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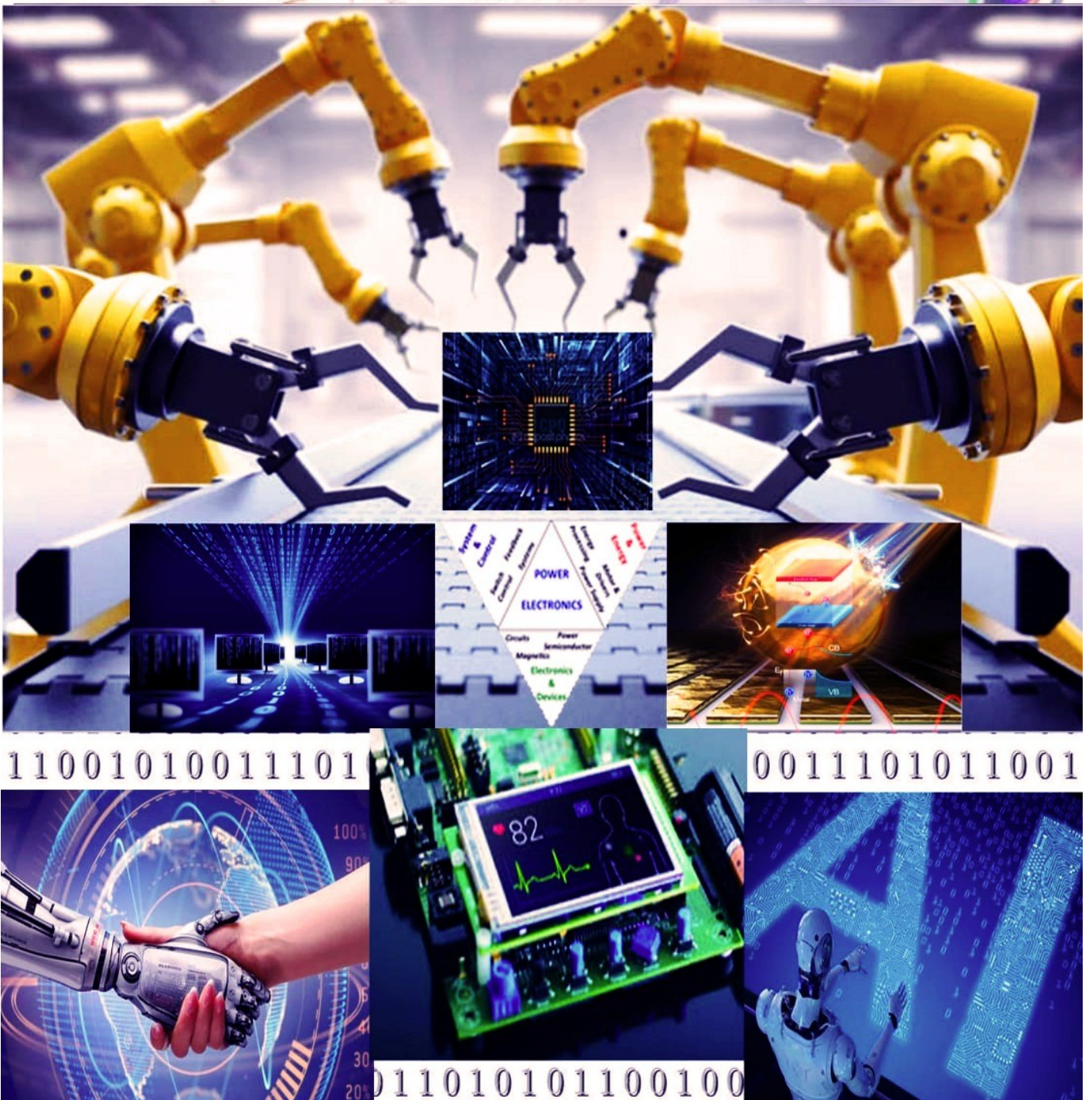*Grade 'A' awarded by D.T.E., M.S.*

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VOLUME NO .6

NEWSLETTER FROM DEPARTMENT OF ELECTRONICS ENGINEERING   May 2019

Department of Electronics Engineering, SAKEC

From the Principal's Desk

The newsletter MICROTRONIX represents the plethora of creativity and talent of the students in the Electronics Engineering Department of SAKEC. Through the newsletter, not only are the technical skills and competency of the students brought to the fore, but also their energies are channelized towards the right direction. As a student steps out of the institute, he can develop into a multi faceted personality by being aware of intricate web of human values, traditions and customs.

I am sure that this magazine is the perfect souvenir for our students and a window for other institutes to get to know about our students, faculty and alumni.

I heartily congratulate the editorial team for working hard to come out with such a fine newsletter. I wish them all the best for their future endeavors.

Dr. Bhavesh Patel
Principal, SAKEC.

From the Vice Principal's Desk

The Newsletter of Electronics Engineering Department, *'Microtronix'* is the reflection of the talent and creativity of the students and staff members. It feels indeed great to know that there has been so much activity going on in the department, both on the academic and extra-curricular front.

The overwhelming participation displays the multifaceted personality of the members of the department. I heartily congratulate editorial team for their hard work and wish them all the very best for their journey ahead.

Dr. Vinit Kotak
Vice-Principal, SAKEC.

From the HoD's Desk

It gives me immense pleasure to present the Newsletter '**MICOTRONIX**', May 2019, Vol.6 issue, which gives our departmental activities and achievements in a nutshell. Being the oldest department of SAKEC, our department is strengthened with highly experienced staff members and well equipped laboratories. Various departmental activities are conducted throughout the academic year to enhance the knowledge of staff and students. Department provides Internship opportunities to the students at college and in industries and prepare them to face the real industrial world.

Our collective energy and action grounded in data which reinforces our work has created this beautiful issue '**MICOTRONIX**', May 2019. I congratulate the editorial team for their remarkable hard work in bringing out this newsletter. Looking forward for more achievements and successes in the upcoming years.

" We keep moving forward, opening new doors and doing new things, because we are curious and curiosity keeps leading us down new paths" – WALT DISNEY

Dr. Subha Subramaniam
I/C HOD. (Electronics)

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Sr. No.	Name of the Faculty	Sr. No.	Name of the Faculty
1.	Mr. Mahendra Dhuri	3.	Ms. Ashwini Sawant
2.	Ms. Jhanvi Deshpande		

From the Editorial Board

Chief Editors

- Prof. Manisha Mane

- Prof. Preethi Warrier

Technical Advisor

- Dr. Subha Subramaniam

Student Editors

| Aditya Iyer | Suraj Gupta | Amit Bhosle | Sunny Mishra | Ashwini Gangwal |

From the Editorial Board

We, the editorial board take pride in presenting you, our departmental newsletter **"Microtronix "**, Volume 6, May 2019**.**

We would begin by congratulating Prof. Subha Subramaiam for completing her PhD in Electronics Engineering from VJTI, Mumbai. Kudos to her for this great achievement.

Ms. Shirin Khopkar talks about her wonder years in college, in our Alumni Article section.

The Achievements section sheds light on the various accomplishments of both staff and students. We are immensely proud of our Final Year students who have brought laurels to the college and the department, by successfully presenting their projects at the Big Data Summit 2018 and Avishkar Research Convention 2019. The TECHNOROOT team from the department, consisting of Mr. Rakesh Alagarswamy, Mr. Rushikesh Naik, Mr. Jay Ramane, Mr. Vinay Bhalekar, Mr. Sushilkumar Mourya and Late Ms. Devika A. got selected in the first round of Smart India Hackathon 2019.

We are happy to state that not only the students, but the teachers have also performed exceedingly well in Spoken Tutorials and NPTEL examinations.

The events section reflects the huge and enthusiastic participation of our students and staff in informative FDPs, workshops and seminars organized by the professional bodies IEEE, ISTE, IETE and the ACM chapter.

We also congratulate our class and subject toppers for their brilliant performance. The department of Electronics Engineering is indeed proud of them.

We wish to express our sincere gratitude to Dr. Uma Rao, former Head of the Department for helping and supporting us from time to time. Also, we thank Prof. Udayan Kamble and Prof. Priyanka Singh for helping us compile the newsletter.

Microtronix serves as a brilliant platform for our students and staff to exhibit their technical and literary talents. By highlighting their achievements, we wish to encourage our students to shine in academics as well as in other creative fields.

We hope you all enjoy reading this edition of **Microtronix** and motivate us with your valuable insights and comments.

CONVOCATION

BE ELECTRONICS 2018

The Convocation ceremony 2019 was held on 8th Feb 2019. Totally 100 students graduated in Electronics engineering from SAKEC, Mumbai. All our topper student are awarded and felicitated in this ceremony, with this convocation ceremony we are proud to announce that 33rd batch had passed out from Electronics engineering department.

Toppers of Academic year 2017-18

ALUMNI ARTICLE

Shirin Khopkar(Formerly Shirin Sohoni),
B.E.ELECTRONICS, Batch 1999
Technology Architect, Capgemini India Pvt. Ltd
Field Experience:18+ years of experience in the IT industry, including 3 years of international experience (Singapore and USA)

Two days ago, I visited our college after a long span of 19 years for some administrative work and a feeling of nostalgia struck me. Everything seemed to be same as when I had graduated back in 1999, the building, the admin office, the canteen. The canteen has so many special memories with all my friends and batch mates, I was really happy to be back. I was surprised when one of the admin staff actually recognized me by my surname, and it occurred to me that nothing has changed in such a long time. My life may have changed from being a student to being a wife, mother, a manager at a MNC. It gave me real happiness to be back and to relive all the moments which took me down the memory lane.

After graduation I had a tough time finding a job, it was the Y2K year and job market was really bad due to a recession. I learned Java/C++ on my own during that time and finally found a job in an IT company as a junior engineer. It was a very different experience from what I had anticipated, graduating from college into the real corporate world. I started working on Java projects in that company and discovered my liking for programming. I have moved jobs since then become a Technical Architect, designing and architecting systems but I have still kept myself involved in programming. I am currently working for Capgemini India Pvt. Ltd as a Technology Architect. My responsibilities include driving the technology, innovation and mentoring streams in the engagement. I work with so many of wonderful new comers like you all, just out of college stepping into real world. I help them by mentoring and providing all kind of technical and training support within my organization.

Today you all are in a much cocooned world, at home in the college, where you have your parents, teachers, professors all the support staff to help you. When you graduate and step into the world outside you will realize that you are on your own. At that time, you will realize that the education imparted to you, support you have got from all these wonderful people has empowered you to go through this journey. I will like to share some of my learnings, from whatever I have experienced so far in my life, "Always follow your dreams and believe that nothing is impossible"!! I am also a firm believer that you can achieve anything that you put your mind to with hard work. If you want to achieve a goal, set your mind to it and put your 100%. I am sure you will realize all your dreams. Good luck to you all and have an awesome one!

S T A F F A R T I C L E S

STAFF ARTICLES

MATLAB/Simulink Model of Sinusoidal PWM for three phase Voltage Source Inverter

Prof.Asha Durafe

Assistant Professor Electronics Engineering

Abstract: This paper concentrates on modeling and simulation of single phase inverter as a frequency changer modulated by sinusoidal Pulse Width Modulation (PWM) technique. An inverter is a circuit that converts DC sources to AC sources. To judge the quality of voltage produced by a PWM inverter, a detailed harmonic analysis of the voltage waveform is done. Pulse width modulated (PWM) inverters are among the most used power-electronic circuits in practical applications. These inverters are capable of producing ac voltages of variable magnitude as well as variable frequency with less harmonic distortion. The model is executed utilizing MATLAB/Simulink software with the SimPower System Block Set using PC simulation. MATLAB/Simulink is a successful instrument to examine a PWM inverter. Major reasons for using MATLAB are: Faster reaction, accessibility of different simulation devices and the nonappearance of joining issues. In this paper, Insulated Gate Bipolar Transistor (IGBT) is used as switching power device. IGBT is ideal since it high switching speed and also high input impedance. Finally a MATLAB/SIMULINK model for the SPWM is presented. Various simulation results are also included.

Keywords: SPWM, Total Harmonic Distortion, MATLAB SIMULINK

I. Introduction: Variable voltage and frequency supply for AC drives is invariably obtained from a three-phase VSI. A number of PWM techniques have been presented to obtain variable voltage and frequency supply [1]. The most popular among those are carrier-based sinusoidal PWM and SVPWM. The major advantages of this scheme are low power consumption, high energy efficient up to 90% and easy to implement and control. The main focus of this paper is to develop a simple MATLAB/SIMULINK model. The reason for choice of MATLAB/SIMULINK as a development tool is because it is the most important and widely used simulation software and is an integral part of taught programme in most of the universities in Electrical/Electronics Engineering courses. Firstly model of a three-phase inverter in presented on the basis of SPWM representation. This is followed by the basic principle of SPWM. Finally a MATLAB/SIMULINK model for the SPWM is presented.

II. Voltage Source Inverter: The type of inverter where the independently controlled ac output is a voltage waveform. The output voltage waveform is mostly remaining unaffected by the load. Due to this property, the VSI have many industrial applications such as adjustable speed drives and also in Power system for Flexible AC Transmission.

A. Single Phase Full wave Bridge Inverter: It consists of two arms with a two semiconductor switches on both arms with antiparallel freewheeling diodes for discharging the reverse current. In case of resistive-inductive load, the reverse load current flow through these diodes. These diodes provide an alternate path to inductive current which continue so flow during the Turn OFF condition.
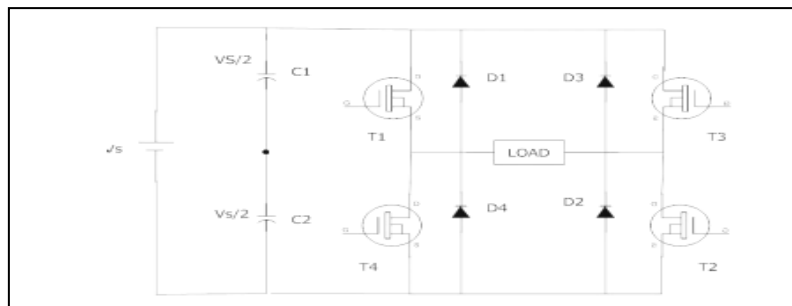
Fig1: Single Phase Full wave Bridge Inverter

T1	T2	T3	T4	V_A	V_B	V_{AB}
ON	OFF	OFF	ON	$\frac{Vs}{2}$	$-\frac{Vs}{2}$	Vs
OFF	ON	ON	OFF	$+\frac{Vs}{2}$	$+\frac{Vs}{2}$	$-Vs$
ON	OFF	ON	OFF	$\frac{Vs}{2}$	$-\frac{Vs}{2}$	0
OFF	ON	OFF	ON	$-\frac{Vs}{2}$	$+\frac{Vs}{2}$	0

Table 1: Switching States

The switches are T1, T2, T3 and T4. The switches in each branch is operated alternatively so that they are not in same mode (ON /OFF) simultaneously .In practice they are both OFF for short period of time called blanking time ,to avoid short circuiting . The switches T1 and T2 or T3 and T4 should operate in a pair to get the output. These bridges legs are switched such that the output voltage is shifted from one to another and hence the change in polarity occurs in voltage waveform. If the shift angle is zero, the output voltage is also zero and maximal when shift angle is π.

B. SPWM (Sinusoidal Pulse Width Modulation Technique):

This type of modulation is implemented by comparing a sinusoidal modulating signal Vm(ωt) = Vm sinωt with a triangular carrier signal of maximum height Vc [8]. The natural intersection of Vm(ωt) and Vc(ωt) determine both the onset and duration of the modulated pulses. PWM gives an approach to diminish the Total Harmonic Distortion (THD) of load current. The THD prerequisite can be met all the more effortlessly when the yield of PWM inverter is separating. The unfiltered PWM yield will have a generally high THD, yet the harmonic will be at the much higher frequencies than for a square wave, making sifting effectively. The aggregate harmonic distortion, or THD, is characterized as the proportion of the total of the powers of every single harmonic segment to the power of the central. Control of the switches for the sinusoidal PWM yield requires a reference flag (tweaking or control flag) which is a sinusoidal wave and a bearer flag which a triangular wave that control the exchanging frequency. There two kind of the exchanging for PWM, unipolar exchanging and bipolar exchanging. In a unipolar exchanging plan for PWM, the yield is changed from either high.

Sinusoidal pulse width modulation technique is adopted in order to reduce the harmonic content of output voltage and to obtain an electrical near sinusoidal output voltage.

III. Harmonics:

Harmonics are brought on by non-straight loads that are loads that draw a non-sinusoidal current from a sinusoidal voltage source. Some cases of harmonic creating loads are

- Electric circular segment heaters
- Static VAR compensators
- Inverters
- DC converters
- Switch Mode Power Supplies and AC or DC engine drives

This paper describes the Harmonic examination of Single Phase inverter with Pulse Width Modulation (PWM). The Simulink demonstrate for both straightforward and down to earth inverter has been designed in MATLAB.

IV. Simulation Results:

Simulation model have been designed and implemented using MATLAB SIMULINK tool. The proposed Simulink model has been shown in figure 2 and figure 3 in which modeling and simulation of single phase inverter as a frequency changer modulated by Pulse Width Modulation (PWM) has been designed. Load voltage, load current have been shown in figure 4. The PWM generation is shown in figure 5 and the Harmonic profile with THD value is shown in figure 6. The different parameters of the inverter, for example, R, C and Filter plane are shifted and the subsequent voltage and current diagrams has been examined.
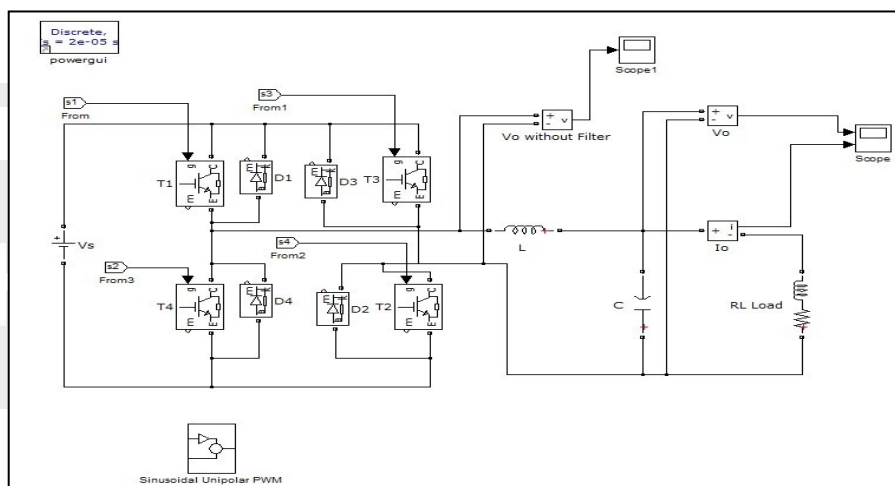
Figure 2: Single phase SPWM Inverter
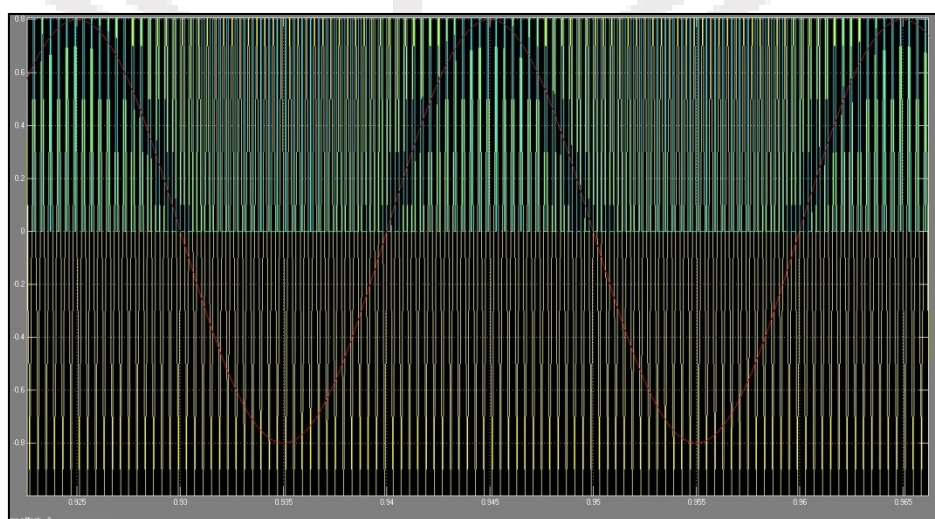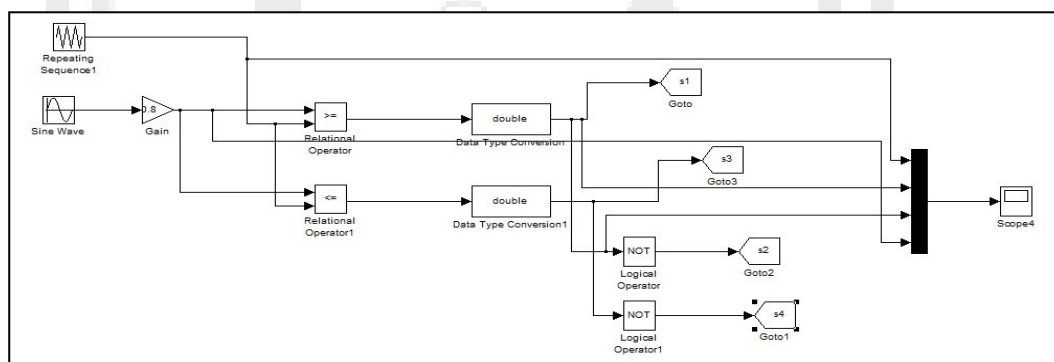
Figure 4: SPWM Waveform
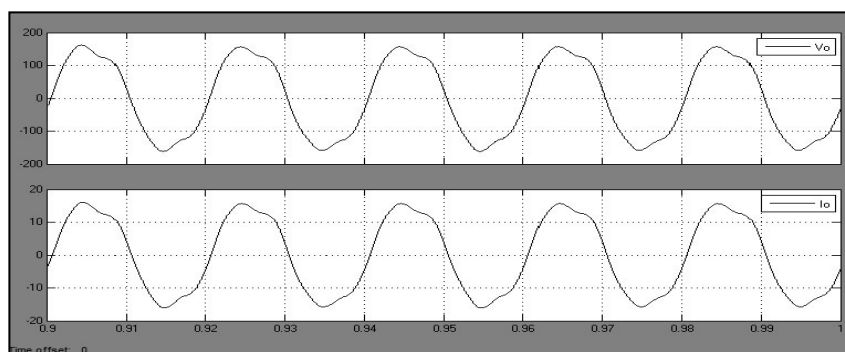
Figure 5: Load voltage and load current
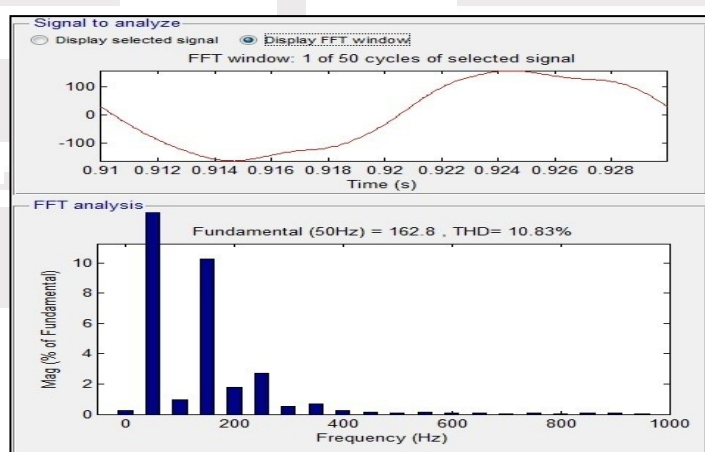
Figure 6: THD of Output Voltage Waveform for Single Pulse Width Modulated Inverter

V. Conclusion:

This paper describes the Harmonic analysis of Single Phase inverter with Pulse Width Modulation (PWM). It includes both practical inverter circuit and PWM generator circuit. The Simulink models for both the circuits have been simulated in MATLAB/SIMULINK. Its various parameters such as R, L load and filter design components are varied and the resulting voltage and current graphs have been studied.

VI. References:

[1] Kim. J, Choi. J & Hong. H, "Output LC Filter Design of Voltage Source Inverter Considering the Performance of Controller" IEEE Conference Publications, 2000.

[2] Lin.W.Song & Huang.I.Bau "Harmonic Reduction in Inverters by Use of Sinusoidal Pulse Width Modulation" IEEE Transactions on Industrial Electronics - IEEE TRANS IND ELECTRON , vol. IECI-27, no. 3, pp. 201-207, 1980

[3] Gole.A.M "Harmonic Elimination in SPWM Inverter"1994, Halifax, Canada.

[4] Ming Li, Dong Dai & Xikui Ma, "Slow-Scale and Fast-Scale Instabilities in Voltage- Mode Controlled Full-Bridge Inverter" Journal: Circuits Systems and Signal Processing - CIRC SYST SIGNAL PROCESS , vol. 27, no. 6, pp. 811-831, 2008.

[5] Maswood. Ali.I & Al-Ammar. Essam "Analysis of a PWM Voltage Source Inverter with PI Controller under Non-ideal conditions" International Power Engineering Conference-IPEC,2010.

[6] Anand. D & Jeevananthan .S "Modeling and Analysis of Conducted EMI Emissions of   a Single-Phase PWM Inverters" Asian Power Electronics Journal, Vol. 4, No.3 December 2010.

[7] Crowley. Ian. F & Leung. H. F "PWM Techniques: A Pure Sine Wave Inverter" Worcester Polytechnic Institute Major Qualifying Project, 2010.

EVENTS & WORKSHOPS

EVENTS WITH PROFESSIONAL BODIES

1) CSI SAKEC

- CSI SAKEC in collaboration with Electronics Engineering Department had organised a hands on workshop on MATLAB on 3rd October 2018 from 3 to 5 pm in lab 103. The workshop was conducted by Prof. Manisha Mane from Electronics department.

- The workshop started with the basics of MATLAB and then the speaker highlighted the use of MATLAB and its applications. The workshop covered different mathematical functions and user defined functions.

- Participants enjoyed hands on experience on array operations and then the session ended with the importance of Simulink in the design of systems. So participants understood the importance of MATLAB in academics.

EVENTS & WORKSHOPS

2) ISTE SAKEC

- ISTE SAKEC in collaboration with Department of Electronics Engineering had organized a hands-on workshop on Arduino on 19th September 2018 from 1 pm onwards in lab 103.The workshop was conducted by Prof. Shubhangi Motewar and Prof. Madhura Pednekar. The speakers gave extensive knowledge of Arduino to the participants during the entirety of the workshop.

- A numbers of topics were covered during the workshop. At the start of the workshop basic electronics theories were taught. Then the installation of Arduino was shown. Different Arduino programs were explained. The participants were given a chance to experiment Arduino modules and shields. At the end of workshop they were able to program basic Arduino projects, test different modules, sensors and breakout boards. They were also able to work with LCD, ultrasonic range finder, real time clock, thermister, temperature sensor, buzzer, RGB LED, etc. Now participants will be able to continue learning Arduino on their own.

- The session ended with a thanksgiving note by Saloni Madlani and students left the lab motivated due to the knowledgeable workshop.

3) ACM SAKEC

- Electronics Engineering Department in collaboration with SAKEC ACM Student Chapter, organized "Relational Model Redesign" workshop on 29th September 2018 that took place in 4th Floor Seminar Hall. It was a one day event and covered various topics related to Database redesigning.

- The event was attended by 31 participants from third year electronics department of SAKEC. The speaker taught 1NF (1st Normalization Form), How to detect if the data is in first Normalization Form and if it is not in first Normalization Form how to make it into one.

- The next topic covered was of 2NF (2nd Normalization Form) in this what are the necessary criteria for data to be in 2NF and how it can be converted into one were taught. Similarly, 3NF (3rd Normalization Form) and BCNF (Boyce Code Normal Form) were also taught to the participants.

- The students were divided into Two teams and the team that answered the questions asked by speaker got points, this made the session interactive and more interesting.

- The students were greatly benefited by various Normalization Forms taught to them in a very interactive manner. The response and engagement during the event from the participants showed that they fully understood the topics taught to them.

4) IEEE SAKEC

- IEEE SAKEC in association with Electronics Department had organized a Hands-on-Workshop on Introduction to Latex .The workshop was conducted on 3rd October, 2018 from 1pm to 3pm in lab 612, 613, 614.

- The speaker for the event was Prof. Namrata Manglani. Latex is a document preparation system. Latex is a high-quality type setting system; it includes features designed for the production of technical and scientific documentation. Latex is available as free software.

- The workshop primarily meant for all researches in various discipline. Any researchers need to bring out the quality of research work by publisher his or her papers in peer reviewed journals. Most of the peer reviewed journals require the paper to be submitted in Latex format. Latex provides a facility for portable document format (pdf) and post script (ps) type of output. The main objective of the workshop was to make the participants aware about Latex.

DEPARTMENTAL EVENTS

FDP

"Introduction to Photoshop"

- A faculty development programme on "Introduction to Photoshop" was held on 29th September 2018 and 6th October 2018 by Department of Electronics Engineering in association with IEEE-SAKEC.
- Speaker of the event was Prof. Seema Kawale, Assistant Professor, EXTC Department, SAKEC. Topics covered were Photoshop hands on training and making banners, certificates using Photoshop.
- The event was a great success with gained knowledge and training in Photoshop.
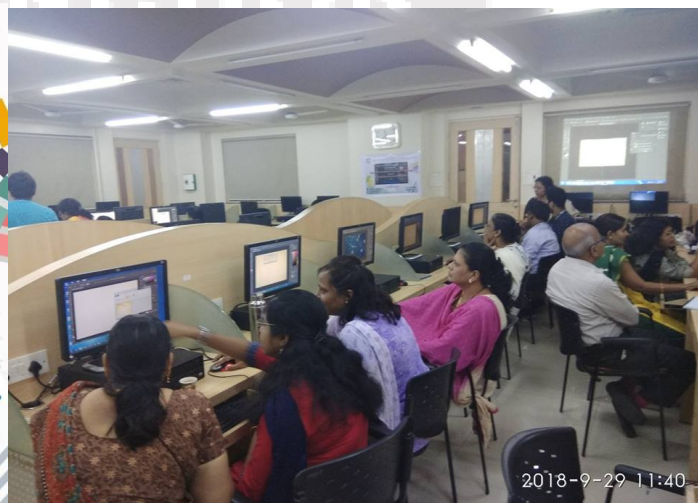
DEPARTMENTAL EVENTS
FDP
"Machine Learning"

- The Department of **Electronics Engineering** organized FDP on Machine Learning.

- It was held on 2nd and 16th March, 2019. The Speaker for the FDP was Dr. Sunil Surve, Prof. Dipali Koshti and Prof. Supriya Kamoji.

W O R K S H O P S
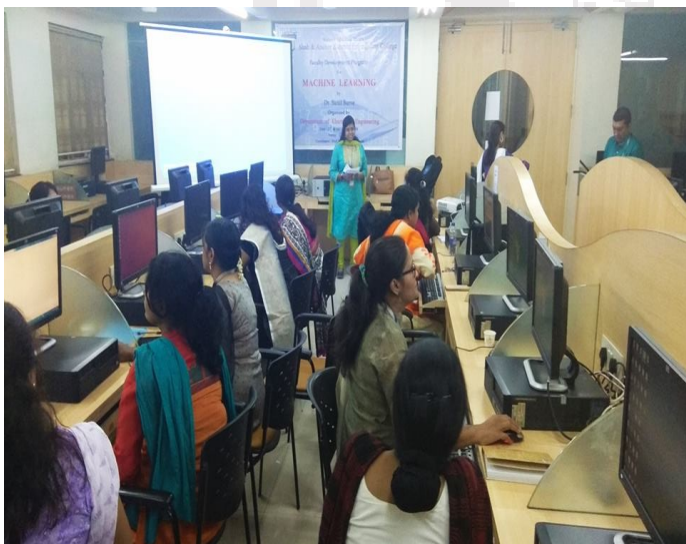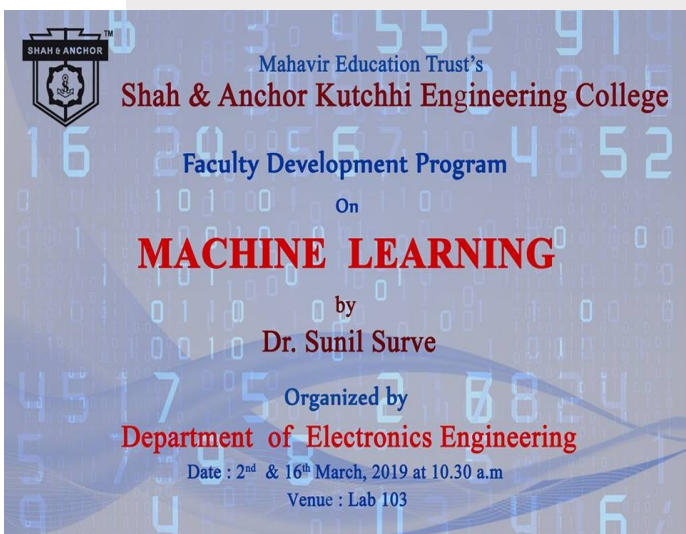
DEPARTMENTAL EVENTS
Industrial Visit
"CSMT Railway Yard"

- **ISTE SAKEC** in collaboration with Department of Electronics Engineering had organized an industrial visit to Chhatrapati Shivaji Maharaj Terminus on 15th March,2019.The visit was conducted by Prof. Asha Durafe, Prof. Manisha Mane and Mrs. Vishakha Mali who works at the control office.

- The students were showed into the control room of the **Mumbai Local**. They were explained the working and the network by which the railway operates. The trains were tracked on a big screen in an observation room. It was also explained to the students, by Mrs. Vishakha Mali, how the servers gathered data using the magnetic field generated by the trains.

- The professors correlated what students saw with what they had learnt. The industrial visit was very motivating and eye opening for the students as they saw the practical applications of what they study.

DEPARTMENTAL EVENTS
Industrial Visit
"Tata centre for Technology and Design"

"**Department of Electronics Engineering**" in collaboration with "**ISTE SAKEC** Student Chapter" organized the Industrial Visit at "**Tata centre for Technology and Design, IIT** Mumbai " on "Wednesday 20th March 2019".The visit was conducted by Prof. Shubhangi Motewar, Prof. Manjusha Kulkarni and Prof. Aparajita Bera. SAKEC alumni, **Mr. Zubin Savla** is a **Project Research Engineer** at Tata centre for Technology and Design, IIT Mumbai. Mr. Zubin Savla gave information about 3D printer, Cutting tools, PCB design etc.

DEPARTMENTAL EVENTS

Internship
"System and Network Administration"

- Department of **Electronics** in association with **E-Cell SAKEC** Successfully Conducted an Internship program on **"System and Network Administration"** from 20th December 2018 to 29th December 2018. This internship program aimed at giving Hands On training to the students.
- Students were given opportunity to learn and do system administration and work on live project. On successful completion, the participants were awarded with an Internship certificate.
- Tasks completed are:
  - • PC formatting • Partitioning of Hard disk • Configuring antivirus and firewall
  - • Configuring server • Setting up and repairing of peripheral devices • Setting up LAN
  - • Handling and repairing of peripheral devices such as signal generator, power supply, DSO & CRO.
- The event was coordinated by Prof. Asha Durafe, Prof. Manisha Mane and Prof. Madhura Pednekar. Six students are shortlisted for the industry internships starting from 31st December 2018 .
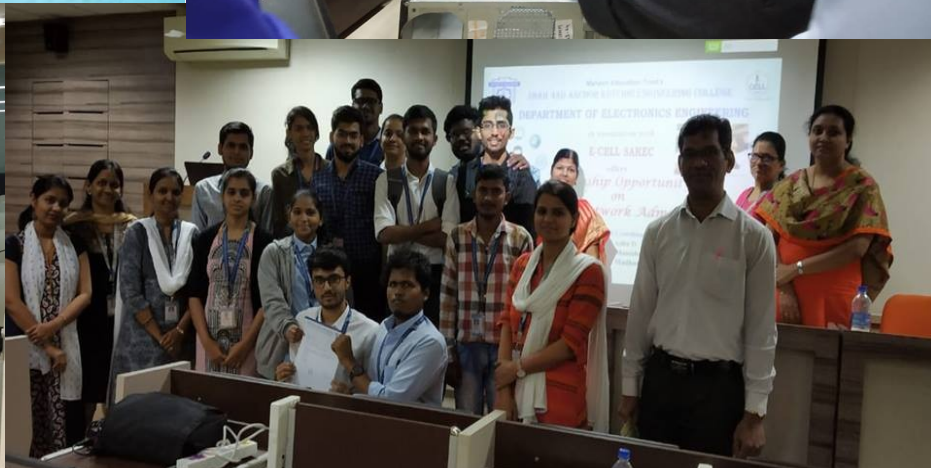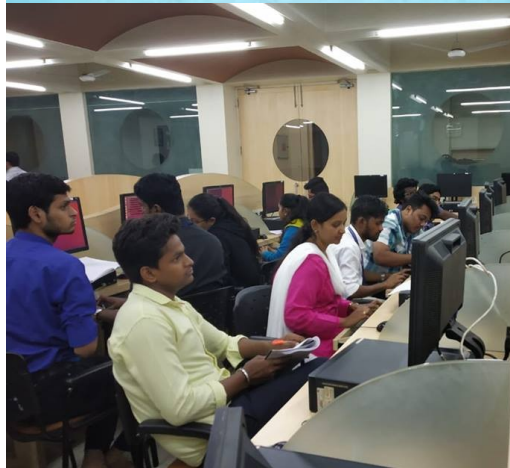
BEST PROJECTS

STREET LIGHT AUTOMATION USING LORA WAN

RAHUL PANDA (BE-ELECTRONICS)

LORA WAN:-

Lora WAN is the communication protocol and system architecture for the network while LoRa is the physical radio layer enabling the long-range communication link. The Lora WAN protocol and network architecture directly influence the battery lifetime of a node, network capacity, quality of service, security, and the variety of applications served by the network. LoRa is the technology that modulates the data into electromagnetic waves. It uses a transmission method called "Chirp Spread Spectrum," encoding data in frequency-modulated "chirps." This transmission method has been used in military and space communication for decades.

LORA WAN Architecture:-

Lora WAN defines the communication protocol and the system architecture, while Lora defines the physical layer. Here is typical system architecture of a Lora WAN node.

Application		
LoRa MAC		
MAC Options		
Class A	Class B	Class C
LoRa Modulation		
Regional ISM Band		

LORA WAN network architecture:-
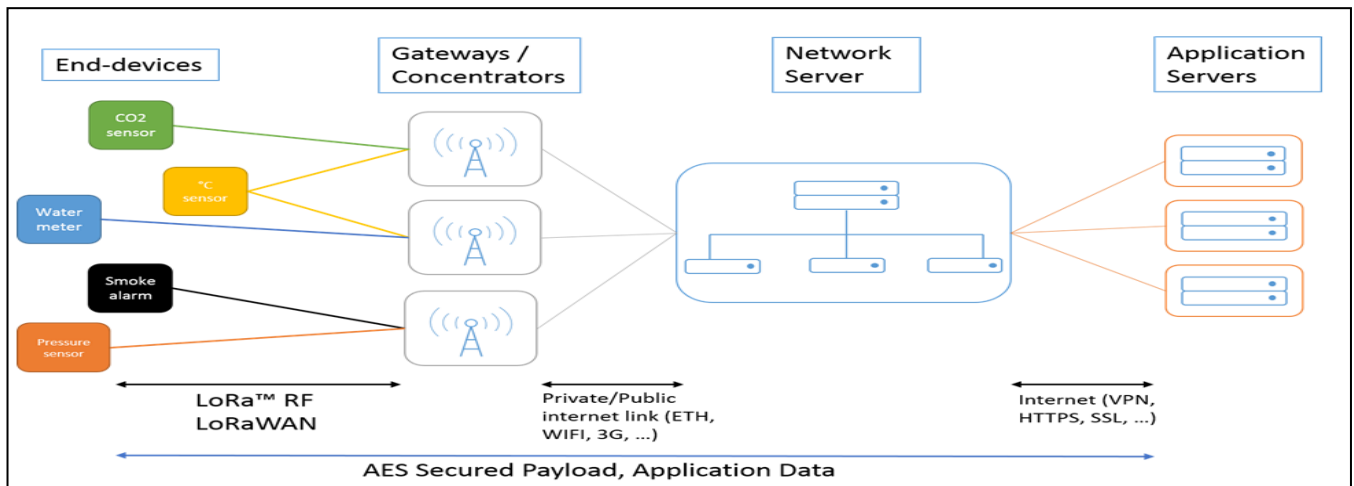
Lora network consists of several elements:-

LoRa Nodes / End Points: These nodes are often placed remotely. Examples: sensors, tracking devices, etc. **LoRa Gateways:** The data transmitted by the node is sent to all gateways and each gateway which receives a signal transmits it to a cloud based network server. Gateways and network servers are connected via some backhaul (Cellular, Wi-Fi, Ethernet or Satellite). **Network Servers:** The networks server has all the intelligence. It filters the duplicate packets from different gateways, does security check, send ACKs to the gateways. In the end if a packet is intended for an application server, the network server sends the packet to the specific application server.

Conclusion:-

The Lora devices and wireless radio frequency technology (Lora Technology) is a long range, low power wireless platform that has become the de facto technology for Internet of Things (IoT) networks worldwide. The Lora technology satisfies important IoT needs that are Long Range, Low Power, Secure, Geolocation, High Capacity and long life battery. It is clear that Lora wireless technology is going to play a big role in the IoT market. Interconnecting devices to create smart cities, industrial and commercial solutions, while reducing the limitations from other wireless technologies such as power and other overheads.

BEST PROJECTS

WIRELESS LAMP

ROHAN KADAM, KAVISH JAIN
(TE-ELECTRONICS)

BLOCK DIAGRAM

| BLUETOOTH MODULE | → | ARDUINO | → | LED |
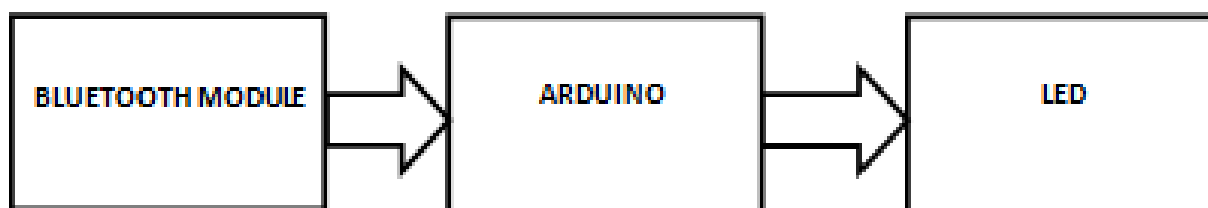
Working :

There are three main parts to this project. An Android Smartphone, a Bluetooth transceiver, and Arduino. Bluetooth module works on serial communication. The Android app is designed to send serial data to the Arduino Bluetooth module. When a button is pressed on the app, the Arduino Bluetooth module at the other end receives the data and sends it to the Arduino through the TX pin of the Bluetooth module (connected to RX pin of Arduino). The code uploaded to the Arduino checks the received data and compares it. If the received data is 1, the LED turns ON. The LED turns OFF when the received data is 0. You can also open the serial monitor and watch the received data while connecting.

DASHBOARD OR CONTROL PANEL
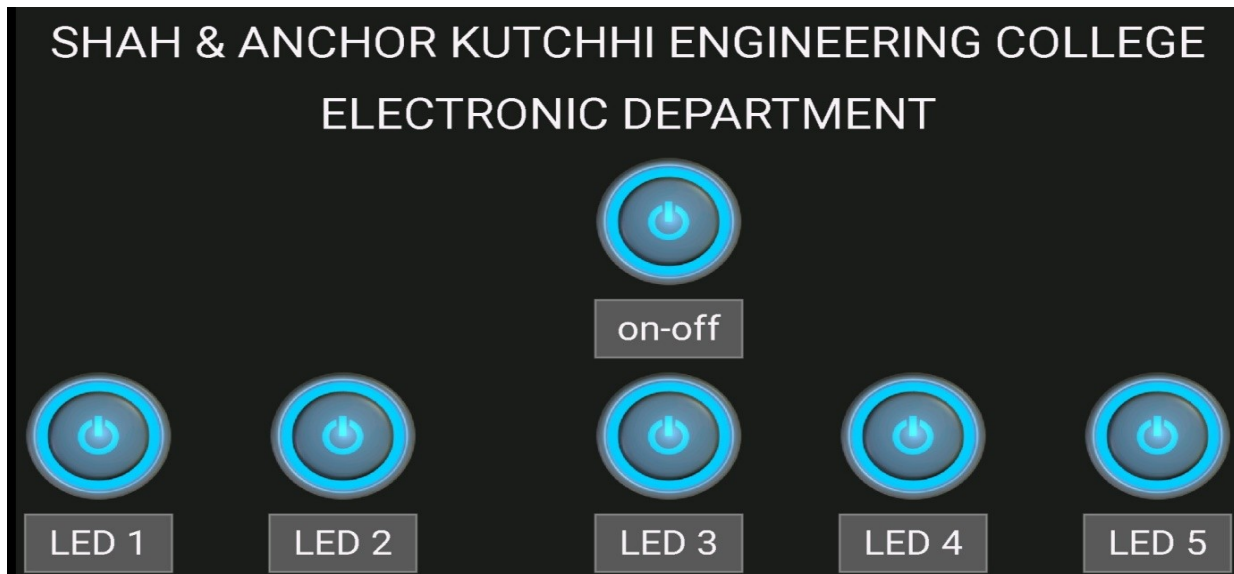
If press led 1 its received data is 1, the LED turns ON. The LED turns OFF its received data is 0. Like this way all led getting operated.

ACHIEVEMENTS

- # STAFF ACHIVEMENTS

Prof. Subha Subramaniam, Associate Professor, Electronics Engineering Department, has completed her degree of **Doctor of Philosophy** (Technology) in Electronics Engineering at the open defense held on 9th October, 2018 from Veermata Jijabai Technological Institute (VJTI), Matunga, Mumbai.

Prof. Priyanka Singh obtained 82.5% in JAVA and **75.5%** in CPP at the **Spoken Tutorials** Examination.

Prof Sarika Bukkwar has Successfully Completed the NPTEL Online Certification Course **'Database Management System'** with a consolidate marks of **89** and hence achieved **Elite** certificate with top 2%.

ACHIEVEMENTS

Prof. Madhura Amey Pednekar has successfully completed the NPTEL Online Certification Course **'Introduction to Programming in C'** having a Final Score of 46.

Prof. Deepak Mishra has successfully completed the NPTEL Online Certification Course **'Principles of Signals and Systems'** having a Final Score of 84 with **Elite** Certificate.

Prof. Asha Durafe has successfully completed the NPTEL Online Certification Course **'Cryptography and Network Security'** having a Final Score of 55.

Congratulations, **Prof. Asha Durafe** for receiving university's Minor Research Grant. For proposal Titled "**A Novel Approach in Data Hiding and Information Security System**"

Prof. Nibha Desai has successfully completed the NPTEL Online Certification Course **'Hardware Modeling using Verilog'** having a Final Score of 53.

Prof. Aparajita Bera has successfully completed the NPTEL Online Certification Course **'Microwave Theory and Techniques'** having a Final Score of 68 with **Elite** Certificate.

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Prof. Manjusha Kulkarni has successfully completed the NPTEL Online Certification Course **'Digital Circuits'** having a Final Score of 80 with **Elite** Certificate.

Prof. Rameshwari Mane has successfully completed the NPTEL Online Certification Course **'Digital circuits'** having a Final Score of 91 and hence achieved **Elite Gold** certificate with top 1%.

Prof. Salabha Jacob has successfully completed the NPTEL Online Certification Course **'Digital Image Processing'** with a consolidate marks of 83 with **Elite** Certificate.

Prof. Udayan Kamble has successfully completed the NPTEL Online Certification Courses **'Discrete Mathematics'** with a consolidate marks of 63 and **'The Joy of Computing using Python'** with a consolidate marks of 75. Both the Certificates are of Type **Elite.**

A C H I E V E M E N T S

• **Non Technical Prizes**

- One among the Top 10 in Times of India, Write India competition Season 1.

- Four times winner of the AmWriting Contest and Six times winner of the 100Word Story Contest organized by the blogging site Momspresso.

- Winner of Muse of the Month Contest for March 2019, organized by Women's Web Forum.

- Winner of BananiVista Short Story Contest.

- Second Prize winner of the Mother's Day Contest organized by Extramiles.

- Have published five stories in different anthologies available on Amazon.

ACHIEVEMENTS

Books Published

Prof . Shikha Shrivastva published following books.
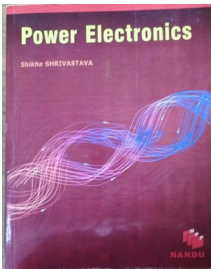
1. Power Electronics
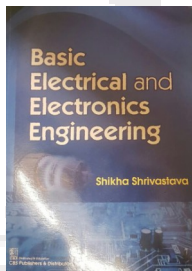
2. Basic Electrical and Electronics Engineering
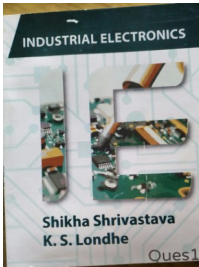
3. Industrial Electronics
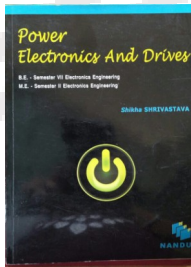
4. Power Electronics And Drives

STUDENT ACHIEVEMENT

ACHIEVEMENTS

Sunil Nanda Sala, TE-Electronics Engineering has successfully completed the NPTEL Online Certification Course **'Information of Internet of Things'** having a Final Score of 82. Certificate Type **'Elite'** and also in the Course **'Database Management System'** having a Final Score of 71. Certificate Type **'Elite'.**

Rahul Adinath Jagtap, SE-Electronics Engineering has successfully completed the NPTEL Online Certification Course **'Switching Circuts and Logic Design'** having a Final Score of 70. Certificate Type **'Elite'.**
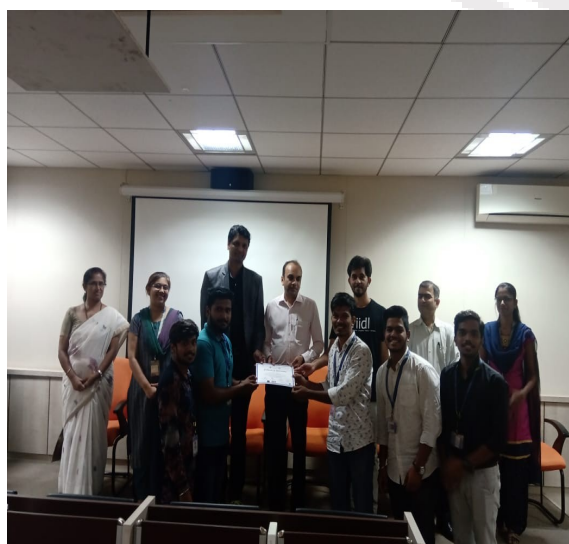
We Congratulate **Rohan Kadam, Kavish Jain, Krushikesh Wagavkar & Kiran Lokare** to get the **2nd Runner Up** in the "**SAKEC CONNECT**" organized by SAKEC ACM Student Chapter in Collaboration with Computer Engineering Department on 29th & 30th March, 2019.

Congratulations to Darshan Sapkale of TE electronics completed following courses on digital marketing

1.Google analytics for Beginners
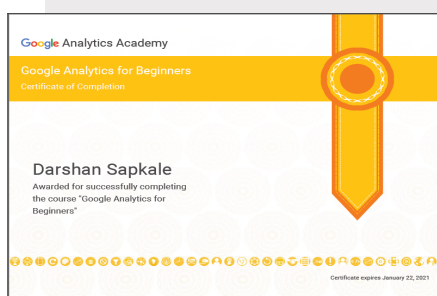
2.Digital marketing's SEMrush SEO toolkit Exam

3. Digital marketing's technical SEO exam

Achivements
b**e**yond **a**cademics
THE BIG DATA SUMMIT 2018

We congratulate two teams of **Electronics Engineering** Department who were selected for the **BIG IDEA SUMMIT 2018 EXPO**. One team showcased the Set Up Vehicle Identification and Parking Allotment System, guided by Prof. Salabha Jacob and the members were Akshay Darji, Abhishek Ganatra, Akshay Divakaran and Somaji Pawar.

The second team showcased the 3-Axis CNC Machine, guided by Prof. Sarika Bukkawar and the members were Rakesh Alagarswamy, Rushikesh Naik, Amrita Dangat and Vinay Bhalekar. The summit was held on 22nd December 2018 at Ghatkopar, Mumbai.

AVISHKHAR RESEARCH CONVENTION 2019

ACHIEVEMENTS

We congratulate Rakesh Alagarswamy, Rushikesh Naik, Amrita Dangat and Vinay Bhalekar of **SAKEC** for participating and presenting a Research Project Titled 3-Axis CNC Machine in Engineering and Technology Category and UG Level at the **Final Round** (University Level) of 13th Inter Collegiate Avishkar Research Convention: 2018-19 held at K. J. Somaiya Institute of Engineering and Information Technology, Sion (E), Mumbai on 2nd January, 2019.

TEST BEFORE TASTE WITH ROTI BANK

In Collaboration with: Roti Bank Mumbai

Objectives of the Project:

- We are using sensors to test the quality of food.

- To overcome challenges of developing a standard of food freshness for fulfilling social responsibility.

Overview of the Project:

The initiative, called '**Roti Bank**', collects leftovers from restaurants, clubs and parties in Mumbai, stores it in vans and distributes it to the poor before the food gets stale. We at **Shah & Anchor Kutchhi Engineering College** are using sensors to test the quality of food for the **Roti bank Mumbai**. Roti bank's (NGO) current safety measure to check the quality of food depends on human judgement. The proposed technology will help to set a standard of food frocoreshness. This device will consist of an Arduino Uno microcontroller on which sensors will be implemented which will check the various factor related to the food quality.

TEAM

Prof. Nibha Desai
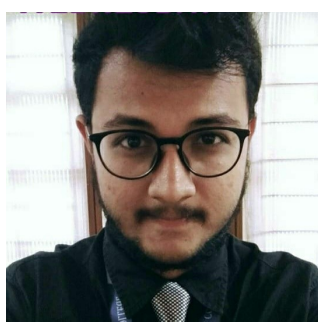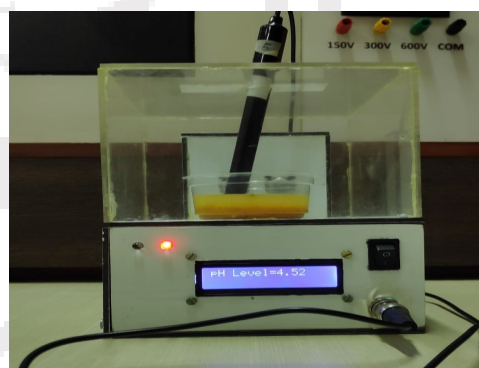
Dhanesh Mistry

Urvi Bhimani

Chinmay Yadav

Yash Singh

SAKEC
Student Council

Our department students ful work in are part of SAKEC student council and have done wonderful work in SAKEC **"Pratistha-2019".** Their hard work, management skills, dedication, coordination and team spirit are well appreciated by our Principal Dr. Bhavesh Patel.

They were the key members of SAKEC student council who brought Pratishtha to each heights in 2019.

Gaurav Rai - Onstage Head

Abhishek Ganatra - Offstage Head

Sakshi Parab - Treasurer

Pawan Pandey - Onstage Co-Ordinator

Dilpreet Kaur - Ladies Representative

Amogh Angre - Paparazzi Co-Head

SAKEC STUDENT COUNCIL

ACHIEVEMENTS

Chinamy Yadav - Logistics Head

Soham Agrawal - Infra Head
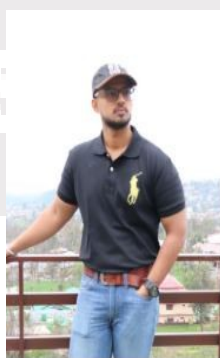
Yash Singh - Security Head

Shivam Chaube - Technical Co-Head

Shikhar Jain - Athletics Co-Ordinator

Usham Singh - Athletics Co-Ordinator

Nilesh Gaonkar - Publicity Co-Head

Our department students have participated in spoken tutorial exam and have secured good marks. We are proud to list the toppers of the spoken tutorial exam here.

Class	Exam	Date of Exam	Total Appeared	Passed	% of Passing	Toppers
FE-1	C	13/03/2019	12	10	83.33	• Forum Damania (62.5 %) • Shlok Shah (62.5 %)
SE-1	ARDUINO	13/03/2019	28	27	96.42	• Rahul Jagtap (92.5 %) • Pratik Barot (90 %) • Sunny Mishra (90 %) • Arpan Kumath (90 %)
TE-1	JAVA	29/08/2018	20	11	55	• Riddhesh Patade (60 %) • Amit Bhosale (57.50 %)
TE-2	JAVA	29/08/2018	19	16	84.21	• Vrushank Shah (72.50 %) • Jimisha Surti (65.42 %)
BE-1	PYTHON	29/08/2018	21	17	80.95	• Ankit Vaity (75 %) • Sushant Awale (69.70 %)
BE-2	PYTHON	29/08/2018	12	08	66.66	• Aditya Aurobindo (65 %) • Deep Patel (53 %)

RESULT ANALYSIS

ELECTRONICS ENGINEERING DEPARTMENT

BE SEM VII

SUBJECT	Total Appeared	Total Passed	% Passed
Digital Image Processing	150	132	88
Embedded System Design	150	140	93.33
IC Technology	148	139	93.91
Power Electronics	149	137	91.94
Computer Communication Networks	151	142	94
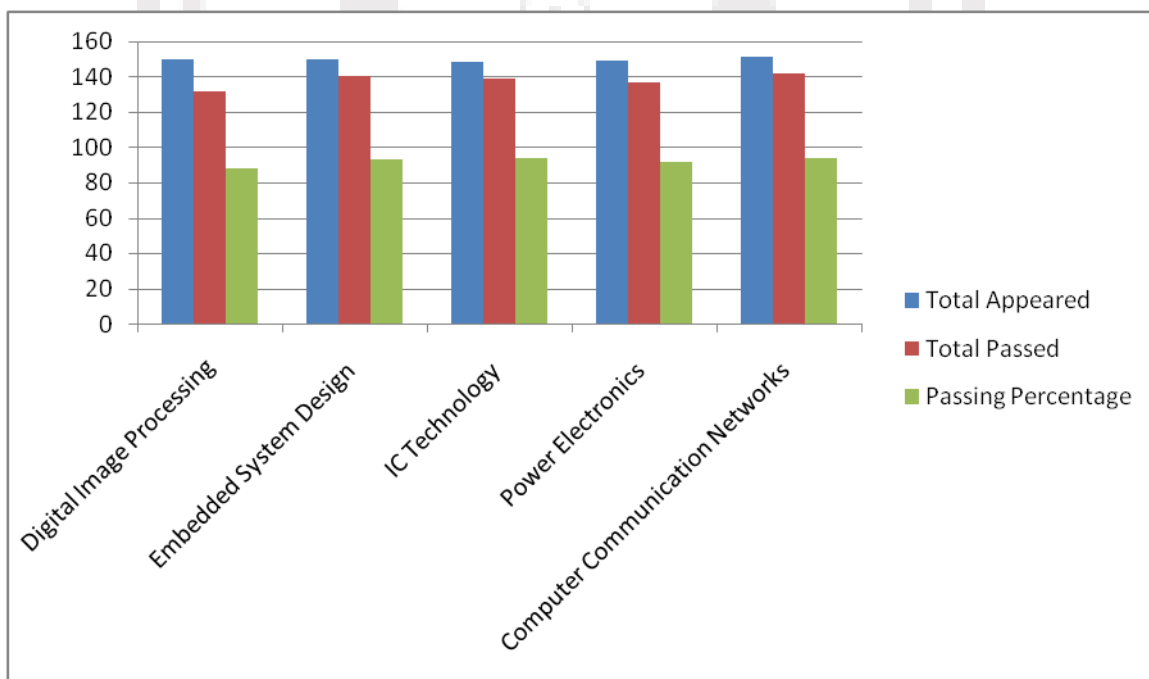
BE SEM VIII

SUBJECT	Total Appeared	Total Passed	% Passed
CMOS VLSI Design	121	115	95.04
MEMS	114	110	96.49
Robotics	25	23	92
Mobile Communication	95	93	97.89
Advance Networking Technologies	118	116	98.32
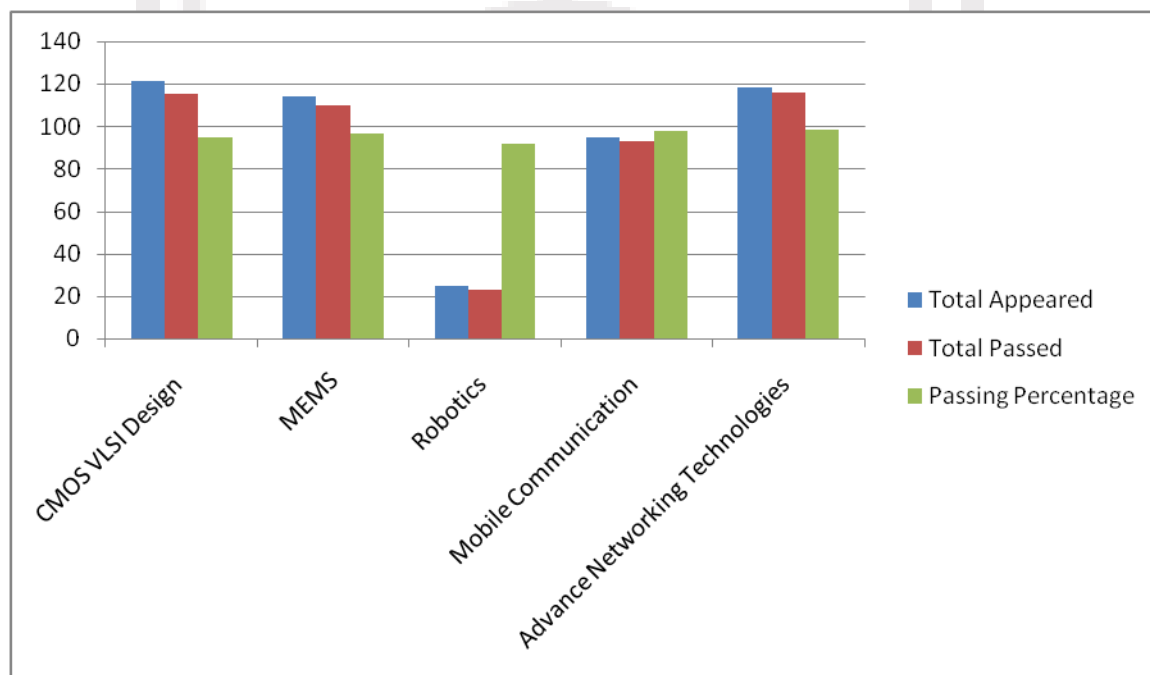
Branch Toppers

ELECTRONICS ENGINEERING DEPARTMENT
TOPPERS (May 2018)

Shukala Arvind

BE - Sem VIII

CGPI– 9.02
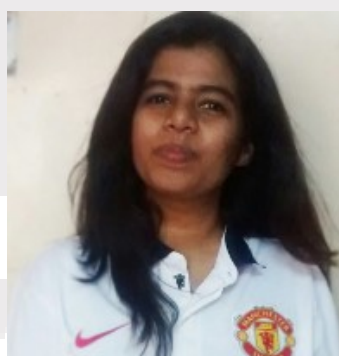
Dyanada Parab

BE- Sem VIII

CGPI - 8.55

Sameer Enjapuri

BE - Sem VIII

CGPI - 8.55

Tanvi H. Jogalekar

TE- Sem VI

CGPI - 9.70

Sneha B. Dornala

TE - Sem VI

CGPI - 9

ELECTRONICS ENGINEERING DEPARTMENT TOPPERS (May 2018)

B R A N C H T O P P E R S

Kanchan R. Jha

SE - SemIV

CGPI - 9.31

Sara Patil

SE - Sem IV

CGPI - 8.21

Aiyoob B. Mohammad

SE - Sem IV

CGPI - 8.21

SUBJECT TOPPERS

May 2018

SE SEM IV

Subject	Name of the student	Marks Obtained Out of 100
Electronic Devices And Circuits-II	Kanchan Jha	95
Microprocessors And Applications	Kanchan Jha	84
Digital System Design	Kanchan Jha	82
Principles of Communication Engineering	Kanchan Jha	91
Linear Control systems	Kanchan Jha	91
Applied Mathematics-IV	Narayan Bhaip	74

TE SEM VI

Subject	Name of the student	Marks Obtained Out of 100
Computer Organization	Sahil Nemane	81
Advanced Instrumentation systems	Awale Sushant	84
Power electronics-I	Sarita Verma	98
Basics of VLSI Design	Sarita Verma	87
Digital Signal Processing	Tanvi Joglekar	90
MITM	Awale sushant	41/50

BE SEM VIII

Subject	Name of the student	Marks Obtained Out of 100
CMOS VLSI Design	Dnyanada Parab	89
MEMS	Nishigandha Prasad	89
Advanced Networking Technologies	Ronak Tiwari	92
Mobile Communication	Arvind Shukla	85
Robotics	Dyanada Parab	85

SUBJECT TOPPERS

Dec 2018

SE SEM III

Subject	Name of the student	Marks Obtained Out of 80
Applied Mathematics -III	Sara Shaikh	66
Electronic Devices - I	Juilee Kotnis	73
Digital Circuit Design	Rahul Jagtap	73
Electrical Network analysis and Synthesis	Sara Shaikh	73
Electronic Instrumentation and Measurement	Juilee Kotnis	70

TE SEM V

Subject	Name of the student	Marks Obtained Out of 80
Microcontrollers and Applications	Mohammad Aiyoob	59
Linear Integrated Systems	Mohammad Aiyoob	71
Engineering Electromagnetics	Sonali Pawar	58
Database Management Systems	Gauri Rawle	55
Digital Communication	Ritika Desai	54

BE SEM VII

Subject	Name of the student	Marks Obtained Out of 100
Embedded System Design	Sarita Verma	68
IC Technology	Aditya Moghe	79
Power Electronics - II	Arushi Yadav	78
Computer Communication Networks	Sushant Awale	75
Digital Image Processing	Shubham Parab	83

Creativity Corner

1. PAINTINGS & SKETCHES

By Purva Desai, TE ETRX   By Rahul Panda, BE

2. PHOTOGRAPHY
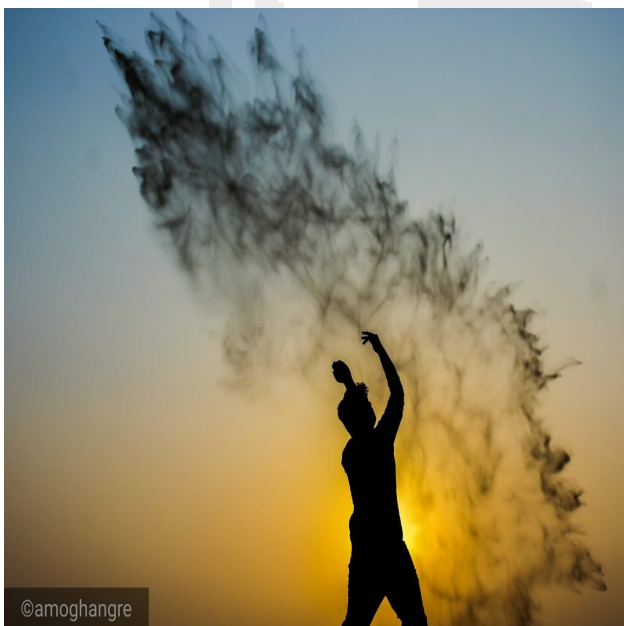
By Amogh Angre, BE ETRX

By Abhisekh Bobale, TE ETRX

By Rushikesh Palande, TE ETRX

By Manthan Shah, TE

Prof. Preethi S Warrier

Assistant Professor

ETRX

Delighted in Defeat

I read my name on the notice board, he was not the top scorer anymore. I walked up to his office, he knew for sure, but I had to break the news myself.

His eyes lit up as I opened the door.

He embraced me, "This college has given me my degree, my job. It was time to repay them, I am glad I could give them 'YOU' ."

My eyes welled up as I realized, that one person who takes pride in being defeated by you is ,

'Your Teacher.'

Preethi Warrier

Prof Preethi Warrier was placed as one of the winners of **Momspresso** Teacher's Day Contest for this Microfiction.

STUDENT ARTICLE

Anushka kashyap

TE ETRX

"

GUDIYA KI KAHANI

Panch saal ki nanhi Gudiya Jab Khelti thi Galiyaro mein,

Gunj uthati thi har diware uski hi kilkariyo mein,

Subah School jati,Bhari dopehar ko vo aati,

shyam ko khelne jati,7-8 baje tak vo ghar aati!!!

Kabhi natkat pari bankar masti vo karti,

Kabhi bholi si surat banakar sabka dil vo jeet leti,

Jisko Maths Homework se tha dar lagta,

hua uske saath isaaniyat ko gali dene wala ye hadsa

Jo rukti thi na kisike rukane se,

thamti thi na thamne se,

Aaj Hospital lati hai,uthati hi nahi uthane se!

jhime dar manu ek ko ya anek ko,

mano galti uss inyaan ko ya uski ghatiya soch ko

Sawal Phir Mera unn logo se,

Jo mante hai ladki ke kapdo ko jimedaar inn hadso ke liye,

kya panch saal ki bacchi ko band karde hum kamre mein,

Ya bheje hum ab unhe bhi bahar sang ghughat ya barkhe ke!!!"

EasyEDA:

https://easyeda.com/

Its a free online web based tool that allows you to create schematics, design PCBs and generate simulations of your desired circuit. You can share your designs on their online forum , as well as download designs made by other users for free. Also, due to this huge online community, the website is timely updated with newer schematics developed by various users.

Useful websites!

Electronics For You:

http://electronicsforu.com/

This is one of best Electronics Magazine in India. You can either subscribe to this or visit your college library to read a copy. This website contains all the details related to the projects published in their magazine along with PCB Files, Circuit Diagrams and Schematics, Tech News Articles, slideshows and different downloadable eBooks.

Circuit Digest:

https://circuitdigest.com/

Want to build interesting projects? Don't know what to build or how to build?
Circuit Digest, is what you're looking for. This website is solely dedicated to project guides and tutorials.
8051, AVR, PIC, Arduino, Raspberry Pi under Microcontrollers , along with many other discrete electronics based projects.