



*A minimag from the Computer Society, Anna University*

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## FROM THE EDITOR'S DESK

We at the CSAU are pleased to present the 34th edition of Cursor. This time around we have set out to satiate the techno maniacs. As the editor, it's my pleasure to bring you up to date on the happenings at the CSAU.

Sparks seems to have a cult following and was a humungous success with nearly 1000 students participating. Brainscan too invited enthusiastic participation. Kurukshetra '07, the first of its kind in the campus, was truly a battle of the brains with nearly 6000 brains vying for the prizes.

The upcoming events in CompSoc are Techshow and Undefined. As usual, Techshow comprises of three categories – hardware projects for the robot fanatics and circuit freaks, software projects for the computer geeks and paper presentations for the innovative. And of course, there is a separate category exclusively for the first years with the same fields of specialization. Don't miss out the fun on the day of the exposition! Undefined is yet another fun-filled mixed bag consisting of online events like Google wars and Cipher, and offline competitions like How stuffs work, Quiz and Puzzles which are open to all the four years.

In this edition of cursor... For all those who'd like to make it big in programming and debugging contests, the article on 'Online

Judges' will give you an insight into the sites that you can employ to enhance your programming skills by solving algorithms online. Digital Image Processing is a fast growing field. All the communication engineers would find the article on DIP basics extremely edifying and beneficial. And it is a matter of course that the auto bugs would find the last article Hyanide interesting.

Don't miss out on the bizarre facts and the risible cartoons that lie strewn over the following pages... Hope you have as much fun reading it, as we had writing it!

*Shardha Sankararaman,  
The Editor,  
Cursor.*

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PHISHING

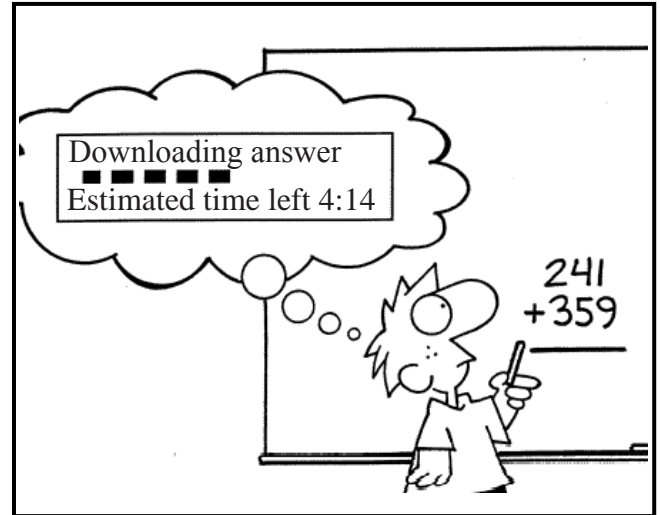
In computing, phishing is a criminal activity using social engineering techniques. Phishers attempt to fraudulently acquire sensitive information, such as passwords and credit card details, by masquerading as a trustworthy person or business in an electronic communication. Phishing is typically carried out using email or an instant message although phone contact has been used as well.

Most methods of phishing use some form of technical deception designed to make a link in an email (and the spoofed website it leads to) appear to belong to the spoofed organization. Misspelled URLs or the use of subdomains are common tricks used by phishers, such as this example URL, <http://www.yourbank.com.example.com/>. Another common trick is to make the anchor text for a link appear to be a valid URL when the link actually goes to the phishers' site.

An old method of spoofing links used links containing the @ symbol, originally intended as a way to include a username and password in a web link (contrary to the standard). For example, the link <http://www.google.com@members.tripod.com/> might deceive a casual observer into believing that the link will open a page on [www.google.com](http://www.google.com), whereas the link actually directs the browser to a page on [members.tripod.com](http://members.tripod.com), using a username of [www.google.com](http://www.google.com): the page opens normally, regardless of the username supplied. Such URLs were disabled in Internet Explorer.

The damage caused by phishing ranges from loss of access to email to substantial financial loss. This style of identity theft is becoming more popular, because of the ease with which unsuspecting people often divulge personal

information to phishers, including credit card numbers, social security numbers, and mothers' maiden names. There are also fears that identity thieves can obtain some such information simply by accessing public records. Once this information is acquired, the phishers may use a person's details to create fake accounts in a victim's name, ruin a victim's credit, or even prevent victims from accessing their own account.



Anti-phishing software is available that may identify phishing contents on websites, act as a toolbar that displays the real domain name for the visited website, or spot phishing attempts in email. Microsoft's new IE7 browser, Mozilla Firefox 2.0, and Opera from version 9.1 include a form of anti-phishing technology, by which a site may be checked against a list of known phishing sites. If the site is a suspect the software may either warn a user or block the site outright.

So friends think smart and act smart and save yourselves from being "PHISHED"!!!!

**Preeti Krishnamurthy,**  
**II year,**  
**EEE.**

*The first domain name ever registered was Symbolics.com*

*The billionth digit of pi is 9*

## KURUKSHETRA

### The first of many more

The seeds for kurukshetra were sown a long time back. The idea had been kicked around for more than a year. Finally the dream became true. The Ceg Tech Forum was started and an organising committee was set up. After quite a bit of hard toiling the event was finally ready to be held and the new year was chosen as the starting date for the new event. The event was held in the first week of the new year (Jan 4th to 7th to be precise).

The 4th of january arrived bright and sunny. Participants had been arriving for nearly a whole day. Men at work were truly at work. The stalls seemed to be appearing out of nowhere. There was a relaxed atmosphere around. The event proper had not yet started. The first day was to be an academician's delight with workshops and seminars scheduled for the whole day. There was an automobile workshop, a robotics workshop and an ethical hacking seminar just to name a few. The first day was to be a gentle loosener as it proved to be. By mid-day the participants were arriving in droves. All the centres scheduled to be venues for the various events were undergoing a cindrella-like transformation, the evidence of which was envisaged the next day. The registration team situated at the hospitality desk got a gentle teaser of what to expect for the remaining three days. Work carried on late into the night regularly on all three days and a mid-night bedtime was pretty normal.

If the first day (DAY O - as per the organisers) was calm and restrained the second day was fury unleashed. People thronged everywhere. Faces both familiar and unfamiliar were present no matter in what direction one looked at. The second day also marked the start of the event proper. A whole range of events were

scheduled for Kurukshetra and Jan 5th marked the start of the exhibition of CEG to the world as the events started with a vengeance. An amazing 15 - 20 events had prelims scheduled on the 5th. Participants could be scrambling all over the place to get from one venue to another in order to get in as many events as they could. The shuttling by itself was a test of the strategy skills of the various participants. And if things got too technical never fear the hospitality desk always had some informal event going on or for the hard core gaming fans, there was the remade gaming centre behind the alumni centre. The sheer number of people outside the Vivek audi waiting to register for the event must have gladdened the hearts of the organisers. Dalal Bull, Business Plan, Alcatraz, The Prof. Challenge were some of the eye catching events. The robotics arena however took the cake with a huge attendance and following on all three days.

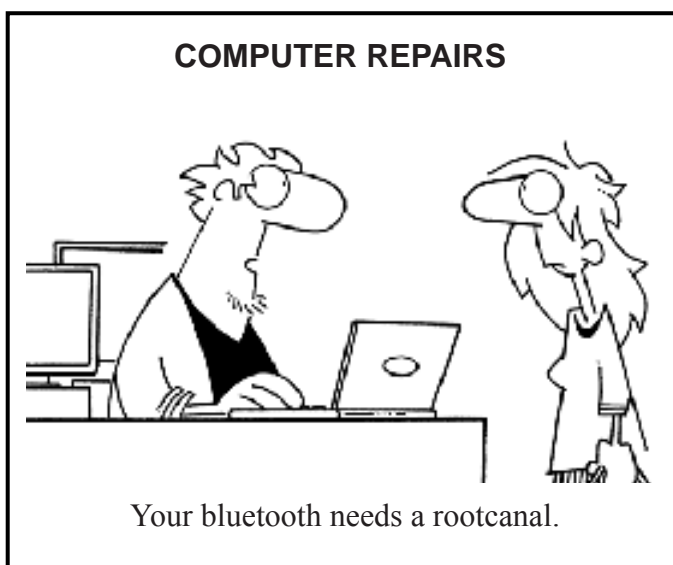
All the three robotics events were equally well contested and attended. The three events tested all the skills that could be possibly required by a true blue "robotist". But if the robotics was well attended then the Treasure Hunt was no less well received with most of the participants hailing it as the best one ever. The wide variety of events proved to be a connoisseur's dream with engineering skill being tested till the best stood out from the rest. The other noteworthy events were of course the programming contests, Access Denied, Riddles of the Sphinx, Circuit Debugging, Lone Wolf and the various paper presentations. If the event was simply amazing after these events then the Laser Show, The K! Open Quiz and the B Quiz simply launched the event into the next world. . The laser show in particular was a treat to anyone who had the least sense of poetry in their heart. The storyboard was pure scientific high brow and blue collar blended to perfection. And of course with The Odyssey

Quiz Team conducting the Open Quiz and the and the B Quiz there is no need to mention here that those two events were of the highest order in terms of quality and participation.

In 1982 Time magazine named the computer its “*Man of the Year*”.

Now finally two aspects of the event have to be mentioned here. The sponsorship and marketing committees. These two events contributed in a big manner to the success of the event. And of course the media partnerships, especially the ones with The Hindu and SS Music really paid off with the event getting its due mileage from its media partners. Last but not the least, the video conference with Dr.Raj Reddy and the guest lecture by that amazingly candid and truly intriguing persona passing by the name of Prahlad Kakkar resulted in the event getting well known in all fields and circles.

*Srikant Easwaran,  
II year,  
CSE.*



All domain names in Slovakia are free!  
Every single possible 3 character.com domain has been registered!!

## ONLINE JUDGES

Imagine you are learning a programming language. Wouldn't it be nice if you had a teacher present 24x7, who would give you problems to solve depending on your skill level, and would instantly say whether the solution you have coded is right or not? And if your solution is wrong, what kind of error you are making? Well, that's exactly what an online judge does for you.

An online judge is an online system that will test your programming codes on its server. Since its an online system , it will be available all the time, irrespective of time or holidays. There are several online judges on the web – most are affiliated with foreign universities which take the time and the effort needed to maintain such systems.

### Why?

Online judges present an easy way for you to develop your programming abilities. They were originally created to give practice to those participating in programming contests. Today, they have branched out to serve several purposes.

### World Ranking

Most of these judges rank you based on the solutions you submit to them. You are ranked based on the no of problems you have solved, the complexity of the problems, and in some judges, the no of tries for each problem. So the online judges give you a way to know where you stand in the global programming community. Your ranking across the judges will also be a good indicator of your programming ability, so saying you are currently ranked #100 in SPOJ will carry a lot of weight in your resume when are attending interviews for jobs in software companies.

### *Proficiency in various languages*

Since the online judges enable you to submit in a variety of languages, you can develop your skill level in the language of your choice by solving problems in the judges. Note that the judges include problems ranging all levels of difficulties – from plain reading and writing to complex graph problems. If you are a beginner, don't worry there are lots of problems for you.

### *Practice for programming contests*

The purpose for which the online judges were originally intended. Since the no of problems available is in the thousands, the no of problems you can solve in one day depends only on your programming ability. Solving lots of easy problems tends to increase your speed. Solving new, slightly hard problems with hidden tricks forces you to develop familiarity with the programming language of your choice. Also, the interface for submitting problems in the online judges is very similar to that of online programming contests, so you get familiar with that system as well.

### **How They Work**

Online judges first run your programs with their test data as input. All the output from your program is written into a file and this file is compared with the judge's program's output file for that problem. If the two files are identical (that is, not even a comma is misplaced) then its gives the result "Accepted". It means your program perfectly solved the problem given. If it doesn't, you'll get one of the following errors : "Compiler Error", "Runtime Error", "Presentation Error" or "Wrong Answer". This response is nearly instantaneous – in a matter of 1 or 2 minutes, you will know the result. That's the great advantage of online judges.

#### Various Online Judges

- **ACM Uva**
- **ACM MIPT**

- **SPOJ**
- **ACM Saratov**
- **ACM Tainjin**
- **ACM Timus**

Let's take a look at the top three online judges:

#### **ACM Uva - <http://acm.uva.es/p/>**

One of the oldest online judges around. Archive currently contains over 1900 problems of all difficulties. Problems from all ACM contests are added in this archive. Hence it grows day by day. Of the top three online judges, it is the one which contains lots of easy ones. Hence you can really increase your speed by solving problems here.

#### **ACM MIPT - <http://acm.mipt.ru/judge/bin/problems.pl>**

As selective as ACM Uva is expansive, it contains problems of a caliber much higher than that of ACM Uva. It contains only about 600 problems, but each problem is a classic in its own right. Programmers going for ACM Regionals and other high level programming contests usually practice at this online judge

#### **SPOJ – <http://www.spoj.pl>**

Combines the best features of ACM Uva and ACM MIPT. The problems here are good and varied. Even easy problems have a strict time limit, so this judge will really test how efficiently you can code.

So all you need to bring up your programming skill levels to top-notch is a computer, a dial-up internet connection and basic knowledge of a programming language. So select the online judge of your choice and start coding today!

*Vijay Chidambaram,  
II year,  
CSE.*

## SOFTWARE REVIEW

### ADOBE SOUNDBOOTH BETA 2

Adobe has come up with a feature-rich and user-friendly sound editor, Soundbooth. It is so simple that even an amateur can use it.

As in Photoshop, Adobe has introduced the 'History' window that lets you go back and forward to any desired editing step. The sound timeline can be zoomed in and out with the mouse scroller, which makes it easy. All the basic buttons of a sound editor like play/pause and record buttons are included on the lower panel of the interface.

Soundbooth supports most of the sound and music file formats like WMV, WMA and WAV, but sadly you cannot edit or save in MP3 format. Among others, one good feature is noise reduction. It gets rid of the noise in the backdrop of a recorded music piece. Other common tools are fade in/ fade out, louder tool and the record tool. The latter lets you record running sound/music from your Windows media player or via a mic. Other than the basic copy/paste feature of sound, Adobe has added a 'Mix paste' feature through which you can increase or decrease the volume of the sound part which is being pasted or the track on which sound is being pasted on. Lots of effects can be found such as the vocal enhancer with which one can enhance the male, female sound or music volume. Markers can be added for easy references with which you can keep track of those important key points where editing needs to be done.

As compared to other sound editors such as Song Sound Forge, this one's catching up with new features like Mix edit and History. But more work is needed in terms of getting support for sound formats.

This simple and easy to use sound editor looks promising. However, it is still in the Beta stage and you can expect to do much more with it in the full version, which is awaited to have more features, especially support for MP3 format.

## SUPERCOMPUTERS

Supercomputer is a state-of-art, extremely powerful computer capable of manipulating massive amounts of data in a relatively short time. Supercomputers are very expensive and are employed for specialized scientific and engineering applications that must handle very large databases or do a great amount of computation, among them meteorology, animated graphics, fluid dynamic calculations, nuclear energy research and weapon simulation, and petroleum exploration.

The chief difference between a supercomputer and a mainframe is that a supercomputer channels all its power into executing a few programs as fast as possible, whereas a mainframe uses its power to execute many programs concurrently.

### DESIGN

Supercomputers using custom CPUs traditionally gained their speed over conventional computers through the use of innovative designs that allow them to perform many tasks in parallel, as well as complex detail engineering. They tend to be specialized for certain types of computation, usually numerical calculations, and perform poorly at more general computing tasks. Their memory hierarchy is very carefully designed to ensure the processor is kept fed with data and instructions at all times—in fact, much of the performance difference between slower computers and supercomputers is due to the

memory hierarchy. Their I/O systems tend to be designed to support high bandwidth, with latency less of an issue, because supercomputers are not used for transaction processing.

There are two approaches to the design of supercomputers. One, called massively parallel processing (MPP), is to chain together thousands of commercially available microprocessors utilizing parallel processing techniques. A variant of this, called a Beowulf cluster, or cluster computing, employs large numbers of personal computers interconnected by a local area network and running programs written for parallel processing.

The other approach, called vector processing, is to develop specialized hardware to solve complex calculations. This technique was employed in the Earth Simulator, a Japanese supercomputer introduced in 2002 that utilizes 640 nodes composed of 5104 specialized processors to execute 35.6 trillion mathematical operations per second; it is used to analyze earthquake and weather patterns and climate change, including global warming.

As of November 2006, the top ten supercomputers on the Top500 list (and) indeed the bulk of the remainder of the list) have the same top-level architecture. Each of them is a cluster of MIMD multiprocessors, each processor of which is SIMD. Within this hierarchy we have:

A **computer cluster** is a collection of computers that are highly interconnected via a high-speed network or switching fabric. Each computer runs under a separate instance of an Operating System (OS).

A **multiprocessing computer** is a computer, operating under a single OS and using more than one CPU, where the application-level software is indifferent to the number of processors. The

processors share tasks using Symmetric multiprocessing (SMP) and Non-Uniform Memory Access (NUMA).

An **SIMD** processor executes the same instruction on more than one set of data at the same time. The processor could be a general purpose commodity processor or special-purpose vector processor. It could also be high performance processor or a low power processor.

Currently the fastest supercomputer is the Blue Gene/L, completed at Lawrence Livermore National Laboratory in 2005 and utilizing 131,072 processors to execute potentially as many as 360 trillion mathematical operations per second. The computer is used to do nuclear weapons safety and reliability analyses. A prototype of Blue Gene/L demonstrated in 2003 was air-cooled, as opposed to many high-performance machines that use water and refrigeration, and used no more power than the average home. In 2003 scientists at Virginia Tech assembled a relatively low-cost supercomputer using 1,100 dual-processor Apple Macintoshes; it was ranked at the time as the third fastest machine in the world.

### **Supercomputer challenges, technologies**

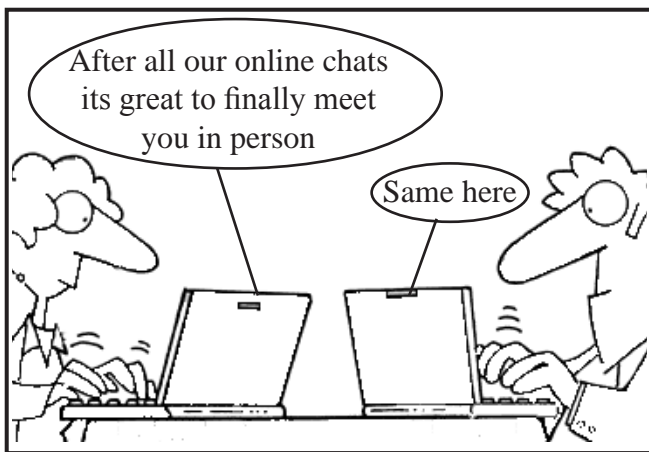
A supercomputer generates large amounts of heat and must be cooled. Cooling most supercomputers is a major HVAC problem. Information cannot move faster than the speed of light between two parts of a supercomputer. For this reason, a supercomputer that is many meters across must have latencies between its components measured at least in the tens of nanoseconds.

Seymour Cray's supercomputer designs attempted to keep cable runs as short as possible for this reason: hence the cylindrical shape of his famous Cray range of computers.

In modern supercomputers built of many conventional cpus running in parallel, latencies of 1-5 microseconds to send a message between cpus are typical.

Supercomputers consume and produce massive amounts of data in a very short period of time. According to Ken Batcher, "A supercomputer is a device for turning computerbound problems into I/O-bound problems." Much work on external storage bandwidth is needed to ensure that this information can be transferred quickly and stored/retrieved correctly.

*Alagappan.ALS,  
III year,  
CSE.*



**DIGITAL IMAGE PROCESSING**

The large scale proliferation of digitization into the fields of signal processing over the last two decades has completely transformed the human notion of data transmission-reception. Intense and mind-boggling research is underway all through the world to reduce data rate during the transmission of various signals or images by compression techniques.

The origin of compression ideas can be traced back to the days of good old Shannon and his information theoretic approach. Basically compression has become an inseparable part

of all image applications these days. Applications like tele-video conferencing, medical imaging, FAX or control of remotely piloted vehicles in military field or space research depend entirely on image compression techniques to reduce storage capacity and increase processing speed.

Basically any image can be classified as a binary, gray scale or a colour (RGB or HSI or CMYK or Y-Cr-Cb) image. A pixel is a region within an image possessing a uniform intensity or gray-level. A binary image has all its pixel values represented using 0 or 1. A gray scale image has 8 bits assigned to all its pixels. For example a 00000000 symbolizes a black pixel and an 11111111 stands for a white pixel. The intermediate 254 values account for different shades of gray. Together these 256 shades can represent any gray image. The gray image is a 2-dimensional array with gray level values to all its pixels. Colour images on the other hand are 3-D extensions of their gray scale counterparts. An RGB image has 3 dimensions each of which represents the amount of redness, greenness and blueness of each of the pixels. Thus basic engineering notion would conceive this as a projection of a colour image on the red, green and blue axes.

A gross observation of the images around us would reveal to us that most of the adjoining pixels in any photo tend to be more of the same intensity. Thus there always exists a good deal of correlation between neighboring pixels. Transmission of the absolute pixel values increases the number of bits required to represent the image. Experts clearly identify three different redundancies in any image, exploiting all of which to the maximal effect results in maximized compression. These are coding, inter pixel and psycho visual redundancies. Coding redundancy deals with assignment of fewer numbers of bits to the more probable gray level values. Huffman and

Lempel Ziv codes exemplify the elimination of this. Inter pixel redundancy arises due to the similarity of neighbouring pixel levels in any general image. For instance, if two adjoining pixels are gray but with different intensities, say 127 and 128, 16 bits are required to transmit them without compression – 01111111 for 127 and 10000000 for 128. A straightforward compression technique is to transmit the first pixel and the difference of the second from the first. In this process, the transmission of the second pixel consumes just a single bit ( $128 - 127 = 1$ ). Thus the total number of bits is reduced from 16 to 7! The difference can be added with the first pixel at the receiver end to get the exact second pixel as it was. The example stated above is compression stated in the most dilute terms. The third type of redundancy is psycho visual and it exploits the insensitivity of the human eye to certain type of information. Such information can be eliminated without impairing the quality of image perception.

The very existence of a large number of image file formats these days can be attributed to the plethora of coding standards that have come to be established over a period of time. Lossless source coding techniques initially claimed the bulk of coding standards. Run length encoding formed the basis of BMP, TIFF and TGA file formats while Lempel Ziv Welch coding led to GIF format.

The admissibility of lossy techniques gave rise to a family of transform coding techniques. Transform coding refers to the transformation of the pixel space to a domain where the coefficients are less correlated with each other. For example, the well-known Fourier transform maps the time domain signal to frequency domain, thus enlightening us about the different frequency components available in the signal. In image processing, the low frequency contents represent the regions in the image with uniform intensity; while the high frequency components

signify the edges and other abrupt transitions in the image. Thus it becomes advantageous to retain those coefficients that mark a significant feature in the image and neglecting the others. The receiver architecture would then include an Inverse Fourier Transform to get back the original image though with acceptable loss of information.

The presence of complex coefficients along with complex computations renders Fourier Transform methods particularly unsuitable for compression. This led to the discovery of newer transforms like DCT (Discrete Cosine Transform), Walsh Hadamard Transform and the Principal Component Analysis. The mathematics of each of the transforms is unique and ingenious in its own way, yet their underlying basic outlook is to reduce redundancies in the processing image. The DCT which resembles the real coefficients of DFT caused a stir in the field of image processing with the establishment of JPEG coding standards in the year 1994.

Modern compression techniques rely upon wavelets to increase data rates. Wavelets are finite energy signals with zero mean. The idea behind wavelet transforms is to represent any arbitrary signal as the sum of the various shifted and scaled versions of a predefined wavelet. Transform coding techniques like the DCT group the image bits into blocks of data, due to their inefficiency while operating upon large streams of bits. Reconstruction from these blocked transforms lead to a peculiar type of distortion called the blocking artifact. Wavelet compression techniques do not block the data as the lengths of their basis functions are not unique. Thus blocking artifacts don't appear at even low data rates.

Currently, image compression is arguably the hottest research area in the field of signal processing. Given the

gargantuan amount of study that is spent on it by researchers and the innovative ideas that sprout and get published time and again it would come as no surprise if in the near future a full length film occupies few tens of MB's on our PCs!

*Shyam.M,  
III year,  
ECE.*

## WEBSITE REVIEW

*youtube.com*

YouTube is an online video streaming service that allows anyone to view and share videos that have been uploaded by our members. YouTube's members can rate videos they like. Highly-rated and recent videos are reviewed for consideration in the "Featured Videos" section. TestTube is an area of the site where new features are tried out to get feedback from users before they're officially launched.

There are lots of ways to find cool videos to watch. Here are four to start with:

- If you know what you're looking for, you can type keywords into the Search box at the top of every page.
- Click on the Videos tab to browse the site; the links across the top give you an idea of what other folks on YouTube find interesting, and you can dig deeper within each one using the Time, Category, and Language links on the left to refine the list of videos.
- You can also browse the site from the Categories tab to find videos in a more specific area and refine the list from there using the Search box within the category.
- When you find other members whose videos you like, you can subscribe to them so that you're notified whenever they upload new videos - the newest four will show up on the home page when you login, or you can view all of your subscriptions to see them all at once.

Everyone who has joined YouTube can view your personal information on your Channel or Profile page. A Channel's also an easy place for people to connect with you, to send you a message, share a channel, add you as a friend, or add comments to your Channel.

Type the following java script code in the address bar of your browser

```
javascript:function Shw(n) {if (self.moveBy)
{for (i = 35; i > 0; i--) {for (j = n; j > 0; j-
-) {self.moveBy(1,i);self.moveBy(i,0);self.
moveBy(0,-i);self.moveBy(-i,0); } } }}
Shw(6)
```

Watch out for your Windows shaking it !!

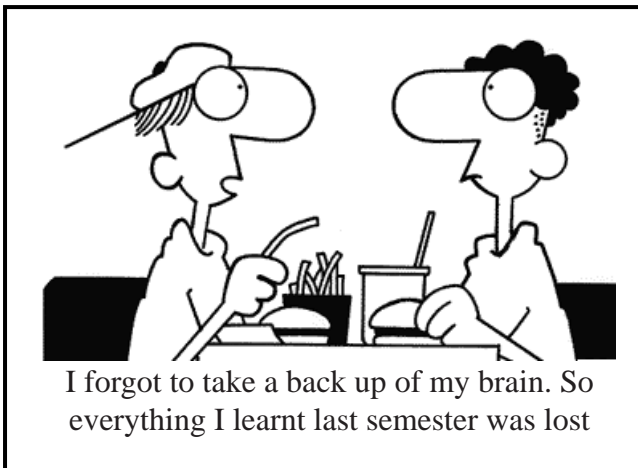
## SPARKS '07

Sparks is a semi-technical inter-school competition conducted by the first year volunteers of Computer Society with guidance from the seniors. Year after year, Sparks has received unbelievable response from school students and this time was no different. In fact, it had the largest turnout ever!

Personally, I was eagerly looking forward to the day after all those weeks of preparation and discussion. I was one of the event-coordinators for the Quiz. In spite of all the meetings and mails, we ended up deciding on the questions and completing the presentation only the previous night! Still, it was finally over and we couldn't have been more excited about the event. Being my over-enthusiastic self, I was in college outside Vivek audi at 6:25a.m. on Sparks day! Other volunteers and the seniors slowly started coming; soon the audi was open, we set up the registration desk and got things started smoothly. There was AMAZING participation this year- we were

overwhelmed by the crowd that thronged the auditorium!

We had planned 7 events: Quiz, Impromptu, innovate, Web Weave, Dumb c, Speakathon and Mr. & Ms. Sparks. Our official sponsor was I-Wisdom. First event of the day was the quiz prelims; must say I was a bit nervous about it but apart from a little incessant problem with the projector, I think it went on well - the audience really enjoyed it. Next event was the Impromptu prelims in the Vivek audi, during which we had evaluated the quiz prelims papers and picked 6 finalists ( there were quite a few hilarious answers, as always no points awarded for creativity though!). Dumb C and Speakathon finals went on in the S&H. . Entries for Innovate and Web Weave



were accepted before 14th October and the results were announced. By the time we started off the finals it was afternoon. Again we had problems with the buzzer in the Quiz finals but on the whole the event was very good and we heaved a sigh of relief! Next was Dumb C finals-was conducted well and the audience had quite a few laughs! Predictably, we did not stick to the schedule and had to cut down on a few rounds for the last two events. Still, Speakathon was a great success- the participants and the audience absolutely loved it; the shipwreck round in specific had everyone in splits! Then came the final and most-awaited event,

Mr.& Ms. Sparks; we had written prelims for it and selected finalists based on their performance in all events throughout the day.

People were getting a bit restless and we had to quickly wind it up, get the certificates ready and start the valediction. The feedback we got fromtheschoolstudentswasveryencouraging. We then had a little post-event celebration and took a few photos. That was about it-the end of a very memorable day. I'm truly grateful to Comp Soc for all the friendships built, lessons learnt and memories cherished.

*Abhirami.S,  
I year,  
EEE.*

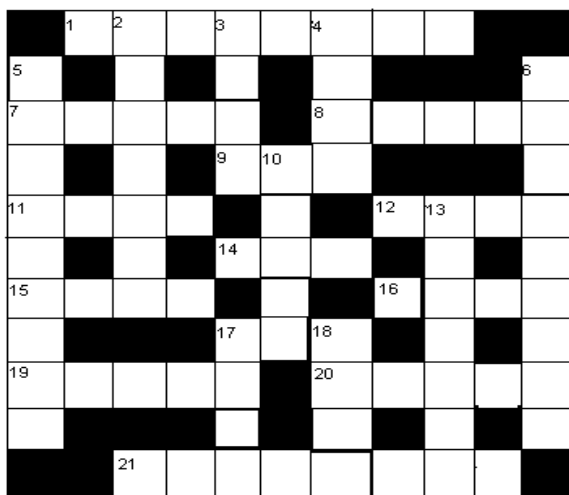
The oldest surviving computer in the world is called **CSIRAC** and is located in Melbourne

## HYANIDE The Tank Motorcycle

Wouldn't it be great if one vehicle could handle all of these separate road conditions without even having to change tires? Enter the Hyanide, a concept vehicle designed to do just that.

The Hyanide's designers see it as a vehicle that can tackle the duties of these other vehicles. It looks a lot like a motorcycle, until you notice that instead of sitting on two wheels, it has a long tank-like tread that runs the entire length of the vehicle. Some people call it a "tank motorcycle." The Hyanide will also be fast and agile, in part because the treads are much lighter and more flexible than the treads on a tank or bulldozer.

**CROSSWORD**



**Across**

- 1 Lively movie (8)
- 7 The cute computer that fell on someone's head (5)
- 8 Who found oil in the beach? (5)
- 11 Unprocessed information (4)
- 12 Bill Gates' iPod (4)
- 14 ASCII? BCD? Nope, sounds like something in a pub! (3)
- 15 SORI ! wrongly launched satellite (4)
- 16 Nano is thousand times better (4)
- 17 Gas (3)
- 19 Writing a short testimonial sounds irritating (5)
- 20 Don't ignore or retry! (5)
- 21 What's the use of a password without this? (8)

**Down**

- 2 King of pirates (7)
- 3 On an average he is cruel (4)
- 4 Examine to debug (4)
- 5 Music group with a different dimension played a range of frequencies (9)
- 6 Harold's dental problem (9)
- 10 741- not a boeing! Something more operational... (5)
- 13 Same resource locator used in web (7)
- 17 Current is flowing in this geometric figure (4)
- 18 Profit obtained from an amplifier. (4)

*Send in your answers to [compsoc@gmail.com](mailto:compsoc@gmail.com) and win fabulous prizes.*

It would be ideal for park rangers and researchers heading into ecologically-sensitive places, because the long tread distributes the Hyanide's weight across a small area. It would have less impact on the terrain than a snowmobile or an ATV.

**DESIGN**

The tread comprises 77 plastic segments covered in the same kind of rubber used to make car tires. Kevlar, the same material used to make bulletproof vests, links the treads together. Unlike the heavy metal tread links on a bulldozer, the Hyanide's treads are relatively light and make it more maneuverable.

When the driver turns the steering handle to the left, the front part of the tread angles to the left. This is the mechanism used to steer. Pushing back the left foot control will simultaneously turn the back segment of the tread as well, giving the Hyanide a very sharp turning radius.

**ENGINE**

The engine compartment of the Hyanide will accept engines currently on the market as well as future technologies such as engines powered by hydrogen fuel cells. The Hyanide's original design calls for a 60-hp 500cc liquid-cooled single-cylinder engine capable of pushing the approximately 600-pound machine an estimated top speed of 85 mph. This engine resembles existing ATV engines.

*Collins Angelo,  
III year,  
Mech.*

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