmaceuticals
- Construction
- Utilities

Private Sector Jobs for Electrical Engineers

If you have electrical engineering degree in hand. Then you can also apply for the jobs in private sector like IT & electrical organizations in India. If you have skills then there are immense numbers of opportunities for you. Many electrical engineering degree holders have successfully built their career in private sectors.

Following are some of the companies in private sector that hire various skilled electrical engineers:

- Alstom
- ABB
- Larsen & Toubro (L&T)
- Crompton Greaves Limited
- Bajaj Electricals Ltd
- Siemens India
- Tata Steel
- Tata Motors
- Schweitzer Engineering Laboratories
- Jindal Steel & Power Ltd.
- Spectrum Power Generation Limited

HBL Power Systems Limited

There are various other organizations which search for electrical engineers. Candidates can go to their respective website to look for the current openings for electrical engineers. Furthermore, electrical engineering pass-outs can go for teaching in private engineering colleges.

Public & Government SectorElectrical Engineering Jobs

There are a lot of career opportunities for electrical engineering degree holders in public & government sector. Fresher electrical engineers can apply for the post of Junior Engineers. And after gaining experience & skills in engineering. They can get promotion and can move up to posts of Associate Engineer, Assistant Engineer, and Executive Engineer etc.

Following are some the PSUs that recruit electrical engineers:

- National Thermal Power Corporation Limited
- Hindustan Petroleum Corporation Limited
- Gas Authority of India Limited
- Indian Oil Corporation Ltd.
- Heavy Engineering Corporation Ltd
- National Fertilizers Limited
- National Aluminum Company Limited
- Container Corporation of India Ltd.
- National Hydroelectric Power Corporation

Government Organizations that recruit electrical graduates:

- Bharat Dynamics Limited
- Coal India Limited
- Indian Railways
- Defence Research and Development Organisation (DRDO)
- Indian Space Research Organisation (ISRO)
- NMDC Limited
- Engineers India Ltd

Abroad Jobs for Electrical Engineers

There are varieties of companies overseas looking for highly skilled and knowledgeable electrical engineers. As these companies have their firms and factories outside the India. That's why they look for candidates who can relocate them to abroad for a reputed job with handsome package. Candidates those have a great knowledge of control and power systems. They can apply in these companies situated in Japan, Germany, Korea, Australia, etc.

Higher Study After Electrical Engineering

Some students make different choices, so as to improve and nourish their skills and knowledge more. They decide to go for higher education like MBA or M.Tech. in a particular field. If you have decided to pursue MBA then you have to qualify CAT exam for that or similar exam to it. If you want to pursue M.Tech., then you have to qualify GATE exam with good scores. There is also one more option of learning while earning, yes, which means that you can study whileearningby distance learning education. It depends upon where your interest lies and where you want to go in life in terms of your career.

Hope this post will help you to choose your career after completing graduation in electrical engineering. All the best for your bright career!

THE ULTIMATE POWERFORMER

Power requirement is increasing day by day due to maximum power utilization. In order to meet this demand a large power has to be generated in an efficient way. A new machine namely "Power Former" can exactly do this. At present, a new concept of rotating machines enables direct connection of synchronous generators to the transmission network without any intervening step-up transformer. Such synchronous machines are called Power formers. Power former revolutionizes the age-old power generation technology and makes a quantum leap in electrical engineering. Some of the advantages of a Power former energy system are primarily due to elimination of step-up transformer. Losses in a step-up transformer and medium voltage us-work are completely avoided. It also results in reduction of the number of components, thus achieving lower maintenance costs, a more compact plant design & greater plant reliability & availability. Problems of partial discharge and a humid environment are no longer an issue with Power former. Direct connection of generator to grid results in lower fault currents in the event of short circuits between the phases as compared to a conventional generator due to the increased voltage level. Power former has significantly less environmental impact than conventional generating units. The higher efficiency of Power former allows higher power generation using the same amount of fuel or the same amount of electrical energy using less fuel reducing the total emission for power generation. Power former contains fewer hazardous substances. For example, no epoxy is used unlike a conventional generator that employs it in the impregnated stator coils.

If you are calm about your ambitions, you become confident of achieving what you set out to do. -Shiv Nadar

Anton P Jackson, II year

DARK WEB

Before jumping on to the dark web. We will see the important topics that are to be covered.

The internet is classified into three types:

- Clear net or surface web
- Deep web
- Dark web

Clear net:

Clear net is the place where the actual search engines and web applications are present. Such as Google, face book, insta gram, twitter etc.

Deep web:

Deep web is the place where the secret databases are present for example face books data ,Google's data and every other information about a country and research data and medical research data, scientific data, military data are present.

Facts:

To be frank clear net only occupies 10% of total internet.

- Another fact is that we use only 0.003% percent of internet only on the daily basis.
- We cannot access the dark web through a normal browser. To do so we should have special browser that makes our identity anonymous.

Dark web:

Dark web is one of the most dangerous website to visit in the internet. The reason is lot of criminal activities takes place on the dark web only. Many people might not have heard about this topic. But it is important to have a knowledge about this topic

Criminal activities that take place in dark web are:

- Creation of fake credit cards and fake debit cards
- Transferring of drugs between countries

Origin of dark web:

The biggest dark web is Tor. Tor was created by the US government. The idea of an encrypted, anonym zing, onion-routed network came from DARPA, the Defense Advance Research Projects Agency. The first onion routing software was developed at the Naval Research Laboratory.

Working of tor:

Tor uses a unique system that was developed by the US Navy to protect government intelligence communications. Your data is bundled into layers of encrypted packets before it enters the Tor network. It is then routed through a series of volunteer-operated servers called nodes or relays.

Why you should never visit dark web?

As a result, only experienced computer users should browse the dark web, as only they are sufficiently aware of the dangers like viruses using the JavaScript (.JS) extension that lurk there. The Tor Browser is the most popular application used for accessing the dark web. But by itself, it's not entirely secure.

Why is the dark web created ?

In the mid 1990s, US military researchers created a technology that allowed intelligence operatives to exchange information completely anonymously. They called it 'Tor', which stands for 'The Onion Router'. As part of their strategy for secrecy, they released Tor into the public domain for anyone to use.

Really it is not good for the person who is below the certain age to visit that website. Accessing that website won't cause much problem to you. But the person who is visiting that website should make sure that his or her identity is hidden.

Things that are available on dark web

The things that are mainly available on the dark net are

- From latest to old electronic gadgets
- Fake credit cards and debit cards
- fake account through any social media

why does the government does nothing?

since so far the government has does nothing in destroying the dark web and the tor browser. However the government promotes the use tor browser. Because the tor browser provides high anonymity and easy access to the hidden website of the internet.

Sathish Sekar, III year

When Henry Ford made cheap, reliable cars, people said, 'Nah, what's wrong with a horse?' That was a huge bet he made, and it worked.
- Elon Musk

ARTIFICIAL INTELLIGENCE

Today, "Artificial intelligence" (or) "AI" is one of the major attention seeker of humans.AI has become an integral part in human's life. It is also smart enough to identify human's mistake and indicate it or rectify on its own.AI plays a major role in our environment, starting from raising plants to printing 3-dimensional infrastructures. So, this wonderful aid that has to be elaborated.

But wait ,What is AI?

By definition, Artificial intelligence is the smartness demonstrated by the machines (or) devices. In other words, machines also think and act like humans or other living creatures .But the remarkable difference they make is that, they are too quick and show more accuracy with overloaded sharpness. AI has its essence from late 1950's when people started researching about it . AI became popular at early 80's.

AI exercises a lot of applications that men would have possibly never imagined before a decade. It learns your needs and works on it instantly .For instance ,if you want to listen to a song, AI has a perfect playlist of songs that you would prefer to hear. It also reminds you of things that you might forget. When you are travelling, AI gets information from satellite, about the road you have to take for making your travel at ease.

Artificial intelligence is making wonders in the revolution of industries. It is being prepared for the betterment of our society in all possible ways. People are working on this to make life even more simpler by illuminating the brains of machines that would possibly be for a finer lifestyle that may take us through an enchanting journey.

Shamili, III year

ROBOTIC PROCESS AUTOMATION

Turn around you to see things changing and getting evolved. It is not the way you saw it yesterday.Tremendous technological innovations are on its way.Robotic process automation/RPA is such a word that you would hear most frequently in industries now a days or rather I would say it is a life changing revolution that has ever happened in the annals of history. According to me,it is the advanced versions of machine learning and deep learning.

An RPA based system is programmed to observe human activities (for example: in industries) and repeat the process,that the labors do. By doing so, not only it reduces the work of a software code developer (as the robot is going to understand everything by itself, and hence the program to be fed by the coder would be very less) but also an employee's work in a business.An RPA system train's itself by watching the user,doing a task in Graphical User Interface(GUI) and does the same work directly in the GUI.

Every sectors and industries are trying to integrate RPA system to develop the productivity.In finance sector,the RPA system can be used to work across different applications and systems to capture data,crunch through process such as anti-money laundering,know your customer,limit management and to convert order to cash.In hospitals,it can be used to conduct.In constructing heavy civil infrastructures, recruiting complex surgeries employee's,customer service and so on.The works that an RPA system can do is something limitless and beyond our thinking.

So, an RPA system reduces the timeappropriated for a task and functions at a speed of 50% faster than humans .The job threat it has given to the humans following traditional industrial routine is devastating.But ,the revolution of this emerging system, ensures more employment in a few years.

Shalini, III year

Most people say that it is the intellect which makes a great scientist. They are wrong: it is character.
- Albert Einstein

SMOG TOWER

INTRODUCTION

Smog free tower is 23-feet tall tower that vacuum in the smog particle. It is a modular system, energy friendly and patented ionization technology, light weight construction. The smog free tower captures and collects more than 75% of the PM2.5 and PM10 air bound smog particles and releases clean air around the tower with a 360 degree coverage coating an almost circular zone of clean air in its surrounding. The tower is designed by Dutch designer and architect Dann Roosegaarde who is famous for innovative designs such as smart highway and glowing cycle path.Smog is a yellowish or blackish fog formed mainly by a mixture of pollutants in the atmosphere, which contains fine particles and ground level ozone. Smog, which occurs mainly because of air pollution, can also be defined as a mixture of various gases with dust and water vapor. Smog also refers to hazy air that makes breathing difficult. The atmospheric pollutants or gases that form smog are released in the air when fuels are burnt. When sunlight and its heat react with these gases and fine particles in the atmosphere, smog is formed. The main sources of these precursors are pollutants released directly into the air by gasoline and diesel-run vehicles, industrial plants and activities, and heating due to human activities. It is harmful to humans, animals, plants and the nature as a whole. Many people deaths were recorded, notably those relating to bronchial diseases. The tiny toxic particles known as PM 2.5 can be inhaled into the lungs. Research from Berkeley Earth, a non- profit that conducts scientific investigations on climate change, shows that 1.6 million people die each year of air pollution in China a harsh reality of modernization.

THE TOWER

Smog Free Tower is 23-feettall tower that vacuum in the smog particles. It is a 7.0 × 3.5 m modular system, energy-friendly and patented ionization technology, lightweight construction with LEDs. The tower sucks in dirty air like a giant vacuum cleaner. Ion technology then filters it, before returning smog-free air through the tower‟s vents. By creating a field of ions, all the particles on the nano scale gets positively charged, therefore when the ground is negatively charged, you can drag them to the ground, and purify the air – 80 percent more clean. The great thing about the technology is that is safe and to have 30,000 cubic meters of clean air purified, it takes an hour and only uses about 30 Watts, which is like a light bulb, says Daan Roosegarde.

WORKING OF SMOG FREEE TOWER

The tower works in simple way, it sucks in dirty air like a giant vacuum cleaner. Ion technology then filters it, before returning smog free air through the towers vents. By creating a field of ions, all the particles on the nano scale gets positively charged, therefore when the ground is negatively charged, they are dragged to the ground, and 75% more clean air is obtained.The technology is safe and in one hour it can purify 30,000 cubic meters of air and with consumption of power of 30 watts which is around the light bulb consumption. This technology manages to capture ultra-fine smog particles which regular filter systems fail to do. The tower was first tested at Rotterdam, Netherlands and after that in Beijing, China it was used for 41 days and significant reduction was seen in the smog around the place. The tower is also planned to be placed in Paris, Mexico, Los Angeles, New Zealand and Japan.

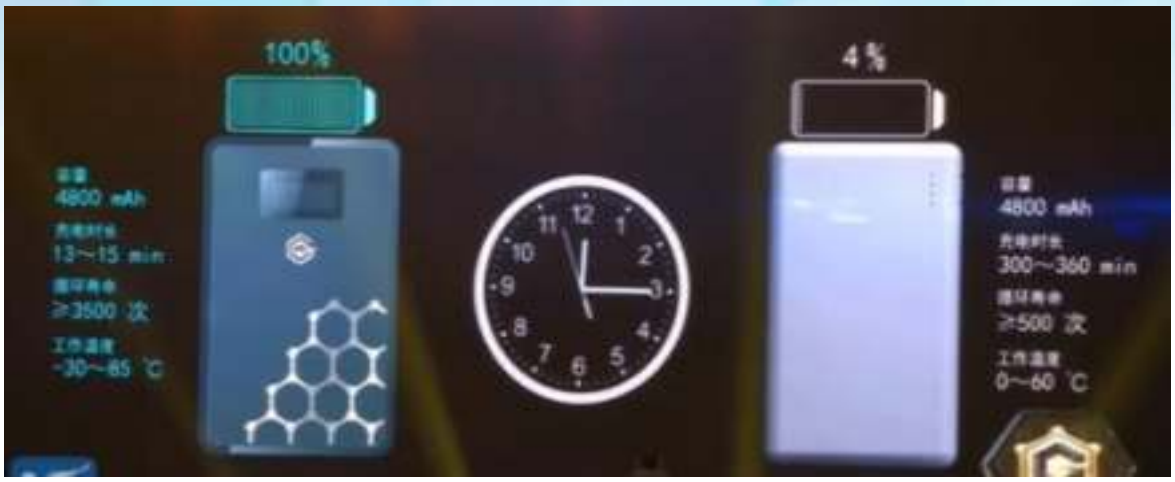
CONCLUSION

We humans have created machines to develop ourselves, we invented the wheel and cars to liberate ourselves and travel. But now these machines are striking back. In areas affected by severe air pollution, the smog free tower will harvest enough smog. Each smog free cube literally contains the smog out of 1000 cubic meters of air. It‟s a beautiful way of carrying the message of this project with you and perceiving the tangible environmental impact you have made by supporting this project.

Viveka , II year

There's an examination for young people to go to university. I failed it three times. I failed a lot. So I applied to 30 different jobs and got rejected. I went for a job with the police; they said, 'You're no good.' I even went to KFC when it came to my city. Twenty-four people went for the job. Twenty-three were accepted.
- Jack Ma

GRAPHENE ENHANCED BATTERY



Graphene-based batteries have exciting potential and while they are not yet fully commercially available yet, R&D is intensive and will hopefully yield results in the future

In December 2018, that in theory may even lead to electric vehicles that run on water. The metal air batteries use a metal as anode, air (oxygen) as cathode and H2O as an electrolyte. A graphene rod is used in the air cathode of the batteries. Since Oxygen has to be used as the cathode, the cathode material has to be porous to let the air pass, a property in which graphene excels. According to Log 9 Materials, the graphene used in the electrode is able to increase the battery efficiency by five times at one-third the cost.

It was also said that the Samsung battery that will use this graphene ball material will be able to maintain a temperature of 60 degrees Celsius that is required for use in electric cars.

GRAPHENE INVESTMENTS

Several large and public companies (such as Samsung, Intel, Nokia, IBM and Sony) are involved in graphene research. These companies may be on the forefront of graphene research - especially in high-end fields such as electronics and photonics - but graphene, even if successful, will probably represent a small portion of their business.

Another option is to invest in graphene production equipment. Aixtron AG, is a provider of deposition equipment to the semiconductor industry who offers the BM Pro systems (previously called Black Magic systems) that can be used to deposit graphene using both chemical vapor deposition (CVD) and plasma enhanced chemical vapor deposition (PECVD). Aixtron trades in the NASDAQ, but was recently acquired by Chinese fund. US-based CVD Equipment Corporation also offers graphene R&D and production equipment. CVD Equipment trades in the NASDAQ.

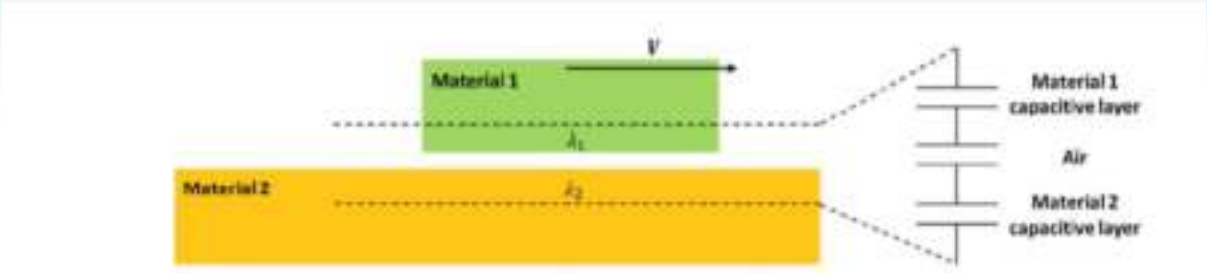
Another popular alternative is to invest in graphite miners. Some these companies are also eyeing graphene - planning to start graphene production or investing in graphene related companies. Interesting companies in this industry include Mason Graphite, Lomiko Metalsand Elcora Resources. Most graphite miners are based in Australia and Canada.

"Graphene research groups from Manchester University win £70,000 award for graphene Enhanced Battery

Surya Narayanan S, II year

TRIBOELECTRIC SYSTEM

Triboelectricity enables production of an electrical charge from friction caused by two different materials coming into contact. Although known for centuries, the phenomenon has been largely ignored as an energy source because of its unpredictability.



1 The capacitive configuration for triboelectric interface.

APPLICATIONS:

1.TRIBOELECTRIC NANOGENERATORS (TENGs)

Yet researchers led by Zhong Lin Wang, a Regents Professor in Georgia Tech's School of Materials Science and Engineering, have created novel triboelectric nanogenerators (TENGs) that combine the triboelectric effect and electrostatic induction. By harvesting random mechanical energy, these generators can continuously operate small electronic devices.

2.SELF-CHARGING SYSTEM

The First TENG debuted in 2012. Powered by foot tapping, it generated enough alternating current to power banks of LEDs. Since then the researchers have been pushing the envelope on their technology and have developed a self-charging system that not only converts alternating current to direct current but also features a power management unit that adapts to the variability in human movement.

4.WIRELESS LOCK

Five seconds of palm tapping generates enough current to operate a wireless car door lock. "The power management circuit is key to boosting efficiency," said Simiao Niu, a graduate student and lead author on a paper recently published in the journal Nature Communications. "Without the circuit, charging efficiency is below 1 percent, but with it we've been able to demonstrate efficiencies of 60 percent."

OTHER POSSIBLE APPLICATIONS

"This really broadens the number of possible applications," , pointing to temperature sensors, heart rate monitors, pedometers, watches, scientific calculators, and RF wireless transmitters.

Although the self-powered system was initially developed to capture human biomechanical energy, the researchers have created four different modes to convert other ambient sources of mechanical energy, such as ocean waves, wind blowing, keyboard strokes, and tire rotation

Santhosh Kumar.S, II year

DETECTING CRIMINAL ACTIVITIES USING IMAGE PROCESSING AND LIVE RELAY USING LI-FI

INTRODUCTION

Criminal activities in ATMs, such as robbery and women safety issues have been occuring frequently as reported in news papers world wide.Robbery and other criminal activites are not only occuring in under developed country it also occuring in developing nations.The criminals don't afraid of the cctv cameras present.For this problem we have a solution that is detection of human face using image processing.Our system will detect the human face whether they are covered by mask or anything.If they covered by anything our system will detect and alarm will be alarmed.

Light-Fidelity

Li Fi is a wireless communication technology which utilizes the visible light spectrum for transmitting the data in a high speed of 256GB per second.It is designed to use the light emitting diodes(LED) similar to those LED's which are currently in use in many energy-conscious homes and many offices.

"It have the specialized algorithm to detect the face of humans weather they covered by any mask or anything"

When they are covered by anything the image is processed and information is delivered through the LiFi Technology.For example a person covered by a mask or helmet it will detect and alarm gets alamed.After that it will connect to Li Fi to transmit the live video to the nearest control room.

Image Processing

We already know that image processing is used in industrial area to find the defect product which is flowing in the conveyer belt.This is possible by the template of that product was already stored.Likewise the template of men and women is already stored when a women or men covered by a face mask and enter into the cabin it will be detected.

After face was not detected it will connect LIFI and transmit video to nearby control center.here we use LIFI for transmitting the live video faster.LI FI has dense data so we can transmit the video faster

Conclusion

Using this technology definitely we can solve the security problems of the society.Eventhough it has some challenges to implement.We can try to fix it experimentally In this paper I defined the detection of human face using image processing and transmitting the video to the nearby control center when human face was covered by anything and transmit the live relay using LI FI Technology

Jawahar Raghavendhran, II year

SOLAR POWERED WATER PUMPING

It's always nice to use renewable energy in our day to day life which will cut short our monthly electricity bills. So here, our main idea is to use it for a day-to-day work such as water pumping.

The water is pumped from the sump to the overhead tank using a centrifugal pump driven by a Permanent Magnet DC (PMDC) motor powered by Photo-Voltaic Panels. A boost converter is used to increase the DC voltage level. The maximum power point Tracking system is implemented using a microcontroller – AVR Atmega 8. A current sensor and voltage sensor is used to achieve closed loop control. If the tank is fully filled the power supplied by panels is used for charging a battery.

Why water pumping? While loads like refrigerators, lights, fans, etc require a constant power supply for its proper operation, however it's not the case here. Our ultimate aim is to have water in the tank, so it's not a problem if the discharge of water into the tank changes due to the variable input.

Key points:

- A DC motor can be directly coupled to the PV panels. In case of an induction motor, we need an inverter and the efficiency falls due to the extra power conversion.
- At low power ratings, DC motors perform much better than the conventionally used induction motors.
- No storage (batteries) is needed here. The energy is utilized then and there and water is pumped.

Scope: This system is very effective and can be implemented in each and every home. It will definitely help a lot in fighting the power shortage we face today.

Kowsalya V, IV year

Autonomous truck

The autonomous truck is nothing but the truck which has no drivers in it. It can be operated either by programs or controlling it in some other place which is far away.

Volvo's autonomous trucks just **picked up their first real-**world job. Volvo's **Vera electric self-driving trucks are headed to public roads with their first proper job, with the autonomous haulers set to shuttle containers to a Swedish port. Revealed in 2018, Vera is the handiwork of the Volvo Trucks division, a driverless alternative to traditional trucks for short distances of travel.**

Volvo warns that the trial isn't quite ready to kick off yet. "The autonomous transport **solution will be further developed in terms of technology, operations management and infrastructure adaptations, before it can be** fully operational," the automaker points out. "Moreover, necessary safety precautions will **be taken to meet societal requirements for a** safe path towards autonomous transports."

For a start, electric trucks have a clear environmental advantage over their internal combustion counterparts: not only do they avoid emissions which contribute toward climate change, they're also signi**ficantly quieter in operation.**

Volvo Trucks already offers electric models, the drivelines of which have been carried over to Vera. Without the need for driver accommodation, however, the body of the autonomous truck can be significantly smaller. The speed limit, meanwhile, means that aerodynamics are less of a pressing issue.

"I strongly believe that technology drives prosperity and takes society forward."

M.Mithranguna, III year

A BRAIN INTERFACE TO CAPTURE YOUR ATTENTION AN EEG HEADPIECE FOR CHILDREN WITH ADHD IS NOW MAKER FRIENDLY

COMBINING FASHION WITH engineering, science, and interactive user-experience technologies. When worn,many of my designs monitor physiological indicators—such as heart rate—and react to this information in some way, communicating the wearer's internal state. In 2016,I was in Linz, Austria, as an Ars Electronica Future lab artist-in-residence, and I decided to take the opportunity to see if I could apply my techniques therapeutically. The result was a headpiece that helps children with attention-deficit hyperactivity disorder (ADHD) and their caregivers better understand what environmental cues are associated with symptomatic problems. In April, the underlying technology became commercially available for makers interested in brain-computer interfaces (BCIs). When I arrived in Linz, I was already interested in electroencephalography (EEG) devices, which measure the brain's electrical signals.

Through Ars Electronica I met Dominik Laister at the nearby Barmherzige Brüder Hospital, who became a valuable advisor. After consulting with him, I decided to focus on what is known as the P300 event-related brain potential signal. P300 is a frequent focus of clinical exams and BCI research. It is a voltage pulse, often thought to be connected to attention and decision making, that occurs a few hundred milliseconds after an external stimulus. The P300 signal is often measured when diagnosing children with ADHD because the signal takes longer to manifest and isn't as strong as it is in children without ADHD.

ADHD is commonly treated with stimulants such as Adderall that can boost concentration and focus while reducing hyperactive and impulsive behaviors. But while medication might help soothe symptoms, it doesn't help in understanding why a child with ADHD is more prone to react to certain stimuli, or how their symptoms might be treated in a way that reduces reliance on drugs. My goal was to create a device that would provide the data needed for such insights by monitoring both the brains of children and their environments. The result was Agent Unicorn—a headpiece with a projecting horn.The horn contains an 8-megapixel camera that records video during states of heightened P300 activity, as detected by an EEG built into the headpiece itself. The headpiece has a shape that automatically positions the electrodes at the correct locations on the skull. To create Agent Unicorn, I did not want to use any of the commercial EEG devices then available. The cheaper devices lacked good data-acquisition and processing capabilities— many of them used a single electrode that touched the forehead and struggled to

distinguish between electrical activity caused by brain waves and activity caused by muscle contractions. Medical-grade systems were steeply priced—up to US $10,000 for a clunky, albeit reliable, device. So I began collaborating with Christoph

Guger, the founder and co-CEO of G.tec, a medical engineering company located near Linz. G.tec is a large producer of EEG equipment and software, mainly supplying hospitals and other medical clients. But Guger has a keen interest in the new generation of makers who want to use neurological data in their projects. Because I was specifically interested in the P300 signal, we were able to trim the number of electrodes down from the conventional 64 to eight. We developed a miniature EEG board that connects to electrodes that can be used without applying conductive gel.

Sooraj Kumar, IV year

Electrical and Electronics Engineering

BIOGAS AND ITS SIGNIFICANCE

Biogas is a green energy source which helps recirculating nutrients and carbon into agricultural soil.Biogas is produced in a natural process of decomposing organic biomasses. When biomasses are processed in a biogas plant, the biogas plant will produce a renewable gas which will replace fossil based energy and reduce the CO2 emissions.

The biogas plant will also enable an improved nutrient management in the agricultural industry. Processing animal manure in a biogas plant will as mentioned above capture methane emissions, which otherwise would be released to the atmosphere. The biogas plant will also make a fertilizer to be used in the crops farming industry. This is a fertilizer which can replace a large part of the synthetic fertilizers used in the agriculture today. The fertilizer from a biogas plant is also a great replacement for use of manure as a fertilizer, making it possible for farmers to administer the right amount of fertilizer to the crops.

The biogas plant thus contributes not only to meeting carbon budgets but also in reducing the pressure on the planet's resources in the form of fossil fuels, and nutrients such as nitrogen and phosphorous.

What is biogas?

Biogas consists mainly of methane (CH4) and carbon dioxide (CO2). Methane is a valuable form of gas, as it is an efficient energy carrier with a wide range of uses. The amount of CO2 that is produced corresponds to the amount of CO2 captured when the biomass was created.

This means that biogas is a CO2 neutral and renewable source of energy.

How is biogas produced - and from what?

Biogas is produced using organic material, which is broken down with the help of bacteria in an anaerobic (oxygen-free) environment. The anaerobic digestion process is a natural process that often occurs in nature. In a biogas plant, this process takes place in an anaerobic digester and is accelerated by creating the best possible conditions for micro-organisms and bacteria to multiply, which leads to a highly efficient breakdown of materials.

Almost all forms of organic material can be used to produce biogas. However, waste water, manure, energy crops and organic industrial waste are the most common feedstocks.

Benefits of biogas

There are benefits of biogas, including:

- The production of valuable green energy (electricity, heating, cooling)
- Reduction of greenhouse gas emissions
- Reduction in nutrient loss and washout from the fields (manure processing plants)
- Recirculation of nitrogen, which reduces the need to use fossil fuels for the extraction of nitrogen from the air
- Recirculation of phosphorous, which helps reducing the pressure on the world's limited phosphorous resources

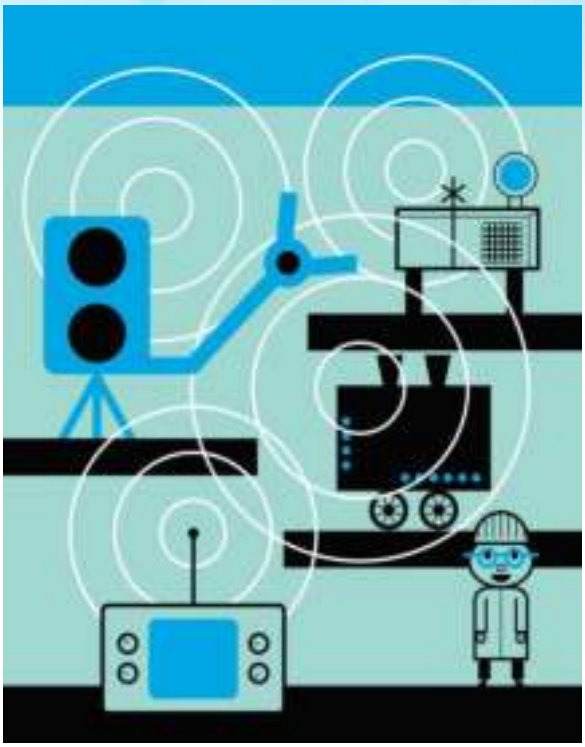
Erick V, III year

ONE FACTORY FITS ALL

THE FUTURE OF MANUFACTURING is software defined. You don't have to look further than ABB to understand why companies are turning to 5G networks, artificial intelligence, and computer vision. The Swiss company is using these new tools to boost reliability and agility in its nearly 300 factories around the world, which produce a host of goods, from simple plastic zip ties to complex robotic arms. For ABB and other companies pushing software-defined networking, it's all about being safer while adapting to a growing clamor for personalized products. When it comes to safety, adding more sensors to machines and deploying AI can make the end product more consistently reliable. At its Heidelberg factory, for example, ABB makes circuit breakers. But even with 99.999 percent reliability at ABB's factory, faulty circuit breakers would still kill 3,000 people a year, according to Guido Jouret, the company's chief digital officer. People can't achieve 100 percent reliability when making and inspecting the completed circuit breakers—but a camera with machine learning can. When that camera detects any sort of variation, factory managers can go back to the machine to figure out what's causing that defect. Boosting safety and reliability isn't exactly news to anyone who has followed the adoption of Japanese Kaizen or Six Sigma manufacturing, efforts to improve reliability and reduce waste, in the automotive industry. But adding automation and robots is becoming more important today as our culture increasingly wants customized products.

"It's not always about being more efficient,"Jouret says. "It's about being more agile." Kiva Allgood, the head of Internet of Things and automotive at Ericsson, calls the shift from efficiency to agility a move away from economies of scale toward an economy of one. In other words, the inefficiencies traditionally associated with making low quantities of goods will no longer apply. She saw this change coming as an executive at General Electric.

Sharvesh G, III year



Now she's working on the wireless technology that will help make this possible. But before we can reprogram the factory floor, we have to understand it. That starts with individual machines. We'll need manufacturing equipment with sensors measuring both the machine's work and the machine's health. This is the stage where many manufacturers are today. The factory should also have sensors that provide context to the overall environment, including temperature, workers' movements, and more. Armed with that understanding as well as computervision algorithms designed to detect flaws in the manufactured product, it will become possible to quickly repurpose robots to make something new. Perhaps more interestingly, future agile factories will remove the wires littering factory floors. Historically, factory automation has meant building a rigidly defined manufacturing line dictated by the robots making the product. But with developing tech, factories will free those robots from their data and power wires, and replace the wires with low-latency wireless 5G networks. Then, factories can turn days-long reconfiguration efforts into an overnight project. By emphasizing agility over efficiency, the factories of the future will be able to turn on a dime to meet the demands of our fast-paced society.

SOLAR DC HOME
(SUSTAINABLE ENERGY DEVELOPMENT)

Solar power is clean green electricity sourced from sunlight. Or in some cases, from heat from the sun. Installing solar power systems in a residential setting generally means setting up a solar photovoltaic or a solar thermal system on the roof.

Solar energy is a renewable free source of energy that is sustainable and totally inexhaustible, unlike fossil fuels that are finite. It is also a non-polluting source of energy and it does not emit any greenhouse gases when producing electricity.Solar electricity can supplement your entire or partial energy consumption. Using solar power means reducing your energy bills and saving money. Low maintenance and unobtrusive, installing solar panels adds value to your home.

The two main types of solar power systems are grid connect and off grid (stand alone/remote power) installations.

With a business or residential grid connect system, your house or property is still connected to the mains power supply, so battery storage is not required. A grid connect installation ensures you have the electricity you need, whenever you need it – automatically and regardless of conditions.

An off grid solar power system is installed completely separated from mains power and utilises a deep cycle battery bank for storing electricity generated by solar panels. Off grid installations are most common in rural and economical.

Other applications for solar energy include hot water systems and solar powered pumping. friendly experts who can recommend solar panels and other renewable energy products to suit your needs!

Advantages:

- Solar power is pollution free and causes no greenhouse gases to be emitted after installation
- Reduced dependence on foreign oil and fossil fuels,Renewable clean power that is available every day of the year, even cloudy days produce some power,Return on investment unlike paying for utility bills
- Virtually no maintenance as solar panels last over 30 years
- Creates jobs by employing solar panel manufacturers, solar installers, etc. and in turn helps the economy
- Use batteries to store extra power for use at night,Solar can be used to heat water, power homes and building, even power cars

Disadvantages

- High initial costs for material and installation and long ROI
- Needs lots of space as efficiency is not 100% yet
- No solar power at night so there is a need for a large battery bank
- Some people think they are ugly (I am definitely not one of those!)
- Devices that run on DC power directly are more expensive

Shyam Kumar P, IV year

HYPERLOOP - TRANSPORT TECHNOLOGY

INTRODUCTION

The founder of this technology is Elon Musk in the year 2012. He has invented and developed this technology with the help of his own company "Tesla and Space X". He termed the hyperloop concept of transportation to be the fifth mode of transportation. This mode of transportation is to be used for very fast transportation. The speed at which the hyperloop train travels is 760mph at a distance of 1200km/hr. The time taken to travel this distance is of 35mins.

CHARACTERISTICS

- Immunity to weather
- Collision free
- Twice the speed of plane
- Low power consumption
- Energy storage for 24 hours operation

PRINCIPLE

The hyperloop is nothing but a Maglev train enclosed in a tube in which there is very little air pressure and hence almost no air resistance. The working principle is same as that of a maglev train i.e. the train is levitated and propelled forward using powerful electromagnets.

MAGLEV (Magnetic Levitation)

It is a system of transportation that uses two set of magnets of transportation. One set of magnet is used to repel and push the train up off the track and the other set of magnets is used to move the floating train ahead at greater speed (lack of friction). Maglev trains are therefore quieter and smoother than conventional trains, and have the potential for much higher speeds. This maglev operation is being processed only in three countries (Japan, South Korea and China). These MAGLEV are meant to be vactrain. The vactrain are trains which travel at 6,400 to 8000rpm, this speed is 5-6 times the speed of light.

WORKING

A brief review of magnets will help explain how maglev (magnetic levitation) trains work. Every magnet has a north pole and a south pole. Similar poles of two magnets repel each other; opposite poles attract each other. These principles govern the levitation of maglev trains.

Permanent magnets are always magnetic. Electromagnets are magnetic only when an electric current flow through them. The north and south poles of an electromagnet are related to the direction of the current. If the direction of the current is reversed, the poles are reversed.

In maglevs that levitate by magnetic repulsion, the train lies over the guideway. Magnets on top of the guideway are oriented to repel similar poles of magnets in the bottom of the maglev. This pushes the train upward into a hovering position. This system is designed for maglevs that contain groups of extremely powerful superconducting electromagnets. These magnets use less electricity than conventional electromagnets, but they must be cooled to very low temperatures—from −269 degrees Celsius to −196 degrees Celsius.

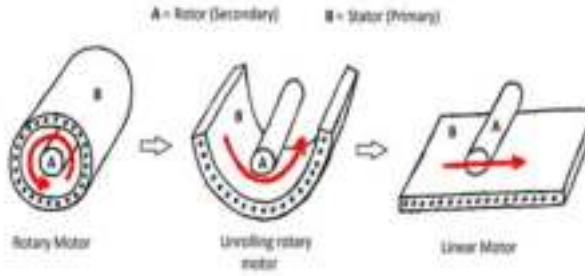
In maglevs that levitate by magnetic attraction, the bottom of the train wraps around the guideway. Levitation magnets on the underside of the guideway are positioned to attract the opposite poles of magnets on the wraparound section of the maglev. This raises the train off the track. The magnets in the guideway attract the wraparound section only strongly enough to raise the train a few centimeters into a "floating" position. The wraparound section does not touch the guideway. (Imagine a C-shaped bracelet floating around your wrist without touching it.)

To picture how a maglev train is propelled forward, think of three bar magnets lined up

on the floor. The magnet in front is pulling with an attracting (opposite) magnetic pole and the magnet in back is pushing with a repulsing (similar) magnetic pole. The magnet in the middle moves forward. A maglev's guideway has a long line of electromagnets. These pull the train from the front and push it from behind. The electromagnets are powered by controlled alternating currents, so they can quickly change their pull and push poles, and thus continually propel the train forward.

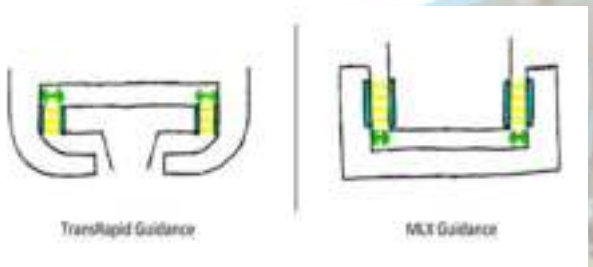
There are three essential parts to achieving maglev functionality: levitation, propulsion and guidance (as seen below).

PROPULSION (LINEAR MOTOR – ROTATIONAL ENERGY TO STRAIGHT LINE)



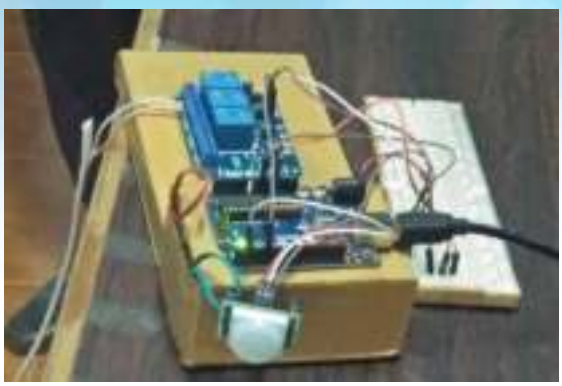
When describing a linear motor, the standard is to use the term "primary" instead of "stator," and "secondary" instead of "rotor." In maglev trains, the secondary is attached to the bottom of the train cars, and the primary is in the guideway. So a magnetic field is sent down the guideway and it pulls the train along after it. In a way then, the entire length of a maglev track can be considered to be part of the train's motor. The system that has been described so far is a Linear Induction Motor (LIM). It is so called because the magnetic field in the primary induces a magnetic field in the secondary. It is the interaction between the original field and the induced field that causes the secondary to be pulled along. However, in this configuration, the secondary always lags somewhat behind the moving field in the primary. This lag is a source of energy and speed loss. In a Linear Synchronous Motor (LSM), the lag is removed by attaching permanent magnets to the secondary. Because the secondary is now producing its own stationary magnetic field, it travels down the primary in sync with the moving field—hence the name for this variant of motor (). Because LSMs are faster and more efficient, they are the motor of choice in high-speed maglev trains.

GUIDANCE



Hariharan Baskar, III year

AUTOMATIC SWITCHING DEVICE



Energy is the need of the hour and one can not even imagine living a day without using any electrical devices. Factors such as an increase in population, urbanization and developing lifestyles have made us more prone to take for granted the energy that we consume in form of electric power. Not only are we increasing our electricity bills but also contributing to the massive depletion of non renewable sources of coal.

Our project is "**AUTOMATIC SWITCHING SYSTEM**" which automatically control the electrical equipment that has connected in the room. By this method we can save the energy that has been wasted.

Working

Whenever, human being (even a warm body or object with some temperature) passes through the range view of PIR sensor, then it detects motion and the infrared radiation emitted by a body. Thus, the infrared radiation detected by the sensor generates an electrical signal and send it to the Arduino ,when the Arduino gets the signal from the PIR sensor it activate the relay that connected to the load . The PIR sensor internally is split into two halves, one half is positive and the other is considered as negative. Thus, one half generates a signal by detecting the motion of a body and other half generates a signal by detecting the hot body . The difference between these two signals is generated as output signal. Primarily, this sensor consists of Fresnel lens which are bifurcated to detect the infrared radiation produced by the motion of hot body over a wide range. The PIR sensor keeps generating a signal until there is no motion detected. when there is no signal generates the PIR sensor keeps the output low .

Advantages

This system can be beneficial in helping reduce the stray power wasted every day when the lights/fans are neglected to be turned off and continue to run thereby wasting energy stupendously. By having them respond to people in the classroom and only then working can hence reduce the amount of energy wasted and also positively affect the energy bill.Another thing to note is that this system is easily scalable. We can implement it in as many classrooms required by the client, could be one room or the entire building by fitting a device in each room. Speaking of future applications, we can also customize the device to act differently during different months such as April or December based on climate and sunlight considerations.

We have implemented a prototype of this model in our classroom as a prototype test and have received positive response. Our Head of Department and Principal sir have personally visited the said classroom and lauded our efforts to make a difference in energy change and supported us to strive to work out project on a largescale.

Dinesh K, III year

UPCOMING EVENTS

Summit on "Energy and Water Management"

Organized by Department of Electrical and Electronics Engineering In Association With IEEE Power & Energy Society

ABOUT THE PROGRAM

This Summit enhances the student to showcase their talents, concern towardsenergy and water conservations, making them realize the importance of implementing renewable sources. As students, parent and teachers are being sensitized towards "energy conservations" issues that confront each one of us, today. Students can participate in various activities and present their ideas to conserve energy and Water. This event is being conducted with a motive to engage students, the future of our country, increasing awareness and taking their first steps in Energy and Water Conservation. The program however, was never meant to stay in this narrow space, but to widen the horizon and enable a child to take necessary steps in his/her individual capacity to be better and responsible citizens of the world

This Summit focuses on bringing about a first-hand realization of the energy crisis and scarcity of natural resources in the country. With the increasing demand for energy, effective management and conservation of the same has become the need of the hour. Recognizing the immense value the Professional Students can bring to the initiative and taking due consideration of this urgent need to propagate efficient usage of energy and to educate the society on climate change issues in the upcoming years.

TECHNOLOGY AWARNESS PROGRAM

On behalf of 25th Anniversary celebrations of St.Joseph's Group of Institutions, we the Department of Electrical and Electronics Engineering is organizing a "Technology Awareness Program" in various schools in association with IEEE (Institute of Electrical and Electronics Engineers). This event is being conducted with a motive to engage students, the future of our country, increase awareness and make them realize their potential and responsibility in building a renewable nation and to counsel the students about the needs of blooming industries and recent trends in technology. Following are some of the topics to be covered as a part of awareness campaign :-

- Autonomous Vehicle (driverless + E-car technology)
- Hyper-loop (magnetic levitation concept)
- Industrial Automation (IoT)
- Micro Grid Technology
- Alternate Energy Sources, generation and feasibility.

TEACHERS DAY EVENT SCHEDULE

Teachers' Day is celebrated with immense zeal in our college every year. It is a day to pay respect to the teachers and thank them for their efforts and hard work they put in every day, all round the year to nurture the students. Schedule for this year is as follows.

<table>
<tr><th>S.No</th><th>Event Name</th><th></th><th>Time</th></tr>
<tr><td>1.</td><td>Issuing Gift to staff members</td><td></td><td>3.00 pm to 3.15 p.m</td></tr>
<tr><td>2.</td><td>Welcome address</td><td></td><td>3.15 pm to 3.17 pm</td></tr>
<tr><td>3.</td><td>Certificate Distribution</td><td></td><td rowspan="10">3.18 pm to 3.40 pm</td></tr>
<tr><td>i)</td><td>Branch Topper</td><td></td></tr>
<tr><td>ii)</td><td>Skill Rack</td><td></td></tr>
<tr><td>iii)</td><td>Organizer(2)</td><td></td></tr>
<tr><td>iv)</td><td>IEEE Certificates</td><td></td></tr>
<tr><td>v)</td><td>Club Activities</td><td></td></tr>
<tr><td>vi)</td><td>Value added Course</td><td></td></tr>
<tr><td>vii)</td><td>News Letter</td><td></td></tr>
<tr><td>viii)</td><td>Magazine</td><td></td></tr>
<tr><td>5.</td><td colspan="2">Cultural Events & Programme</td><td>3.40 pm to 5.00 pm</td></tr>
<tr><td></td><td colspan="3"><table>
<tr><td>Dance-Classical</td><td>Girls</td><td>II</td><td>Divya Sree & Team</td></tr>
<tr><td>Dance</td><td>Boys</td><td>IV</td><td>Sam Ebinezer &</td></tr>
<tr><td>Singing</td><td>Boy</td><td>IV</td><td>Ali Ahmed Khan</td></tr>
<tr><td>Dance</td><td>Girls</td><td>III</td><td>Karthini & Team</td></tr>
<tr><td>Lite music</td><td>Boys</td><td>IV</td><td>Praveen & Team</td></tr>
<tr><td>Dance</td><td>Girls</td><td>IV</td><td>Kousalya & Team</td></tr>
<tr><td>Dance</td><td>Boys</td><td>III</td><td>Rahul Varma &</td></tr>
<tr><td>Singing</td><td>Girls</td><td>IV</td><td>Kousalya & Team</td></tr>
</table></td><td></td></tr>
<tr><td>6.</td><td colspan="2">Vote of Thanks</td><td>5.05 pm to 5.10 pm</td></tr>
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TECHNICAL SYMPOSIUM

St. Joseph's has always been the premiere in bringing out the talents of the students to elicit their hidden skills in the best way. Our college not only provides opportunities to their own students but also to other college/university students. In this manner, a **National Level Technical Symposium ELEKTRAKAN'19** is about to be conducted on 21st September 2019 at our college premises.

Triggered events are In-Circuit Emulator, Defuz'o, Tie Up, Brain Storm, Electra – mania.

ELEKTRAKAN