NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY

Magazine From

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NSCET ELECTRONICS CORNER

12

RECENT ARTICLES ON RESEARCH TECHNOLOGIES

SPECULATIVE PHOTOGRAPHY

VISUALIZIATION BEYOND IMAGINATION

LITERATURE WORKS

FLIP TO LOOK AT THE AWESOME WORKS OF OUR PENMEN

AESTHETIC PENCIL SKETCH

PORTRAYS THE ARTISTIC SKILLS OF THE STUDENTS

ACHIEVEMENTS

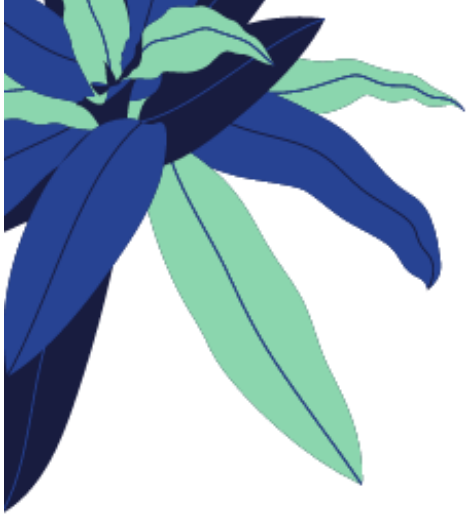
FEATURING THE RECENT ACHIEVEMENTS OF STAFFS AND STUDENTS.

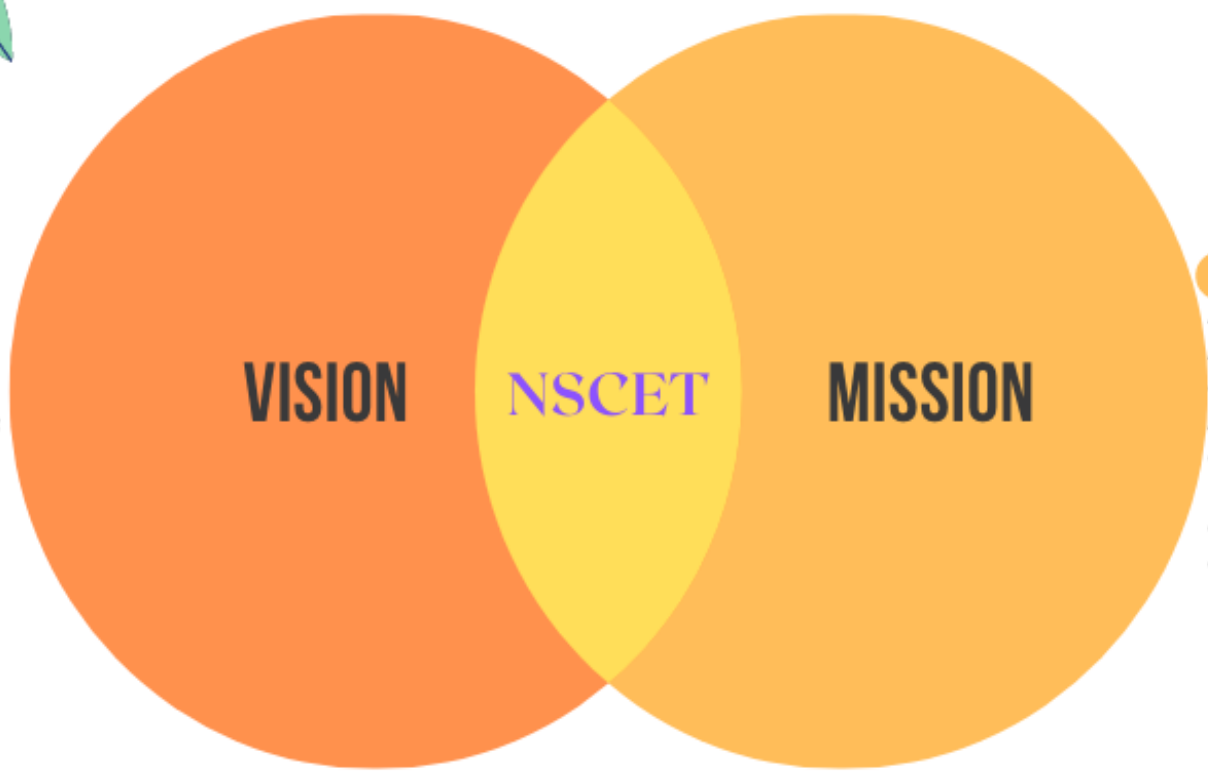
WAY TO SHOWCASE STUDENTS TALENT AND TO UPGRADE THEIR TECHNICAL KNOWLEDGE

VOL 1 | ISSUE 1 | DECEMBER 2020

DECEMBER 2020 / ISSUE 1 / VOLUME 1

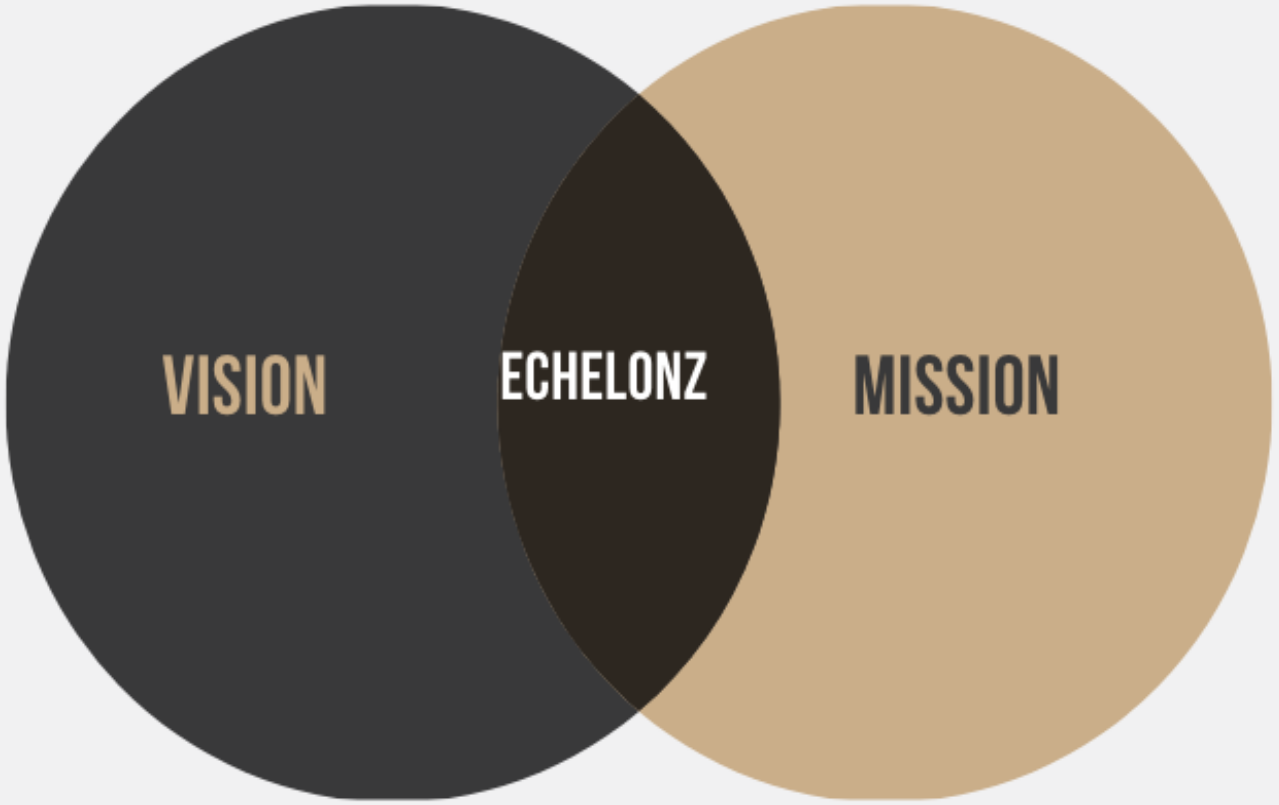
CONTENTS





Revolution by imparting world-class professional Engineering and Technology to the student fraternity

Making learning a Passion, inculcate Skill, Knowledge and Exposure, thereby evolve a method of Competence, Professionalism, pro-activeness and ensure achievement of pragmatism. Giving more value to the young Engineer's creation and research thereby encouraging multidimensional growth.



- ***Pioneer in creating engineers as Communication-Electronic product promoters***

- *Provide quality education through need based curriculum, effective teaching learning.*
- *process and state-of-art infrastructure in electronics and communications.*
- *Promote the establishment of centre of excellence in communication-electronics to nurture the spirit of innovation and creativity among faculty and students. Strengthen relationships with industry, society, government bodies and alumni.*
- *Promote professional ethics,leadership skills, social, cultural & environmental awareness with a passion for lifelong learning.*

PO,PEO & PSO

PROGRAMME EDUCATIONAL OBJECTIVES:

PEO1: TO ENABLE GRADUATES TO PURSUE RESEARCH, OR HAVE A SUCCESSFUL CAREER IN ACADEMIA OR INDUSTRIES ASSOCIATED WITH ELECTRONICS AND COMMUNICATION ENGINEERING, OR AS ENTREPRENEURS.

PEO2: TO PROVIDE STUDENTS WITH STRONG FOUNDATIONAL CONCEPTS AND ALSO ADVANCED TECHNIQUES AND TOOLS IN ORDER TO ENABLE THEM TO BUILD SOLUTIONS OR SYSTEMS OF VARYING COMPLEXITY.

PEO3: TO PREPARE STUDENTS TO CRITICALLY ANALYZE EXISTING LITERATURE IN AN AREA OF SPECIALIZATION AND ETHICALLY DEVELOP INNOVATIVE AND RESEARCH ORIENTED METHODOLOGIES TO SOLVE THE PROBLEMS IDENTIFIED.

PROGRAMME OUTCOMES:

1. ENGINEERING KNOWLEDGE: APPLY THE KNOWLEDGE OF MATHEMATICS, SCIENCE, ENGINEERING FUNDAMENTALS, AND AN ENGINEERING SPECIALIZATION TO THE SOLUTION OF COMPLEX ENGINEERING PROBLEMS.
2. PROBLEM ANALYSIS: IDENTIFY, FORMULATE, REVIEW RESEARCH LITERATURE, AND ANALYZE COMPLEX ENGINEERING PROBLEMS REACHING SUBSTANTIATED CONCLUSIONS USING FIRST PRINCIPLES OF MATHEMATICS, NATURAL SCIENCES, AND ENGINEERING SCIENCES.
3. DESIGN/DEVELOPMENT OF SOLUTIONS: DESIGN SOLUTIONS FOR COMPLEX ENGINEERING PROBLEMS AND DESIGN SYSTEM COMPONENTS OR PROCESSES THAT MEET THE SPECIFIED NEEDS WITH APPROPRIATE CONSIDERATION FOR THE PUBLIC HEALTH AND SAFETY, AND THE CULTURAL, SOCIETAL, AND ENVIRONMENTAL CONSIDERATIONS.
4. CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: USE RESEARCH-BASED KNOWLEDGE AND RESEARCH METHODS INCLUDING DESIGN OF EXPERIMENTS, ANALYSIS AND INTERPRETATION OF DATA, AND SYNTHESIS OF THE INFORMATION TO PROVIDE VALID CONCLUSIONS.
5. MODERN TOOL USAGE: CREATE, SELECT, AND APPLY APPROPRIATE TECHNIQUES, RESOURCES, AND MODERN ENGINEERING AND IT TOOLS INCLUDING PREDICTION AND MODELING TO COMPLEX ENGINEERING ACTIVITIES WITH AN UNDERSTANDING OF THE LIMITATIONS.
6. THE ENGINEER AND SOCIETY: APPLY REASONING INFORMED BY THE CONTEXTUAL KNOWLEDGE TO ASSESS SOCIETAL, HEALTH, SAFETY, LEGAL AND CULTURAL ISSUES AND THE CONSEQUENT RESPONSIBILITIES RELEVANT TO THE PROFESSIONAL ENGINEERING PRACTICE.

7. ENVIRONMENT AND SUSTAINABILITY: UNDERSTAND THE IMPACT OF THE PROFESSIONAL ENGINEERING SOLUTIONS IN SOCIETAL AND ENVIRONMENTAL CONTEXTS, AND DEMONSTRATE THE KNOWLEDGE OF, AND NEED FOR SUSTAINABLE DEVELOPMENT.

8. ETHICS: APPLY ETHICAL PRINCIPLES AND COMMIT TO PROFESSIONAL ETHICS AND RESPONSIBILITIES AND NORMS OF THE ENGINEERING PRACTICE.

9. INDIVIDUAL AND TEAM WORK: FUNCTION EFFECTIVELY AS AN INDIVIDUAL, AND AS A MEMBER OR LEADER IN DIVERSE TEAMS, AND IN MULTIDISCIPLINARY SETTINGS.

10. COMMUNICATION: COMMUNICATE EFFECTIVELY ON COMPLEX ENGINEERING ACTIVITIES WITH THE ENGINEERING COMMUNITY AND WITH SOCIETY AT LARGE, SUCH AS, BEING ABLE TO COMPREHEND AND WRITE EFFECTIVE REPORTS AND DESIGN DOCUMENTATION, MAKE EFFECTIVE PRESENTATIONS, AND GIVE AND RECEIVE CLEAR INSTRUCTIONS.

11. PROJECT MANAGEMENT AND FINANCE: DEMONSTRATE KNOWLEDGE AND UNDERSTANDING OF THE ENGINEERING AND MANAGEMENT PRINCIPLES AND APPLY THESE TO ONE'S OWN WORK, AS A MEMBER AND LEADER IN A TEAM, TO MANAGE PROJECTS AND IN MULTIDISCIPLINARY ENVIRONMENTS.

12. LIFE-LONG LEARNING: RECOGNIZE THE NEED FOR, AND HAVE THE PREPARATION AND ABILITY TO ENGAGE IN INDEPENDENT AND LIFE-LONG LEARNING IN THE BROADEST CONTEXT OF TECHNOLOGICAL CHANGE.

PROGRAM SPECIFIC OBJECTIVES (PSOs)

1. TO ANALYZE, DESIGN AND DEVELOP SOLUTIONS BY APPLYING FOUNDATIONAL CONCEPTS OF ELECTRONICS AND COMMUNICATION ENGINEERING.
2. TO APPLY DESIGN PRINCIPLES AND BEST PRACTICES FOR DEVELOPING QUALITY PRODUCTS FOR SCIENTIFIC AND BUSINESS APPLICATIONS.
3. TO ADAPT TO EMERGING INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) TO INNOVATE IDEAS AND SOLUTIONS TO EXISTING/NOVEL PROBLEMS


TECHNICAL
ARTICLES
BY
IV-ECE

FLYING HOVERBOARD OF LEXUS

-VIMALI R, HARINIVASHINI.P

Several companies have drawn on hovercraft "air-cushion vehicle" technology to attempt to create hoverboard-like products but none have demonstrated similar experiences to the kinds of levitation depicted in science fiction films. In the 1950s Hiller aircraft produced the "Flying Platform" which was similar to the modern concept of a hoverboard. The Air board air-cushion vehicle was unveiled in the 2000 Summer Olympics Opening Ceremony in Sydney, which was manufactured and sold by Arbortech Industries Limited. Series II was unveiled in 2007.

In July 2019, Franky Zapata flew the newer Flyboard Air "jet-powered personal aerial vehicle", referred to as the EZ-Fly, during Bastille Day celebrations in France.[28][29][30] On 4 August 2019, Zapata succeeded in crossing the English Channel with his device. The previous attempt on 25 July had been unsuccessful, but during the second try, escorted by French Army helicopters and using a backpack fuel reservoir, he accomplished the 35-kilometer (22 mi) journey in about 20 minutes, including a fueling stop at the midpoint. Zapata reached a speed of 180 km/h (110 mph) and maintained an altitude of approximately 15 meters (50 ft).

Principle

A superconductor is a material cooled to a very low critical temperature that, when you run a current through it, experiences no electrical resistance (the material doesn't push back against the current). When a material becomes a superconductor it pushes away any magnetic fields inside it. This is known as the Meissner effect instead of changing magnetic fields from an electromagnet, the Lexus hoverboard uses superconductors. When a superconductor is placed near a magnet, you can get a levitation effect. That's essentially what happens here. The magnets are in the ground and the superconductor is inside the board.

How to make diy flying hover board

(Keep in mind this is based on my design. Get more if you plan on building a stronger, or larger scale hoverboard)

MATERIALS:

1. (x6) 6" Iron Railroad Spike. (Could you believe all they use these for now is for antiques and knife-making faires. I don't think railroad companies even use them anymore!)
2. 300-400' enameled copper wire(AKA: Magnet Wire) 20 AWG (I would suggest Remington Industries for this)
3. Wire Strippers (duh!)
4. Duct Tape (You can never have too much duct tape)
5. 50 D Batteries. DO NOT: get power saver batteries or anything that the package says "longer lasting" this means it uses less energy than regular batteries, and you're going to need a LOT of energy. (and yes I said fifty of them, not a typo)
6. A Standard Skateboard (I would suggest Tony Hawk skateboards. That's what I based my measurements on.)(Also, make sure its one you're not afraid to dismantle)
7. A Non-Conductible Base. (Large enough to fit three skateboards side by side) DO NOT: use a floor as a base. this base is meant for maneuverability so you could take you hoverboard to test in different locations.
8. 16 small screws. (I used the screws that were already on the board(plus another board's screws). I would recommend getting iron screws that were that size if you can find them)
9. Screwdriver (Again: Duh!)
10. Electric Drill. (I'll explain later)
11. Battery Holders (Same amount as the amount of batteries your getting.)
12: Measuring Tape (For measuring. I don't think a really need to point that out do I?)
13: Hot Glue Gun (w/ hot glue sticks obviously)(yes, you need this AND the duct tape)

POWER SUPPLIES FOR HARSH ENVIRONMENTS

- REENA.K, SHANMUGAPRIYA.M, SUJITHA.S(2001)

A power supply is an electrical device that provides power to one or more electric loads. It converts the electrical energy from the source to the corresponding current, voltage and frequency required by the load. Power supplies also protect the load by limiting the load current, shutting off the current in case of a fault, filtering electronic noise and providing power-factor correction. Power supplies have numerous applications, and they must be properly adapted to the application requirements.

Fan less Design: Cooling by Free Air Convection

Harsh environment refers to a setting in which device operation is difficult or even impossible. Most of the materials used in electronics are sensitive to certain similar environmental factors. In the case of power supplies, the most important factors that contribute to a harsh environment include temperature, dust, humidity, vibration and mechanical stress.

When in operation, power supplies generate heat losses that could damage the components in the circuit if not properly dissipated. The most commonly used heat-conducting or cooling methods are natural airflow, forced air cooling, heat transfer through direct contact with a cooler component and liquid cooling systems

Power supplies that operate in a harsh environment must be fully closed, so they typically employ a fanless design in which cooling is provided by free air convection. Fans are great for cooling power supplies quickly, but they have many undesirable characteristics when it comes to longevity and protection against harsh environments. They generate noise and tend to have a very high failure rate. By eliminating the fan, harsh environment power supplies resolve these issues.

Though eliminating the fan solves certain problems, it's challenging to provide high output power with a fully encapsulated and fanless power supply design. The HEP-1000, for instance, is a high power 1000 W industrial AC/DC fanless power supply. Kai Li, project manager at MEAN WELL, explained how the company solved the design challenge.

"The unit is fully potted, so there are no air gaps between components inside the power supply. This enables better heat transfer, and the heat can be spread out more evenly throughout the power supply to the enclosure. The enclosure surface includes fins, like those found on heat sinks, to cool the power supply better. So it's a combination of the potting compounds spreading the heat very evenly to the surface of the entire power supply and then the power supply surface being able to get rid of that heat," Li said.

WORLD'S SMALLEST COMPUTER IS HERE!

-ANITHA M, DHARANI SHRI S, MALARVIZHI I, JOTHIMEENA V

When IBM announced in March that it had produced the world's smallest computer, it raised a few eyebrows at University of Michigan, which is home to the previous champion of tiny computing. Now, the team at Michigan University has developed an even smaller device, measuring just 0.3mm to a side—smaller than a grain of rice.

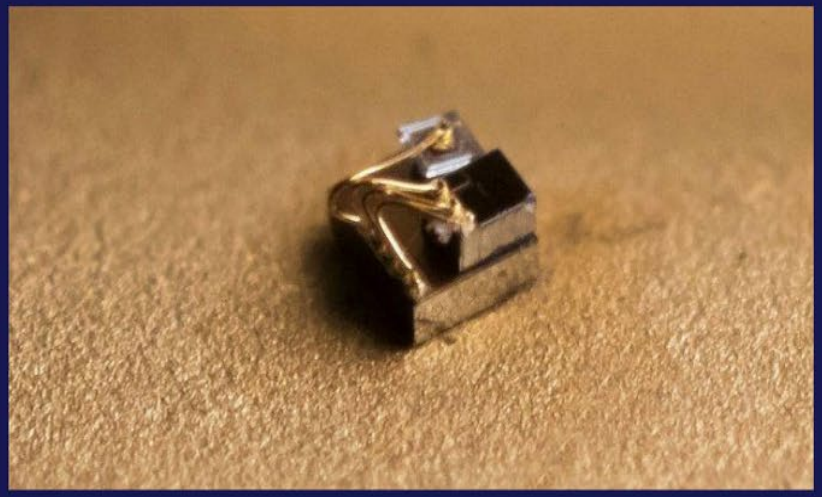
When IBM announced in March that it had produced the world's smallest computer, it raised a few eyebrows at University of Michigan, which is home to the previous champion of tiny computing. Now, the team at Michigan University has developed an even smaller device, measuring just 0.3mm to a side—smaller than a grain of rice.

BM has called for a re-examination of what constitutes a computer. Previous systems, including 2x2x4mm Michigan Micro Mote, retain their programming and data even when these are not externally powered.

Unplug a desktop computer, and its program and data are still there when it boots itself up once the power is back. These new microdevices, from IBM and now Michigan, lose all prior programming and data as soon as they lose power

In addition to RAM and photovoltaics, the new computing devices have processors and wireless transmitters and receivers.

One of the big challenges in making a computer about one-tenth the size of IBM's was figuring out how to run at very low power when the system packaging had to be transparent. Light from the base station—and from the device's own transmission LED—can induce currents in its tiny circuits.



We basically had to invent new ways of approaching circuit design that would be equally low power but could also tolerate light," said David Blaauw, professor of electrical and computer engineering who led the development of the new system

together with Dennis Sylvester, also professor of ECE, and Jamie Phillips, an Arthur F. Thurnau Professor and professor of ECE. That meant exchanging diodes, which can act like tiny solar cells, for switched capacitors.

ELECTRONIC AUTHENTICATION OF ORGANIC FOODS

-KAVITHA.R, KAVIYA PRIYA.M

The availability of adulterated food products in the market has led to a number of health problems. In response to this, people are now moving towards the use of organic food products, which are naturally produced, safe, healthy, and of higher quality. In addition, several new electronic methods have been devised to ensure proper labelling of these organic products

Adulteration of food products (whether raw or cooked) takes place at every level—be it cultivation, production, marketing, or consumer levels. People are therefore getting attracted towards organic food products, whose market is steadily increasing worldwide. Consumers want to use organic food products as they believe these are naturally produce safe, healthy, and of higher quality. Organic food products are grown without using pesticides and weedicides, which can affect the chemical composition of organic food products.

ORGANIC FOOD AND ITS LABELLING

Organic food products are produced by methods that comply with the specific standards of organic farming but may vary worldwide. Private and government agencies are regulating the production and processing of organic products by restricting the use of certain pesticides, weedicides, and fertilisers in the farming methods as well as the use of irradiation, industrial solvents, or synthetic food additives.

- Food products are grown and processed according to the guidelines based on several factors such as soil quality, animal raising practices, pest and weed control, and use of additives

- Producers rely on natural substances and physical, mechanical, or biologically based farming methods

- Product is assigned as organic if it is grown on soil that has used no prohibited substances (pesticides, weedicides, and fertilisers) for three years prior to harvest

- Similarly, regarding organic meat, the regulations require that animals are raised in living conditions accommodating their natural behavior, fed hundred per cent organic feed and forage, and not administered antibiotics or hormones

NUCLEAR MAGNETIC RESONANCE (NMR) SPECTROSCOPY

Figuring out whether a fruit or vegetable has been grown under organic conditions is full of complications. The most reliable authentication technique currently used is based on analysing the stable isotope composition of nitrogen in food products, which is also not foolproof.

LASERS CAN SEND AUDIO MESSAGES TO ONE PERSON'S EAR WITHOUT ANY RECEIVER

-SAFREENA G, DHIVYAS, PAVITHRA P

Objective

1.Researchers use lasers to transmit sound at 60 decibels to a target person standing 2.5 meters away.

2.They develop a method that relies on the photoacoustic effect, which takes place when a material creates sound waves after absorbing light.

Introduction

The first laser was developed in 1960 through optical amplification by stimulated emission of electromagnetic radiation. Since then, we have come a long way. Now it is used in information processing (Blu-Ray), surgeries, bar code readers, holographic imaging, and material processing, such as cutting, marking, drilling and surface modification.

It is very interesting phenomenon: they used a laser to transmit an audio message to a person's ear without any kind of receiver device. This technology opens up numerous intriguing possibilities.

Working

• To send audio messages, the system relies on the photoacoustic effect that takes place when a material creates sound waves after absorbing light. The intensity of light must vary to produce this effect.

• Authors used water vapor in the atmosphere to absorb light and generate sound. The technique works even in a dry environment because there's always some water present in the atmosphere, especially around humans.

• Select a laser wavelength that can be easily absorbed by water, you do not need to have a large amount of water in the air. The higher the absorption, the greater the sound

Theory

A. The technique is similar to dynamic photoacoustic spectroscopy that has been used for standoff detection of trace explosives.

B. Researchers have shown that sweeping a laser beam (at a wavelength absorbed by water) at speed of sound can be an efficient method of generating sound

C. This laser sweeping method is that the audio message can only be heard at a specific distance from the sender. The signal could be sent to a particular person, instead of everyone who crosses the light beam.

EXPERIMENTS

In experiments, researchers were able to transmit sound at 60 decibels to a target person standing 2.5 meters away, using commercially available equipment. The team also tested a conventional photo acoustic technique that does not require sweeping the laser. Instead, it modulates the power of the laser beam to encode the audio signal.

There is a tradeoff between these two methods. The laser sweeping yields sound with louder audio, whereas the conventional photo acoustics technique yields sound with higher fidelity

LABORATORY TESTS

In the lab, the researchers showed that commercially available equipment could transmit sound to a person more than 2.5 meters away at 60 decibels using the laser sweeping technique. They believe that the system could be easily scaled up to longer distances. They also tested a traditional photoacoustic method that doesn't require sweeping the laser and encodes the audio message by modulating the power of the laser beam.

"There are tradeoffs between the two techniques," said Sullenberger. "The traditional photoacoustics method provides sound with higher fidelity, whereas the laser sweeping provides sound with louder audio."

Next, the researchers plan to demonstrate the methods outdoors at longer ranges. "We hope that this will eventually become a commercial technology," said Sullenberger. "There are a lot of exciting possibilities, and we want to develop the communication technology in ways that are useful."

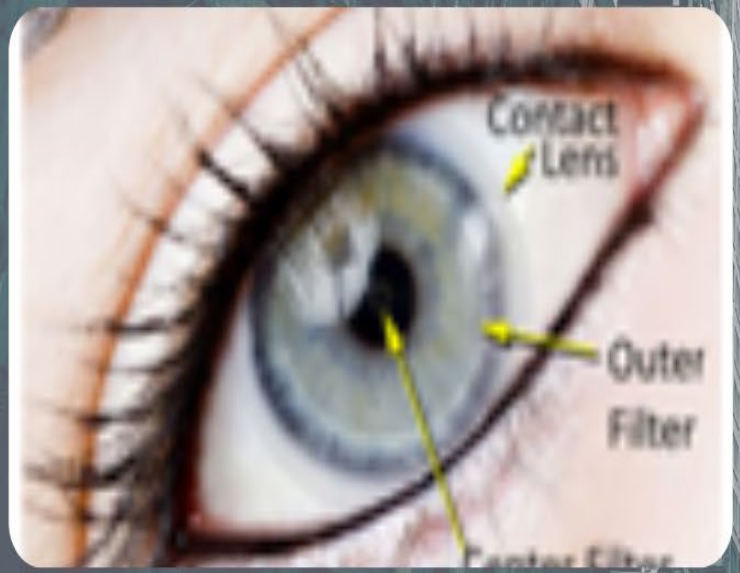
NANOTECH MEETS CONTACT LENSES AND VIRTUAL REALITY

A.Swetha,N.Sangeetha Param,,K.Subiksha

The term nanotechnology itself dates back to the 1980s when it was coined by U.S. engineer Eric Drexler. In the past few decades, nanotech has found a steadily growing number of applications. It remains to be seen to what extent nanotechnology will reshape medicine, but nanotech advances are continually being announced. The future of augmented reality isn't on a smartphone screen or on a pair of cumbersome glasses. The future is a contact lens. Innovega is developing a contact lens called the iOptik lens that will provide the crucial step necessary to perceive an augmented, superimposed 3-D virtual reality. It can also enhance your vision as you're seeing normal reality. Using nanotechnology, the contact lenses allow users to perceive both reality and information provided by the Internet or another source. Nanotech could provide a solution to the need for bulky headsets in virtual reality environments and come up with an contact lenses.

Bellevue, WA-based Innovega with its iOptik platform embedded a center filter and display lens atthe center of a contact lens. The optical elements are smaller than the eye's pupil and therefore do not interfere with vision. A projector can hit those tiny optical elements, which guide images to the retina. But the retina is still getting the overall normal vision provided through the entire pupil, so the brain ends up viewing the projected images and the overall normal field of vision as one.The company said its iOptik platform provides wearers a "virtual canvas" on which any media can be viewed or application run. The prototypes will feature up to six times the number of pixels and 46 times the screen size of mobile products that rely on designs limited by conventional optics. Those optics are said to deliver games, simulator environments, and movies that are truly "immersive" and "mimic IMAX performance," the company said. The company said its iOptik platform provides wearers a "virtual canvas" on which any media can be viewed or application run. The prototypes will feature up to six times the number of pixels and 46 times the screen size of mobile products that rely on designs limited by conventional optics. Those optics are said to deliver games, simulator environments, and movies that are truly "immersive" and "mimic IMAX performance," the company said.The electronics are built into a stylish pair of glasses without the bulk or weight of traditional approaches to video and VR eyewear.

The setup can also display a multi-tasking dashboard that incorporates five or more typical screens, all while simultaneously providing the wearer a safe and clear view of their environment.TheiOptik will be regulated in the United States as a Class II medical device, as normal contact lenses are.

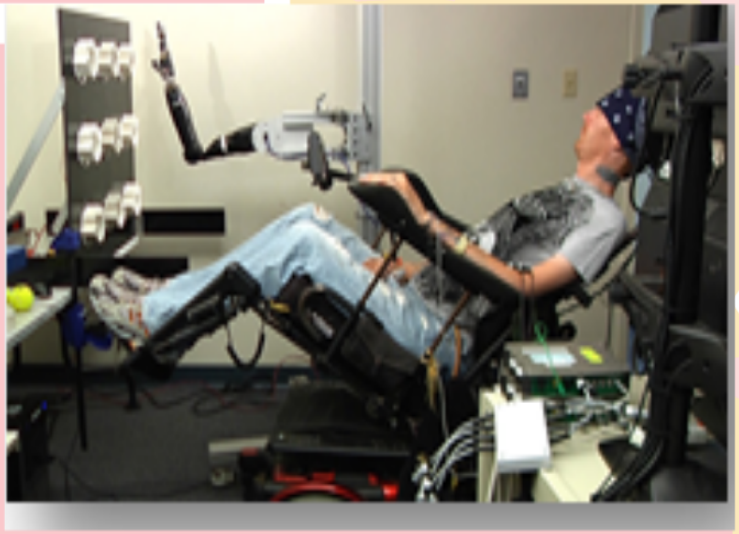


The military is already exploring the use of these lenses, which could enable the distribution of Unmanned Aerial Vehicle intelligence in real time to soldiers in the field.For civilian uses, the augmented view could allow for web surfing on the go. Innovega is particularly excited about 3D video gaming and is already laying the groundwork for that avenue. Everyone from tourists exploring a new city to drivers navigating a new route could benefit from augmented-reality lenses. The feed is connected to a smart phone or laptop, so the possibility of widgets or apps being developed for the augmented system are just waiting on hardware. Innovega is rolling out demo kits already, and is developing the technology as it becomesavailable. The iOptik lens could very well change the was people perceive and integrate technology in their lives

BRAIN – COMPUTER INTERFACE

-AFANA FATHIMA S

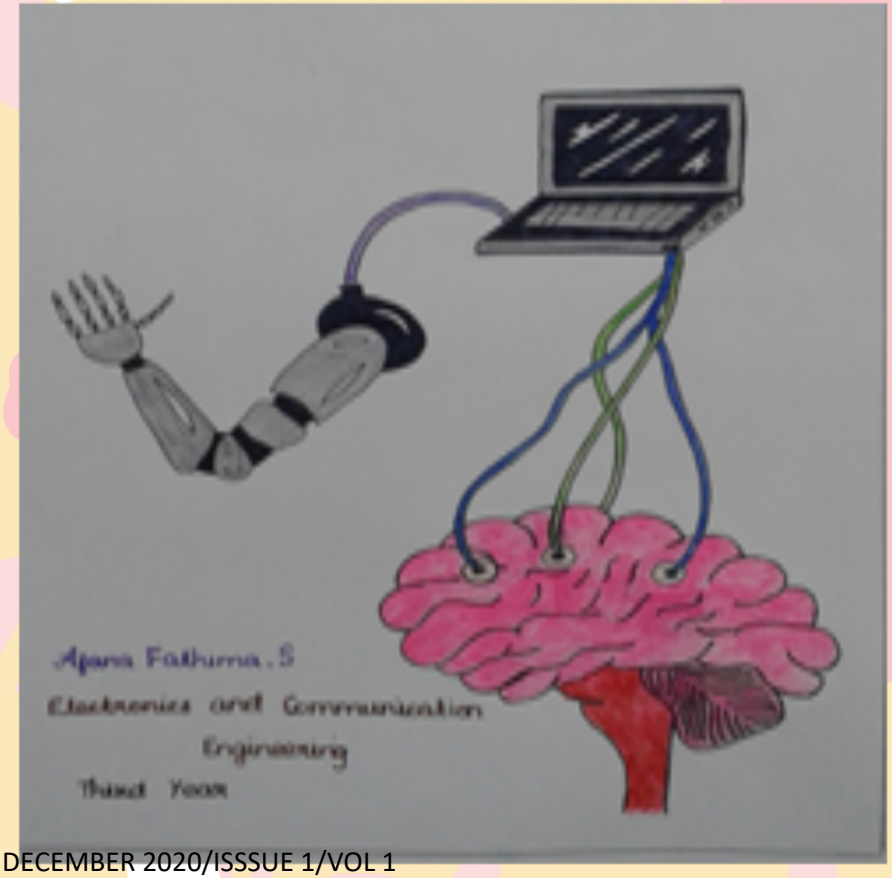
A brain-computer interface (BCI), sometimes called a neural control interface (NCI), mind-machine interface (MMI), direct neural interface (DNI), or brain-machine interface (BMI) is a device that allows direct the communication path between central nervous system and external devices without peripheral nerves dependency.Brain-Computer Interface and its applications reached beyond medical applications.



A brain-machine interface (BMI) is a device that translates neuronal information into commands capable of controlling external software or hardware such as a computer or robotic arm. BMIs are often used as assisted living devices for individuals with motor or sensory impairments.With the advancements in low-cost electronics and computer interface equipment, as well as the need to serve people suffering from disabilities of neuromuscular disorders, a new field of research has emerged by understanding different functions of the brain.The electroencephalogram (EEG) is an electrical activity generated by brain structures and recorded from the scalp surface through electrodes.

Researchers primarily rely on EEG to characterize the brain activity, because it can be recorded non-invasively by using portable equipment. The EEG or the brain activity can be used in real time to control external devices via a complete BCI system. A typical BCI scheme generally consists of a data acquisition system, preprocessing of the acquired signals, feature extraction process, classification of the features, post-processing of the classifier output, and finally the control interface and device controller. The post-processed output signals are translated into appropriate commands so as to control output devices, with several applications such as robotic etc.

In the 1970s, research on BCIs started at the University of California, which led to the emergence of the expression brain-computer interface. The focus of BCI research and development continues to be primarily on neuroprosthetics applications that can help restore damaged sight, hearing, and movement. The mid-1990s marked the appearance of the first neuroprosthetic devices for humans. BCI doesn't read the mind accurately, but detects the smallest of changes in the energy radiated by the brain when you think in a certain way.



In June 2004 marked a significant development in the field when Matthew Nagle became the first human to be implanted with a BCI, Cyberkinetics's BrainGate. In December 2004, Jonathan Wolpaw and researchers at New York State Department of Health's Wadsworth Center came up with a research report that demonstrated the ability to control a computer using a BCI. In the study, patients were asked to wear a cap that contained electrodes to capture EEG signals from the motor cortex part of the cerebrum governing movement.

BCI has had a long history centered on control applications: cursors, paralyzed body parts, robotic arms, phone dialing, etc.

Recently a number of companies have scaled back medical-grade EEG technology (and in one case, NeuroSky, rebuilt the technology from the ground up to create inexpensive BCIs. This technology has been built into toys and gaming devices; some of these toys have been extremely commercially successful like the NeuroSky and Mattel MindFlex.

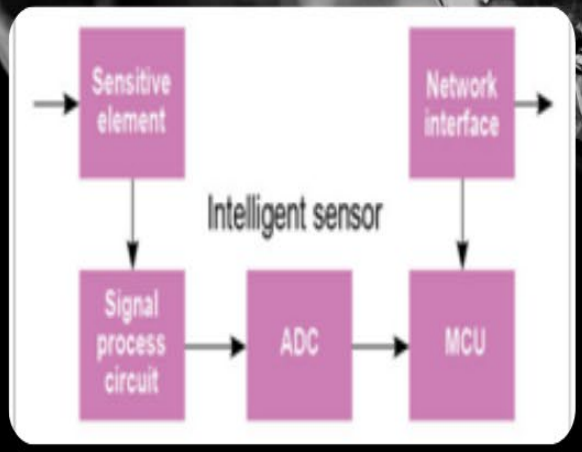
THE LATEST IN SENSORS AND APPLICATIONS

-Gayathri M, Durga Devi N, Dhivya Dharshini M

The latest sensors, including those used in IoTs and wearables, are soon going to revolutionise electronics industry. Be it a silent heart attack detector that detects the protein level of a patient or a posture-correcting chair that alerts the occupant sitting in a wrong posture, both recently invented by Indian teenagers. Sensors have a vital role to play in electronic devices. The fact is that the application of sensors is ever-expanding along with the progress in science and technology.

THE SHIFT TO SMARTER SENSORS

Intelligent sensors use standard bus or wireless network interfaces to communicate with one another or with microcontrollers (MCUs). The network interface makes data transmission easier while also expanding the system. Manufacturers can diagnose sensor faults and guide users to troubleshoot them remotely through the computer network.



LATEST SENSORS

There are a wide variety of sensors depending on the technology (analogue/digital) and applications. This article covers some of the latest sensors including IoT sensors, pollution sensors, RFID sensors, image sensors, biometric sensors, printed sensors, and MEMS and NEMS sensors.

POLLUTION SENSORS

Air pollution sensors are used to detect and monitor the presence of air pollution in the surrounding area. These can be used for both indoor and outdoor environments. Although there are various types of air pollution sensors, most of these sensors focus on five parameters: particulate matter, ozone, carbon monoxide, sulphur dioxide and nitrous oxide. These sensors are somewhat costly but are becoming more affordable for common use.

RFID SENSORS

RFID chips as small as the size of rice grains can be inserted directly under the skin for use as ID cards. There is a trend to use RFID chips in many products including contactless banks cards and Oyster cards. There are also cases where chips are implanted in pets and cattle for monitoring.

WEARABLE SENSORS

These latest sensors include medical sensors, GPS, inertial measurement unit (IMU) and optical sensors. With modern techniques and miniature circuits, wearable sensors can now be deployed in digital health monitoring systems. Sensors are also integrated into various accessories such as cloths, wrist bands, eyeglasses, headphones and smartphones. Wearable applications and IoTs are expected to drive double-digit growth in the global market for sensors.

OPTICAL IMAGE SENSORS

The best example of this sensor is found in your smartphone camera. An image sensor detects and conveys the information that constitutes an image. Digital imaging is fast replacing analogue imaging. Most digital cameras use CMOS sensors, which allow faster speed with lower power consumption.

BIOMETRIC SENSORS

The most common biometric sensor is your fingerprint module. R30x fingerprint module is quite popular among hobbyists and experimenters. The latest generation of fingerprint sensors from Qualcomm consists of sensors for display, glass and metal, detection of directional gestures, and underwater fingerprint match and device wake-up.

PRINTED SENSORS

Sensors printed on flexible substrates are becoming popular. The next generation of printed sensors will enable applications ranging from human-machine interfaces to environmental sensing. Printed sensors may have a very simple structure with only a few electrodes, while others are much more complex requiring deposition of multiple layers.

ULTRASONIC SENSORS

These type of sensors measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound and produced the results.

AI ADDS CONTINUOUS IMPROVEMENT TO VISION SYSTEMS

-SumaiyaFathima .S, Kokila G, MariyamZuhaa.S ,Uvarani P

ACogniac helps manufacturers take vision system investments to the next level with AI-based models. There's a reason why so many manufacturers have turned to machine vision for decades now. Simply put, vision technology is a thing of beauty with its ability to consistency and accurately handle the tedious and repetitious task of visually finding errors. However, not all vision systems are created equally. After all, there are meaningful differences between the traditional "set it and forget it" vision systems and those with deep learning capabilities. "We're only at the very beginning of this revolution with huge potential for AI to help manufacturing," says Dr. Amy Wang, co-founder and vice president of systems at AI-enhanced machine vision company, Cogniac. Cognac's system combines the latest AI research, human-computer interaction tools, and large-scale data management to make computer vision easier, more accurate and scalable, enabling manufacturers to extra information from ever-increasing image data and video streams. The real potential is up to industry leaders to realize and embrace, explains Wang. "It's really about embracing the opportunity for continuous improvement – something that is built into the best manufacturers. DNA. Fortunately, that mentality gels very well with AI and deep learning," she says. "If you look at a vision system deployment with AI as a point project that you make work and walk away that approach leaves too many opportunities onthe table."

Selecting ideal applications:

A huge step function in what's possible to automate with deep learning exists – things not at all possible before. However, putting an AI system into an existing process and expecting it to work could lead to disappointment. "There are usually process changes to take full advantage of the deep learning capabilities. AI needs to be driven by data – meaning people need to label images. You want to pay attention to data, you want to gather data, you want to use this data to the fullest advantage," she says.

LEDGER NANO X

-VIVITHA.E,SHENBAGA DEVI.M

A hardware wallet is a cryptocurrency wallet that stores the user's private keys (a critical piece of information used to authorize outgoing transactions on the blockchain network) in a secure hardware device. The main principle behind hardware wallets is to provide full isolation between the private keys and youreasy-to-hack computer or smartphone.

Ledger Nano X: the perfect solution for your cryptocurrencies Even if cryptocurrencies such as Bitcoins, Ripple, or Altcoins are fundamentally virtual, you surely want to make them 'tangible' in a secure form. This goal can now be achieved with the state-of-the-art Bluetooth Bitcoin Wallet Ledger Nano X. With Ledger's ground-breaking solution for the secure use of all common cryptocurrencies, you can protect your passwords and digital assets from hackers. The handy and very lightweight design of the Ledger Nano X provides a high degree of flexible mobility. Wherever you are: With this innovative Bitcoin Wallet, you can rely on the latest encryption technology with Bluetooth. The entire architecture of this hardware wallet has been consistently designed for security. Although the technology behind Ledger's Bluetooth Bitcoin Wallet is very complex, the small device impresses with intuitive usability. The screen and two buttons are enough to keep an eye on everything, always and everywhere.

Ledger Nano advantages:

- Newest safety standards for holistic protection
- Mobile use possible thanks to Bluetooth
- Easy backup for the security of your digital assets
- Flexible for many cryptocurrencies

QUANTUM COMPUTING IN 2020

-Smitha M, Priyatharshini A, Priya Dharshini P, Pethana Dharshini, Sri Poorna Devi M, Dhanusha .B

Many companies are now working on quantum computers and their applications. Here is a brief introduction to what some of them are doing.

GOOGLE

Back in 2018, Google had developed an innovative quantum-based processing solution known as Bristlecone, which is a 72-qubit device that is said to fetch necessary improvement on various options available in the market. Its biggest rival at that time was IBM's 50-qubit machine. Now, the search engine firm utilizes a D-Wave quantum computer developed in their quantum artificial intelligence (AI) lab, which is a joint initiative of NASA, Universities Space Research Association, a Google.

At the IEEE conference in San Francisco, Google showcased a custom-made circuit for quantum computing that is coupled with cryptographic enclosures to strengthen the scaling up of quantum computer systems in the coming years.

nture

A few months back, quantum software company 1QBit and Accenture collaborated with Biogent to bring out industry's first quantum-based molecular comparison application that would significantly improve advanced molecular design to speed up drug discovery for complex neurological conditions such as multiple sclerosis, Alzheimer's, Parkinson's and Lou Gehrig's diseases.

IBM

IBM's specialty is its attention to the universal gate model where the majority of the world's leading quantum computing firms are also focusing. In the quantum gate model, qubits are placed into circuits rather than traditional one-and-zero bits, whereas IBM has come up with eight different gate-model prototypes with one option as high as fifty qubits. Additionally, in 2019, IBM launched its innovative System One Solution for commercial quantum research. Apart from that, IBM has also proclaimed its partnership with various leading universities to encourage more research into quantum computing.

NEWSPAPER ARTICLES

டிஜிட்டல் நூலகம் : சில செய்திகள்

20ஆம் நூற்றாண்டின் தொடக்கத்திலே இணையம் குறித்த சிந்தனை விவாதிக்கப்பட்டாலும், 1960இல் தான் அது சாத்தியமானது. 1960களில் அமெரிக்கப் பாதுகாப்புத் துறை, ARPANET என்ற பெயரில் இணையத்தைக் கண்டு பிடித்தபோது, இணையம் நம்முடைய வாழ்க்கையில் இத்தகைய தாக்கத்தை ஏற்படுத்தும் என்று அறிவியலாளர்கள் உட்பட யாரும் கனவில் கூட நினைத்திருக்க மாட்டார்கள்.

1991ல் டிம் பெர்னர்ஸ் லீ கூட்டணி, வேர்ல்டு வைடு வெப் (WWW) கண்டுபிடித்து, இண்டர்நெட் என்கிற பெயரில் அதைப் பொதுமக்களின் பயன்பாட்டுக்கு அளித்தனர். அதன் பின்னர் இணையத் தொழில்நுட்பம் கண்ட அசுர வளர்ச்சி, வரலாறு. இணையத் தொழில்நுட்பத்தின் வீச்சும் அதன் அபரிமித ஆற்றலும் கனவிலும் நினைக்க முடியாத திறன்களை இன்று சாத்தியப்படுத்தியுள்ளன. மாணவர்களின் பயன்பாட்டுக்காகவும் இந்திய மனிதவளத் திறன் மேம்பாட்டு அமைச்சகத்தின் சார்பாக உருவாக்கப்பட்டிருக்கும் தேசிய மின்னணு நூலகமும் (NDLI) அத்தகைய சாத்தியங்களில் ஒன்று.

நூலகத்தின் பின்னணி

இந்தியத் தேசிய டிஜிட்டல் நூலகம் (NDLI) என்பது அனைத்து வகையான கற்றல் வளங்களைத் தன்னுள் கொண்டுள்ள மெய்நிகர் களஞ் சியம். இந்த நூலகம் கரக்பூர் ஐ.ஐ.டி.யால் உருவாக்கப்பட்டு, இயக்கப்பட்டு, பராமரிக்கப்படுகிறது. NMEICT மூலம் செயல்படுத்தப்பட்ட இந்த நூலகத் திட்டம், மத்திய அரசின் கல்வி அமைச்சகத்தால் வழிநடத்தப்படுகிறது.

எப்படி பயன்படுத்துவது?

இந்த டிஜிட்டல் நூலகத்தைப் பயன்படுத்த விருப்பமுள்ளவர்கள் https://ndl.iitkgp.ac.in என்கிற இணையதளத்துக்குள் சென்று, அதில் உறுப்பினராகப் பதிவு செய்துகொள்ள வேண்டும். இந்த நூலகத்தில் உள்நுழைவதற்கு உறுப்பினர்களுக்குத் தனிப் பயன்பாட்டுப் பெயரும் கடவுச் சொல்லும் வழங்கப்படும். அதைப் பயன்படுத்தி உறுப்பினர்கள் டிஜிட்டல் நூலகத்துக்குள் சென்று தங்களுக்குத் தேவையான மின்னணுப் புத்தகங்களைப் பதிவிறக்கம் செய்து பயனடையலாம்.

பயன்படுத்தப்படும் மொழிகள்

உலகம் முழுவதும் பயன்பாட்டில் உள்ள சிறந்த நடைமுறைகளின் அடிப்படையில் இந்த நூலகம் தொகுக்கப்பட்டுள்ளது. எந்த மொழியின் உள்ளடக்கத்தையும் இதனுள் சேகரித்து வைக்க முடியும். இந்தியாவில் பரவலாகப் பயன்பாட்டில் உள்ள தமிழ், ஆங்கிலம், மலையாளம், இந்தி உள்ளிட்ட 11 மொழிகளில் இந்த நூலகம் செயல்படுகிறது.

திறன்மிக்க தேடல்

பல படிநிலைகளிலிருக்கும் மாணவர்களுக்குப் பல சேவைகளை வழங்கும் இந்த மின்னணு நூலகத்தில், திறன்மிக்க தேடல் வசதியும் சலிப்பு ஏற்படுத்தாத உலாவல் வசதியும் உண்டு. கற்பவர்கள் தங்களுக்கு வேண்டிய தரவுகளை / நூல்களைக் குறைந்த முயற்சியில், குறைந்த நேரத்தில் தேடல் திறன்மிக்கதாக இந்த நூலகம் வடிவமைக்கப்பட்டுள்ளது.

யாருக்குப் பயன்படும்?

பள்ளி, கல்லூரி மாணவர்கள், வேலை தேடுவோர், போட்டித் தேர்வுக்கு ஆயத்தமாவோர், ஆராய்ச்சியாளர்கள் போன்றோருக்குக் குறிப்பிட்ட சேவைகளை அவர்களுக்குத் தேவைப்படும் விதத்தில் தனித்தனியே வழங்கும் வசதி இந்த நூலகத்தில் உண்டு.

மலைக்க வைக்கும் தொகுப்பு

ஆராய்ச்சியாளர்களின் கற்றலுக்கும் ஆய்வுகளுக்கும் தேவைப்படும் நூல்களும் பல ஆதாரங்களிலிருந்து தொகுக்கப்பட்ட தரவுகளும் இந்த நூலகத்தில் மலைபோல குவிந்துள்ளன.

சுமார் 70 மொழிகளில் 3 லட்சம் நூலாசிரியர்களால் எழுதப்பட்ட சுமார் 7 லட்சம் நூல்கள், 3 லட்சம் கட்டுரைகள், அதில் 95 ஆயிரத்துக்கும் மேற்பட்ட ஆராய்ச்சிக் கட்டுரைகள், 2.4 லட்சம் ஆடியோ விரிவுரைகள், 18 ஆயிரம் வீடியோ விரிவுரைகள் ஆகியவை இந்த டிஜிட்டல் நூலகத்தில் தொகுக்கப்பட்டுள்ளன. மாணவர்கள் தங்களுக்குத் தேவையான நூல்களை பி.டி.எஃப். வடிவில் தரவிறக்கம் செய்து கொள்ளலாம்.

பாடப் புத்தகங்களின் தொகுப்பு

பள்ளிக் கல்வியைப் பொறுத்தவரை என்.சி.இ.ஆர்.டி, தமிழகப் பள்ளிக் கல்வித்துறை உள்ளிட்ட 20 பள்ளிக் கல்வி வாரியங்களின் பாடத்தொகுப்புகள் பதிவேற்றம் செய்யப்பட்டுள்ளன. இளங்கலை, முதுகலை, ஆராய்ச்சியாளர்கள் உள்ளிட்ட அனைத்துத் தரப்பினரும் இந்த நூலகத்தைப் பயன்படுத்திக் கொள்ளலாம். இவை தவிர பொதுவான வாசிப்புக்கு என்.பி.டி.யின் புத்தகங்களும் உள்ளன.

மாற்றங்களின் நீட்சி

நம்முடைய அறிவுத் தேடலும் கற்றலும் இன்று முற்றிலும் இணையத்தைச் சார்ந்தே உள்ளன. இணையத்தால், கற்றல் இலகுவாகிவிட்டது. கற்றலும் அறிவுத்தேடலும் மாணவர்களுக்கு விருப்பமானவையாக மாறிவிட்டன. கல்வித் துறையில் இணையம் ஏற்படுத்தி வரும் ஆரோக்கியமான மாற்றங்களின் நீட்சியே தேசிய மின்னணு நூலகம். இது நம் தலைமுறை மாணவர்களின் கற்றல் திறனை அடுத்த கட்டத்துக்கு நகர்த்தும். அவர்களுடைய திறனை மெருகேற்றும். முக்கியமாக, கொரோனா காலத்தில் வீட்டினுள் முடங்கியிருக்கும் இன்றைய மாணவர்களுக்குத் தடையற்ற கல்வியை அளிக்கும்.

இந்து தமிழ் திசை

Female Entrepreneurs of the Startup Eco System

The Indian economy has grown steadily over the last decade, and there has been a parallel surge in the number of startups and new businesses in the country, the majority of which are started by men. India has a total of 58.5 million entrepreneurs and 8.05 million of those are women entrepreneurs, which adds only 14 per cent of women entrepreneurs in the Indian business setting.

While many Indian women have entrepreneurial ambitions, it is often more difficult for them to succeed. Compared to the global number of 126 million women owning a business, the stats for India seem nominal which was around 8 million women have started their own business in the year 2018. Despite this, it is inspiring to see Indian women increasingly overcome the deeply entrenched patriarchal norms and mindsets, and carve a niche for themselves in the male-dominated world of business. Moreover, these new-age businesswomen are self-made, with very few of them belonging to any established business families. There are many industries that are booming amazingly while being led by women entrepreneurs like the cosmetic industry, wellness industry, influencer marketing, fashion clothing, and a few others.

There is a pressing need for more and more female entrepreneurs in the market to create a balance of leadership. Female leadership creates an avenue for diverse ideologies and a variable perspective with fresh viewpoints.

It is a universally acknowledged truth that women, in comparison to their male counterparts have to scale more mountains in their professional journeys. Women are sometimes unaware of the potential they harbor within themselves and the immense pressure from the family and society brings them down.

The Indian startup ecosystem for female entrepreneurs is currently thriving; it is one of the best times to be a women entrepreneur in India as not only is there support from the government but also various private accelerators like empoWer, Shakti, and funds like SheCapital, Kalaari Capital that are exclusively for women entrepreneurs, more than that the time to unleash the passion is now as women have become more self-aware, and also there are ample opportunities lined up in the market. A recent survey conducted by technology major Dell and consultancy firm IHS ranked only two cities—Bengaluru and Delhi—at 40th and 49th position, respectively, in the 50 most favorable global places for females to work. Here is a list of few things that I believe the female entrepreneurial spirit brings into the startup ecosystem.

Clarity of thought and firm drive

For every woman entrepreneur, it is vital to be a person of mettle as well as metal. Women must be of strong intent and be conclusive of the purpose of establishing her business; from the underlying goals to the execution layout, to the ultimate objective. It is important to cut out a definite roadmap; whether it is a purely passion-driven pet project or with a business viewpoint to it; whether to maintain it as a small-scale boutique business or likely arrangements of development and expansion. All these elements need to be tended with crystal clarity, which would then shape the establishment for the structure for their business

Believes in multi-tasking

Around 58 per cent of the female entrepreneur's strengths are their multi-tasking skills. In 2013, a study by a UK-based psychologist revealed that women were faster and more organized at switching rapidly between tasks and under pressure. Women can multitask, have a calmer approach to problems, are more committed to a cause, and by and large, have lesser distractions and higher attention spans. The women are forever juggling work, family, relationships, and everything in between with finite time and resources, yet she manages to do it all with aplomb.

Masters in the art of communication skills

There's no denying that women ace the art of communication. The fact that 67 per cent of the women founders recall communication skills as their key to success when building rapport with employees or setting the company's vision or delivering a business pitch to the investor is the moment when communication skills need to be at their peak. Your success as an entrepreneur is determined in large part by your ability to communicate. You can be the best at what you do, but if you are not communicating effectively with clients, employees, and the ecosystem, then you're missing the opportunities.

Women bring creativity to the business

Companies today operate in a highly competitive, global environment, making creativity crucial. Creativity is what fuels big ideas, challenges employees' way of thinking, and opens the door to new business opportunities. A survey by IBM of more than CEOs shows consensus, creativity was ranked as the number one factor for future business success, above management discipline, integrity, and even vision. Women entrepreneurs can turn big ideas into business by constant adaption of business to the current environment and future possibilities. They are more adept than their male counterparts at seeing gaps in the market and seizing opportunities.

Intuition and sensitivity

Women have the power to interpret unspoken cues and non-verbal communication, in contrast to men. When the power of intuition is balanced with passionate knowledge, women have the power of empathy to uphold a balanced work-force. The ability to deliver a helpful labor force and to decipher feelings before any conflict crops up among associates creates the primary structure blocks for any startup. Women make the best team leaders, bosses, and co-founders. This is because they are intrinsic to success since they promote stability, commitment, and bring an abundance of involvement at all levels of the organization.

It's the time when we finally break new ground in terms of closing the gender gap that exists between female and male entrepreneurs. By giving chance to female entrepreneurs and investing in them, the Indian startup ecosystem can fuel the level of impact and can get an unprecedented bang with the economy. An everyday increasing number of female entrepreneurs is setting a good example for other women who are looking to make a move in the startup industry.

Source : www.entrepreneur.com

'MOUSHIK' a Microprocessor by IIT - Madras

The Department of Computer Science and Engineering of IITMadras recently announced that it had developed a microprocessor christened 'Moushik'. It uses a 180-nanometer semiconductor chip and can be programmed for a number of uses such as in credit and debit cards, surveillance cameras, consumer electronics, voting machines and various sensors.

One instinctive reaction to this is: isn't this re-inventing the wheel? Who needs a desi microprocessor when the stuff is available cheap and aplenty in the world?

Such a reasoning is totally wrong, the team says.

Security risk

Prof. Kamakoti pointed out that imported microprocessors are a potential security risk. We know what it (the imported microprocessor) can do; but we cannot tell that it will not do what we don't want it to do. In a sense, an importer microprocessor is like a "black box"; we do not know what all it contains, whereas an indigenous one is not.

He is also a member of the National Security Advisory Board. As India is about to move into a higher level of electronic gadgetry – an explosion of sensors is anticipated, with use in healthcare, precision agriculture and internet-of-things – andthe role of microprocessors increases correspondingly. There are going to be billions of devices, and each would need a microprocessor.

Also, when uses imported processors are used, we will need to develop applications according to the processor's capabilities. Furthermore, in cases where a processor needs to be used for strategic application, even the security clearance will take a very long time – even as long as 15 years. And, if the seller of the processor stops supporting it, then you would need to buy a new processor and reconfigure the entire system for compatibility.

Open source

However, the Moushik microprocessor is completely open source, which means the source codes are available in the public domain. Anybody could develop it further to suit his needs, without having to disclose it.

In future start-ups to take up our microprocessor and create businesses out of it.

What about Moushik having been built with '180 nm technology'?

The 'nanometer' in the context of semiconductors means the size of the transistors, which are like 'brain cells'. The smaller the transistor, the smaller the device can be. Today, in a world where semiconductor conductor manufacturers such as Samsung and TSMC have gone as small as 5 nm transistors – leaving even Intel behind at 14 nm – 180 nm seems ancient.

Even though there are still thousands of electronic devices that work perfectly well on '180 nm technology'. India's semiconductor laboratory in Chandigarh is fully capable of making the 180 nm semiconductor – so the Moushik microprocessor syncs well with the Atmanirbhar Bharat initiative. Size is not so critical when you talk of devices such as surveillance cameras or washing machines.

If India can make good with indigenous chips for a large part of its market, it can better exercise its purchasing power in the international markets, said Kamakoti.

What about costs?

Pointing out that the cost related to scale, that if one million chips could be manufactured, they could be sold for 50 cents apiece, the same prices as imported.

Source : Business Line

Social Distancing in Manufacturing Shops

Maintaining social distance at work is one of the most effective ways of preventing the spread of the coronavirus. Wireless technology has emerged to help manufacturing companies enforce their own social distancing policies.

Wear a mask, and practice social distancing of at least 6 ft. These basic recommendations are followed all over the world.

Now, admittedly, the U.S. could do a lot better in trying to stop the spread of the virus. Some companies, particularly those involved in meat processing, struggled early on. Manufacturers have taken note and demonstrated a real commitment to applying CDC recommendations, so that they can continue to serve their customers. These manufacturing companies are taking temperatures at the door, limiting visitors to the plant, avoiding meetings where people are in close contact, providing hand sanitization stations, and providing personal protection equipment that inhibits the transfer of aerosols that potentially contain the coronavirus.

Of course, for these safety protocols to work, employees have to follow through on them. Having employees gabbing near the water cooler only inches apart from each other is not something that the human resources director or the safety manager wants to see.

To help facilitate social distancing compliance, whether it be 6 ft. [illegible] has developed a "tracing" tool to remind individual employees that they should maintain a respectful distance from co-workers. It also acts as a tool for company management to remind employees that they need to be more mindful of the distancing requirements.

The employee wears a pendant that is Bluetooth-enabled, the proximity-tracing product. If anyone of the employee is violating the company's social distancing policy, it alerts the user via a noise or a vibration.

The pendants can be programmed to detect distances of any length or to limit the amount of time that two pendants can be in proximity to each other. They communicate with each other to collect interaction data and trigger real-time alerts. They are slightly larger than an average USB stick and weigh about 0.25 oz. The battery that powers the pendants lasts several months.

Gateway units, located near entrances or bottlenecks where people are constantly moving through, are used to collect information from the pendants. A typical manufacturing company needs only two to four gateways, depending on how large the facility is, strategically positioned to ensure that all pendants come within range of the gateways. The information that is collected from the pendants is then fed into AllSafe proprietary software that compiles time- and location-based interaction history, notifying administrators of people that are routinely violating distancing practices.

For those concerned about one's privacy, this is not a tracking product. Each pendant, and subsequently the person wearing it, is assigned a code. The human resources executive or person charged with going over proximity reports then has the opportunity to see what pendants have been in violation of the company's distancing policy. If the violations are repeatable or overly grievous, management can connect the pendant number with the assigned individual and have a discussion with the violators.

The product does not require a smartphone to work. As a result, pendant wearers' mobile phones are not used for data collection or information transmission.

A wristband product, which operates similarly to the pendant, is available for companies that would like to issue them to visitors. The battery, however, is only good for about 20 to 30 days.

The origins of this technology actually date back to infant tracking, according to Arnold Yu, Airbeam's vice president. Because hospitals are worried about people entering neonatal units and perhaps walking off with someone else's child, they place Bluetooth-enabled wristbands on the babies and establish a geo-fence around the restricted area.

If the tags get close or appear to pass beyond the geo-fence, the system alerts security and lets them know that a baby is being taken.

This same technology approach is being used at construction sites where contractors want to protect expensive equipment, such as a welding power source. With a Bluetooth-enabled band on the equipment, the construction company is notified when the equipment is being moved beyond the area marked by the geo-fence.

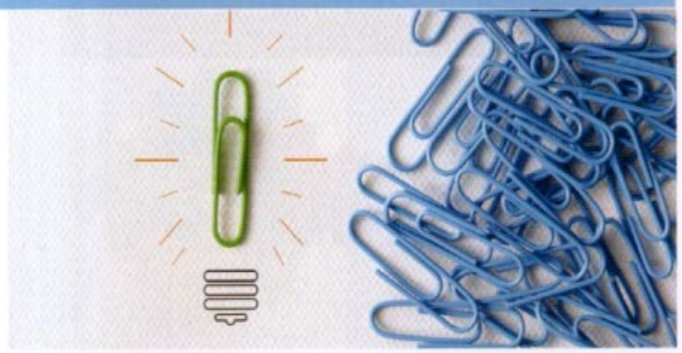
This proximity tracing is just a different application of the same technology.

Instead of protecting infants, the wireless technology is now being used to minimize the risk of transferring the coronavirus by enforcing distancing expectations.

These pendants won't prevent someone from catching COVID-19, but it hopefully would help prevent the spread of it by keeping the social distancing policy in the forefront of everyone's minds while in the workplace."

Source : www.thefabricator.com

To Find the Right Business Coach



In case it's not apparent, this pandemic has fundamentally shifted the landscape for all businesses, notably smaller enterprises where "doing more with less" is a daily reality. And that's something that leveraging an external business consultant can directly support with the right vetting.

The term business coach, which has become more mainstream over the past dozen or so years, appropriately connotes an ongoing mentorship relationship that's intimate to the influence of both individual leaders and — by extension — their organizations.

Finding that partner to take your business to greater heights requires a strategy with the same due diligence that would be exerted in finding critical, long-term employees. The following factors can help us to find the needle in a haystack :

1. Industry Knowledge

Ensure that prospective candidates have a solid understanding of your industry, market opportunity and the subtle differentiators that define either success or failure. Even seemingly mundane skillsets (e.g. accounting, human resources, etc.) have unique attributes that are industry-segment-specific. It should be clearly known where these are critical to consulting outcomes, and prior reference work should be directly attributable to related domain challenges.

2. Expertise in Your Discipline

It can be unrealistic to assume a single individual will have deep expertise in all areas. While generalists exist with good depth and breadth of knowledge, more often coaches will have a bias to a specific discipline, like sales and marketing, operations or strategy. Depending on the size and maturity of your company, a more deeply focused advisor may be what's needed.

3. Culture and Value Alignment

Receiving input on existing process, methodology or even outcomes impacting behaviors in your organization can be met with resistance if the advisor hasn't established trust and a rapport. Personality match is a key consideration, but this must exist alongside strengths in communication traits that may help bridge gaps in your current culture (e.g. constructive confrontation of difficult truths).

4. What Superpowers They Bring

While a business coach may have multiple strengths, it is important to probe for the underlying trait they can pinpoint your organization's needs. As an example, do they have the ability to see the gap space between what is being done currently and where it should be? Can they discern what is being shared explicitly from what is unstated but needed to shape a strategy for change?

5. Proof of Results

Credible business coaches will talk in terms of concrete results from past engagements, whether quantitative or qualitative in nature (e.g. directly attributed increase in sales, improved team participation in organizational success, etc.). Also look to seek out references (more on that below) that can provide additional context for how these results were achieved, and with what level of accuracy on implementation guidance.

6. Industry References

Look for previous work and affiliations that are directly relatable to your focus (even when in a niche sub-segment) and which can found without complex discovery, such as published membership in reputable advocacy or credentialing organizations. Prioritize any information that showcases opinions and credibility, such as speaking engagements with industry groups (conferences, podcasts, etc.) or published articles (credible trade periodicals/websites, etc.).

7. Knowledge Currency

Every business domain is constantly adapting to shifting market forces and opportunities, and advisors must be up to date. Without an awareness of contemporary trends and options, guidance could simply fall flat, leading to wasted efforts. Credible coaches should understand and be able to comment handily on recent, relevant actions, whether they be legislative changes, demographic market shifts or industry sales and buying patterns.

Source : www.entrepreneur.com

Arts & Crafts

The Odds

LIFE IS ABOUT SOMETHING
SOMETIMES ABOUT NOTHING - BUT
WHATEVER COMES IN
SOWS A SEED WITHIN.

TO SEE THE WHOLE WORLD WITH ALL IT'S WONDER
IN A SMALL GRAIN OF SAND - CAN
BE ONLY TAUGHT BY THE LIFE TEACHER
AND ALSO, MORE THAN WE DEMAND.

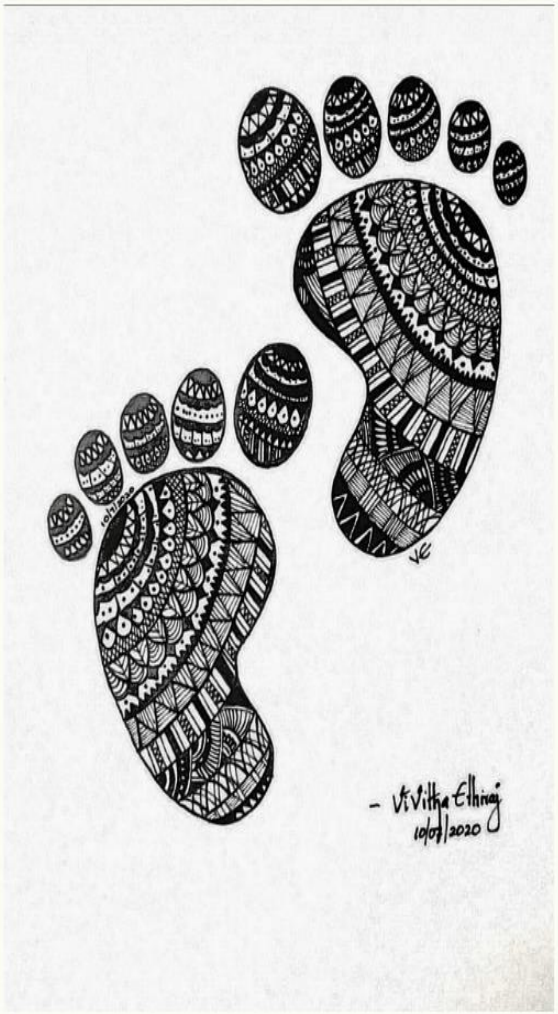
TO FEEL AND LIVE THE HEAVEN
INSIDE A WILD ROUGH HELL.
POSSIBLE WITH LIFE'S LESSONS,
WHERE WE THINK THE DEVILS DWELL.

TO HOLD THE INFINITY OF ALL
IN A MINUTE POINT - WE
CAN LEARN THEM WHILE LIFE CALLS
WHEN WE'RE FREE FROM TRAIN

TO LIVE THE ETERNITY
IN A SECOND - DONE
ONLY BY THE MINDS WITH CURIOSITY
WHEN IT WORKS UNDER LIFE'S COMMAND.

CLASSIC, MECHANIC EVEN QUANTUM
MAY FAIL TO EXPLAIN LIFE - BUT
WITH INFINITE, ETERNAL PHANTOM
LIFE LIES ON TOP OF OUR BREAD SLICE.

- K. SUBIKSHA
IV-ECE



Vivitha.E
IV-ECE

Malar Vizhi.I

IV-ECE

மழை

முழு மதி தலை கோதி
மூடி வைத்த வெண்மேகம்
சிதறிய விண்மீன் அள்ளி
சிறு மூட்டை கட்டிவிட்டு
பார் பார்த்த வெள்ளொளியை
பந்தி இலையென மூடிவிட்டு
கற்றை மேகம் கருமையடிக்க
பூக்களைப் பிரித்து
புன்னகை காட்டும்
புதிதாய் பிறந்த குழந்தைப் போல்
மின்னல் கீற்று
கருமை கிழித்து காவியம் பாட
கைதட்டி ரசிக்கும் ஆரவாரம்

காவியப்பிரியா. மு
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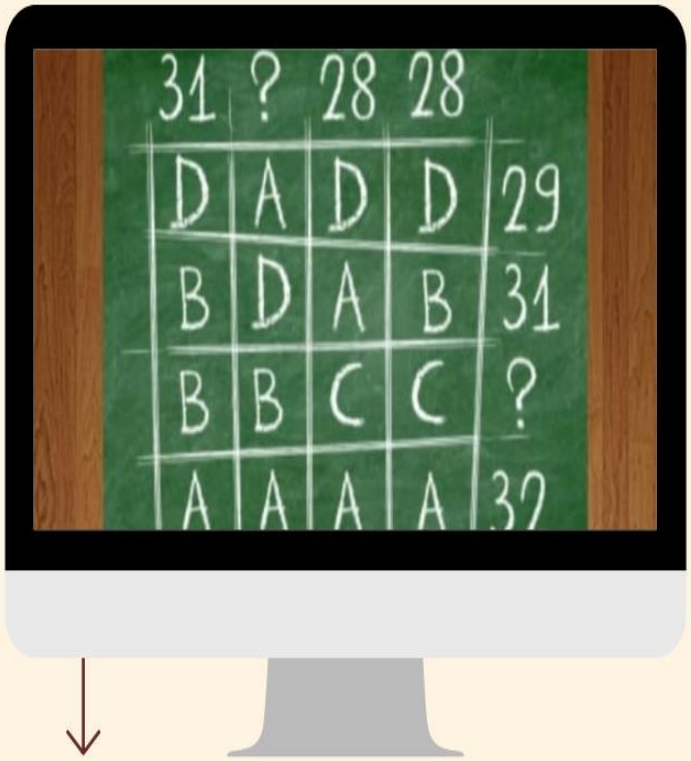
Test your Brain

What has to be broken before you can use it?

When the day after tomorrow becomes yesterday, then today will be as far from sunday as the day it was today when the day before yesterday was tomorrow. Which day is it?



What goes up but never comes down?