



# Techveda

BI-ANNUAL NEWSLETTER OF USIT IEEE

## FROM THE DEAN'S DESK

"The spirited horse which will try to win the race of its own accord will run ever faster when encouraged." And it gives me pleasure galore that our school of education has come up with its second issue of Techveda, buoying up and encouraging our students. The field of technology is a dynamic one and an international organization like IEEE provides a platform to not only brush your technical skills, keeping you updated but also provides a par industry exposure preparing you to step into the tight job market." I believe every child can learn. I think talent is distributed universally, but opportunity is limited. And that is true in every country to a lesser or greater degree. It is up to us, families, Governments, business, educational institutions to narrow the gap. Education remains the great equalizer and the gateway to opportunity." So, I hope every student would put his/her best foot forward to elicit out substantial knowledge and opportunity from USIT IEEE.



Prof. B.V.R. Reddy  
Dean, USIT  
Branch Counselor, USIT IEEE

### What's Inside

Page 2  
*Message from Chairperson and Execom*

Page 3  
*Flexible Display Technology*

Page 4: *MindJolt*  
*Open the doors to open source*

Page 5: *Tech Buzz*  
*Sakshat: Miracle Live!*

Page 6  
*Curious about Qt*

Page 7  
*The Latest @ USIT IEEE*

Page 8  
*QR Code*

Page 9: *Code Rambles*  
*Whats new in C++?*

Page 10: *Gesture Technology*

Page 11:  
*Why Join IEEE*

Page 12: *Our take*  
*Message from Editorial Board*

## MESSAGE FROM THE MENTOR

It gives me immense pleasure to be associated with USIT IEEE and of course, TechVeda since its inception last year. TechVeda is the branch's face, a kaleidoscope that reflects the zeal and determination of our branch and its members. We at USIT IEEE believe in the concept of "knowledge sharing" hence every endeavor of ours is that everyone in our family gets a lot to benefit from. Due to the popularity of LiveWire sessions, this year we plan to make them a weekly affair. This issue of TechVeda has a lot of food of thought for all "tech-googlers" offering insight into a lot of fresh, new technological inventions. Hope you enjoy this edition even more than the first one.

Dr. Udayan Ghose  
Asst. Professor, USIT  
Branch Mentor, USIT IEEE

## FACULTY SPEAKS

Working with the hard working team of USIT IEEE especially during Neurotrix '11 was a good experience for me. USIT IEEE Student Branch has come up with many new initiatives like TechVeda, which not only provides useful information to student community but also gives opportunity to members to hone their various skills. The zeal and determination of the members pleases me, hence the decision to open up a WIE affinity branch this year has also been given the thumbs up. Each edition of TechVeda is surely a treasure house of information and is lucid and informative even for a layman wish good luck to TechVeda Team to keep up the good work and continue to maintain their high standards in future as well.

Dr. Bindu Goel  
Asst. Professor, USIT  
Faculty Coordinator, USIT IEEE

## QUOTATIONS

“THE CONSEQUENCES OF TODAY ARE DETERMINED BY THE ACTIONS OF THE PAST. TO CHANGE YOUR FUTURE, ALTER YOUR DECISIONS TODAY.” ~ ANONYMOUS

“MY LIFE IS MY MESSAGE.” – MAHATMA GANDHI

“THERE ARE ONLY TWO WAYS TO LIVE YOUR LIFE. ONE IS AS THOUGH NOTHING IS A MIRACLE. THE OTHER IS AS THOUGH EVERYTHING IS A MIRACLE.” – ALBERT EINSTEIN

“AND IN THE END, IT’S NOT THE YEARS IN YOUR LIFE THAT COUNT. IT’S THE LIFE IN YOUR YEARS.” – ABRAHAM LINCOLN

“DON’T BE AFRAID OF THE SPACE BETWEEN YOUR DREAMS AND REALITY. IF YOU CAN DREAM IT, YOU CAN MAKE IT SO.” – BELVA DAVIS

“THE MORE I WANT TO GET SOMETHING DONE, THE LESS I CALL IT WORK.” – RICHARD BACH

“NO DREAMER IS EVER TOO SMALL; NO DREAM IS EVER TOO BIG.” – ANONYMOUS

“NEVER LET YOUR MEMORIES BE GREATER THAN YOUR DREAMS.” – DOUG IVESTER

“THE WORLD MAKES WAY FOR THE MAN WHO KNOWS WHERE HE IS GOING.” – RALPH WALDO EMERSON

## MESSAGES FROM THE EXECUTIVES

### CHAIRPERSON 2010-11



It is a proud moment for me while writing my message for TechVeda. Working for USIT IEEE Student Branch has been a wonderful experience. Last one year was quite fulfilling as our branch came out as one of the active branches of Delhi Section, starting from summer sessions to Neurotrix. We also hosted Delhi Section Tech Collab during my term. All this was possible because of Team work put by all Execom members, trying to make a golden mark. Recognizing the hard work by our branch, Delhi Section awarded Sunayana Kushwaha and Piyush Madan with Dr. J. K. Pal Memorial Award and Outstanding Student Volunteer Award respectively. I also wish to congratulate all members of our Branch as we completed 10 years of our existence. Under the aegis of our Mentor, Dr. Udayan Ghose, USIT IEEE SB traveled a long journey and I wish good luck to new Execom to keep up the good work and bring more jewels to the crown of our branch.

Ajeet Singh  
Former Chairperson (2010-11), USIT IEEE

### CHAIRPERSON 2011-12

Dear Readers

It feels great to write for our very own Techveda in the capacity of chairperson. My past three years with IEEE have been a wonderful and rewarding journey. I have seen the branch grow before my very own eyes and today it occupies a special position in my life. Thirsty for tech? Well, you are bang at the right place!! USIT IEEE has planned many new things for the next year as our branch will be completing 10 years of its existence. We started many new ventures like Neurotrix, TechVeda, LiveWire Sessions etc before and shall continue to improve the present situation with more student participation. We hope that shifting of campus to Dwarka will boost the activities in the branch. It has been drafted keeping in mind the a three span goal: imparting technical knowledge to all, which can then be inspired by IEEE’s motto “Technology for Humanity” and can be used to come up with innovative, constructive ideas that can benefit all, overall personality development of an individual and last but not the least, making sure that USIT IEEE continues to remain as one family. TechVeda is the branch’s mirror, an expression of our vigor and determination and our “voice” to the world. We hope that this edition of Tech Veda is as musical to your ears as the previous ones were.



Piyush Madan  
Chairperson (2011-12), USIT IEEE

### EXECOM 2011-12

The executive committee of USIT IEEE is its backbone, the strength that holds the branch together. It stands united, in face of celebration and crisis. Each year a new set of students are chosen, chosen for raising the branch to paramount heights... where the zephyr of success blows. “Do if you can” is the motto of this year’s execom. The chapter of USIT IEEE has turned over a new page... the beacon of freshness held high by our very enthusiastic, very hardworking student members. The execom as we all know holds all the responsibilities relating to the branch: from branch activities to member queries to branch finances. This “IEEE” year around, we plan to serve piping hot, a whip of technical exotica along with a dollop of fun. The execom hence feels the responsibility to satisfy each and every expectation that they might have from our student branch and give them much more than they would expect in return.

Executive Committee(2011-12), USIT IEEE



## FLEXIBLE DISPLAY TECHNOLOGY IS HERE

**R**educed thickness and weight, a non-linear form, improved durability – you name it and the new flexible display technology offers you with all of these fantastic features. A thin, flexible, clear substrate; and the barrier properties of glass is what exactly define this new technology.

Polymer and metal-foil substrates would be combined together with thin film transistor (TFT) back plates in order to convert flexible display into a commercial entity. This technology is going to benefit all- mobile phones, MP3 players, personal digital assistants (PAD), computers and e-books

Imagine thin and flexible newspapers that can be rolled and carried along anywhere you go, or maybe reusable electronic newspapers that download the latest news and can be used on a daily basis or perhaps display images like paintings and images.

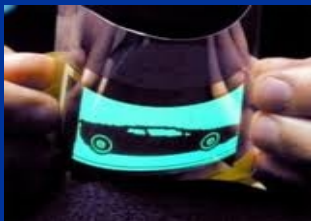
Taiwan's Industrial Technology Research Institute (ITRI) and licensee AU Optronics, one of the world's largest LCD screen makers have committed to provide with flexible screens as thin as a sheet of paper for e-readers in a couple of months. ITRI developed a manufacturing process for the thin displays and AU is responsible for converting an old factory to mass produce them. The end outcome of this technology is going to be fabulous. Imagine mobile phones with flexible displays, or wearable screens on clothes or perhaps larger rolled up screens-that's the beauty of this technology.

Making e-reader screens available at schools is the current project in mind of scientists and researchers. The flexible screens are more resistant to breaking since they bend. This makes them the perfect e-readers for young children. However, we do require a new touch screen function for the paper-thin which is also in the making.

The flexible screens are very thin (around 30



microns). As a result of this, they have to be bonded to a piece of glass during the production process so they don't curl up. Lifting the flexible screen off the glass at the end of the process is also a troublesome process since the heat used in production caused the screens to bond to the glass, so they usually ripped. ITRI tried and failed 63 times before they came up with the idea of adding a not-too-sticky material between the flexible display and the glass that enabled them to lift the flexible screen off the glass easily. This process is called FlexUPD, "flexible universal panel for displays" by the ITRI. Currently, ITRI has developed paper-thin, flexible color AMOLED (Active Matrix Organic Light Emitting Diode) screens and the touch screen film for displays 10-inches and smaller. AMOLEDs are brilliant color screens to be made available in the future by converting monochrome flexible screens. Electronic books, paper et al are the first products to likely use this technology. E-books will have liquid-crystal technology as the leader towards flexible displays. As with all new technologies, the price is expected to be high when flexible displays finally appear. However, once this is in place, there would be price fall as mass production takes place. It is indeed a matter of some time when we could view everything through clear, scratch free, flexible displays.



### DID YOU KNOW?

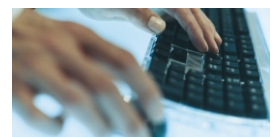
Out of those 1 million words in Dictionary, only 233 words can be typed using just the home row on QWERTY as compared to 1968 in DVORAK.



That's a lot better! Nearly 10x the amount of words are available typing on just the home row using Dvorak than with QWERTY! You should already see how enjoyable your typing experience will be.

## DVORAK KEYBOARD

**D**vorak Simplified Keyboard ("DSK") was developed in 1936 after scientific research on typing pattern and has gained popularity in recent time mainly because of higher typing speed and lesser strain on hand muscles of the typist. DVORAK is proved to be more efficient for a typist while in QWERTY, keys were arranged in a manner to avoid mechanical jams in early developed typewriters. Though, DVORAK doesn't seem to replace the de facto QWERTY layout but support by Linux, Windows and MAC are in its favor. If you wish to switch to DVORAK, follow simple instructions on <http://learn.dvorak.nl/>





**1. phpMyAdmin** is a tool written in PHP intended to handle the administration of MySQL over the Web. Currently it can create and drop databases, create/drop/alter tables, execute any SQL statement, manage keys on fields.

**2. ADempiere ERP Business Suite** ERP/CRM/MFG/SCM/POS done the Bazaar way in an open and unabated fashion. Focus is on the Community that includes Subject Matter Specialists, Implementors and End-Users.

**3. Openbravo ERP** is the web-based ERP for SMEs. Available as a professional open source ERP solution, Openbravo ERP provides unique high-impact benefits:

**4. MinGW - Minimalist GNU for Windows**  
MinGW: A native Windows port of the GNU Compiler Collection (GCC), with freely distributable import libraries and header files for building native Windows applications; includes extensions to the MSVC runtime to support C99 functionality.

**5. PostBooks ERP,** accounting, CRM by xTuple  
Free open source ERP, accounting, CRM package for small to midsized businesses. Runs on Linux, Mac, and Windows (built with open source Qt framework). Business logic resides in PostgreSQL database. Rich API for connecting to third-party apps.

## HOW TO START CONTRIBUTING IN OPENSOURCE

If you are among those open source enthusiasts who have been using open source for many years and owe a lot to it but still finding way to contribute to OpenSource, I salute you for your attempt to be a part of OpenSource World. OpenSource generated invaluable resource because of countless hours of work by contributors over many years. You may not be very fast or smart programmer, but you must have passion to contribute and be ready to get your hands dirty playing with codes.

FOSS world provides you opportunity to do the task that in a company only selected elite programmers are asked to do. The experience associated is significant and can help you realise many of your goals. Working with this community requires you to be ready to do anything like maintaining documentation, bug fixing/reporting or coding and then excel at doing what you are best at.

### Getting Started

To get a kick start, you should be ready to invest huge of time in searching open source projects which are used daily or which have large potential and you feel connected to the project. Choosing a right project is highly rewarding once your interest is developed in it. Tons of open source projects are hosted on sourceforge.net, freshmeat.com, kenai.org etc. You can also search for project ideas from esteemed internship programs including GSoC, etc

### Be Involved

To know more about project read it's Wiki page, join it's IRC and mailing list. Get acquainted with presently developed application and track reported bugs. Read recent changes in code and comments of other developers on it. Try to put extra effort in reporting bugs to the project to get noticed by project manager and other developers. Dont hesitate to RTFM.

In most of the projects, developers have spent sleepless nights by making documentation, Wikis and other information resources. One should use this to get familiarized with project. In case, such information resource is not developed, you can always help the developers for building the same, so that desired information is available more easily.

### Action Speaks louder than Words

Its the time to jump into the mainstream and acknowledge everyone that you really want to contribute. Start with contributing patches even if it is few LOC. One you get code to explain, its easier to get in the main stream and discuss the project at large. FOSS worker should be a FREE thinker, so show your creativity in your work.



### Empathy is the rule!

Discussing with others not only expands the horizon of possibilities of solving a problem, but also helps you to do it in a better way. Be very active in IRC / mailing list and help interested people in contributing in the project. Leave your ego on your side of the screen

### Ego

It will not take you anywhere, be ready to collaborate with others. Understanding others point of view is equally important as presenting yours. Sadly, because of this, many projects are suffering from politics. Keep working harder for the project, your work will definitely be rewarded, sooner or later. If you think you lack the technical skills to do that, I wish to assure you that such apprehension will soon fade away after initial hiccups. Regularly update your code (using cvs or git or whatever), so that those who care can look into the code and suggest you for project as well as your benefit.

### Acknowledge your Strengths and your Weaknesses

One should be aware about his/her technical strengths and weaknesses, which helps one decide the right path. It is quiet stressful when you code in something you are not quiet familiar with and there are lots of people to comment and criticize on it. On the other hand, its an amazing opportunity to develop new set of skills. One can learn a lot from the criticism offered by community (if one manages to keep away one's ego) . One should be able to balance both of these keeping in mind the interest of project as well as oneself.

Remember that, in open source community, you are expected to be a professional coder. Its the zeal of contribution which counts the most here. Open Source philosophy is perfect example of sharing your knowledge freely to everyone and it guarantees one thing in return: A greater reservoir of knowledge. Make sure you contribute to make this reservoir ever growing

Google Nexus 3



RIM BlackBerry Presenter



PlayStation Phone by Sony



Playbook By Blackberry



Apple iPhone 5



SAKSHAT

Sakshat (Sanskrit: "Embodiment") is a tablet computer designed in India as a low cost but full functioning device in order to attempt to bridge the digital divide. The original prototype unveiled in 2009 for \$10 was a failure. However, the new prototype, at \$35 unveiled in 2010 has been met with enthusiasm. The device has been developed as part of the National Mission on Education through Information and Communication Technology that aims to link 25,000 colleges and 400 universities on the subcontinent in an e-learning program via an existing Sakshat portal. The tablet would cost \$35. India's Human Resource Development Minister, Kapil Sibal unveiled a prototype on July 22, 2010. The price of the device exhibited was projected to be around \$35 per piece, gradually dropping down to \$20 and ultimately to \$10 a piece. After the new device was unveiled, OLPC Chairman



offered full access to OLPC technology, cost free to the Indian team. As per the 'Invitation to Innovate' published by MHRD, Government of India, the specifications and minimum functionalities of such devices are stated as: Support for video web Conferencing facility / Multimedia content viewer / Searchable PDF reader / Unzip tool / Possibility of installing suitable firmware upgradation / Computing capabilities such as Open Office , SciLab, cups (for printing support) / Internet browsing, JavaScript, pdf plug-in java / Wireless communication for Audio/video I/O / Cloud computing option / Remote device management capability, etc. Even though it is cheap, it packs quite a punch, doesn't it?

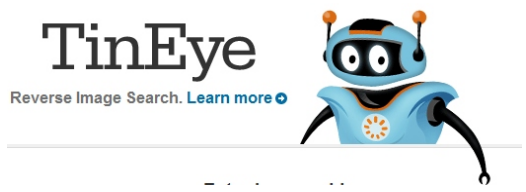
SEARCH WITH IMAGES



An image can be used as a basis of a search query. Different tools are Google Image Search (images.google.com), TinEye (www.tineye.com) etc. In such reverse image

search engine, one can submit an image to find out where it came from, how it is being used, if modified versions of the image exist, or to find higher resolution versions. Searches similar images using primarily the shape outlines. You can also draw a rough sketch and it will search for images having objects similar in shape/design.

MakeUseOf suggests that you can use it for "design inspiration when stuck (when you know how something may look like but can't describe it in words)"



AUDIO AVATAR

Did you know that the common 700MB CD actually holds more than 800MB amount of data? Follow this: In the standard audio disc, the audio bitrate is 1411.2 kbit/sec. For this bitrate the commonly available 700MB CD gives playing time of 80 minutes = 4800 seconds. Multiplying the two: =1411.2\*4800 kbit. Dividing by 8000, it's 846.72MB instead of 700MB. In data discs, 700MB holds the necessary data and the rest of the CD space is used to hold error correction data. In audio discs, error correction is not as strict as it is like in data discs. Because the error correction is sacrificed for bigger size, it makes the audio discs more prone to errors. Even if one reads the audio CD accurately, using high accuracy audio CD grabber softwares like "Cdex". Still, the encoding format can decrease the audio quality. For example, MP3 is a lossy compression format. That's there's loss in audio information when compressing into MP3 format. This means loss in quality of sound. In audio formats, lossless compression also exists, like we do lossless compression when we compress our files to .ZIP - files are compressed but there's no loss of information





## Google Chrome OS PROS

**Speed:** Currently, boots up at around seven seconds. Google is trying to make it faster!!

**Ease of use:** Almost everyone knows how to use a browser can use chrome OS.

**Low system requirements** With all work being carried out on the web, the hardware requirements are not likely to be very high.

**Cloud Gains:** Storing data on the cloud means that you can access it from just about anywhere.

**Applications:** Anything that runs on the web will run on the Chrome OS, says Google.



## CONS

**Multimedia:** It is unlikely to handle heavy-duty video and audio the way Windows and Macs do.

**Security:** The jury is still out on just how safe the cloud is.

**Applications:** Web applications are generally poor cousins of their desktop counterparts.

**Accessories:** Just how many devices will work with Chrome OS? No one knows right now.

**Bandwidth:** With so much depending on the web, what happens when net gets disconnected?

Just like other open source projects, proprietary drivers wouldn't be available and even further, because it has a monolithic kernel, some of the general Linux tricks won't work

## EXPERT SAYS

**NOKIA**  
Connecting People



A tete-a-tete with Pankaj Nathani, Research Scientist, Mobile Solutions Research at Nokia to enlighten us upon the various aspects of Qt (or 'cute') as they pronounce it

Shreya Pandit: What is Qt all about?

Pankaj Nathani: Who doesn't want a smooth graphical experience in today's life? Well Qt offers the most pleasing mechanism of developing Cross platform open source applications which are easy to use on most desktops and operating systems, Nokia device portfolios and of course ,over the Internet. Moreover Qt has a plethora of development frameworks: Qt, Qt Quick, Qt Mobility, QML etc...so we can choose one that suits our needs and taste.

Shreya: What are benefits of qt as a business product?

Pankaj: Qt allows developers to exercise their full potential and developing products on Qt helps us to shorten time to market on products. Moreover, Qt focuses on core value and not platform characteristics as such. As we talk even now we are in a phase where desktop Internet and mobile spheres are converging with overlapping needs and services. We have to develop world class software that is derived from a single source code pool. This not only reduces time requirements it also reduces future maintenance of the application.

Shreya: What about Qt and Nokia?

Pankaj: Qt and Nokia have been hand in hand since a very long time. Nokia has produced the Qt framework ever since we acquired Trolltech. Qt has grown with us and it's my pleasure to announce the future of Qt:QT5.

Shreya: Qt 5?

Pankaj: Yes...That's the newest version of the Qt framework that we plan to release in 2012. A lot has changed in the software industry since we launched Qt4 nearly half a decade ago. Qt 5 strives to the embodiment of perfection, it allows more efficient usage of the GPU for rapid development even under



Qt Users

limited resources, enjoys the coolness of QML and JavaScript, and to whip up strong web support in almost any application of yours. The Beta Quality version is set for release toward the end of 2011 itself!

Shreya: Thanks a lot. That was enlightening.

## QT API'S: MUST TRY THEM OUT

Qt offers a large number of API's that offer a wide range of functions for a mobile platform. Devices built using these APIs can locate on board or remote services, give you the charm of email and web browsing, allow you to do video, audio and audio recording, built in GPS support and technologies such as "Publish-subscribe" that allow you to build connectivity between unsimilar kind of objects too. Now isn't that absolutely fantastic?

These API's include: Bearer Management (controlling the system's connectivity state), Contact (Allows you to get contact data from remote/local connections), System Information (A set of API's) to discover system information capabilities, Messaging (Allows you to enable messaging services), Multimedia (To manage Media content).



Any Qt project works on a basic systems of signals and slots. Signals are basically notifications sent to the compiler that calls a method (or slot).

Qt people are all set to add Versit (API for managing versit documents such as Vcards) and Camera (a sub API of multimedia). All these API are cross-platform and are constantly maintained and updated through healthy bug analysis and reports.

## QUOTABLE QUOTES

“When one door closes, another opens; but we often look so long and so regretfully upon the closed door that we do not see the one which has opened for us.” – Alexander Graham Bell

“There are no ordinary moments. There is always something going on.” – Peaceful Warrior

Everything around us is made up of energy. To attract positive things in your life, start by giving off positive energy.

“Honesty is the first chapter in the book of wisdom.”

“We are not human beings having a spiritual experience. We are spiritual beings having a human experience” – Pierre Teilhard de Chardin

“If what you’re doing is not your passion, you have nothing to lose.”

“I challenge you to make your life a masterpiece. I challenge you to join the ranks of those people who live what they teach, who walk their talk.” ~ Tony Robbins

## PHOTOS FROM LATEST AT USIT IEEE



OUR TITLE SPONSORS



## NEUROTRIX '11

Neurotrix is the annual technical festival of USIT IEEE STUDENT BRANCH which was held on 25th and 26th march, 2011. Neurotrix is a name synonymous with technical excellence and organizational proficiency. With over 30 events and many guest lectures and workshops, it was one of the most successful fests which received the great response from colleges and companies over the country. This year collegiate students from various colleges attended this technical extravaganza, in an atmosphere which made them learn and unlearn through an application-oriented approach. The fest saw thousands of students coming from different

colleges over the country and taking part in the different events in order to share their ideas and exhibit their talent in a technical and logistical way. USIT IEEE STUDENT BRANCH always been at the fore of cutting edge the technology and innovation, shaping the world as it is today and striving for a better tomorrow. Thus it not only gave the students practical and theoretical knowledge but also help them to improve their organizational, management and leadership skills. On the closing ceremony of the fest the winners of all the events were praised for their efforts and were awarded with certificates and cash prizes.

## “ELECTRONICS FOR YOU” EXPO AT PRAGATI MAIDAN

Mid Feb, 2011 witnessed a very successful event, Electronics For You expo. With over 262 exhibitors, the Expo was the first mega electronics show of 2011. The event was a gimmick for a large number of industrial people, businessmen, electronic engineers and even a common man interested in electronics. Some of the events held during the Expo were ELCINA-EFY CEO summit with the theme “Electronic Hardware”, Design engineers conference, Workshop on e-waste management by MAIT, interactive session with Kyle Weins, CEO, IFIXIT, ELCINA's Buyer seller forum and most important from a student's point of view was “Industry Institution Interaction by IEEE Delhi Section. Some of the new and unique ideas presented by the exhibitors were –

ECCO Electronics introduced ECCODIVA-a solar chargeable LED lamp that is multipurpose and doubles up into a portable torch mode, study light mode, lantern mode, ceiling mode and wall mount mode.

Aletrono Techno Solutions introduced Unmanned Ground Vehicle which is useful in combating operations against terrorism/surveillance and for spying and helping soldiers in the battle against terror.

NextBit Computing introduced TveeBox, a set top box that brings triple play features of entertainment, communication and computing to a single device-the television.



Top 10 countries for mobile barcode usage (excluding Japan)

- 1. United States
- 2. Italy
- 3. Germany
- 4. Hong Kong
- 5. France
- 6. Canada
- 7. United Kingdom
- 8. Netherlands
- 9. Thailand
- 10. South Korea

The brand names like Pepsi and Volvo have launched brands and marketing campaigns using QR Codes.

For the Pepsi QR code campaign in Britain, users got instant access to games, website info, videos and other exclusive entertainment that they can't otherwise obtain. Through that campaign, they gave away prizes, coupons and all stuff free and fun.

Use following QR Code to visit our site



## QR CODE MORE THAN JUST A RANDOM PIECE OF ART



QR Code to get eVersion of TechVeda

Have you ever come across a jigsaw like image on a business card, and wondered if it is a part of their company logo! Or have you ever encountered black and white squares on newspapers or other print media and considered them as just a piece of art!!! Well, what you actually noticed and observed were the QR codes or the "Quick Response" codes.

The origin of QR codes dates back to 1994 when they were invented in Japan by the Toyota subsidiary 'Denso Wave'. Denso Wave owns the patent rights on QR codes. QR codes, like Semacode, Datamatrix, and Aztec Code are basically two-dimensional barcodes or matrix barcodes consisting of black modules arranged in a square pattern on white background. These codes have become extremely popular these days.

In India, these codes became ISO standard in 2000. QR codes may be tiny in size - 'Micro QR codes', or may be quite large. They come in variable size, data capacity and other features. Under the current ISO standards, they can store up to 2 KB of data. A standard QR code can contain up to 7089 characters.

Google's mobile Android OS natively includes the barcode scanner (ZXing) on some models which supports QR codes. Nokia's Symbian OS also consists of a barcode scanner, which is able to read QR codes. Mbarcode is a QR code reader for the Maemo operating system. In the Apple iOS, 50 free Apps are available with reader through which QR codes can be read.

QR codes have a plethora of applications and can be spotted in a myriad of places such as billboards, newspapers, business cards, mail order catalogues, stickers, ID cards, marketing campaigns, event ticketing and tracking, trade-show management, direct mail campaigns, websites, email marketing et al. QR codes are also referred to as 'Mobile Tagging'. QR codes support images, binary data, URL etc. They can come handy in displaying text to the user,

adding a vCard contact to the user's device, composing an email or text message connecting to a wireless network and in opening a URI.

QR codes are extensively used in oil paintings and embedded photographs by the Italian artist Fabrice de Nola since 2006. The BBC logo was embedded inside a QR code in March 2008, by software engineer Duncan Robertson. In Australian artist Kylie Minogue's music video for 2010 single All The Lovers, a QR code is featured which scans to produce the word "LOVE". The web comic QR Comic is made entirely out of QR codes. The first 28 entries are Isaac Asimov's short story The Last Question converted into QR codes. The 2010 comic, Carnivale De Robotique uses a QR code to reveal a subplot in its third issue. In January 2011, U.S. Army Garrison Yongsan in Seoul, South Korea became the first Army organization to use QR codes for official media campaigns.

In order to read QR codes, all you require are modern bar code readers or even better, phones equipped with a camera and preinstalled QR reading software can come handy. It is indeed fascinating to note that in the near future, we may witness QR code tags, mobile phones, Radio Frequency Identification (RFID) tags, and GPS coordinates, all interacting with each other with perfect ease and delivering valuable information to the users. QR codes are destined to gain popularity with huge potential in marketing, advertising and information dissemination. They are very aptly described as the 'hyperlinks of the physical world'.

QR code data capacity	
Numeric code only	Max. 7,089 characters
Alphanumeric	Max. 4,296 characters
Binary (8 bits)	Max. 2,953 bytes
Kanji/Kana	Max. 1,817 characters





# WHAT'S NEW IN C++



C++ is one of the powerful programming languages that have evolved enormously over a period of time. Here we make you familiar with some of mind boggling stuff ABOUT THIS LANGUAGE. The developers of C language renew their standards after a span of a few decades. The newest C++ standard on the block is c++0x which has many new features. It also opens up the doors for many newer concepts. Following are some things to smile about and yes, even frown.

to do so: ccdoc, doc++, doxygen etc. that support not only HTML but also LaTeX, Tex and RTF formats. Whats best...tools like doc++ are open source!

### 1) Smart Pointers:

Smart pointers really are intelligent stuff, they provide the functionality of normal pointers while allowing other features such as memory management or for checking the scope and bounds of a variable. This leads to better memory management: Garbage collection and efficient pointers allow efficient handling of memory, preventing buffer overflows (cases where the buffer is overwritten by a program and adjacent memory is overwritten) and memory leaks (smart pointers act like garbage collectors who automatically deallocate memory after a certain period of time)

### 4) Sequence Points:

Sequence points are certain points in the program where side effects of previous evaluations (computations) are complete and effects of subsequent evaluations are not considered.

### 2) The getline() flaw:

Usually there are cases where getline() returns a null string instead of the next line of input. While many think it is a bug, it most certainly is not...it is accepted by C++ standards. As we all know the syntax of getline is getline(cin, InputLine, '\n') where cin is the standard input. The problem lies in the fact that cin reads everything upto the next "\n" in the stream but not beyond that. Hence getline() does not know that anything beyond that newline exists. How to solve it????

For eg) if an expression contains k++, then the variable k will be incremented by the next sequence point. If the expression just after the sequence point contains ++n, then n will not have yet been incremented at the moment the sequence point is reached. Sequence points defined upto now include

- ✍ the semicolon
- ✍ the non-overloaded comma-operator the non-overloaded || operator
- ✍ the non-overloaded && operator
- ✍ the ternary ?: Operator

There is a solution for everything...this has one too :)

### 5) Multithreading in C++:

C++0x supports a multithreading library which offers the freedom of porting multithreaded code between compilers and platforms much faster, and at a reduced cost. This is a benefit over earlier times where incompatibility issues were common because this library had to be provided as an extension to the existing libraries.

There is a method called ignore(). If we use a cin.ignore() after the input statement cin>>InputLine, then the newline in the stream is ignored and getline lives happily ever after!!

### 6) So near, yet so far!

C also supports near and far pointers. Near pointers are 16 bit pointers to objects that exist in the current data/stack/code segment. Using near pointers is fastest as the compiler only generates code without worrying about segment addresses. However, data access is limited. Far pointers are 32 bit pointers to objects anywhere in memory and offers larger memory access (greater than 64 kb).

### 3) HTML Documentation is here!

As we all know, Javadoc is a tool used to generate HTML documentation for source code. Well C++ now offers this functionality as well. There are today many tools, which allow us

C++ and Java, say, are presumably growing faster than plain C, but I bet C will still be around.  
- Dennis Ritchie

I have stopped reading Stephen King novels. Now I just read C code instead.  
-Richard O'Keefe

"C++ : Where friends have access to your private members."  
-Gavin Russell Baker

When I read commentary about suggestions for where C should go, I often think back and give thanks that it wasn't developed under the advice of a worldwide crowd.  
- Dennis Ritchie

## Top 5 Recommended books of C++

The C++ Programming Language  
by Bjarne Stroustrup

Effective C++  
by Scott Meyers

Design Patterns  
by Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides

International Standard for C++

Modern C++ Design  
by Andrei Alexandrescu

## QUOTABLE QUOTES

Problems cannot be solved by the same level of thinking that created them

- Albert Einstein

Either write something worth reading or do something worth writing

- Benjamin Franklin

Doubt is the father of invention.

- Galileo

A man who dares to waste one hour of time has not discovered the value of life

- Charles Darwin

A man should look for what is, and not for what he thinks should be.

- Albert Einstein

"The greatest advantage of speaking the truth is that you don't have to remember what you said."

"Honesty is the first chapter in the book of wisdom."

"Logic will get you from A to B. Imagination will take you everywhere."

~ Albert Einstein.

"All children are artists. The problem is how to remain an artist once he grows up."

~ Pablo Picasso

## ACTIONS SPEAK LOUDER THAN WORDS

Gesture recognition technique refers to the ability of a machine to interpret human motion with the help of mathematical algorithms stored in that machine. It includes recognition of facial expressions, voice, eye tracking, lip movement and also motion of our hands or legs.

For instance: Using gesture technology we could control the cursor on our computer screen with the help of our fingers and there would be no requirement of mouse, similarly we could type without using keyboard; by simply making gestures of what we want to type.

Gesture recognition can be applied using techniques of computer vision and image processing. Computer vision refers to a technology which scans an image and extracts the necessary information from that image which can be further used to solve some task. Apart from these techniques there are certain tools that have the ability to track a person's movements and interpret the gesture made by the person. Some of these tools include - Depth aware cameras: These are cameras which have the ability to generate a depth map of what it sees in a short range and successfully approximate a 3D representation of that image, Stereo cameras and single cameras are some other tools that are used.

The image shows the working of cameras used in gesture recognition technology.

This technology can be a huge boon for the physically impaired people as they can access computer as well as other machines via sign language. Along with this there are several other fields where this technology can really boost up things. It has the potential to bring a new revolution in lifestyle of people. This is the reason why software giants like Microsoft is showing keen interest in developing new software supporting this technology.



But there are certain challenges associated with the accurateness of this technology. Some of these challenges are: it is a certain possibility that image under scan may not be properly lighted or it may be placed in an improper position. Also the background of the person may also cause hindrance in recognition of gestures. Along with this unequal intensity of noise may also cause difficulty in recognition. But these challenges are being worked upon by researchers and we hope that they will soon come up with their solutions.

## LIVING IT UP



*"Anything may be betrayed, anything may be forgiven. But not those who lack the courage of their own greatness."*

We all are born different but alas! only few of us chose to nurture our inner capabilities to make that difference. We all end up being the sheep of the same herd, being manipulative, losing courage to come up with our own dreams, we fear being unacceptable and as we sit for long years deciding to hear people speak crap, one day we end up appealing ourselves of it. I do not

wish to advertise the notion of being different for the sake of it, but all I wish to convey is live your dreams, your aspirations, live every bit of your life to bring out the person you are, believe it and every moment of self realization will take you deeper, bit by bit, into the complexities of the human mind. Have you ever thought what the world would have been like if Albert Einstein, Newton, Galileo, Aryabhata, why only some of the greatest scientists but Mahatma Gandhi, Nelson Mandela or even Mother Teresa would have decided to mold themselves to soothe the world's eyes. The greatest of the greatest personalities the world has known dared to be different and their goals achieved and ideas perceived still enchant one and all round the globe. "There was nothing that got into them, it was something that got out at last!" So wake up! and inhale some fresh air. Revere yourself, your mind's dimensions but at the same time do not lose your reason. And slowly you will be on your way shaping your dreams, living your ideas, purpose and reality.

## IEEE FACTS

IEEE Membership levels include the following:

- Student Member
- Graduate Student Member
- Associate Member
- Senior Member
- Fellow Member

6.6% members are from India

The following are five countries with the highest number of IEEE members:

- United States
- India
- Canada
- Japan
- United Kingdom

Approximately half of IEEE members work for corporations, about a quarter work in academia, and government employment ranks third as a sector.



## WHY JOIN IEEE?

Our Philosophy at USIT IEEE Branch:

**Old Concept:** Do or Die    **New Concept:** Do until you Die    **Latest Concept:** Dont Die until you Do

- **Spectrum**, monthly magazine of IEEE, delivered at your doorstep.
- **Technical papers** are accessible to IEEE members.
- Gives one **International recognition** as a member of the most active technical organization (IEEE).
- Helps one do **research, get recognition & publish his/her work** to the whole world.
- **Participation in various international events** like IEEE Xtremé, Student Branch Website Competition, etc.
- Get an **IEEE email id** alias, eg: your\_name@ieee.org.
- Access to **Digital library** of IEEE.
- Access to **Job site** of IEEE.
- Access to **IEEE TV** on internet.
- Adds value to one's **resume**.
- **Opportunity to represent college** at various levels in quarterly meets, seminars, other meetings, etc.
- Enhance one's **quality to lead** others.
- Access to all **MSDN products** (majority of Microsoft products like Windows Vista, Visual Studio 2010, Expression Studio, etc are free for all IEEE members).

*“Some people make things happen  
Some people watch things happen  
Some say what happened”*

**We at IEEE are always in first two**

Join IEEE & get a life of an innovator!!!  
Join Now at \$27

For membership queries contact:

Shreya Pandit (9013556959)  
(Treasurer, USIT IEEE)

Karan Singh (9999965554)  
(General Secretary, USIT IEEE)

For other queries contact:

Piyush Madan (9910455149)  
(Chairperson, USIT IEEE)

Sahil Monga (9711015586)  
(Vice-Chairperson, USIT IEEE)



## MESSAGE FROM THE EDITORIAL BOARD

Dear Reader,

It gives us immense pleasure and delight to present yet another edition of "TechVeda"- The biannual newsletter of the USIT IEEE student branch. The first edition was quite appreciated and applauded by all. We hope that this edition continues to serve its purpose of not only updating all with the recent happenings and events at our USIT IEEE student branch, but also encouraging everybody to be abreast with the latest happenings in the technical world. A culmination of technical and creative articles gives a balanced and holistic look to the newsletter. We hope that all the efforts put into turning this newsletter to reality are appreciated and this edition is yet another success like its predecessor.

We wish to thank all the contributors, well wishers and readers for their constant support and help. We would appreciate if you could provide us with your valuable suggestions, advices, feedback et al so that Techveda turns out to be an even enriching experience.

We look forward to your endeavor to make the newsletter an even more delightful experience. Kindly mail your reviews, achievements or contributions at [techveda.usit@gmail.com](mailto:techveda.usit@gmail.com). We will try our best to incorporate few of them in the next edition.

### Editorial Board

1.	Dr. Udayan Ghose	Convenor	Asst. Professor, USIT Branch Mentor, USIT IEEE
2.	Piyush Madan	Technical Editor-in-Chief	B.Tech(IT) 6th Sem
3.	Shreya Pandit	Editor-in-Chief	B.Tech(CSE) 4th Sem
4.	Karan Singh	Concept, Layout & Design	B.Tech(CSE) 4th Sem
5.	Neeharikaa Talwar	Editor	B.Tech(CSE) 2nd Sem

### Other Contributors

Akshay Chauhan, Alpana Singhal, Chirag Virmani, Gaurav Khanna, Kapil Yadav, Kartik Jain,  
Kunal Krishna, Pranav Shreni, Rohit Kataria, Sahil Monga and Swati Dewan



### Executive Committee 2011-12

Chairperson:  
**Piyush Madan**

Vice-Chairperson  
**Sahil Monga**

General Secretary  
**Karan Singh**

Treasurer  
**Shreya Pandit**

Joint Secretary  
(HR&Publicity)  
**Neehaarikaa Talwar**

Joint Secretary  
(Technical)  
**Gaurav Khanna**

GINI Representative:  
**Kunal Krishna**

P.12

TechVeda/ Issue 02 / June 2011



CONTACT US



IEEE Student Branch  
School Code 41375814  
University School of Information Technology  
GGSIPIU, Sec-16,Dwarka, Delhi-110075  
Email : [usitieee@gmail.com](mailto:usitieee@gmail.com)  
Website : [www.usitieee.com](http://www.usitieee.com)

--This newsletter is for Private Circulation only (by USIT IEEE)--