PHOENIX

2008

Presents

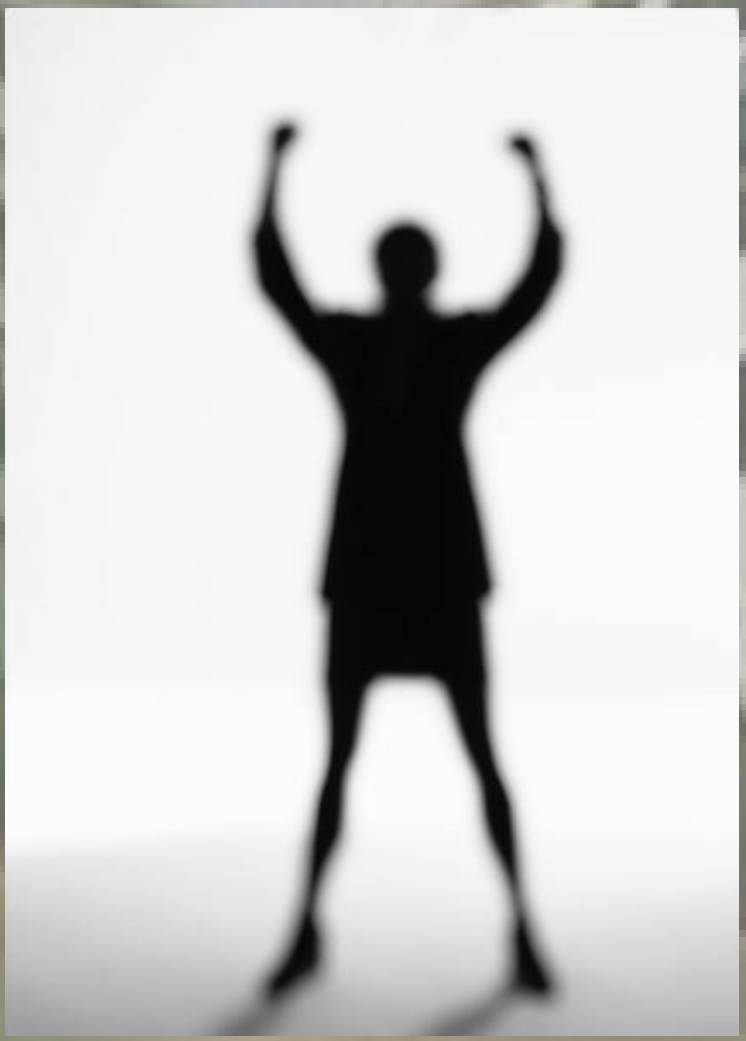
SYNERGY

Come Let's Rise

Netaji Subhash Engineering College

PHOENIX

The Official Tech Club of Netaji Subhash Engineering College Presents



SYNERGY

ABOUT PHOENIX

Some people are born to dream high. Some dare to unfurl their wings and fly sky high. The others are left far behind. PHOENIX is the brain child of a few denizens who chose to live their dreams. PHOENIX, the official tech club of NSEC was formed in 2005 and from the first day the sky has been the limit. PHOENIX is for those people who are different, it is for them who want to make a difference. Every person is unique in his own way and has only one destiny. PHOENIX is for all of you students out there with dreams unbound. PHOENIX is not just any other technical club, its difference is marked by the fact that we value you, whether you are senior or junior. The knowledge of the seniors is passed on to the juniors, and their thoughts realized by the seniors, which helps us to bond together, and bridge our differences. Our constructive work is carried on by an open-minded approach and exchange of ideas. PHOENIX deals with the soft skill development, computer {C and LINUX}, projects like robotics, web page development, seminars and whatever who can think of!!! It thus helps to mature a student both in creativity and as a professional, thus he emerges as a new aspiring and promising leader of tomorrow, and that is what our goal is: to produce young leaders who are not afraid to shoulder responsibilities and make our country proud..

Phoenix Committee

Probal Guha Thakurta

Ritesh Bagri

Bikash Kumar Singh

Santanu Mukherjee

Bipra Banerjee

Koyel De

Tanushree Ghosh

Sayan Gupta

Pramit Pratim Ghosh

Riddhi Roy

Randhir Kumar

Prakash Kumar

Ahmad Tabish Helal

Rajnish Sinha

Sourav Kumar Nand

Ranjan Sarkar

Srijan Singh

Arijit Chowdhury

Arijit Ray

Gargi Biswas

Debosmita Sen

Moumita Paul

Saioni Sinha

Nidhi Sinha

Sonali Ghosh

Ujjwal Prakash

Sourav Ghosh

Tomojit Ganguly

From the desk of Mr.Satyam Roychowdhury, Managing Director, Techno India Group

Synergy is the manifestation of the multicolored dreams of the young students at NSEC. Fuelled by the vision and powerful leadership of their mentors, Synergy has finally arrived.

A treatise on technology and other relevant topics, the magazine is a reflection of the overall learning process at NSEC where students are encouraged to look beyond the obvious and no effort is spared in relentless quest of excellence. Synergy is the celebration of this excellence and the undying spirit of the students of this college which has helped to contribute to its present status.

With the first ever issue of Synergy, it is indeed a matter of great pride for us and for this we congratulate the students, teachers and all staff members. With your active co-operation and focus and determination NSEC is destined to witness more such glorifying moments.

NETAJI SUBHASH
ENGINEERING COLLEGE

Approved by AICTE
and West Bengal University of Technology

Ref. No.:.....

Date: 05 / 05 / 2008

To,
Phoenix,
Official Technical Club,
Netaji Subhash Engineering College.

Ref: Launching of first Phoenix magazine

I am glad to hear from the members of 'PHOENIX' that they are bringing out the first technical magazine '***SYNERGY***' of the technical club of our college. I offer my best wishes for the above specified reason. I wish them all the best and support them to carry on the tradition started by the technical club 'PHOENIX'.

ABL

Vice-Principal (S.N Bhadury)
Netaji Subhash Engineering College

Techno City, Garia, Kolkata- 700 152
Phone : (033) 2436-1285 / 3333, Fax : 2436-1286, E- mail : nsec @ giascl01.vsnl.net.in Website : www.technonetaji.org

Dr. H.K.Mandal,
Dated: 07.05.2008
Director of N.S.E.C,
West Bengal

From the Director's Desk.....

I appreciate the effort taken by the members of **"PHOENIX"** to publish a magazine which will serve as a voice to their activities **"PHOENIX"**, the technical club of Netaji Subhash Engineering College, set up by the students themselves, has been functioning successfully over the past few years. Amongst other activities, Phoenix conducts soft skill classes, group discussions, seminars and technical workshop to improve the personality of students. I congratulate the members of **"PHOENIX"** for their achievements and also for their contribution towards the academic development of the college. This is the first issue of their magazine **"SYNERGY"** and I sincerely convey my best wishes for their sincere effort in this regard. I hope, this magazine will certainly give a milestone in their journey towards technological expertise.

(Dr. H.K. Mandal)

Phone No.(033) 2334-7077
Fax No.(033)2334-7077.

Government of West Bengal
Directorate of Technical Education
Bikash Bhavan(10th floor) Salt Lake
Kolkata – 700 091.

No.160(T)/CS

Dated : 28-04-2008.

From : Dr. S. Dasgupta,
Director of Technical Education,
Government of West Bengal.

MESSAGE

It is a matter of great pleasure to know that the members of 'PHOENIX', Technical Club of Netaji Subhas Engineering College, Garia is going to publish their inaugural edition of Technical Magazine "SYNERGY" very soon.

Publication of this kind of Technical Magazine strongly reveals the enthusiasm on the part of Engineering students with green minds. The students desire to have a platform to open up their views and ideas on different technical issues relating to their studies and areas of interest. Such an urge for publication on the part of students is an encouraging event in the academic activities which enlighten the budding souls. This will be a synergic expression of innovative young minds and talents to build a creative world of tomorrow.

I would like to extend my heartfelt thanks to the Organizers and wish the inaugural publication of Technical Magazine "SYNERGY' as a land mark for the institution.

(S. DASGUPTA)
Director of Technical Education,
West Bengal.

Assistant Secretary, 'PHOENIX',
Netaji Subhas Engineering College,
Garia, Kolkata.

From the ED

The literal meaning of 'SYNERGY' is 'the amalgamation of two or more energies to produce a combined effect more than, the sum of their separate ones.'

Synergy, is not just about articles, poems, jokes, cartoons and facts. For us it's a realization of a long seen dream by the members of PHOENIX. It was the vision of our founder members, to bring out a technical magazine, to enhance the technical skills of the budding technocrats of our college. It has helped us in showcasing skills of our would-be Einstein's and Edison's.

Synergy, the concept was born with a small discussion in the PHOENIX room and today its journey starts with the first issue of SYNERGY. We got the taste of the proverb "It's easier said than done" while making this dream a realization. Our 'Mission Synergy' started with a rigorous campaign for three days, spreading awareness and highlighting the technical aspect of it among all the students and even our respected faculty members. Having overflowing inboxes was a treat to watch, we sincerely thank all the students and faculty of NSEC, for their tremendous response and cooperation. Beyond this started our real job, we had to make the soft copies and sort out articles from the never-ending list, and we had to leave out some very good articles with a heavy heart due to inadequate space. Subsequently we had to edit the articles so that we could put them in a presentable manner.

Real caliber of the PHOENIX members was yet to be tested. Designing the lay out was the toughest job, two of our beloved members worked tirelessly day in and day out to get the job done within the stipulated time period. Last part of our job, but by no means the least, were acquiring the letters from our esteemed guests and convincing sponsors to pump in money. All these were part of the process of completion of a mission and realization of a long seen vision for us.

Deadlines were set only to be broken; trends and standards were set only to be risen. We have aimed to set a tradition called SYNERGY, a legacy that will continue for years to come and extend its full support and cooperation to all the members of Netaji Subhash Engineering College.

We in PHOENIX, have always believed in our motto "COME LETS RISE", SYNERGY is in tandem with it, come lets combine our energies and efforts to rise above our own set standards.

Editorial Desk

Acknowledgement

We, the members of PHOENIX, have put together our efforts and are now bringing out our technical magazine- "SYNERGY", after months of hard work and dedication. We, however would like to acknowledge the contribution of all those without whom bringing out this magazine in its entirety would have been impossible.

We would like to extend our heartiest thanks to:-

Mr. Gautam Roy Chowdhury, Hon'bl Chairman of the Techno India Group, for extending his full support to the cause of our magazine.

Mr. Satyam Roy Chowdhury, Hon'ble Managing Director of the Techno India Group, for his active support and concern.

Dr. H.K. Mondal, our respected Director Sir, whose blesings and active support acted as a guiding light for us to fulfill our desire to bring out the magazine on the occasion of the 10th foundation anniversary of our college.

Dr. S.K. Bhaduri, our respected Vice Principal sir, whose encouragement helped us alot during our work.

We also take the opportunity to thank the Heads of the Department of the respective departments:-

1. *Prof. S.K. Bhattacharya- Electrical Engg.*
2. *Prof. S. Das- Electronics and Communication Engg, Electronics and Instrumentation Engg and Biomedical Engg.*
3. *Prof. A.K. Bhattacharya- Computer Science Engg.*
4. *Prof. K.K. Ghosh-Computer Applications.*
5. *Prof. Z. Hussain- Business Administration.*
6. *Prof. R. Bag. Information Technology.*

We would also like to thank our respected faculty members for not only contributing articles for the magazine but also for their valuable advices to make our magazine better.

We would also like to thank the Students Welfare Unit for their earnest co-operation and support.

Last but not the least we would like to thank all those who took sometime off and contributed articles, cartoons, jokes, and poems for the magazine. We, the members of PHOENIX, had a really hard time selecting the articles, and we were really disappointed to reject some really good ones, due to our limited space. Nevertheless we would like to thank all those involved, for it is the participation that counts!

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MICROSOFT CAR

At a recent computer expo (COMDEX), Bill Gates reportedly compared the computer industry with the auto industry and stated, "If GM had kept up with the technology like the computer industry has, we would all be driving $25.00 cars that got 1,000 miles to the gallon."

In response to Bill's comments, General Motors issues a press release stating, "If GM had developed technology like Microsoft, we would all be driving cars with following characteristics:

1. For no reason whatsoever, your car would crash twice a day.
2. Every time they painted new lines on the road, you would have to buy a new car.
3. Occasionally your car would die on the freeway for no reason. You would have to pull over to the side of the road, close all of the windows, shut off the car, restart it, and reopen the windows before you could continue.
4. Occasionally, executing a maneuver such as left turn would cause your car to shut down and refuse to restart, in which case you would have to reinstall the engine.
5. Only one person at a time could use the car unless you bought "CarNT", but then you would have to buy more seats.
6. Macintosh would make a car that was powered by the sun, was reliable, five times as fast and twice as easy to drive… but it would only run on five percent of the roads.
7. The oil, water temperature and alternator warning lights would all be replaced by a single "general protect ion fault" warning light.
8. The airbag system would ask," Are you sure?" before deploying.
9. GM would require all car buyers to also purchase a deluxe set of Rand McNally Road maps (now a GM subsidiary),even though they neither need nor want them. Attempting to delete the option would immediately cause the car's performance to diminish by 50 percent or more. Moreover, GM would become target for investigation by the Justice Department.
10. Every time GM introduces a car, car buyers would have to learn to drive all over again because none of the controls would operate in the same manner as the old car.
11. You would have to press the "start" button to turn the engine off.

Suraj Mahato
2nd Year, CSE

ELECTRIC CAR

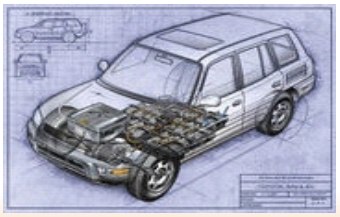
The electric car is a vehicle that utilizes chemical energy stored in rechargeable battery packs, and electric motors and motor controllers instead of an internal combustion engine (ICE)

Vehicles using both electric motors and ICEs (hybrid electric vehicles) are examples of hybrid vehicles, and are not considered pure electric vehicles (EVs) because they operate in a charge-sustaining mode.

Electric cars reduce dependence on petroleum and decrease or eliminate greenhouse gas emissions, depending on how their electricity is produced. Electric vehicles have had issues with high battery costs, limited travel distance between battery recharging, charging time, and battery lifespan, which have limited widespread adoption. Ongoing battery technology advancements have addressed many of these problems; many models have recently been prototyped, and a handful of future production models have been announced. Toyota, Honda, Ford and General Motors all produced electric cars in the 1990s in order to comply with the California Air Resources Board's Zero Emission Vehicle Mandate.

Electric cars are expected to be cheaper to make and maintain than internal combustion engine vehicles because they have many fewer parts[citation needed]. Using regenerative braking, a feature which is standard on many electric and hybrid vehicles, a significant portion of the energy expended during acceleration may be recovered during braking, increasing the efficiency of the vehicle.

Apart from this imagine a world free from pollution!!Earth will again be heaven in little disguise!!



AARISH SAHAB
1ST YEAR ECE

Courage does not always roar. Sometimes, it is the quiet voice at the end of the day saying, "I will try again tomorrow."

Did You Know?

Coca-Cola was originally green.
The name of all the continents end with the same letter that they start with.
The strongest muscle in the body is the tongue.
Women blink nearly twice as much as men!!
A crocodile cannot stick its tongue out.

American Airlines saved $40,000 in 1987 by eliminating one olive from each salad served in first-class.
Rats multiply so quickly that in 18 months, two rats could have over a million descendants.
Wearing headphones for just an hour will increase the bacteria in your ear by 700 times.
99% of people who read this will try to lick their elbow!

Quantum Teleportation

Teleportation is the name given by science fiction writers to the feat of making an object or person disintegrate in one place while a perfect replica appears somewhere else. How this is accomplished is usually not explained in detail, but the general idea seems to be that the original object is scanned in such a way as to extract all the information from it, then this information is transmitted to the receiving location and used to construct the replica, not necessarily from the actual material of the original, but perhaps from atoms of the same kinds, arranged in exactly the same pattern as the original. A teleportation machine would be like a fax machine, except that it would work on 3-dimensional objects as well as documents, it would produce an exact copy rather than an approximate facsimile, and it would destroy the original in the process of scanning it. A few science fiction writers consider teleporters that preserve the original, and the plot gets complicated when the original and teleported versions of the same person meet; but the more common kind of teleported destroys the original, functioning as a super transportation device, not as a perfect replicator of souls and bodies.

In 1993 an international group of six scientists, including IBM Fellow Charles H. Bennett, confirmed the intuitions of the majority of science fiction writers by showing that perfect teleportation is indeed possible in principle, but only if the original is destroyed. In subsequent years, other scientists have demonstrated teleportation experimentally in a variety of systems, including single photons, coherent light fields, nuclear spins, and trapped ions.

In the past, the idea of teleportation was not taken very seriously by scientists, because it was thought to violate the uncertainty principle of quantum mechanics, which forbids any measuring or scanning process from extracting all the information in an atom or other object. According to the uncertainty principle, the more accurately an object is scanned, the more it is disturbed by the scanning process, until one reaches a point where the object's original state has been completely disrupted, still without having extracted enough information to make a perfect replica. This sound like a solid argument against teleportation: if one cannot extract enough information from an object to make a perfect copy, it would seem that a perfect copy cannot be made. But the six scientists found a way to make an end run around this logic, using a celebrated and paradoxical feature of quantum mechanics known as the Einstein-Podolsk-Rosen effect. In brief, they found a way to scan out part of the information from an object A, which one wishes to teleport, while causing the remaining, unscanned, part of the information to pass, via the Einstein-Podolsk-Rosen effect, into another object C which has never been in contact with A. Later, by applying to C a treatment depending on the scanned-out information, it is possible to maneuver C into exactly the same state as A was in before it was scanned. A itself is no longer in that state, having been thoroughly disrupted by the scanning, so what has been achieved is teleportation, not replication.

In conventional facsimile transmission the original is scanned, extracting partial information about it, but remains more or less intact after the scanning process. The scanned information is sent to the receiving station, where it is imprinted on some raw material (e.g. paper) to produce an approximate copy of the original. By contrast, in quantum teleportation, two objects B and C are first brought into contact and then separated. Object B is taken to the sending station, while object C is taken to the receiving station. At the sending station object B is scanned together with the original object A which one wishes to teleport, yielding some information and totally disrupting the state of A and B. The scanned information is sent to the receiving station, where it is used to select one of several treatments to be applied to object C, thereby putting C into an exact replica of the former state of A.

Teleportation promises to be quite useful as an information processing primitive, facilitating long range quantum communication (perhaps ultimately leading to a "quantum internet"), and making it much easier to build a working quantum computer. But science fiction fans will be disappointed to learn that no one expects to be able to teleport people or other macroscopic objects in the foreseeable future, for a variety of engineering reasons, even though it would not violate any fundamental law to do so.

SANGHAMITRA GANGULY
3rd Year CSE

Magnetic Levitation in Maglev Trains

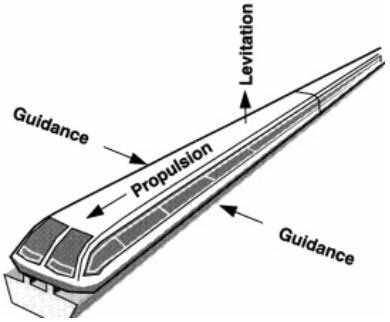
Recently one machine has successfully overcome the gravitational attraction. It's the maglev trains. Maglev trains move based on three principles (1) levitation or suspension; (2) propulsion; and (3) guidance. In this article I would try to explain the basic principles which are applied in magnetic levitation.

Maglev trains levitation basically works mainly on any of the three below mentioned principles.

1. Electromagnetic suspension (EMS)

2. Electrodynamic suspension (EDS)
a) Conventional system
b) Inductrack system

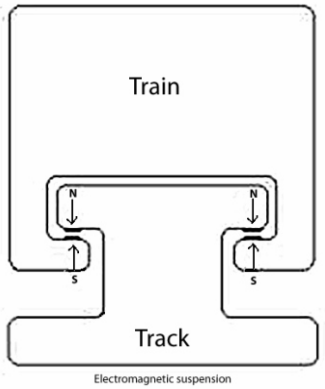
3. Magneto dynamic suspension (MDS)



1. <u>Electromagnetic suspension</u>

The attractive forces of the magnet are utilized in EMS. In this type of suspension electromagnets below the train are attracted by the rail track. When current is supplied to the electromagnet it turns into a magnet and is attracted upwards towards the ferromagnetic track. When the magnet comes too close to the track the current is either reduced or cut off. So it again comes down. Thus the attractive force of the magnet is used to balance the attraction due to gravity. On board sensors and servo mechanism maintains the separation of the train from the track. No wheels (for low speed operation) are needed in EMS. Due to constant correction mechanism vibration issues can occur sometimes. Transrapid maglev train in Emsland, Germany uses this technology.

Transrapid Emsland, Germany



Electromagnetic suspension

2. <u>Electrodynamic suspension</u>

Similar poles of magnet repeal each other. This principle is applied in the EDS system.

a) Conventional system

Electromagnets are situated under the train and the track is made of metallic conductors. When current is passed through the electromagnet, the magnetic lines of forces of the magnet induce similar polarity in the track. The track in turn repulses the train thus helping the train to levitate. As the current in the magnet is dependent on the speed of the train, adequate current and resulting magnetic flux is not generated at low speed. So EDS system needs wheels to roll till they reach a speed of approximately 100Km/hr. JR-Maglev in Japan uses this technology to overcome gravitational force. Those trains use super-cooled, superconducting electromagnets because it can carry electricity even when the power is accidentally cut off. Propulsion coils which are basically linear motors deliver the force required to take the train forward.

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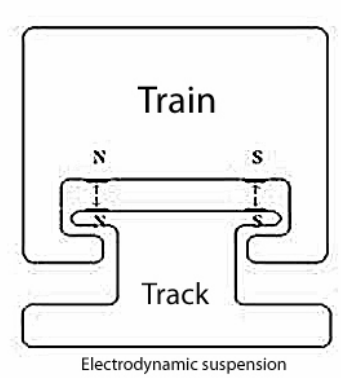
JR-Maglev, Yamanashi, Japan

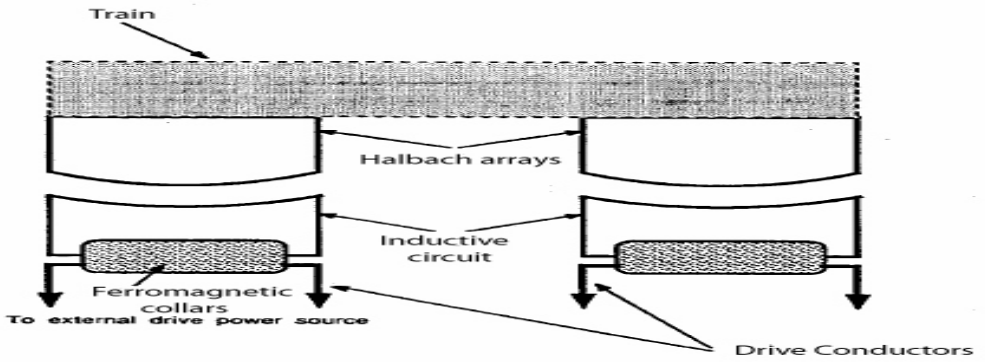


Electrodynamic suspension

b)Inductrack System

This system takes the advantage of Halbach arrays. In short it is such an array of permanent magnets that field on one side of it doubles where as field on the opposite side cancels out. Generally neodymiumironboron permanent magnets are used to prepare Halbach arrays. The

Halbach arrays are mounted below the train and the track is made of short inductive closed loop circuits. This system can attain levitation at comparatively low speed of about 22 mph. When the train moves the flux emerging from the magnet induces current in the track loop. This current produces similar polarity that of the magnet (Lenz's Law) on the track, so the track repulses the magnet. Thus levitation is achieved in Inductrack system. This is indeed an failsafe mechanism, as no power is required to produce the levitation force thus it can slow down on its own in case of power failure. The only power required is to provide propulsion. Linear motors are also used here to provide propulsion. There is yet no commercial vehicle running on this technology but its futuristic vision has caught the attention of NASA which is researching on it for launching of rockets.



Inductrack suspension

As this system requires strong magnetic field, magnetic shielding is required for those having pacemakers and using magnetic medias such as hard drive, floppy diskettes etc.

3. Magneto dynamic suspension

MDS system consists of a movable part attached under the train and a stationary part which is indeed the rail track. Four permanent magnet of rectangular cross-section are held by a steel insert under the body of the train as per diagram to form the movable part. The unit track* is made of two C-shaped laminated steel cores of infinite length. The steel cores have sharp tip in the front and have a long back. Those cores are shielded by the aluminium screens. The system is designed to have minimum potential energy configuration. If the train i.e. the magnets move away from the equilibrium position in Y axis say in the right side the air gap between the magnet and the core diminishes. So the magnet gets attracted more in right side creating a destabilizing force Fd which is counter acted by a stabilizing force Fs to bring it back in original position. Similarly if the train shifts in Z direction, the flux distribution between the upper and lower pole tip differs creating Fd which is again counteracted by Fs to stay in minimum potential energy configuration. The design is such that Fs is always equal to or greater than Fd. This theory of levitation is still on paper. Amlev of USA is working on this principle to design Maglev trains.

Anirban Hazra
EE 3rd Year.

वो कातिल महीना

एक दिन अचानक class में,
प्रोफेसर ने किया comment;
attention please बच्चों,
ये है special announcement;
कमज़ोर दिलवाले ना सुनें,
वरना हो जाएगा काम तमाम;
अगले माह दिसम्बर में होगा,
तुमलोगों का exam;
भरा पूरा class वीरान हो गया,
शांत ऐसा मानो श्मशान हो गया;
फिर मैंने देखा थोड़ा उठकर,
हर लड़का ग़मगीन था;

आवाज़ उसकी भी बद थी,
जो कल तक गायिकी का शौकीन था;
प्रोफेसर के होठों पर मुस्कराहट थी,
हाथ हीरो जैसा लहरा रहा था;
पर हमें तो वो विलेन ही दिखा,
शोले का गब्बर नज़र आ रहा था;
इस समस्या से बचने का,
सबके पास फूल प्रूफ प्लान था;
कहीं रात्रिजागरण का तो,
कहीं माईक्रोज़िरोक्स का इंतज़ाम था;
समर की तैयारी में ही,
न जाने कब बीत गया नवम्बर;
हर योध्दा तैयार दिख रहा है,
क्योंकि अब आ गया दिसम्बर;

पर सोच के पिछली बातों को,
आ जाता है माथे पर पसीना;
Exam के पहले का
वो कातिल महीना।

Om Prakash Tiwary
IT 3rd Year

How to catch a lion
Newton's method

Let the lion catch you.
For every action there is an equal and opposite reaction.
Implies you caught lion!

How to catch a lion
Einstein's method

Run in the direction opposite to that of the lion.
Due to higher relative velocity, the lion will also run faster and will get tired soon.
Now you can trap it easily.

Ramayana by Bill Gates

When Bill Gates was in India, he had a chance to listen to the Ramayana from Atal Bihari Vajpayee. After returning to the US he wrote it in his personal diary. A tabloid in the US got a copy of his writings. These are excerpts from his diary.Ramayana by Bill Gates:

LAN, LAN ago, in the SYSTEM of I/O-dhya, there ruled a PROCESSOR named DOS-rath. Once he EXECUTED a great sacrifice PROGRAM after which his queens gave an OUTPUT of four SUNs--RAM, LSIman, BUG-rat and SED-rughana. RAM the eldest was a MICROCHIP with excellent MEMORY. His brothers , however were only PERIPHERAL ICs.

Once when RAM was only 16MB, he married princess 'C'ta. 12 years passed and DOS-rath decided to INSTALL RAM as his successor. However, Queen CIE/CAE, who was once offered a boon by DOS-rath for a life saving HELP COMMAND, took this opportunity at the instigation of her BIOSed maid (a real plotter), and insisted that her son Bug-rat be INSTALLED and that RAM be BOOTED to the forest for 14 years. At this cruel and unexpected demand, a SURGE passed thru DOS-rath and, he collapsed, power-less. RAM agreed to LOG INTO the forest and 'C'ta insisted to LOGIN with him. LSI-man was also resolved on LOGGING IN with his brother. The forest was the dwelling of SPARCnakha, the TRANSISTOR of RAW-van, PROCESSOR of LAN- ka.

Attracted by RAM's stature, she proposed that he marry her. RAM, politely declined. Perceiving 'C'ta to be the SOURCE CODE of her distress, she hastened to kill her. RAM gave an END TASK command. Weeping, SPARC-nakha fled to LAN-ka, where RAW-van, moved by TRANSISTOR's plight, approached his uncle MAR-icha. MAR-icha REPROGRAMED himself into the form of a golden stag and drew RAM deep into forest. Finally, tired of chasing, RAM shot the deer, who, with his last breath, cried out desperately for LSI-man in RAM's voice. Fooled by this VIRTUAL RAM SOUND,'C'ta urged LSI-man to his brother's aid. Catching the opportunity, RAW-van DELINKED 'C'ta from her LIBRARY and changed her ROOT DIRECTORY to LAN-ka.

RAM and LSI-man started LINEAR SEARCHING for C-ta all over the forest. They made friendship with SU-greev the SYSTEM ADMINISTRATOR of the forest and his powerful co-processor Ha-NEUMAN. SU-greev agreed to help RAM and ordered his PROGRAMMERS to use powerful BINARY & BOOLEAN SEARCH techniques to FIND the missing C-ta. His PROGRAMMERS SEARCHED all around the INTER-NETworked forests.Many tried to EXCITE the birds and animals not to forget the WEBCRAWLERS (Insects) and tried to INFO SEEK something about C-ta. Some of them even shouted YAHOO but they all ended up with NOT FOUND MESSAGES. When other SEARCH techniques proved useless, Ha-NEUMAN devised a RISCy TECHNOLOGY and used it to cross the seas at an astonishing CLOCK SPEED.Soon Ha-NEUMAN DOWNLOADED himself into LAN-ka. After doing some local SEARCH, he found C-ta weeping under a TREE STRUCTURE.Ha-NEUMAN used a LOGIN ID (ring) to identify himself to C-ta. After DECRYPTING the KEY, C-ta believed him and asked him to send a STATUS_OK MESSAGE to RAM.

Meanwhile all the raakshasa BUGS around C-ta captured Ha-NEUMAN and tried to DELETE him using pyro-techniques. But Ha-NEUMAN managed to spread chaos by using the VIRUS 'FIRE'. Ha-NEUMAN happily pressed ESCAPE from LAN-ka and conveyed all the STATUS MESSAGES to RAM and SU-greev. RAW-wan decided to take the all powerful RAM head-on and prepared for the battle One of the RAW-van's SUN almost DELETED RAM and LSI-man with a powerful brahma-astra.

However Ha-NEUMAN resorted to some ACTIVE-X gradients and REBOOTED RAM and LSI-man. RAM used the SOURCE CODE secrets of RAW-van and once for all wiped out RAW-van's presence on earth.
After the battle, RAM got INSTALLED in I/O-dhya and spreaded his MICRO SOFT WORKS and other USER FRIENDLY PROGRAMS to all USERS and every one lived happily ever after.

Abhishek Sinha
2008 Pass Out (EE)

TROJAN HORSE!!

a)"TROJAN HORSE" in HISTORY:

The original "TROJAN HORSE" was built by ODYSSEUS, the ruler of ITHICA during the legendary TROJAN WARS. The "indigent Trojan horse" was believed to be a peace offering gift from Odysseus, but the wooden hollow horse was filled with Greek warriors, who entered into the TROY and opened its "gate".

b)"TROJAN HORSE" in COMPUTER:

Trojans are probably the most compromising of all types of computer attacks, which are being released by the hundreds every week, each more cleverly designed than the other. Trojans are small programs that provide “hackers” with a weapon to gain control over your entire Computer.

Now, how do the smart "hackers" do it?

"They" send the server file to you via E-Mail, claiming the file to be a game of some sort. When you double click on the file, the result is nothing.(you won't be able to see anything)

But meanwhile, the server has now been installed in your system although the game will install properly. All the “hackers” has to do, is to use the Netbus Client to connect to your system and everything you have on your system is now accessible to that “hacker.”

Now the question comes “If I install a game, from where the TROJAN does comes?”

There are utility programs available that can combine the file with a legitimate (.exe) file. It will then output another (.exe) file of some kind. Think of this process as mixing poison in a drink.

E.g. Juice + Poison = something

Now the result is not really juicy anymore, but you can call it whatever you want. Same procedure goes for combining the Trojan with another file. i.e. game +Trojan=surprise

(chess.exe + Trojan= chess.exe (culprit))

But the difference in these files will be noticed in their size.

The original file: chess.exe size: 65,000 bytes

The new file (with Trojan): chess.exe size: 70,000 bytes

By virtue of this, "hacker “can access:

Username: (A name by which they call you)

IP Address: (Your IP address)

Online: (Your victim is online)

Again some common affects with Trojans are as follows:

i) Capture a screenshot of your computer

ii)Record your key strokes and send them to the “Hacker”

iii)Full Access to all your CD-Rom drive, drives and files

iv)Ability to use your computer as a bridge to do other hacking related activities.

v) Disable your keyboard & mouse…and more

So, which general files are safe?

Picture:	TEXT FILE:
Jpg (jpeg)	DOC
Bmp	TXT
TIFF	RTF
GIF	

Text files can come in almost any format. But affected files are:

mypicture.exe,<anything>.com,<anything>.exe,<anything>.vbs

SO, IF YOU RECEIVED A GIFT IN THE SHAPE OF A LARGE WOODEN HORSE DON'T DOWNLOAD IT!!

A farmer has 11 horses, and he dies. His will says that his eldest son is to get ½ of the horses in his stable, his middle son is to get ¼ of the horses, and the youngest son is to get 1/6th of the horses. How can the horses be divided?

The lawyer rides to the farm, bringing his own horse. Now there are 12 horses in the stable. The eldest son recieves 6 horses, the middle son receives 3 horses, and the youngest son gets 2 horses. The lawyer then takes back his own horse. The paradox works because the farmer in giving 1/2., ¼ and 1/6th of his horses, has not given away all of his horses but instead only 11/12th of them. Therefore without the 12th horse the will gives away 10.083333 horses and leaves 0.916667 horses remaining. Adding the final horse evens out the fractions and allows the farmer to return the 1 remaining horse to the lawyer.

Ranjan Sarkar
3rd Year CSE

“Success requires no explanation; Failure permits no alibis”

Next generation of Windows after Vista

Bored with XP? Don't like Vista? Wait till 2011 for yet another OS from Microsoft !

The next version of Windows, the one after Windows Vista, is code-named Windows 7.It mark s a staggering development in the Windows series.That's because Windows 7 basically resurrects what was once the hated computer operating system in history ie DOS.DOS, if we recall was the PC's first operating system.It was text-based.It could run only one program at a time.It was awkward and unfriendly.Would Microsoft really want to return to such an era?Don't be silly. However Microsoft is thinking about how computers really work and not about how to squish competition and only think later about how computers work. A refreshing change.The core of Windows 7 is something called Min Win.It's a big step in the right direction, and a big step backwards at the same time.Min Win is the Windows operating system boiled down to its core.It's tiny and fast. And it's text-based.So just like the UNIX heart of Mac OS X and Linux,Min Win provides a tight, solid platform on which to build the rest of the Operating System.

Now, Min Win is not DOS .It does, however, sport a full-screen, textbased,command line interface.I'm sure that it will be like DOS,probably based upon theWindows Power Shell.If Microsoft documents it well,then they can get hoards of developers writing tools for it.

On top of Min Win comes the graphical shell,or the part of the operating system that's the graphical fun and goodness we currently know as Windows.Yet, because of the design,it would be easy to use other shells,say KDE or Gnome on top of Min Win. At least that's what we'd like to see!

All of this is conjecture,of course.The timetable for release of Windows7 is around early 2010.If we multiply the release time by the Windows Delay Factor,that translates into late 2011.

Well let's hope for the best!!

DO89:8EA6:C4E9:60CA:9D4A:90F0:AD5C:05EC

What is this??If you are thinking the same, just read on:

You may have used the term IP or even IP address, probably without knowing exactly what it is. That's okay; lots of people use terms they don't understand.Regarding IP address, the issue of concern is that the known universe is about to run out of them.And soon.

IP stands for Internet Protocol.A protocol describes the methods and rules by which things are done in a computer.For the discussion here, the thing that the IP does is provide an address for every computer on a network.On the internet that means that every computer connected to the Internet has its own IP address.

That's a gazillion computers, give or take!! The IP address is similar to the address we use to send mail.For sending mail, we specify the recipient's name,street number,street name,city,state,and zip code.Of that group,the ZIP code is most similar to a computer's IP address.Unlike a ZIP code,however,we cannot determine a computer's location by its IP address..Techically, the IP address is known as IPv4 .That's the fourth version of the Internet Protocol.It sets up the IPaddress as a series of four numbers, ranging from 0 through 255.For example: 123.0.10.255 The problem with the IPv4 scheme is that it only provides for a total of 4,294,967,296 unique address.That may seem like a lot,but consider the exploding global economy.There are millions of computer users,websites, and servers around the planet.Because of that,computer scientists are claiming that we will run out of IP address as soon as the year 2010.The solution is something called IPv6.IPv4, if you recall, is the Internet Protocol version 4.If you're clever at word games,you can guess that IPv6 is the Internet Protocol version 6.

IPv6 expands the number of IP address into the zillions.Specifically, under IPv6, there will be available 2 to the power 128 IP addresses. That's a huge number and I really don't want to waste space writing the digits for you.But to put it in perspective, IPv6 allows for around 50,000,000,000,000,000,000,000,000,000(fifty zillion) IP addresses per person alive on the planet today.All 6,500,000,000 of us,plus or minus!!!

The IPv6 standard expands the total number of IPaddresses by changing the IP address format.IPv4 uses the dotted-quad notation like 123.0.10.255 etc.In IPv6 IP address looks like this :(the title of this article is a sample ipv6 address)fe80:0000:0000:0000:020a:95ef:fad5:5e54 Yes, its longer.It has to be.Plus its written using base-16 notation(Hexadecimal), so you'll find letters A through Fin there in addition to the standard human numbers 0 through 9.The IP address can be abbreviated by squishing out the zeros:

fe 80::020a:95ef:fad5:5e54.The ":" means "there's nothing between us but the proper number of zeros." That's one way to keep humans from going batty, but you'll probably never have to type in a monster IPv6 address; the computer will do the work for you.(Or so it says in the brochure.)

Ipv6 is slowly being adopted as IPv4 is faded out.As a human,we won't notice any differences.As long as we keep our computer's operating system updated,it'll be okay.

SOUMALYA GHOSH
IT 2nd YEAR

Did You Know?

The C language was created by Dennis Ritchie. It was codenamed "Cool" and is the root of the most popular programming languages.

Did You Know?

Hotmail was coined by inserting vowels between HTML.

"If you respect yourself, others will respect you."

Artificial Intelligence

Artificial Intelligence (or AI) is both the intelligence of machines and the branch of computer science which aims to create it.Major AI textbooks define artificial intelligence as "the study and design of intelligent agents", where an intelligent agent is a system that perceives its environment and takes actions which maximize its chances of success. AI can be seen as a realization of an abstract intelligent agent (AIA) which exhibits the functional essence of intelligence.Among the traits that researchers hope machines will exhibit are reasoning, knowledge, planning, learning, communication, perception and the ability to move and manipulate objects.AI research uses tools and insights from many fields, including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, ontology, operations research, economics, control theory, probability, optimization and logic.[8] AI research also overlaps with tasks such as robotics, control systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others.

Humanity has imagined in great detail the implications of thinking machines or artificial beings. They appear in Greek myths, such as Talos of Crete, the golden robots of Hephaestus and Pygmalion's Galatea. The earliest known humanoid robots (or automatons) were sacred statues worshipped in Egypt and Greece, believed to have been endowed with genuine consciousness by craftsmen.
If a machine can be created that has intelligence, can it also feel? If it can feel, does it have the same rights as a human being? This is a key issue in Frankenstein as well as in modern science fiction: for example, the film Artificial Intelligence."Artificial intelligence is the next stage in evolution," Edward Fredkin said in the 1980s.Several futurists and science fiction writers have predicted that human beings and machines will merge in the future into cyborgs that are more capable and powerful than either. The idea is also called transhumanism.

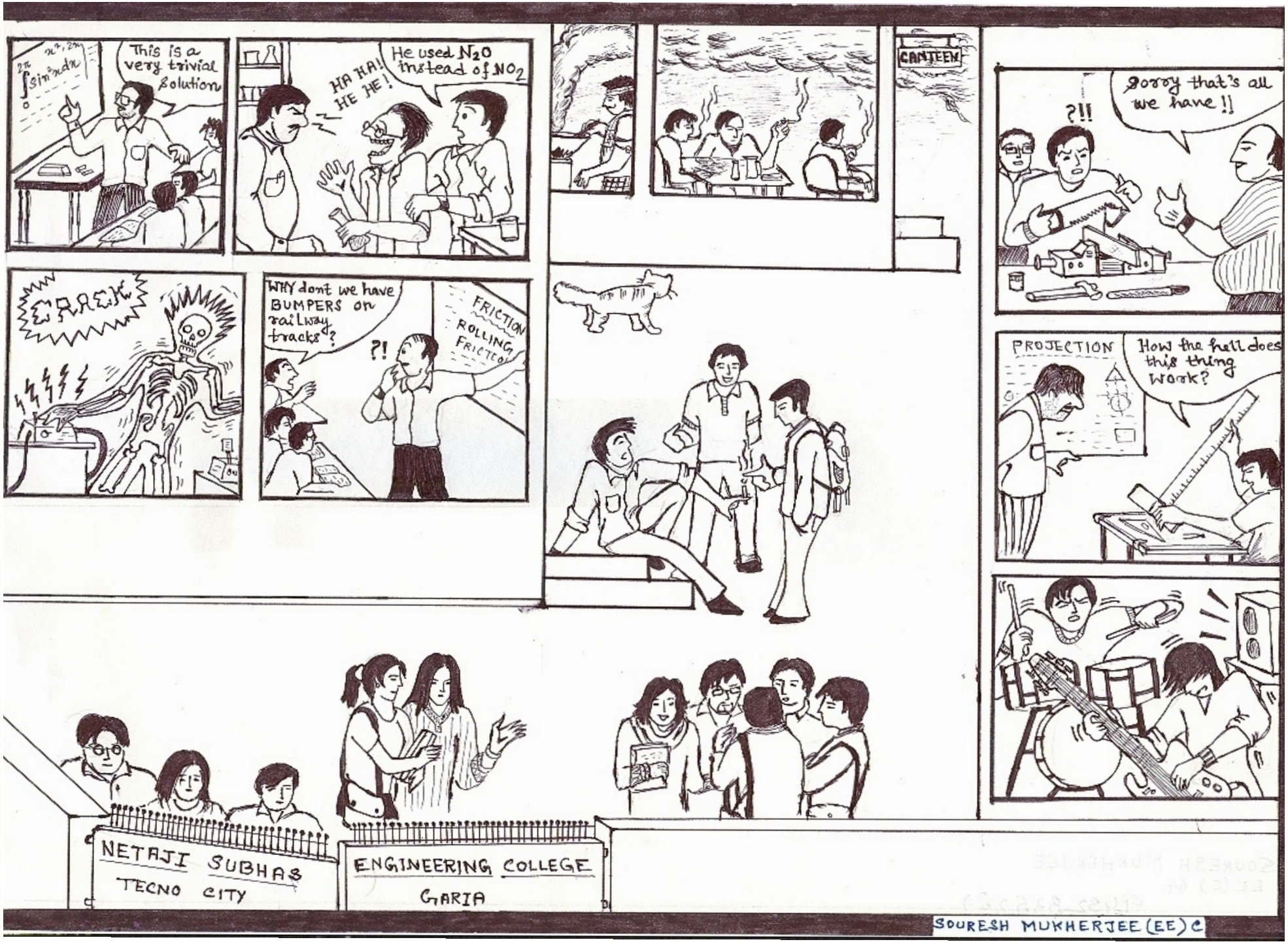
History of artificial intelligence and timeline of artificial intelligence
The field of modern AI research was founded at conference on the campus of Dartmouth College in the summer of 1956.[31] Those who attended would become the leaders of AI research for many decades, especially John McCarthy, Marvin Minsky, Allen Newell and Herbert Simon, who founded AI laboratories at MIT, CMU and Stanford.By the middle 60s their research was heavily funded by the U.S. Department of Defense[34] and they were optimistic about the future of the new field:

Problems of AI
1.Deduction, reasoning, problem solving
2.knowledge representation and commonsense knowledge
3.automated planning and scheduling
4.machine learning
5.natural language processing
6. machine perception, computer vision, and speech recognition
7.social intelligence & genaeral intelligence

Tools of AI research
1.search algorithm
2. logic programming
3.probabilistic methods for uncertain reasoning
4.classifier (mathematics), statistical classification, and machine learning
5.neural networks and connectionism
6. revolutionary computation
7. intelligent control

Applications of artificial intelligence
Artificial intelligence has successfully been used in a wide range of fields including medical diagnosis, stock trading, robot control, law, scientific discovery and toys. Frequently, when a technique reaches mainstream use it is no longer considered artificial intelligence, sometimes described as the AI effect.

SUJEET KUMAR
ECE, 2nd yr



"Intuition is the reason in a hurry"

ORKUTTING WITH GOOGLE: A CHAT WITH TWO UNIQUE MINDS

"I think there is a world market for about five computers", Chairman of IBM made the remark in 1943.

Had that been the trend, still the two bright gentlemen would be doing something in a different way. Because they have what is called 'healthy disregard for the impossible'. And Sergey Brin and Larry Page have done it their way. They are today, familiar names, thanks to the company they own: GOOGLE. They have gone a long way---and yet this is just the beginning…*Picture abhi baki hai mere dost*....

I am a student of Engineering pursuing my studies in Computer Science and when I found the two geniuses on Orkut (yes they do have profiles in orkut, but in disguise), and asked for an interview for our Tech magazine. They readily agreed but gave me 10 minutes for the rendezvous. They chose to chat from Page's profile as he is the more talkative amongst the two, but Brin also promised to talk occasionally. The following are excerpts of my conversation with two of the most "unique minds".

Page: Hello, this is Sergei and Larry here.Can we start now?

Usnish: Hello sirs. Yes, I'm ready with my questions.

Page: Go on…

Usnish: What was the thing that you were attracted while thinking of Google???

Page: Google was started when both of us were Ph.D. students at Stanford University in Computer Science and we didn't know exactly what we wanted to do. I got this crazy idea that I was going to download the entire Web onto my computer. I told my advisor that it would take only a week and after a year or so I had only a small portion of it… But I had the optimism and our motto was having a healthy disregard for the impossible. You should try to do things that most people would not.

Usnish: If not google then what else for you? I'm asking this to both of you.

Page: If not google then some other … But seriously I would be in some other jobs related to searching…

Brin: I must have been doing something in any of the theoretical fields.

Usnish: Say something about the work culture at Google Labs. And why do you call it "Labs"?

Page: We run google as a university and have lots of like hundreds of research projects..And every day we perform some kind of experiment or the other, so we named it as "Labs".Work culture at google does not follow any strict routine. We don't have any fixed working hours at google. If you can finish your work within two-three hours then you are free for the rest of the day. But we all here love to work and give almost our 200% to our work.

Usnish: I have a question in my mind for long. How do you guys make such huge money?

Brin: Can I answer this? Google gets paid for every search that happens, more or less, mostly through advertising. We are lucky in that we chose to make ads relevant rather than having flash banner ads. It helps us have the best search engine. We also get paid by companies like AOL, which use our search engine.

Usnish: But what about your competitors?? Like the old ones like Alta Vista and Excite to modern days Yahoo?

Page: It started of being Excite, Alta Vista and others. They were not focused that much on search, so we didn't have as much trouble with them as we could have. Now-a-days we face a much larger competition and it is a bigger challenge for us. This is the real test for us, the tough part is whether we can survive for another 10 to 20 years…….

Brin: To just invent something and have a great idea is a lot of work, but it is not enough..

Usnish: But what about your relationships with brand like Microsoft?? And what are your comments on the pact of Microsoft and Yahoo???

Page: We are competitors and share a healthy competition. And it is too early to comment on the pact. Best of luck to them and see what happens in the future. **[;-)]**

Usnish: What about the battle against Microsoft in China???

Page: It's a long story. We knew China was going to be one of the large markets for us. And so did Microsoft, but a little early they entered China and had almost 1000 people working for them. We went there with the motive of forming a research lab based on China. A lot of people working already for Microsoft wanted to shift to google. But Microsoft made it impossible for them and us and they even threaten some of them to sue. And eventually they went to court against a man named Kai-Fu-Lee. But on the long term we conquered the market there..

Usnish: Over last few years "ORKUT" has been like your brand ambassador in many countries and millions of people stay connected through it..Tell us some behind the scenes story about it…

Page: Orkut Buyukkokten, who developed this product, was working as a software developer in google labs. He was a Ph.D. student from Stanford University the same one from where we received our degree. He took it as an independent project as it was required for google's policy.. After seeing its user friendly interface and various features we decided to launch this

product for global market. So we bought it from him 2004 and orkut started on Jan 22,2004 and created history.
Usnish: What are your future projects? What are the fields that you are going to invest in the next few years?
Page: We are planning to invest into the fields of biology and genetics through the fusion of science, medicine and technology.
Usnish: We have all seen whenever two young entrepreneurs started a visionary it ended with a bitter relationship among the two.. We have seen it among Bill Gates and Paul Allen in Microsoft, also in among Steve Jobs and Steve Wozniak in Appl.Will it also be the case for google?
Page: Never, from day one when we met each other we knew that we share a different bonding amongst us. And if one day google fails, we'll still be friends as we are now.
Usnish: Now the question of all students in the fields of computer..How one does get a chance to work for google?
Page: We conduct an aptitude test every year.. And any graduate fellow can appear for it. If he or she scores high enough to impress us, be sure we'll get in touch…Best of luck to you and your fellows…But remember you must be unique dude…Because in google we look for 'unique minds'..
Bye for now and see you soon in Google labs…
Brin: ByeBye and have a nice day and a great future.
I suddenly felt a jerk on my left shoulder and the computer screen turned to a human being's face and to be more precise it was my ma waking me up at 8:30 for college. I surely had a dream, a very pleasant one…But when I opened my orkut account the next day I found
"Recent Visitors- Larry Page, Sergey Brin"!

USNISH GUHA
2ND YEAR, CSE

Gargi Biswas
3rd Year, CSE

"A discovery is said to be an accident meeting a prepared mind."

Virtual Machines & Virtualization

Have you ever tried to install more than one OS? I am sure you have but many of us didn't go for it as many questions bother us:-

“Where am I going to install my new OS (means on which partition)?”

“How to format it? Can I access my existing files from that OS? Will I lose my existing data?”

“How can I boot into different OSs I have?”

“I have to install my favorite software on both OSs but this leads more space being used up in my HDD, so, how to prevent that?”

“How can I uninstall my new installed OS if I don't like it?”

Virtual machine comes into these situations which has solutions to these problems.

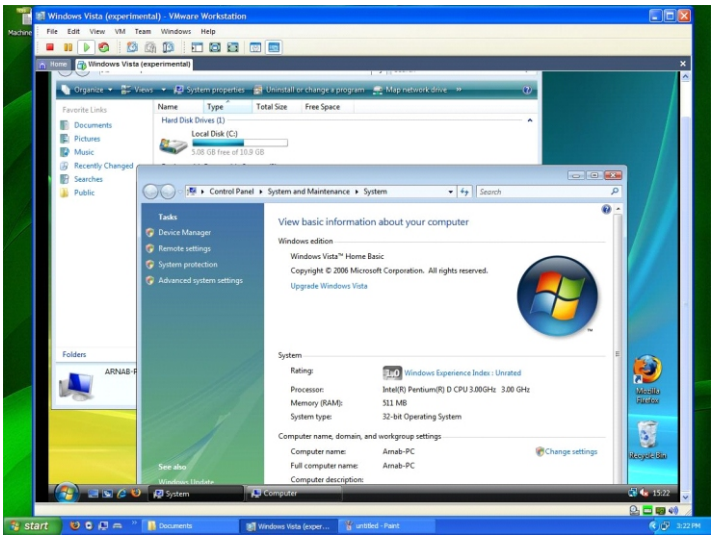
Virtualization is a proven concept that was first developed in the 1960s to partition large, mainframe hardware. Current use includes virtual machines which have no direct correspondence to any real hardware. Modern PC s are designed to run only one OS at a time but virtualization breaks that bond i.e. you can run multiple OSs on the same computer at the same time. Actually, virtualization lets you transform hardware into software. You can use virtualization software to transform or 'virtualize' the hardware resources (CPU, RAM, HDD etc.) to create a virtual machine that can run its own OS.
A virtual machine was originally defined as an efficient, isolated duplicate of a real machine. An OS cannot differentiate between a physical machine and a virtual machine. Thus, when an OS is loaded in a VM it thinks it as a 'real' machine and functions accordingly.

There are many virtualization softwares available. But among them VMWare is the most popular. There are many versions of VMWare. But VMWare Workstation is best for Desktop Virtualization. You can download it from http://www.vmware.com/products/ws/. But it also comes with a price tag of $189. So if you can't afford it you can go for an open source virtualization software called VirtualBox. It's getting very popular now a days. It's completely free and you can download it from http://www.virtualbox.org/. There is one more virtualization suite from Microsoft called Microsoft Virtual PC, which is also free.

The first thing you have to do is to install any one of the above software. Now, suppose you are running Windows XP and you want to install Windows Vista in your VM. First go to File New Virtual Machine. Select Typical and click next. Select 'Windows Vista' as your guest OS. In the next step enter the path where you want to save your VM. Keep all the settings as default and click next and at last click finish. Now insert your Vista DVD and click on 'Start this Virtual Machine'. After that just follow the steps to install Windows Vista. You can also choose any the Linux distribution (like Fedora, Suse, Ubuntu etc.) to install in your VM. But for it you have to choose that Linux as your guest OS. After successfully installing the OS, you can boot into it and it will work as it is running in a completely different machine. And you can switch between your host OS (Win XP) and Guest OS (Win Vista or any Linux Distro) anytime. Just click on the guest OS to activate it and press Ctrl+Alt to get back to your host OS.

In case you don't like your new OS just delete the VM and you are done.

There is one more interesting feature of VM you can explore. You can make a network between your host and guest OS. This is very useful when you want to share a folder from your host OS with your guest OS. For this you have to install VMWare Tools (Go to VM Install VMWare Tools). After that edit your VM settings and in the shared folder option add the path of the folder you want to share with your guest OS. Now in your guest OS (i.e. Vista) open My computer and go to Tools Map Network Drive. Then in the folder field write \\.host\share and choose any available drive letter. You will then be able to share files between host and guest OS!



Arnab Datta
3rd Year, CSE

Acronyms For Computer World:

APPLE- Arrogance Produces Profit Losing Entity
BASIC - Bill's Attempt to Seize Industry Control
WWW - World Wide Wait!
Obsolete Monthly

“Most folks are about as happy as they make up their minds to be.”

Barsha Naskar
EE, 2nd Year

Technical Rap

If a packet hits a pocket on a socket on a port,
and the bus is interrupted as a very last resort,
and the address of the memory makes your floppy disk abort,
then the socket packet pocket has an error to report.

If your cursor finds a menu item followed by a dash,
and the double clicking icon puts your window in the trash,
and your data is corrupted 'cause the index doesn't hash,
then your situation's hopeless and your system's gonna crash.

If the label on the cable on the table at your house,
says the network is connected to the button on your mouse,
but your packets want to tunnel on another protocol,
that's repeatedly rejected by the printer down the hall,
and your screen is all distorted by the side effects of gauss,
so your icons in the window are as wavy as a souse,
then you may as well reboot it and go out with a bang,
'cause as sure as I'm a poet, that sucker's gonna hang.

When the copy of your floppy's getting sloppy on the disk,
and the microcode instructions cause unnecessary risk,
and you have to flash your memory and you want to RAM your ROM,
quickly turn off your computer and be sure to tell your mom.

Akhilesh Kumar
1st Year, EE

"Content makes poor men rich; discontentment makes rich men poor."

Glass Fertilizer

Population growth at an alarming note has led to overexploitation of environment resources causing pollution.To meet the hunger of billions,to provide adequate shelter, clothes, medicines is indeed a challenge.Industrialization, Green revolution cannot be at the same time ignored therefore a balance between the two is of utmost importance.The most basic thing a human being requires is undoubtedly food. How can we make so much of food without polluting the environment?Moreover when we are utilizing the limited naturals resources for making industries, houses,roads an enormous load is on the soil . If one wants to cultivate more food from so limited soil resources one needs to cultivate intelligently.

One can grow different varieties of crops so that there remains no seasonal lapse and high yielding growth multiplied to give more and more production.But then what is the consequence on soil ?In the long run it loses it's fertility but it can be nullified by using chemicals fertilizers. One however may argue that there is eco-friendly biofertilizer which may solve the problem of fertility as well as environmental pollution.However the question remains whether the biofertilizer we produce is sufficient to substitute the pollution generating chemical fertilizer?The simple answers is no.At this juncture one needs to think about a fertilizer which can produce a large quantity and yet be eco-friendly.

The fertilizer we are talking about is "Glass Fetilizer".One may be astonished to know ,how it can be possible ,because we know glass for it's application only in other fields.As a fertilizer it seems to be absurd. Now how many elements are required by a plant for it's growths and development?There are sixteen elements which a plant require for it's growth and development, namely C,H,O,N,P,K,S,Ca,Mg,Zn,B,Fe,Co,Mn,Mo and Cu.Carbon is obtained in the form of CO2 in the air, water and the others from the soil.In case of depletion of any element we supply chemical fertilizer.The chemical fertilizer gets leached to the underground before being used completely thus polluting the under ground water.

The problem associated with conventional chemical fertilizer is that it has no network structure. Once the network structure be made the system becomes rigid reducing it's dissolution. Glass fertilizer finds it's supremacy over conventional fertilizer due to it's network structure. Once the network structure is realized all other necessary elements can be incorporated and utilized as fertilizer. But we know that glass is not soluble so how can it then act as a fertilizer ? In case of glass fertilizer the network is made up of phosphate and not conventional silicate which is not degradable or extremely low degradable and moreover silica being not of use only deteriorates soil quality. The problem with phosphate is that it is highly soluble and hence our existing problem is not solved. To achieve rigidity and hence controlled solubility one can incorporate Ca^{2+} , Mg^{2+} ,or trace amount of Al^{3+} and then other necessary elements.

The phosphate on controlled dissolution produces phosphate unit making the soil slightly acidic, an ideal environment for intake of nutrients by the plants. It is also an adventitious in the sense that once the soil testing result is known , deficient elements identified , required necessary elements can be incorporated. Controlled dissolution dissolutes controlled amount of elements increasing the utility efficiency , reducing amount of required fertilizer, longer residence period reduced labour cost and two to three times cultivation in single dose application , controlling ground water problem to the maximum extent .In conclusion glass fertilizer is an eco-friendly high efficiency fertilizer.

Dr. Gourkrishna Dasmohapatra
Department Of Chemistry
Science and Humanities Department
NSEC Kolkata

(The author was associated with a glass fertilizer related project during his stay at Central Glass and Ceramic Research Centre , Kolkata)

NEW COMPUTER VIRUSES

Disney virus....Everything in the computer goes Goofy.
AT&T virus....Every 3 minutes it tells you what great service you are getting.
MCI virus....Every 3 minutes it reminds you that you are paying too much for the AT&T virus.

Arnold Schwarzenegger virus....Terminates and stays resident. It will be back!
Spice Girls virus...Has no real function, but makes a pretty desktop
X-files virus....All your icons start shape shifting
Mike Tyson virus....Quits after one byte
Titanic virus.....Makes your whole computer go down

"A strong positive mental attitude will create more miracles than any wonder drug."

The Big Idea

"Made for each other".
"Just Do it".
"Thanda Matlab Coca Cola".

What is it that links the above punch lines together? They are all examples of a big idea. A big idea is the heart of a campaign, it breathes life into any advertisement, ensuring that the readers don't forget it for a long, long time. Only advertisements with a big pulsating 'heart' are able to reach out to their readers.

A strong idea can sustain a brand for many years. Take the case of Bajaj advertisements. The line "Hamara Bajaj" is a classic example of a big idea. Just two words, but they ensured that the campaign ran successfully for many years. Advertising is a business of words. It is words, which can infuse magic into advertisement. So, when Nike came out with it's slogan "Just Do It", it changed the way the world thought. People actually started putting on their jogging shoes and taking charge of their lives. A big idea needs to be simple. It is simple words and simple ideas that turn an advertisement into a classic.

A big idea is also about using the right brand ambassador. Met-life decided to use Snoopy, the cute cartoon dog to convey the benefits of it's company. People associate death with life insurance. So, the use of a cute cartoon character helped relax the customer. It was a great idea and worked well for the company.

A big idea is also great music. Mozart's 40th concerto is avery popular piece of music, but in India, where most of the people know Mozart and Beethoven as the same person, it is recognized as the Titan tune. A television commercial has many aspects to it, the background score being an important contributor to the success of an advertisement.

Deciding which emotion to use is a very important element in making outstanding advertisements. Remember the cute little boy in the Surf advertisement who makes you smile as he fights the dirty puddle water for his little sister. The benefits of using the product is explained in such a beautiful manner, using the right combination of emotion that you not just enjoy watching the commercials again and again, but also reach out for these products in your next shopping trip.

It's all the power of this one big idea, which can turn your world upside down. Advertising is the art of arresting human intelligence long enough, to get money for it.

Trina Guin
4th Year, ECE

A Mathematician's Love Letter

My LOVE,

Yesterday, I was passing by your RECTANGULAR house in TRIGNOMETRIC lane, there I saw you with you with CIRCULAR Face, CONICAL nose & SPHERICAL eyes, standing in your TRIANGULAR garden.Before seeing you my heart was a NULL-SET, but when a VECTOR of MAGNITUDE (likeness) from your eyes at a DEVIATION of THETA RADIANS made a TANGENT to my Heart, it DERIVATED.My love, for you, my heart is like a QUADRATIC EQUATION with REAL ROOTS, which only you can solve by making good BINARY relation with me. The COSINE of my love for you extends to INFINITY.I promise that I should not RESOLVE you into PARTIAL FRACTIONS, but if I do so, you can INTEGRATE me by applying from ZERO to INFINITY.You are as essential to me as an ELEMENT to a SET, the GEOMETRY of my life revolves around your ACUTE personality, my love.If you don't meet me at PARABOLA restaurant on date 10, when the sun is making an ANGLE of 160 DEGREEs, my heart would break like a POLYNOMIAL of DEGREE 10..

With love from your HIGHER ORDER DERIVATE of an unknown FUNCTION.

Sourav Sadhu
3rd year ECE

The Bermuda Triangle Code

"Moonians (aliens on the moon) used to hijack planes and ships from bermuda triangle",Dr Young said."By electromagnetic suction?",Freedman asked."Oh Yes! Bermuda triangle was the gateway of death, the other end opened on the moon",pat came the reply.

"Niel Armstrong had seen the aliens on moon ,about 200 years ago, when he landed on the moon in 1969.But they threatened him to keep quiet",Freedman said.

"Niel had even cautioned man by telling that it is better that man stays on the earth and stops intruding on the moon" But they didn't mention Niel had framed a code in his diary for the next generations to read."Bermuda will shed all the red.To shed recreate it on the red".It was intentionally made confusing so that aliens didn't destroy it.But no one ever could decipher the bewildering code.

Today ,Friday the 13th march ,2169 AD it's a different story altogether.The aliens from moon have almost destroyed human race.Today they are powerful with artificial intelligence(a clone of human brain), telepathic messaging system(tms) super electromagnetic vehicles and anti matter energised weapons .But they are 'cheaters'. UFO's used to be seen in the sky 200 years ago,but humans neglected them. But these moonians used to spy and steal human technology and research papers from various laboratories."Human brain is the most powerful resource in this universe -the moonians knew it. They used to hijack planes and ships along with the men on board from bermuda triangle .These foolish men wasted their 95% brain throughout their life by getting into trifling matters like household quarrels,etc.

Moonians utilised 95% of unused human brains to build human supercomputers (which was a thousand times faster than supercomputers)and continued the advanced research from where it was stopped on earth.

Apart from Dr Young and Mr Freedman only Miss Justin was left alive in a secret location near California.

"Oh no! The moonians have located us. They'll be here in a few minutes, Mr Freedman anxiously uttered.

"We are the only three survivors out of human beings. If we are killed, human race will become extinct",Miss Justin's worry was natural.

"Can we find a solution?",Mr Freedman said.

"The Bermuda Triangle Code -by Niel Armstrong .Can it help us?" Miss Justin asked.

"Let's try to decode it!",Dr Young said.

"Bermuda will shed all the red -it simply says that the Bermuda Triangle will be the cause of blood shed of all human beings on earth",Mr Freedman explained.

"But the next line -to shed recreate it on the red is difficult to decode",Justin said.

"Shed -I have read in old history books that houses used to have car shed to protect it from rainwater, sunrays etc. Mr Freedman said.

"The Red .I think it is referred to Mars-the red planet." Miss Justin said.

"Excellent! Miss Justin you have decoded it.",Dr Young shouted.

"But explain it clearly Dr young",Mr Freedman said.

"Yes ! But before that send Miss Justin to Mars, on the SGRA vehicle. Hurry ,we don't have much time left ",Dr Young was panicking.

"And also implant a test tube baby in her womb, before setting her off for Mars", Dr Young continued.

They quickly send her off to mars.

"You two are now caught, silly humans!", Man in the moon, the boss of the moonians roared.

"You can kill us both but can't finish homosapiens. Long live mankind! Long live mankind!"Dr Young boldly shouted the slogan.

Moonians kidnapped or killed Dr Young and Mr Freedman was not known .But this was sure that Miss Justin's womb bore a child which would continue the human race from mars.

It was hidden in the code "Recreate it on the red "means recreate a triangle ,signifying a woman's womb on the Mars, i.e. send a woman on Mars to protect mankind ('shed' mankind).Dr Young's genius brain saved homosapiens from getting extinct. But mankind will owe a lot to -The Bermuda Triangle Code.

Sudhanshu Jha,
IT,2nd year

"People are like stained-glass windows. They sparkle and shine when the sun is out, but when the darkness sets in, their true beauty is revealed only if there is a light from within."

Shruti Mondal
2nd Year, EE

"We are told never to cross a bridge until we come to it, but this world is owned by men who have 'crossed bridges' in their imagination far ahead of the crowd."

The way Numbers Play in our Lives...

Most of us, who intend to be budding engineers, by default are of a scientific turn of mind. Astrology and its various forms, such as tarot card reading and numerology are instantly dismissed by us as “rubbish” (much to the disappointment of our parents, who fail to understand our viewpoint, much to our disappointment!)

However, I have reason to believe, that most of my seniors, classmates and juniors love to play with numbers. But, when we can correlate some real-life events with numbers, it does create a sense of eeriness.”Life is so predictable”-you start to think, but again a hayward event comes by, and ruins all calculations. I do not claim to be a big admirer of numerology and things, but a piece of article in the newspaper definitely drew my attention, more so since it revolved around Indo-Pak cricket.

The article was about two cricketing families of the two nations- the Amarnaths of India, and the Mohammad's of Pakistan. We all know Lala Amarnath and we know his son Mohinder Amarnath even better. Mohinder's elder brother Surinder has also represented India in cricket. On the other hand are the illustrious brothers Nazar Mohammad, Hanif Mohammad, Mustaq Mohammad and Sadique Mohammad. There is also Nazar Mohammad's son Mudassar Nazar , who has also played for Pakistan like his father. I came across the following facts about the 2 father-son pairs mentioned above:-

1) India's 1st test century was hit by Lala Amarnath, while Pakistan's first test century was hit by Nazar Mohammad. It was the 2nd test for both countries (in the 1952-53 series) and the debut test of both these players. Also, both these players have never scored a test century ever again.
2) Like Lala Amarnath, his son Surinder Amarnath scored a test century in his debut test, and had got out after his century like his father. Mudassar Nazar scored a century on debut as well, exactly 31 years after his father had hit a century on debut, and both remained not out!
3) The 101st century for India was hit by Mohinder Amarnath, and the 101st century for Pakistan was hit by Mudassar Nazar.
4) In the 1982 Karachi Test both Mohinder and Mudassar completed 2000 test runs.
5) Both have their names starting with “M” and ending with “r”.
6) Both their names are 16 letters long!
7) Both have 1 elder and 1younger brother.
8) Both Mohinder and Mudassar made their debut on the 24th of December and both scored their 1st centuries in the December of 1977.
9) Both Mudassar Nazar and Mohinder Amarnath hold the record for scoring the maximum runs in an Indo-Pak Test series. The series under discussion is the 1982-83 series where Mohinder scored 761, and Mudassar scored 584.
10) Both Mohinder and Mudassar were known to their respective teams as “Mr. Dependable” and both were equally known for avoiding the spotlight.

If cricket is here, can football be far behind! Who can forget Miroslav Klose's impressive performance aginst Sweden in the pre-quarter finals in the 2006 World Cup. The Golden Boot winner who completed 4 goals in this edition of the World Cup that day, scored his 3rd goal in the 4th minute, and his 4th goal in the 44th minute! Some of us may even remember the remarks of the commentator and the reports in the newspapers the following morning, mentioning that he was the 4th child of his parents and he had 4 daughters!!

We all supported Sri Lanka during the World Cup Final of 2007, against Australia.I went along with the general mood, but somewhere inside, I knew that going by statistics, Sri Lanka would lose. Reason? Simple! Those Asian countries who had made it to the finals of the World Cup had made it twice, winning once and losing once. India won in 1983, lost in 2003, Pakistan won in 1992 and lost in 1999, while Sri Lanka won in 1996 and as we all witnessed, it lost in 2007!

After all these I simply went mad about numbers and I tried to apply it to the world of dreams- Bollywood. Observing the birthdays of superstars, I came across the following information:-

1) Uttam Kumar- 3rd September, 1926
2) Kishore Kumar-21st August. 1929
3) Amitabh Bachchan-11th October, 1942
4) Shah Rukh Khan-2nd November, 1965

Thus we see that Uttam Kumar is 3 years older Kishore Kumar, who in turn is 13 years elder to Amitabh Bachchan, who is 23 years older to Shah Rukh. Thus can it be predicted that our next superstar will be born 33 years after 1965, ie in the year 1998, and is now a 9-year old kid busy with Toonami and stuff? There is a small digression in the month of birth of the first 2, but leaving that out the month can be assumed to be December.

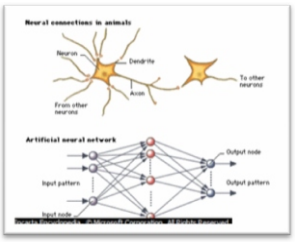
Infact had I considered only Shahrukh and Amitabh, I myself would have been an eligible candidate having been born on 11th December, 1988, 23 years younger than Shahrukh. Also Me and my favorite star Amitabh were both born on the 11th and on a Sunday, Besides, Dilip Kumar was also born on 11th December, 1922. Vishwanathan Anand was also born on 11th. CV Raman was born on 11th November 1888 ie. 11-11-88.The number 11 sure has something going for it, don't you think?

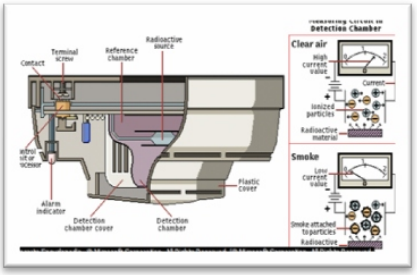
Pramit Pratim Ghosh,
3rd year EE

Automata Theory

Introduction

Automata Theory, is the concept that describes how machines mimic human behaviour. The theory proposes that human physical functions and behaviour can be simulated by a mechanical or computer-controlled device. Applications of automata theory have included imitating human comprehension and reasoning skills using computer programs, duplicating the function of muscles and tendons by hydraulic systems or electric motors, and reproducing sensory organs by electronic sensors such as smoke detectors.





The concept of automata has historically been associated with any self-operating machine, such as watches. But in the late 20th century, the science of robotics (the development of computer-controlled devices that move and manipulate objects) has replaced automata as it like robots. Modern theories of automata currently focus on reproducing human thought patterns and problem-solving abilities using artificial intelligence and other advanced computer-science techniques.

History

Automata date to ancient times. During the Han dynasty (3rd century BC), a mechanical orchestra was constructed for the Chinese Emperor. In the 17th century, French philosopher and mathematician René Descartes reportedly built a female automaton as a travelling companion. In the 18th and 19th centuries, intricate machines were constructed that imitated some human actions, such as limb movements etc.However mimicry of human mental abilities did not begin until the advent of electronics and mathematical logic structures. In the mid-20th century, the British mathematician Alan Turing designed a theoretical machine to process equations without human direction. The machine, now known as a Turing machine, in concept resembled an automatic typewriter that used symbols for math and logic instead of letters. Turing's machine was the theoretical precursor to the modern digital computer.
In the 1940s and 1950s American researchers Warren McCulloch and Walter Pitts at the Massachusetts Institute of Technology developed artificial neurons, or neural networks, to theoretically bridge the structure of the human brain. Artificial neural networks have been shown to have the capacity to learn from their experiences and enhance their computational performance.

In 1956 American scientist Herbert Simon and American physicist Allan Newell at Carnegie Mellon University in Pennsylvania devised a program called Logic Theorist that simulated human thinking on computers. Newell and Simon later created a modified version of the program called the General Problem Solver (GPS). The GPS was unique in that it was programmed to achieve a goal and then find the means to reach that goal for an eventual solution. This was one of the first breakthroughs in the computer-science field that would later be known as artificial intelligence. These are something like super computers. Contemporary fields of interest resulting from early artificial intelligence research include expert systems, cellular automata, and artificial life.

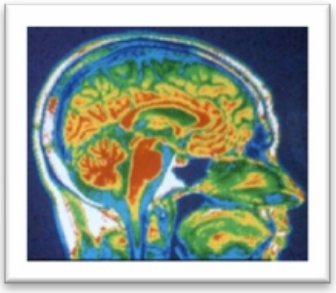
"Keep away from people who try to belittle your ambitions. Small people always do that, but the really great make you feel that you, too, can become great."

Expert Systems

Expert systems are computer software programs that mimic the expertise of human specialists. Expert systems have two components, a knowledge base that provides rules and data and an inference engine that enables the expert system to form conclusions. For example, an expert system that diagnoses blood disease in a patient would require a knowledge base of blood pathogens, disease symptoms, and treatment options. The inference engine searches through the knowledge base and concludes which possible disease or diseases the patient has and then suggests various treatments based on that diagnosis.

Cellular Automata

Cellular automata originated in the theoretical work of American mathematician John von Neumann in the 1950s. In living organisms, individual cells are affected by the death or malfunction of the cells around them. Applying this metaphor to computational problems, for example a stock market simulation, a particular stock will fluctuate in response to economic factors just as a cell will react to an injury.

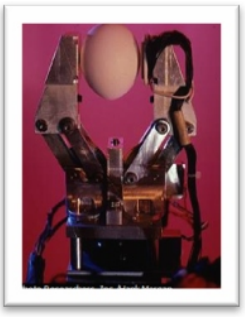


Artificial Life

Artificial life, developed by C.Langton at the University of Michigan in the 1980s, allows data to evolve within a computer simulation. As in evolution, data that have the strongest set of attributes thrive, while incomplete or lesser data die. Changes could be made to the basic structure of the business model to help strengthen the business's resistance to these outside factors. As a result, better business plans could be developed without risk.

Achievements

A number of automata technologies have been introduced into contemporary use. Voice recognition gives a computer the ability to understand spoken instructions. Natural language enables a computer to understand conversation in the same way that humans understand it. Machine vision allows computer-controlled robots to identify objects using cameras. Expert systems partially mimic human reasoning. Neural nets replicate a human's ability, which is useful for various types of recognition, such as facial features.



This robotic hand is capable of performing the delicate task of picking up and holding an egg without breaking it.

Limitations

However automata progress has been limited by programming techniques. Prior to the 1980s, almost all programming was done by structures designed such as calculating the sum of two numbers. New symbolic programming language, such as PROLOG and C++, use symbolic logic, in which symbols represent the laws of reasoning. These languages and advances in programming techniques have stimulated new interest in automata theory.
Despite these advances, modern computer technology is not expected to take automata beyond the realm of theory. This is due in part to the limitations of speed, storage and application development of computer technology. In addition, a more definitive view of what actually constitutes human behaviour and intelligence is needed. This latter obstacle is especially difficult to overcome since progress in the medical and psychological sciences constantly changes existing beliefs about the human mind and body.

SUBHRO JYOTI ROY
CSE 3rd YEAR

Soumadeep Bhattacharya
3rd Year, CSE

No matter how good you get you can always get better and that's the exciting part.

Biometrics

The term “biometrics” is used to refer to the emerging field of technology devoted to identification of individuals using biological traits, such as those based on retinal or iris scanning, fingerprints, or face recognition. Fingerprints are the best known biometric tool and has been used by law enforcement agencies for nearly a century.

With everyday activities increasingly being handled electronically, instead of with pencil and paper or face to face, the need for fast and accurate user identification and authentication in electronic transactions has grown. Biometric technology provides an avenue to achieve fast, user-friendly authentication with a high level of accuracy.

Using biometrics for identifying and authentication, human beings offer some unique advantages. Unlike other forms of identification, biometric authentication bases on identification of an intrinsic part of a human being and hence cannot be misused by any other user. In comparison, tokens such as smart cards, magnetic strip cards or physical keys can be lost, stolen or duplicated. Even passwords are not foolproof as they can be forgotten, shared or observed.

A good biometric system is one that is low cost, fast, accurate and easy to use. As far as cost is concerned, one has to take into account the life-cycle support, cost of providing system administration support and an enrolment operator which can overtake the initial cost of the sensor or the matching software that is involved. Accuracy is also of key importance. Some terms that are used to describe the accuracy of biometric systems include false acceptance rate (percentage of imposters accepted), false rejection rate (percentage of authorized users rejected) and equal error rate (when the decision's threshold is adjusted so that the false-acceptance rate equals the false-rejection rate).

Perhaps one of the most extensive applications of biometrics is for entitlements which have demonstrated dramatic savings by requiring biometric authentication when someone is applying for entitlement benefits. This technique is yet to be applied in India. There are also significant applications of biometrics in the commercial sector. Some of the biggest potential applications include the user of biometrics for access to Automated Teller Machines (ATMs) or for use of credit or debit cards. Many types of financial transactions are also potential applications. Eg:- banking by phone, banking by internet and buying and selling securities by telephone or by internet. There are also commercial applications for computer access control, access to website servers, access through firewalls, and physical access control to protect sensitive information.

Sayanti Bag,
CSE, 2nd Year

Love Proposal by a Software Engineer

Just know that the love I have for you
Is not to be put in a Stack or Queue
Like a variable in an infinite loop
Be in my heart always and never stop.

My heart is like a port, unread,
And the love I have has only one thread
You are in my heart's RAM and not in the cache
So if you won't respond, my heart will crash.

Like an application that is stand alone,
I am a programmer who earns a lot of my own
And my request is clear, without any encryption
And hope it is not void, that you return.

If Java can be linked with C
Or, if E-mails can be sent for free
Why on earth can't you and me
For the rest of your lifetime together be?

Priyanka Samanta
IT,2nd year

22nd Century: The Era Of Technology

Doctor-``Jack, operation completed. 10GB memory chip with data transaction speed of 100 MIPS along with rechargeable 5V-2W battery successfully installed. For best results, recharge it for 5 mins per day".

With his vast memory , Jack could now perform millions of tasks simultaneously. He works as a junior scientist at the Centre of Artificial Reasoning & Logical Intelligence. The centre is developing megamind devices .The megamind devices are supposed to have human like sensibility with the power to sense the present situation and take the best possible decision. It's already 09:58:00 and Jack has to be in office by 10:00:00.He puts the brain detector on his head and passes the signal-``Transform me to gaseous air, board me to airbus and land me in Kingsland".Within a fraction of a second ,Jack arrives at Kingsland's airbus port .His office is a minute walk from the port .It's a hot ,sunny day .Jack switches on the A.C in his pocket and reaches the office at 09:59:58.

In his cabin, Jack connects his brain transmitters to the internet and feeds his 10GB memory with all necessary updates related to the development of megamind device .He sends other instructions to electronic circuits embedded on planet Mars.

"When one of your dreams come true, you begin to look at the others more carefully."

With the increasing population, there was hardly any space on Earth to establish the giant technology industry. Mars, in close proximity to Earth was the most favourable choice for the industry. Thus, the entire planet was laid with electrical circuits- IC's, diodes, transistors etc.

On receiving the processed data from Mars, Jack passes it to the ``Test 0/1 Meter''. He sends the output 0 data (garbage data) to sun's atmosphere where they undergo chemical reaction and get converted to solar energy. He enters the output 1 data into the megamind device and checks its functioning.

Jack jumps with excitement. He mails ``Experiment successful'' to his team members. In the meantime, an official robot enters and says-``Boss has send his heartiest congratulations. He now orders you to examine the solar power project on Mercury''.

The coal, minerals and other energy sources have become extinct a decade ago and only dependable never ending source is Sun. To meet the Earth's growing energy demand, it was decided to build solar panels on planet Mercury and the produced energy be transmitted to power storehouse on Earth. Jack boards the airbus and lands on planet Mercury .He surveys the planet and orders the labour robots to execute the task within two hours.

Suddenly Jack remembers his hospitalized father admitted in the I.C.U. His father had a heart attack which paralysed his veins and his heart has to be transplanted .Boarding the airbus, he lands in the hospital. The operation has started.

The team of doctors undergo miniature reaction which reduces them to atomic size. They penetrate into the patient's heart, remove the damaged veins and replace them. After checking his heart functioning properly ,they prepare to exit .After exit ,they undergo reversible reaction which restores them to original size. His father recovers his senses in few minutes. Jack along with his father decides to go home.

Back home, Jack finds his wife waiting for them. On seeing his father-in law, she welcomes him and instructs two labour robots to take care of him. Jack says to his wife-``My sister has invited us to a dinner party today but I am tired .Can you go, please!''. His wife readily agrees. After putting on a fine party dress, she places her cosmetics and jewelleries on the ``Instant and Automatic Make-Up Machine'' and lowers her head into it. After two-three minutes, she takes her head out and sees herself in the mirror. She is perfectly ready.

Suddenly, she remembers her favourite T.V serial and thinks that she can watch it on the way. She folds the T.V sheet and keeps it in her purse. Then, entering the kitchen, she tells the servant robots not to prepare her dinner. She finds Jack in the drawing room charging his battery .She says goodbye to Jack and leaves for the party.

Ruchi Kumari
3rd Year, CSE

Arup Dasgupta
Faculty,
Dept. Sc. & Humanities

Dreams are today's answers to tomorrow's questions.

EMERGING TECHNOLOGIES: TOWARDS A NEW WORLD

Emerging technologies are new and potentially disruptive technologies which some consider to have the potential to transform humanity's future. A disruptive technology supersedes or marginalizes an existing dominant technology or status quo product in the market.It is worth noting that it is controversial whether some of these technologies will ever come into existence.

1.Genetic engineering:-

Recombinant DNA technology, genetic modification/manipulation (GM) and gene splicing are terms applied to the direct manipulation of an organism's genes. Genetic engineering uses the techniques of molecular cloning and transformation. Genetic engineering endeavors have found some success in improving crop technology, the manufacture of synthetic human insulin through the use of modified bacteria, the manufacture of erythropoietin in Chinese hamster ovary cells, and the production of new types of experimental mice.

Since a protein sequence is specified by a segment of DNA called a gene, novel versions of that protein can be produced by changing the DNA sequence of the gene. Some groups have argued that genetic engineering is wrong and is "against the work of God", but most scientists believe that genetic engineering is essential to help future medical discoveries. Genetic engineering may one day have much potential for altering humans. It could lead to cloning, modification of appearance, and parents choosing the sex and appearance of their children; as well as having numerous medical implications.The completion of the sequencing of the human genome, as well as the genomes of most agriculturally and scientifically important animals and plants, has increased the possibilities of genetic research immeasurably.

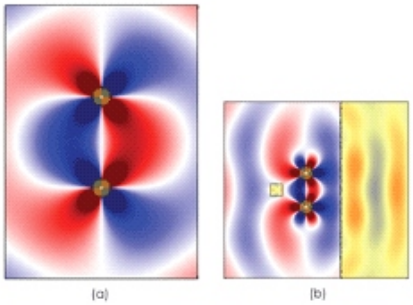
2. Nanotechnology:-

It refers broadly to a field of applied science and technology whose unifying theme is the control of matter on the atomic and molecular scale, generally 100 nanometers or smaller, and the fabrication of devices with critical dimensions that lie within that size range.Nanomaterials is the study of how materials behave when their dimensions are reduced to the nanoscale. It can also refer to the materials themselves that are used in nanotechnology.

A unique aspect of nanotechnology is the vastly increased ratio of surface area to volume present in many nanoscale materials which opens new possibilities in surface-based science, such as catalysis. A number of physical phenomena become noticeably pronounced as the size of the system decreases. These include statistical mechanical effects, as well as quantum mechanical effects.Materials reduced to the nanoscale can suddenly show very different properties compared to what they exhibit on a macroscale, enabling unique applications. For instance, opaque substances become transparent (copper); inert materials become catalysts (platinum); stable materials turn combustible (aluminum); solids turn into liquids at room temperature (gold); insulators become conductors (silicon). Nanosize powder particles (nanoparticles) are potentially important in ceramics, powder metallurgy.Nanoparticles have been used as quantum dots and as chemical catalysts.

3. Wireless energy transmission:-

Researchers from MIT (Cambridge, MA) claim that their wireless energy innovation will someday allow portable electronics to recharge wirelessly. Based on the fact, known for nearly two centuries, that transferring electric power does not require wires to be in physical contact, the team realized that close-range induction taking place inside a transformeror something similar to itcould potentially transfer energy over longer distances.



Electromagnetic nearfield coupling for wireless nonradiative energy transfer between two resonant dielectric disks (a). The energy transfer mechanism is robust with respect to the presence of random objects, such as a container of water and a rough wall (b).

Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.

Instead of flooding the surroundings with electromagnetic waves, a power transmitter could be used to transfer energy by induction. That way, energy would be picked up by electronic devices specially designed to resonate with the field. Most of the energy not picked up by the receiver would be reabsorbed by the emitter.The researchers demonstrated through calculations that a laptop could be recharged within a few meters of the power source. So, placing one power source in each room could provide coverage throughout a home.

Now, whether we get to apply these concepts in the near future, only Time will tell!

AHMAD TABISH HELAL
IT, 3RD YEAR

Sangeeta Dey
3rd Year, CSE

COMPUTER TRICKS

HIDE FILES

Here it is :

You require WinRAR installed in your PC for this trick
First add files to .rar i.e. to say files.rar
Say you have an image as img.jpg
Now save files.rar and img.jpg in C:\drive
Click Start >> Run
Type cmd
Now in command prompt type cd..
Again type cd..
Type copy/b img.jpg + files.rar new.jpg

Please Note:

>> This command will concatenate the two files into the new file new.jpg
>> Don't type files.rar + img.jpg instead of img.jpg + files.rar
>> Now (Size of new.jpg) = (Size of img.jpg) + (Size of files.rar)

Now we have new.jpg consisting of both img.jpg and files.rar .

Accessing the files :

To view files.rar :

Right click on new.jpg >> Select open with >> Choose program
Select WinRAR archiever
#Now simply extract your files

To view img.jpg :

Double click new.jpg

BLOCK OR UNBLOCK WEBSITES WITHOUT SOFTWARES

For example you want to block www.xyz.com

Open the folder C:\WINDOWS\System 32\drivers\etc.
There you will find a file named HOSTS
Click on the file and press SHIFT and now right click on it
From the right click menu select Open with
Now select Notepad to open the file from the list
Now, in the file under the line: 127.0.0.1 local host

Add another line: 127.0.0.2 www.xyz.com

Now, File >> Save

Open your web browser and try to open www.xyz.com, it will not load.

To unlock the sites just do the opposite.

Definitions:

1. Socialism: You have two cows. You keep one but must give one to your neighbour.
2. Communism: You have two cows.The government takes both and provides you with milk.
3. Fascism: You have two cows. The government takes the both and sells you the milk.
4. Bureaucracy: You have two cows. The government takes the both, shoots one, milks the other, pays you for the milk and then pours it down the drain.
5. Dictatorship: You have two cows, the govenment takes both, then shoots you.
6. Capitalism: You have two cows. You sell both and buy a bull.

LOCK YOUR FOLDERS

Make a folder on the desktop and name it as “folder”.
Now open notepad and write

ren folder.{21EC2020-3AEA-1069-A2DD-08002B30309D}.folder

and now go to file >> save as

In the “save as” name it as lock.bat and click save. (save it on desktop)
Now again open notepad and write

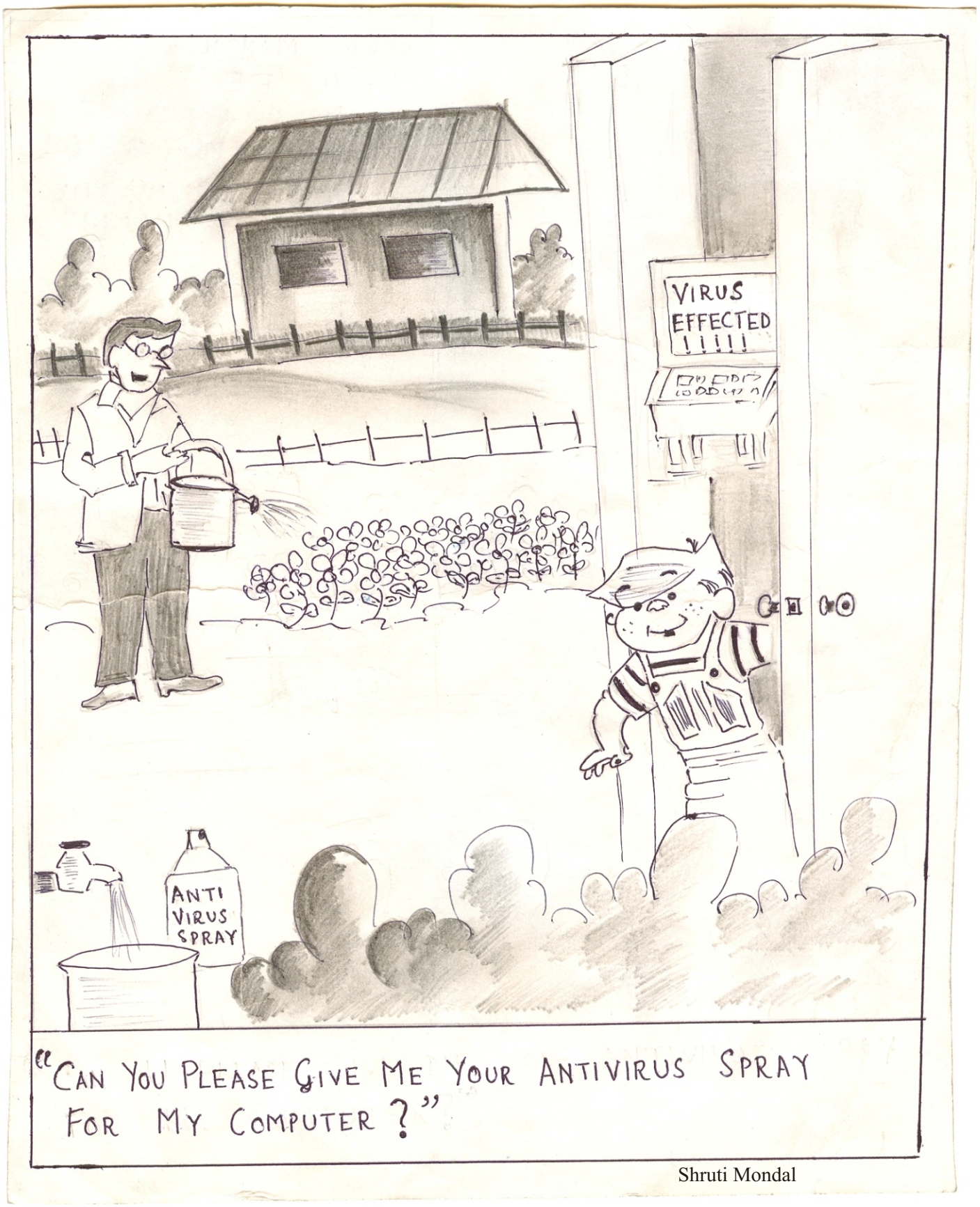
ren folder.{21EC2020-3AEA-1069-A2DD-08002B30309D}.folder

and now go to file >> save as

In the “save as” name it as key.bat and save on desktop.
Now, double click lock.bat to lock the folder and now if you open your folder, control panel will open up.
Now double click over key.bat to open the folder and now if you open your folder you can access your data inside the folder again.
Lock your folder and hide the key.bat somewhere else on your hard disc
Whenever you want to open your folder just paste the key.bat on the desktop and open your folder using it.

Priyama Biswas
EIE,2nd Year.

We have too many people who live without working, and we have altogether too many who work without living.



Shruti Mondal

EE, 2nd year.

If your life is free of failures, you're not taking enough risks.

Global Positioning System

1.Introduction

Global Positioning System (GPS), space-based radio-navigation system consisting of 24 satellites and ground support. GPS provides users with virtually accurate information about their position and velocity, as well as the time, anywhere in the world and in all weather conditions.

2.History and Development

GPS, formally known as the NAVSTAR (Navigation Signal Timing and Ranging Global Positioning System) Global Positioning System, was initiated in 1973 to reduce the proliferation of navigation aids. GPS is operated and maintained by the United States Department of Defense. Because its capabilities are accessible using small inexpensive equipment, it has been useful in classical navigation and has many new applications too.

3.Working

GPS determines location by computing the difference between the time that a signal is sent and the time it is received. GPS satellites carry atomic clocks. The time information is placed in the codes broadcast by the satellite so that a receiver can continuously determine the time the signal was broadcast. The signal contains data that a receiver uses to compute the locations of the satellites and to make other adjustments needed for accurate positioning. The receiver uses the time difference between the time of signal reception and the broadcast time to compute the distance, or range, from the receiver to the satellite. The receiver must account for propagation delays, or decreases in the signal's speed caused by the ionosphere and the troposphere. With information about the ranges to three satellites and the location of the satellite when the signal was sent, the receiver can compute its own three-dimensional position.

4.Parts of the GPS

GPS comprises three segments: the space, control, and user segments. The space segment includes the satellites and the Delta rockets that launch the satellites. GPS satellites fly in circular orbits at an altitude of 20,100 km, with a period of 12 hours. The orbits are tilted to the earth's equator by 55 degrees to ensure coverage of polar regions. Powered by solar cells, the satellites continuously orient themselves to point their solar panels toward the sun and their antennas toward the earth. Each satellite contains four atomic clocks.

The control segment includes the master control station, and monitor stations at. These stations monitor the GPS satellites. The control segment uses measurements collected by the monitor stations to predict the behavior of each satellite's orbit and clock. The prediction data is transmitted, to the satellites for transmission to the users. The control segment also ensures that the GPS satellite orbits and clocks remain within acceptable limits. The user segment includes the equipment of the military personnel and civilians who receive GPS signals. Military GPS user equipment has been integrated into, aircrafts, submarines, ground warfare vehicles and soldiers' equipment. Along with basic navigation activities, military applications of GPS include target designation, close air support, “smart” weapons, and rendezvous.

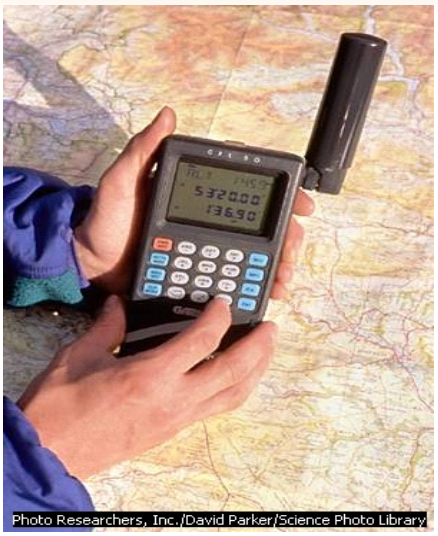
Surveyors use GPS to save time over standard survey methods. GPS is used by aircraft and ships for en route navigation and for airport or harbor approaches. GPS tracking systems are used to route and monitor delivery vans and emergency vehicles. GPS is available as an in-car navigation aid and is used by hikers and hunters. GPS is also used on the Space Shuttle. Because the GPS user does not need to communicate with the satellite, GPS can serve an unlimited number of users (presently greater than 5,00,000).

5.GPS Capabilities

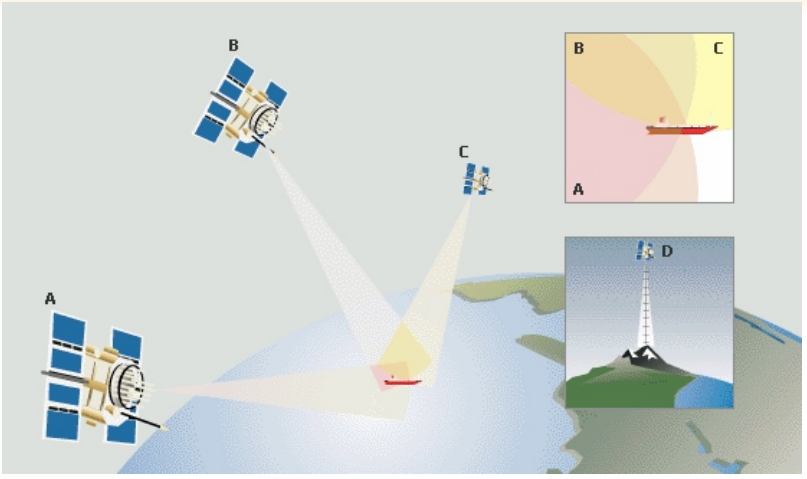
GPS is available in two basic forms: the standard positioning service (SPS) and the precise positioning service (PPS). SPS provides a horizontal position that is accurate to about 100 m (about 330 ft); PPS is accurate to about 20 m (about 70 ft). Enhanced techniques such as differential GPS (DGPS) and the use of a carrier frequency processing have been developed for GPS. DGPS employs fixed stations on the earth as well as satellites and provides a horizontal position accurate to about 3 m (about 10 ft).

6.Future

As of 2001, 24 GPS satellites were in operation (The most recent launch was March 15th, 2008). Replenishment satellites are ready for launch, and contracts have been awarded to provide satellites into the 21st century. GPS applications continue to grow in land, sea, air, and space navigation. Airplanes will use GPS for landing at fogbound airports. The ability to enhance safety and to decrease fuel consumption will make GPS an important component of travel in the international airspace system. Presently several technologically advanced countries such as Japan use GPS in automobiles. Soon GPS will become an integral part of mainstream automobiles in India also.



Global Positioning System (GPS) receivers use the signals from orbiting GPS satellites to determine location. The liquid crystal display of a basic GPS receiver shows latitude, longitude, and altitude. Advanced receivers display maps showing the user's location



Finding Location with GPS

Global Positioning System (GPS) satellites orbit high above the surface of Earth at precise locations. They allow a user with a GPS receiver to determine latitude, longitude, and altitude. The receiver measures the time it takes for signals sent from the different satellites (A, B, and C) to reach the receiver. From this data, the receiver triangulates an exact position. At any given time there are multiple satellites within the range of any location on Earth. Three satellites are needed to determine latitude and longitude, while a fourth satellite (D) is necessary to determine altitude.

Sayan Gupta
3rd Year, EE

Get Up & Running with Linux

"…if it's not fun, why do it…"
-- Linus Torvalds.

Recently, somebody came to me and asked whether Linux was a program that ran on MS Windows. With that kind of confusion prevailing, it is best to first get an idea as to what Linux is. Basically Linux is an open source and true multiuser operating system (another example of such an OS is FreeBSD). However, for the technically inclined, Linux is just the kernel (core of the operating system), originally developed by Linus Torvalds in the year 1991, while he was still an undergraduate.

After a modest start Linux has come a long way into becoming a major force in the computing world, so much so that majors like Google deploy and support Linux to the tilt. So, what is it that makes Linux so commendable? Well, there are quite a lot of reasons, the most important ones being:-

a) The Free Software philosophy of GNU and GPL
b) The exuberant community
c) The abundance of Software and choices available
d) Technical superiority of the platform
e) Great scalability (mainframes to embedded systems)
f) Excellent level of help and documentation

So, what does that mean to a student? Well, it means that you get a superb platform with top of the line development tools and once you start using them productively then you are ready for the industry.

The first step towards Linux obviously is to get it installed on your computer first. Now, the details of that may vary from distribution to distribution. Wondering, what a distribution (or distro) is? Well, basically it is Linux kernel plus all the software bundled into an easy to use package. It is this packaging that separates the 'distros' (take a look at http://distrowatch.com). On one hand we can get a installation done in seven clicks whereas in another we can get a highly customized install after editing many files and issuing many commands on the command line. Wow, that is choice! So, go get a distro's CD/DVD (the internet and the college library are good sources) and you are ready to go. During installation, if possible, always go for the advanced (or custom) option. It helps, in the sense that you know exactly what is happening. In this way the installer won't play any unexpected surprises on you. So, the basic recipe for installation is:-

a) Please read the instructions carefully
b) Prefer the verbose mode, in particular prefer custom partitioning
c) Ask for help (remember the community is brilliant)
d) Of course keep your eyes and mind open :-)

By now you should have a Linux system raring to start. Once you reboot into your new Linux system you would be presented with a login prompt (text or graphical depends on your choice). Login with your credentials and you have a whole new world in front of you, crying out loud to be explored. So, please do explore your system. But remember do not unknowingly tinker with your system while you are logged in as the root user (administrator). Without administrator privileges do what you want to because the security of Linux won't let you harm your system. So start poking around the file system, launch the variety of software and acclimatize yourself to the environment.

Linux provides an excellent development environment. There are compilers for any language you could think of, most prominent being gcc(GNU Compiler Collection), brilliant debuggers, DBMS (mysql), RDBMS (postgresql), and almost anything development-related that you could think of. So, how do we use such beautiful tools and be productive. Well, the answer varies according to your needs but there are certain common factors. You should first learn to use the shell (command interpreter for Linux) aka Microsoft Windows' command prompt. Actually the shell is more than just a command interpreter; in essence it's a nifty programming language that is very well suited for prototyping. In general Linux installs BASH (Bourne Again Shell) as the default shell. In case, if you are wondering how to learn about the shell, well you could either pick up a book on shell programming; use the brilliant documentation of linux (you can start by issuing the command "man bash",without quotes) or use the vast resources of the internet.

Another important thing you should do is to learn to use a text editor. Although excellent IDE's exist on Linux (most notably Eclipse), it is still very handy to use a text editor and do the compilation manually. Like most things Linux, even here you have great choice to pick from. GNU Emacs and Vi (or Vim - Vi improved) editors happen to be programmers' choice but you are free to take your pick; its open source you see:-) Another handy addition to your toolbox would be a debugger. GDB is superb in this regard. And then of course learn to use the compiler - GCC. The command "man vi vim emacs gdb gcc" should get you up-to-speed with these tools once again without quotes and remember to press q after viewing each manual page.

Age is strictly a case of mind over matter. If you don't mind, it doesn't matter.

You can also try out this interesting program.Fire up an editor and type the hello world program (or something else if you are bored by that code). Save it in a file called hello.c and type the following command:

gcc -Wall -g -ansi -o hello hello.c

This would create the executable hello. The -Wall option prints warnings; the -g adds debugging info and -ansi sets the standard to ansi. To have the fruits of your labor type the following command:

./hello

and you would get your result. Great start !

Linux is so widely encompassing that just an article is not sufficient even to touch the surface level. However, I do hope that it inspires you to use Linux effectively, use the vast resources, to be a part of the community and removes some myths about Linux. Linux is not tough it's just different and once you are over the learning curve then its a joy to see how productive you can be. So, enjoy and customize Linux to your capability, explore the vast choices, shed your inhibitions about it and have fun !

Man Shankar
4th year, EE

Ubuntu 7.10

a) Hands On: “Gutsy Gibbon”

Ubuntu has recently emerged as one of the most popular and Linux Distros available, even giving existing giants such as Red Hat and SuSE a run for their money. The main selling point for Ubuntu has been its commitment to being free forever and its tremendous community support which means users will rarely get stuck for good, if ever. The latest version of Ubuntu available today, namely Ubuntu 7.10 is codenamed the “Gutsy Gibbon”.

Ubuntu 7.10 can be downloaded from the Ubuntu website www.ubuntu.com in the form of a single CD live/Installer package sized exactly 700MB. The download is in the form of an ISO so you will need to burn it on to a CD and then use it. For those people who have slower internet connections Canonical (The makers of Ubuntu) are kind enough to ship free CD's though they may take anywhere from 4 to 6 weeks to arrive. Either way you won't have much trouble getting your hands on a copy of the Ubuntu CD.

A Live CD is a CD which lets you check out the software without actually installing it on your computer. Boot into a live CD and you'll be able to use a functionally limited version of Ubuntu, installing it only if you wish to use it any further

b) Installing Ubuntu 7.10

Ubuntu 7.10 features an installer which is very different from most Linux installers available today. Here you first boot into the Live CD and when the default GNOME desktop loads from the CD you have an icon on the desktop which will start the installation process. In essence you are installing Ubuntu from within itself !! This innovative concept goes a long way in making the installer comprehensible for first timers to Ubuntu or even Linux.

Once we are satisfied with the Ubuntu environment and want to install it, the main installation will proceed in 7 clicks only ! Out of this, most of the steps are quite simple such as selecting one's language, time-zone, keyboard layout etc. Around step 5 gets to the partitioner which is probably the only step which includes some amount of difficulty. The partition layout is shown along with available free spaces, if any. One has to select at least one root partition (ext2/3 denoted by a mount point “/”) and a SWAP partition (minimum 256 MB, recommended at twice the total physical memory). Also one must remember to set mount points for the other windows (NTFS and FAT) partitions so that one may be able to access one's windows files from within Ubuntu.

It is always advisable to keep some unpartitioned space or a free NTFS/FAT partition that can be converted to a Linux partition. The Ubuntu partitioner does allow us to resize existing partitions to eke out free space but it's not always reliable.

Thankfully, the installer automatically selects some default mount points for the windows partitions unlike most other Linux Distros, a rather thoughtful touch. Once partitioning is over one is greeted with a rather surprising but occasionally useful account import screen which offers to import settings from the available Windows accounts !! For people who like their OS set up in one way only this will be very useful as the first time they boot into Ubuntu, they will notice all their familiar settings and documents. With most things done, now we are ready to go and install Ubuntu.The main install process is rather quick, rarely taking more than 15-20 mins (depending on the PC). You will probably be greeted with a scary looking popup towards the end but that only tells you that Ubuntu wasn't able to download the latest updates due to the lack of an internet connection which is entirely plausible considering that few of us have always- on connections. Once installation is over one is prompted to reboot.

c) Using Ubuntu 7.10

Booting into Ubuntu the first time, one notices a desktop decked in earthy hues with a chocolate wallpaper. Though the desktop may not be the most fashionable, its certainly pleasing to the eye and doesn't really matter all that much since the default GNOME desktop is highly customizable and few people keep the default setup anyway. Ubuntu automatically detects most of the hardware so there is usually no need for third party drivers, except for owners of NVIDIA and ATI video cards who need to install the proprietary drivers in order to work smoothly and enjoy all the fabulous effects that Ubuntu has to offer.

Ubuntu features the compiz-fusion composite windows manager which uses the computer's video card to render a 3D-accelerated desktop which offers many useful features while looking absolutely fabulous all the time. Ubuntu offers multiple desktops to the users, which, in compiz mode, are wrapped around the sides of a cube which can be moved dragged and rotated. Compiz Fusion comes with dozens of plugins which create a multitude of effects such as innovative open/close animations (imagine your window folding itself into a paper plane and flying off) , stylish window switchers, and even the crazy ability to paint with fire on the desktop (yes, that's right, fire) !! All of it makes one wonder what the new AERO interface of Windows Vista was boasting about since Compiz-Fusion beats it by light years.

Ubuntu's bundled software package though, is sparse. The functionally smooth Open office and the great package that is the GIMP photo editor do come attached but apart from that not much else comes along. What's more even if you have to compile a simple program with GCC you will need to install a package “build-essentials”, a major bugging point for people without an internet connection. Ubuntu useful software checklist :

- Mplayer (all In one media player)
  - Azureus (Torrent downloader for the download junkies)
  - CCSM(enables advanced 3D desktop effects)
  - K3b (CD/DVD burning utility)
  - Emerald (Stylish window decorator for 3d desktops)
  - NTFS-3g (for writing to NTFS partitions)

WINE (Windows Emulator, works with major windows applications and some games)

However, Ubuntu comes with a very smooth and fast package manager aka the Synaptic Package Manager which, provided one has an internet connection, makes installing software a breeze. There is also a Windows style Add/Remove programs panel to ease out the process for new users but older users will rarely find it to be of much use. The positive thing about Linux applications is that they are seldom above 50 MB in size and are mostly below 10 MB.

Ubuntu takes a far more realistic approach towards non open-source software than most other Distros. Most people have this qualm that Linux doesn't allow you to play media files (MP3, WMV etc.) or include proprietary drivers and doesn't even guide you towards how to get them. Ubuntu on the other hand, while not packaging any non open-source software (being under the GPL) helps you to get your media files playing and your drivers running by giving automatic options to search and install them. You do get the occasional disclaimer and popup but it's a lot less of pain than with other distros .

Internet connectivity is generally smooth on Ubuntu . It works flawlessly with PPPoE connections (like Dataone) and LAN based connections (Like SIFY,Alliance) when connected through the Ethernet interface. Net surfing is virus free and download speeds are generally faster and with Firefox included by default , windows users will find themselves mostly at home.

If your ADSL modem is connected through the USB interface you may face major issues connecting to the internet from Ubuntu as well as other Linux distros. I f Ubuntu detects your modem automatically, you are safe, else pray to god. A multitude of solutions are available on the net to this problem but none work reliably to this time.

d) The Ubuntu Community

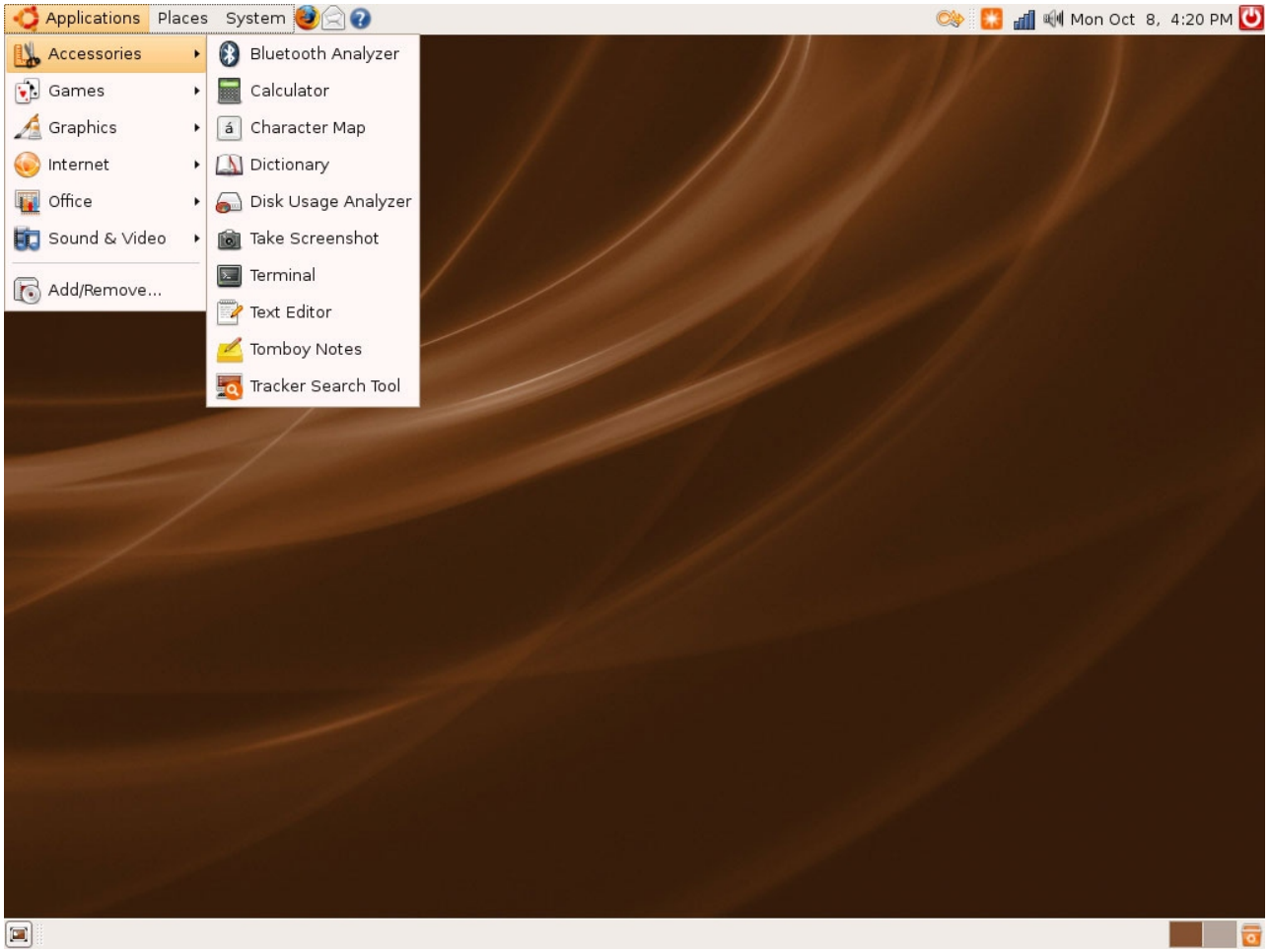
Community support has been the centre point of Ubuntu's meteoric rise amongst the Linux distros and it is for a reason. Ubuntu's official forum , situated at www.ubuntuforums.org has over half a million members, two million articles posted and over 5000 users online at any given time. Any help you need just search the forum. Chances are it's already posted there as a thread. In the rare case that it is not, post the question yourself and surely enough you will get atleast 6 to 8 replies during the day. Hence few problems are insurmountable when you use Ubuntu. It is great to see fellow users as well as developers helping each other out , one of the major pillars of the open source philosophy.

e) And Finally…….

Our hands on tour of Ubuntu showed it to be a fine operating system. Based on Debian Linux, which is famous for it's robustness Ubuntu is quite stable while being extremely easy to use, free to obtain and free to distribute as well. True the software package is sparse and an internet connection is a necessity but overall it is a highly recommendable OS for any user, new or experienced. And what's more, they'll be going open-source which is cool in itself !!!

Ubuntu version numbers are based on the month and year of release. 7.10 was released in October 2007. The versions are also given unique code names such as “Edgy Eft”, “Dapper Drake”, “Feisty Fawn” and “Gutsy Gibbon”. The upcoming version “Hardy Heron” is scheduled for release in April 2008.

Amitava Mukherjee
CSE,4th year



Ubuntu Applications Menu

PHOENIX WORKING COMMITTEE

Reference

Microsoft Encarta
World Book
Wikipedia
Google