



Universal College of Engineering

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Gujarati Linguistic Minority Institution

Accredited with **B+ Grade**
in 1st cycle of accreditation by



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NATIONAL ASSESSMENT AND
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CURRENT

WAVES

AN INITIATIVE BY EXTC DEPARTMENT

MAGAZINE

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Electronix quotes



Technology has to be invented or adopted.

-Jared Diamond

Technology... is a queer thing. It brings you great gifts with one hand, and it stabs you in the back with the other.

-Carrie Snow

Technology is anything that wasn't around when you were born.

-Alan Kay

Programs must be written for people to read, and only incidentally for machines to execute.

-Harold Abelson

Technology is teaching us to be human again.

-Simon Mainwaring

Technology is the campfire around which we tell our stories.

-Laurie Anderson

TOP 5 TRENDS IN THE ELECTRONICS INDUSTRY

Since the time the “electronic revolution” hit the telecommunication industry, the competition in the field has exponentially increased leading to furious investment and innovation, helping to give rise to the digital economy. The digital economy supported the development of many electronic appliances such as smart phones, watches, TVs, refrigerators, security systems, and of course, environmentally friendly electric vehicles.

According to the latest report Electrical and Electronic Manufacturing Market Briefing 2017 from The Business Research Company (TBRC), the global electrical and electronics manufacturing market is expected to reach \$3 trillion by 2020, with Asia Pacific as the largest market by geographic region and China the biggest market by country. India is expected to grow at a heady 16.8% growth rate. Apart from providing market segmentation and growth by region and by country, the report also covers the top five trends in the electronics industry in the coming five-year forecast period.

1. Product Design Outsourcing

Original Equipment Manufacturers (OEMs) are increasingly moving product design and development processes to Electronic Manufacturing Service (EMS) partners. Product design, a part of the specialized design services market which is expected to reach \$157 billion in 2020 according to TBRC, is being outsourced to reduce overall costs and shift from fixed costs to variable costs.

EMS companies are offering more design services for sub-assemblies and finished products. OEMs are collaborating with EMS partners and moving into new models such as joint design manufacturing (JDM) and outsourced design manufacturing (ODM).

2. Virtual Reality in Electronic Manufacturing

Virtual reality technology is being adopted by electronic manufacturing companies to improve manufacturing efficiency. This technology in the electronic manufacturing industry is often referred to as digital design, simulation, and integration. Virtual reality technology enables companies to inspect design objects at all conceivable scales, thereby eliminating defects in the product in the design stage. Taking into account the growth rate of electronic equipment market globally, which is 5.2% according to TBRC, virtual reality has a big implementation scope in the forecast period.

3. Robotics and Automation

Many electronic equipment companies are using robotics and automation to improve plant efficiency and productivity. Sensors are being used in various machines to access invaluable data for improving efficiencies and reducing potential breakdowns. For instance, according to a report by Boston Consulting Group (BCG) in 2016, 1.2 million industrial robots are expected to be deployed by 2025, while the electronic equipment is expected to reach \$2.1 trillion by 2020 according to TBRC, thus indicating a rise in automation and robotics technology adoption to improve productivity and reduce production costs.

4. IoT Technology Driving Smart Household Appliances

Household appliance manufacturers are integrating their products with the IoT technology to make customers lives comfortable and convenient. Internet of Things technology is the interconnectivity of physical objects and devices that are integrated with sensors and software that allow them to exchange and collect data. Major technologies enabling smart household appliances include Wi-Fi, Bluetooth Low Energy, micro server and micro-electromechanical systems.

For instance, LG has created homechat, an app that enables the user to monitor their refrigerators, cookers, washing machines, and other devices from anywhere through their smart phones. The homechat technology was introduced by LG initially in South Korea and is moving to other global markets gradually.

According to report by IHS, the global smart connected electronics shipments is estimated to reach over 223 million by 2020, while the overall market of household appliances is expected to hit \$471 million according to TBRC.

5. Growing Demand for Smart TVs

The demand for smart TVs is being driven by the rising consumer preference for built-in smart functions in personal devices, and increasing internet penetration. A smart TV combines the features of televisions and computers, and comprises a television set with integrated functions for internet use. Smart TV users are also offered direct access to streaming services such as Netflix and Amazon Prime Instant Video.

To capitalize on this trend, television manufacturers across the world are entering the smart TV market. According to the IHS Technology report, 48.5% of televisions shipped globally were smart TVs, and the number is estimated to reach 134 million by 2020, while the audio and video equipment manufacturing market is forecast to reach \$351 billion according to TBRC.

DEPARTMENT ACTIVITIES

VISIT TO AUTOMATION EXPO 2019

28 September' 2019

Faculty Coordinate: 1) Kapil Gavali, 2) Sonal Borse, 3) Sandeep Dubey

EVENT DATE: 25th, 26th, 27th, 28th September, 2019

EVENT VENUE: HALL NOS. 1&2 BCEC, GOREGAON (E) Hall no 1 & 2, MUMBAI

TIMING: 10AM TO 6PM

Automated production has been generally accepted as reliable, efficient, transparent and predictable provided it is integrated end-to-end. This is the expectation of industrial automation, which is a core component of the Industrial Internet of Things (IoT) and manufacturing automation has become a popular process. AI (artificial intelligence) and remote communication, obsolescence is likely to creep into this practice in coming years. This is predominantly because opportunities are being created for manufacturers, worldwide through a number of new technologies.

It is quite natural and likely that when asked to identify and list such relatively nascent and related impacting technologies, related professionals will come out with a number of different items. These could include for example Edge Computing, Digital Twins, Augmented Reality, Breaking Moore's Law, Automating Engineering Insights with Machine Learning, etc, and therefore dissimilar lists. In such a prevailing context, it is interesting to see what international market research agencies identify as the ones having the highest impact, particularly in the geography we are located in. Among them, one such international market research company by name Technavio has released a new report identifying the top three biggest trends to influence the industrial automation control market, up to year 2020 as the following:

1. Cloud-based supervisory control and data acquisition (SCADA) systems.
2. Increased use of analytics.
3. Growing use of programmable automation controllers (PACs)

Our students Chinmay Paranganat, Arsh Gopani, Sakshi Lembhe, Eram Jahangeer were representing ISA Maharashtra section stall on the topic “Intelligence Simplified with Futuristic Automation” in the Automation Expo2019.

ISA Maharashtra Section PPPA MEET-2020

ISA **ISA Maharashtra Section - Announces**
Power, Petroleum and Process Automation Meet 2020

Maharashtra Section

“Intelligence Simplified with Futuristic Automation”



Date: 7th^{to} 8th February 2020
Venue –Hotel Taj Santacruz, Mumbai, India



Our pass-out student Mr. Bhavesh Chavda working in Sun Terrain Eco Power Pvt. Ltd was representing his company at the Automation Expo 2019. The equipments such as Routers, Camera, ONT/ONU, Set-up box etc. for defense, domestic, commercial, industrial were displayed in this Automation Expo 2019.



Faculties Sandeep Dubey, Kapil Gavali and Sonal Borse took rounds with students to show the various products in the market so that they can implement these new technologies in their academic projects. There were various categories like: Process Automation and Control, Factory Automation, Industrial Automation, Electric Automation, Automation in Renewable Energy, Robotics and Building Automation.



ROBOTICS WORKSHOP

Session: Robotics Workshop

Session Date: 28' August 2019

Faculty Coordinator: Kaveri Sawant, Sushil Dubey

The faculty coordinator Kaveri Sawant, Sushil Dubey of EXTC Department conducted Robotics workshop session in the Pravin Patil College of Diploma Engineering & Technology Bhayandar for diploma students.

Kaveri Sawant gave brief idea to the students about wired and wireless robots and practical session for wired and wireless robot was conducted by Sushil Dubey. In this session, students were provided a hands on experience on wired as well as wireless Robo using Zigbee, Bluetooth where arduino uno kit with programming software was used. The main moto of arranging the workshop was to create an awarness about the Robotic environment and the upcoming technologies in today's era.



SOLAR LAMP WORKSHOP

The solar lamp workshop was the part of the Gandhi Global Solar Yatra (GGSY) and Unnat Bharat Abhiyan. This workshop was organized on the 2nd October 2019, where students assembled their own solar study lamps, marking the 150th Birth Anniversary of Mahatma Gandhi and International Day of Non-Violence towards Environment.

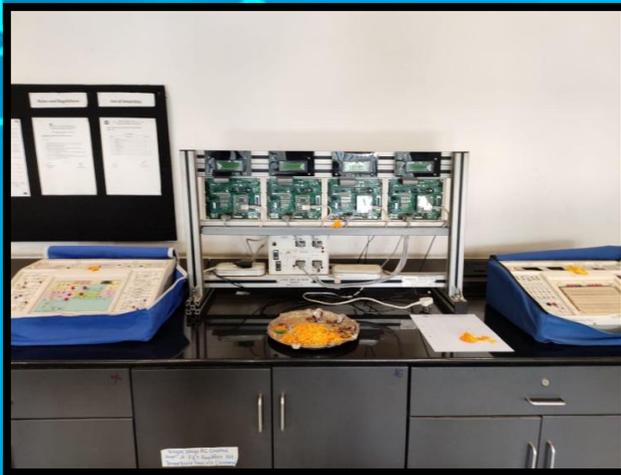
There was a huge response from the departmental students and a total of 175 students from different departments participated in this event. It was organized in association with Innovation cell. Here, some selected faculties from colleges were trained online and were told to complete the online course for training the students participating in solar lamp workshop.



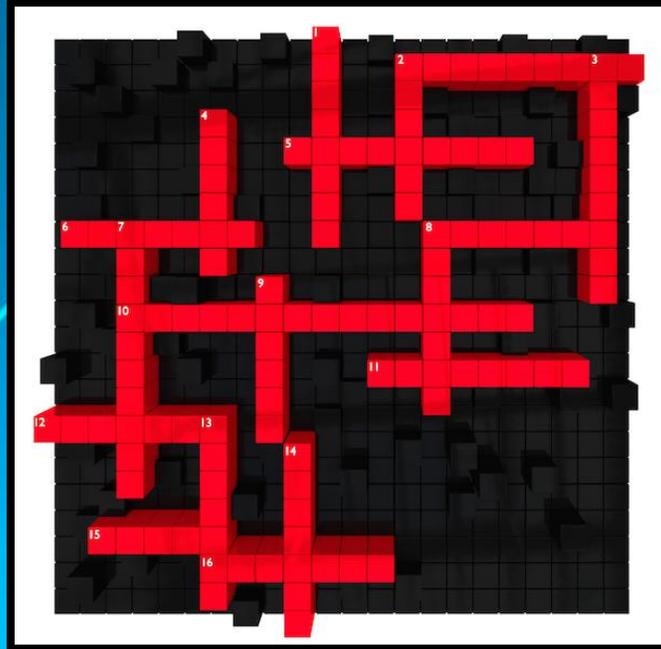
NAVRATRI - SARASWATI POOJA

Navratri is celebrated to observe Devi Saraswati, the goddess of music, wisdom, arts and science. The word 'avahan' specifies the invocation and hence, in this ritual, means to invoke the blessing of Goddess Saraswati. The last three days of Navratri is usually dedicated to worship Devi Saraswati. As per the Hindi traditions, Saraswati avahan is observed on the Mahasaptami (7th day) during the Shukla Paksha in the Hindu calendar month of 'Ashwin.'

So on that day, the department of Electronics and Telecommunication department performed Devi Saraswati, lab equipments pooja ; etching "Saraswati Yantra" and adored it with flowers.



Basic Electronics Crossword



Electronics adapt to the advancements of technology. At some point, devices were bulky, then made smaller, thinner, and now, nano. But before digging in to the deeper scale of Electronics, one needs to know its basic terms and concepts.

It's never easy to learn something new. A fun way to do this is by incorporating it into a game. This quiz is a crossword puzzle of some basic terms in electronics. Have fun!

Across

2. A diagram that shows the electrical connections of the electronic components
5. Current is considered to be the movement of _____.
6. A voltage source that converts chemical energy to electrical energy
8. A flow of electric charge
10. A characteristic of a secondary cell
11. A material that is composed of a mixture of elements
12. The term used to designate electrical pressure
15. A short circuit will have a _____ current flow.
16. The part of an atom that has no electric charge

Down

1. A voltmeter is used in _____ with the circuit.
2. A device that opens or completes an electrical path
3. A material that opposes the movement of free electrons
4. One coulomb passing a point in one second
7. A resistive component that is designed to be temperature sensitive
8. A unit of charge that contains 6.25×10^{18} electrons
9. An atom's atomic number is determined by its number of _____.
13. A substance that is found only in its pure form
14. It is used to measure current.

Electronics Riddles



Which type of transmission uses the shortest waves?

GSM telephony _____
 CB radio _____
 VHF radio _____
 satellite TV ✓

The Ku band is the portion of the electromagnetic spectrum in the microwave range of frequencies from 12 to 18 gigahertz (GHz). Ku band is primarily used for satellite communications, most notably for fixed and broadcast services, and for specific applications such as NASA's Tracking Data Relay Satellite used for both space shuttle and International Space Station



ISO, UPC and GS1 are the abbreviations of what?

Barcodes ✓
 Communication systems _____
 Navigation systems _____
 IP Addresses _____

A barcode is an optical, machine-readable, representation of data; the data usually describes something about the object that carries the barcode. Initially, barcodes were only scanned by special optical scanners called barcode readers. Later application software became available for devices that could read images, such as smartphones with cameras.



The Nipkov disk is a prototype..?

TV ✓
 camera _____
 telegraph _____
 turntable _____

A Nipkow disk is a mechanical, rotating, geometrically operating image scanning device, patented in 1885 by Paul Gottlieb Nipkow. This scanning disk was a fundamental component in mechanical television through the 1920s and 1930s.



What was the name of the first commercial car radio?

- Radiola
- Motorola ✓
- Blaupunkt
- Electrola

In 1930, Paul and Joseph Galvin together with William Lear developed the first car radio on the dashboard and called it "Motorola". The word "Motorola" meant "sound in motion". The first part pointed to the engine, the second part was the popular suffix "ola"



What technique are these parking sensors using?

- radar
- echo sounding ✓
- infrared ranging
- electromagnetic induction

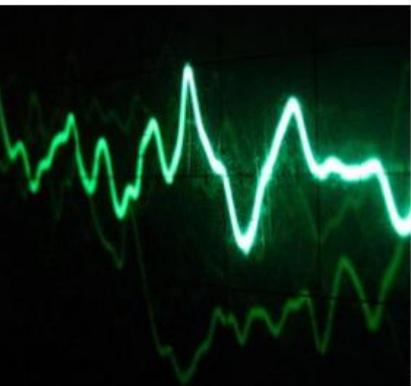
Typical parking sensors are ultrasonic, often a clicking sound may be heard close by. There are also less popular electromagnetic sensors, that do not require any holes in the bumper, but detect metal objects only.



What may happen to a lead battery when overcharged?

- acid leak
- polarization switch
- explosion ✓
- sulfurization

Any lead-acid battery system when overcharged will produce hydrogen gas by electrolysis of water. If the rate of overcharge is small, the vents of each cell allow the dissipation of the gas. A severe overcharge may produce a flammable concentration of hydrogen.



Which device converts electricity into acoustic energy?

- Microphone
- Headphone ✓
- Amplifier
- Preamplifier

Headphones are a pair of small loudspeaker drivers worn on or around the head over a user's ears. They are electroacoustic transducers, which convert an electrical signal to a corresponding sound.



08 October 2019 Current Affairs: India celebrated its **87th Air Force Day** on 8th October 2019. The year 2019 is special because the Indian Air force received the first of **36** long-awaited **Rafale fighter jets**. Defence Minister Rajnath Singh, who is on a visit to France will receive the fighter jets. IAF is conducted a spectacular air display ceremony will take place at the Hindon Air Force base near Delhi. IAF showcased its Chinook and Apache helicopters for the first time. Both these helicopters were acquired from the United States and inducted within the last few months. The Air Force Day 2019 will be celebrated in the presence of IAF chief Birender Singh Dhanoa and senior officials of the three armed forces.

Indian Air Force (IAF):

Founded on: 8 October 1932

Headquarters: New Delhi

Part of: Indian Armed Force

Motto: Touch the Sky with Glory

Chief of the Air Staff (CAS): Air Chief Marshal RK Singh Bhadauria

Vice Chief of the Air Staff (VCAS): Air Marshal Harjit Singh Arora

A graphic with a pink background and a black border. The text reads "OCTOBER is BREAST CANCER AWARENESS MONTH" in a mix of black and pink fonts. A pink awareness ribbon is positioned behind the word "MONTH".

OCTOBER is
BREAST CANCER
AWARENESS
MONTH

08 October 2019 Current Affairs: The month of **October** is observed as the **Breast Cancer Awareness Month** every year. The annual campaign aims to raise awareness of the disease. It also helps to increase attention and support for awareness, early detection, and treatment as well as palliative care of this disease.

World Health Organization (WHO) aims to promote breast cancer control programmes as part of national cancer control plans.

IARC Globocan 2008 reports say that about 1.38 million new cases and 4,58,000 deaths from breast cancer every year. It is most common in both developing and developed countries.

Lack of awareness:

Currently, there is no sufficient knowledge of the causes of breast cancer. Because of the lack of awareness, early detection of the disease remains the cornerstone of breast cancer control.

By early detection, adequate diagnosis and treatment there is a high chance that breast cancer can be cured. The majority of deaths, around 269 000, that occur in low- and middle-income countries, where most women with breast cancer are diagnosed in late stages. This is mainly due to the lack of awareness of early detection and barriers to health services



30 September 2019 Current Affairs: **International Translation Day** observed in bringing nations together, contributing to the development and strengthening world peace and security.

This day provides a great opportunity to spotlight the important work of translators, interpreters and others in the language service industry.

Theme

The theme of International Translation Day 2019 is "**Translation and Indigenous**

Aim

It focuses on the indigenous languages that are in danger of disappearing. As it is important to preserve and protect the languages of millions of indigenous people around the world. Languages for indigenous people are an integral part of their culture. And it is said that when a community loses its language, it is on the way to lose its culture too.

History

It is established by the International Federation of Translators (FIT). The day is to pay tribute to the work of translators and the interpreters who break down the language barriers to make the world slightly a smaller place. This day is celebrated with a series of events, seminars and symposiums across the world. On 24 May 2017, the General Assembly adopted a resolution 71/288 to proclaim 30 September as International Translation Day after considering the role of professionals in connecting nations and fostering peace, understanding and development.

The 30 September was chosen because this date celebrates the feast of St. Jerome, the Bible translator who is considered the patron saint of translators. These celebrations have been promoted by FIT (the International Federation of Translators) which was set up in 1953.