

# DIGIT-ALL

Dept. of Computer Science and Engineering  
Gandhi Institute For Technology Bhubaneswar

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## DIGIT-ALL

THE E-MAGAZINE, EXPLORES THE TECHNICAL SKILLS OF STUDENTS & FACULTIES. THE MAGAZINE HAS ARTICLES ON LATEST TECHNOLOGIES, CARTOONS, QUIZZES AND MANY MORE FUN FACTS.

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## *Vision of the Department:*

To produce the professionals of highest grade, bearing the ability to face the challenges posed by latest computing paradigms, founded by intuitive quality of education and driven by culture of critical thinking and creativity, towards the betterment of humankind.

## *Mission of the Department:*

To Advance knowledge of computing and educate students in major paradigms of computer science and to create a distinctive culture of research and innovation among the budding engineers with collaboration of faculties, technocrats, funding agencies and experts from other premier institutes for generating a pool of professionals and eco-preneurs with the ability to address the Industry and social Problems.

## *PEOs of the Department*

PEO 1: To gain adequate mathematical, computing and engineering principles in order to advance in professional career or obtain better response in higher studies platforms.

PEO 2: To foster the ability to analyze real life problems, perform required research and design computing systems, in accordance to its solutions that are technically sound, economically viable and socially admired and adaptable.

PEO 3: Will have ability to exhibit professionalism, technical skills, communication skills, team work and humanitarian skills in their profession and adapt to current changes by inculcating habit of lifelong learning.

## From Guest's desk:



Dear Readers,

*Greetings to Department of Computer Science & Engineering!*

As a faculty in ITER, and being a computer professional, I regularly follow the different magazines published by different institutions. I first came in touch with DIGIT-ALL in 2013 in the college's website and it impressed me a lot in all the spheres in which facts and articles are published. I as the presenter of an article during this session feel privileged to have been asked to write a message.

It was pleasing to learn that the students of GIFT, CSE department have taken forward such an initiative and are eager and enthusiastic to collect facts and make themselves felt around the world through different articles and other contents. I would like them to continue this effort and try to bring laurels for their institution.

DIGIT-ALL has taken a lot of air even around GIFT and is continuing to spread its wing. I as a computer professional want this effort to multiply itself even more and spread the knowledge all around

Thanks & Regards,

Dr.Prithiviraj Mohanty

Dept. of CA,

Institute of Technical Education and Research

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## Articles

### *Ovonic Unified Memory*

Mr.Abhisek Giri (CSE-1801298009)

Ms.Suchismita Bebatā (CSE-1901298220)

Nowadays, digital memories are used in each and every fields of day-to-day life. Semiconductors form the fundamental building blocks of the modern electronic world providing the brains and the memory of products all around us from washing machines to super computers. But now we are entering an era of material limited scaling. Continuous scaling has required the introduction of new materials.

Current memory technologies have a lot of limitations. The new memory technologies have got all the good attributes for an ideal memory. Among them Ovonic Unified Memory (OUM) is the most promising one. OUM is a type of nonvolatile memory, which uses chalcogenide materials for storage of binary data. The term 'chalcogen' refers to the Group VI elements of the periodic table. 'Chalcogenide' refers to alloys containing at least one of these elements such as the alloy of germanium, antimony, and tellurium, which is used as the storage element in OUM. Electrical energy (heat) is used to convert the material between crystalline (conductive) and amorphous (resistive) phases and the resistive property of these phases is used to represent 0s and 1s. To write data into the cell, the chalcogenide is heated past its melting point and then rapidly cooled to make it amorphous. To make it crystalline, it is heated to just below its melting point and held there for approximately 50ns, giving the atoms time to position themselves in their crystal locations. Once programmed, the memory state of the cell is determined by reading its resistance.

## *Crusoe Processor*

**Mr.Tanmaya Das (1701298020)**

**Mr.Anikit sahu (1901298289)**

Mobile computing has been the buzzword for quite a long time. Mobile computing devices like laptops, weblates & notebook PCs are becoming common nowadays. The heart of every PC whether a desktop or mobile PC is the microprocessor. Several microprocessors are available in the market for desktop PCs from companies like Intel, AMD, Cyrix etc. The mobile computing market has never had a microprocessor specifically designed for it. The microprocessors used in mobile PCs are optimized versions of the desktop PC microprocessor. Mobile computing makes very different demands on processors than desktop computing, yet up until now, mobile x86 platforms have simply made do with the same old processors originally designed for desktops. Those processors consume lots of power, and they get very hot. When you're on the go, a power-hungry processor means you have to pay a price: run out of power before you've finished, run more slowly and lose application performance, or run through the airport with pounds of extra batteries. A hot processor also needs fans to cool it; making the resulting mobile computer bigger, clunkier and noisier. A newly designed microprocessor with low power consumption will still be rejected by the market if the performance is poor. So any attempt in this regard must have a proper 'performance-power' balance to ensure commercial success. A newly designed microprocessor must be fully x86 compatible that is they should run x86 applications just like conventional x86 microprocessors since most of the presently available software's have been designed to work on x86 platform. Crusoe is the new microprocessor which has been designed specially for the mobile computing market. It has been designed after considering the above mentioned constraints. This microprocessor was developed by a small Silicon Valley startup company called Transmeta Corp. after five years of secret toil at an expenditure of \$100 million. The concept of Crusoe is well understood from the simple sketch of the

processor architecture, called 'amoeba'. In this concept, the x86-architecture is an ill-defined amoeba containing features like segmentation, ASCII arithmetic, variable-length instructions etc. The amoeba explained how a traditional microprocessor was, in their design, to be divided up into hardware and software.

Thus Crusoe was conceptualized as a hybrid microprocessor that is it has a software part and a hardware part with the software layer surrounding the hardware unit. The role of software is to act as an emulator to translate x86 binaries into native code at run time. Crusoe is a 128-bit microprocessor fabricated using the CMOS process. The chip's design is based on a technique called VLIW to ensure design simplicity and high performance. Besides this it also uses Transmeta's two patented technologies, namely, Code Morphing Software and Longrun Power Management. It is a highly integrated processor available in different versions for different market segments. The Transmeta designers have decoupled the x86 instruction set architecture (ISA) from the underlying processor hardware, which allows this hardware to be very different from a conventional x86 implementation. For the same reason, the underlying hardware can be changed radically without affecting legacy x86 software: each new CPU design only requires a new version of the Code Morphing software to translate x86 instructions to the new CPU's native instruction set. For the initial Transmeta products, models TM3120 and TM5400, the hardware designers opted for minimal space and power. By eliminating roughly three quarters of the logic transistors that would be required for an all-hardware design of similar performance, the designers have likewise reduced power requirements and die size. However, future hardware designs can emphasize different factors and accordingly use different implementation techniques. Finally, the Code Morphing software which resides in standard Flash ROMs itself offers opportunities to improve performance without altering the underlying hardware.

## *Service Oriented Architecture-SOA*

**Mr.Saswat Kumar Behera (CSE-1801298304)**

**Mr.Mahendra Pratap Sahu (ECE-1901298295)**

Microsoft Access password helps protect your data saved in .mdb file from the unwanted users. This kind of security measures are provisioned for Access because a lot of crucial data is stored in a database which can be misused. This .mdb file format is not that easy to work with only the ones who are familiar with its functionality can make use of it smoothly. Thus, it is need of a user to protect those files from the unwanted use. Thus these files are protected with the password protection. But forgetting password is a normal thing done unintentionally by humans, This is a common scenario of forgetting password of Access database. And it if happens, user might not able to access database saved in .mdb format he will be left with two option in such a situation one is to leave the file as it is and other is to prepare a new Access file with the same data and third option is performing Access password recovery.

Every time it is not possible to make a new Access file as one file contains important data is a matter of concern in such a situation user will go with the third option and search for a tool to Microsoft Access password recovery tool. Importance Of Microsoft Access: Microsoft Access can manage database very well. Database can be defined "it is a way to store important information about people, places and can be organized it well". Access is a productive application used for database management and makes it quick to Access them. With MS Access user can filter, perform calculation and summarize their data. Access saves data in vertical and horizontal row grid. This management application can efficiently be used to search, enter and sort information. Database saved in .mdb format can be customized and developed by using development tool such as Microsoft visual basic. Need for Access Password Recovery Tool: To safeguard important data user put up



password protection but due to heavy burden of work user usually forgets it. If files contain less important database he or she may leave it but in most cases database is important he can't leave his files. In such a situation user can opt a password recovery application so that they can recover password and create an alternative password. User can go for the best solution which can remove password from the .mdb files and recover as it is data rather than manipulating with the integrity of the data. Access password recovery application can be installed by purchasing it with few clicks so that user can work with the Access database

### *Words of Wisdom*

“I really didn't foresee the Internet. But then, neither did the computer industry. Not that that tells us very much of course--the computer industry didn't even foresee that the century was going to end.”

— **Douglas Adams**

## *Ceramic Fasteners*

**Mr. Debjyoti Sahu (CSE-1801298112)**

**Mr. Netai Lohar (ECE-1901298297)**

A ceramic is an inorganic, non-metallic solid prepared by the action of heat and subsequent cooling. Ceramic materials may have a crystalline or partly crystalline structure, or may be amorphous (e.g., a glass). Because most common ceramics are crystalline, the definition of ceramic is often restricted to inorganic crystalline materials, as opposed to the non-crystalline glasses.

The earliest ceramics were pottery objects made from clay, either by itself or mixed with other materials, hardened in fire. Later ceramics were glazed and fired to create a colored, smooth surface. Ceramics now include domestic, industrial and building products and art objects. In the 20th century, new ceramic materials were developed for use in advanced ceramic engineering; for example, in semiconductors.

The word ceramic comes from the Greek word "κεραμικός" (keramikos), "of pottery" or "for pottery", from "κεραμός" (keramos), "potter's clay, tile, pottery". The earliest mention on the root "ceram-" is the Mycenaean Greek ke-ra-me-we, "workers of ceramics", written in Linear b syllabic script. Ceramic may be used as an adjective describing a material, product or process; or as a singular noun, or, more commonly, as a plural noun, ceramics. durability, compatibility, manageability, dynamic reusability, and accessibility in the proposed architecture enhance the future elearning systems to communicate more efficiently and share data more easily. Service based architectures take legacy application functionality and expose it to the Internet in a reliable, highly available, scalable, flexible, manageable, and secure manner, easy and reliable internet-based method to create and access learning.

Web Service technology has emerged as a new paradigm of distributed computing. The Service-based architectures are layered on the top of standard transfer protocols for transmitting messages that currently, the most common ones are the XML-based specification SOAP (Simple Object Access Protocol), UDDI (Universal Description, Discovery and Integration), and WSDL (Web Service Description Language) [5] [12]. E-learning is a general term used to refer to a form of learning in which the instructor and student are separated by space or time where the gap between the two is bridged through the use of online technologies.?

### Words of Wisdom

“... we have created a man with not one brain but two. ... This new brain is intended to control the biological brain. ... The patient’s biological brain is the peripheral terminal -- the only peripheral terminal -- for the new computer. ... And therefore the patient’s biological brain, indeed his whole body, has become a terminal for the new computer. We have created a man who is one single, large, complex computer terminal. The patient is a read-out device for the new computer, and is helpless to control the readout as a TV screen is helpless to control the information presented on it.”

— **Michael Crichton**, (*The Terminal Man*)

“Computers are heaven-sent when they work and hell-spawn when they don’t. There’s just not much middle ground when it comes to technology.”

— **Dani Harper**

## Interesting Facts

### Ms.Prashana Sinha (CSE-1701298102)

- Over 6,000 new computer viruses are released every month.
- The first computer mouse, constructed in 1964, was made out of wood.(by Doug Engelbart)
- The average human being blinks 20 times a minute – but only 7 times a minute when using a computer.
- The first electro-mechanical computer was developed in 1939.
- By the end of 2012 there will be 17 billion devices connected to the internet.
- 5 out of every 6 internet pages are porn related.
- Over 1 million domain names are registered every month.
- With its 800 million internet users, Facebook would be the third largest country in the World.
- The first hard drive was created in 1979 and could hold 5MB of data.
- The nVidia GeForce 6800 Ultra video card contains 222 million transistors.
- Symbolics.com was the first ever domain name to be registered.
- 80% of the emails sent daily are spammy.
- SanDisk was earlier known as SunDisk.
- Until September 1995, domain registration was free.
- 'Electronic brains'! That's what computers were called in the 1950s.
- One can type 20 times faster using a Dvorak keyboard as compared to using a Qwerty keyboard.

### proverbios

*Between the devil and the sea.* To choose between two equally bad alternatives and in a serious state of dilemma

## Cartoons

Akash Kumar Singh (CSE-1901298076)

### Question By A STUDENT !!

[www.olaalaa.com](http://www.olaalaa.com)

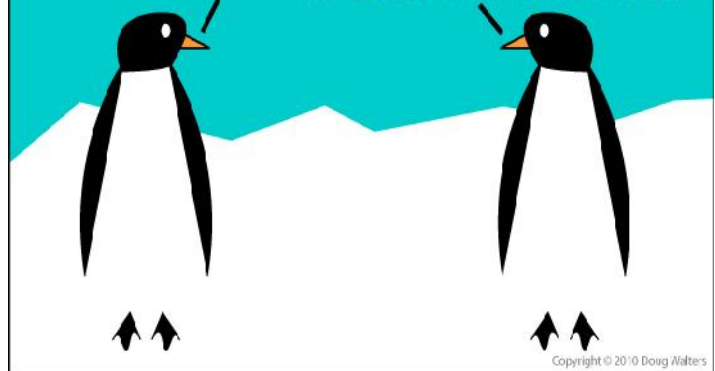


**If A Single Teacher Can't  
Teach Us All The Subjects,  
Then..  
How Could You Expect  
A Single Student To  
Learn All Subjects??**

### THE ILLUSTRATED PENGUIN JOKE ANTHOLOGY

WHAT'S BLACK AND WHITE  
AND RED ALL OVER?

A PENGUIN WITH A SUNBURN.



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## Technical Quiz

Mr. Sanjog Patel (CSE-1801298298)

❖ Which of the following is the 1's complement of 10?

- A. 01
- B. 110
- C. 11
- D. 10

❖ A section of code to which control is transferred when a processor is interrupted is known as

- A. M
- B. SVC
- C. IP
- D. MDR

❖ A hard disk is divided into tracks which are further subdivided into:

- A. clusters
- B. sectors
- C. vectors
- D. heads
- E. None of the above

❖ A wrist grounding strap contains which of the following:

- A. Surge protector
- B. Capacitor
- C. Voltmeter
- D. Resistor
- E. None of the above

❖ The strategy of allowing processes that are logically runnable to be temporarily suspended is called

- A. preemptive scheduling
- B. non preemptive scheduling
- C. shortest job first
- D. first come first served

❖ What are the most commonly used transmission speeds in BPS used in data communication?

- A. 300
- B. 1200
- C. 2400
- D. 9600

❖ *What is the default subnet mask for a class C network?*

- A. 127.0.0.1
- B. 255.0.0.0
- C. 255.255.0.0
- D. 255.255.255.0

❖ *The Memory Buffer Register (MBR)*

- A. is a hardware memory device which denotes the location of the current instruction being executed.
- B. is a group of electrical circuits (hardware), that performs the intent of instructions fetched from memory.
- C. contains the address of the memory location that is to be read from or stored into.
- D. contains a copy of the designated memory location specified by the MAR after a "read" or the new contents of the memory prior to a "write".

❖ *What is the language used by most of the DBMSs for helping their users to access data?*

- A. High level language
- B. Query language
- C. SQL
- D. 4GL

❖ *Data item characteristics that are important in data management include*

- A. punctuation
- B. language
- C. spelling
- D. width

❖ *What TCP/IP protocol is used for remote terminal connection service?*

- A. UDP
- B. RARP
- C. FTP
- D. TELNET

❖ *How many networks and nodes per network, are allowed by the Class B network?*

- A. 127 networks and 16,777,216 nodes per network
- B. 16,384 networks and 65,534 nodes per network
- C. 2,097,152 networks and 254 nodes per network
- D. All of the above

Answers  
1. A  
2. A  
3. B  
4. D  
5. A  
6. D  
7. D  
8. D  
9. B  
10. D  
11. D  
12. B

## POETRY

**Ms.Sweety Sweta Giri (CSE-1901298226)**

### *Friend*

A friend is someone  
You turn to.  
A friend is someone  
You confide in.  
A friend is someone  
Who stands by you.  
A friend is someone  
Who lifts your spirits.  
A friend is someone  
who encourages you.  
A friend is someone  
You treasure always.  
A friend is someone  
Who makes you smile.  
A friend is someone  
Who brightens your day.