ISSUE

01

OCTOBER 2010

BI-ANNUAL NEWSLETTER OF USIT IEEE STUDENT BRANCH

TechVeda

This Issue

HIGHLIGHTS

Upcoming Events

Non- Tech Stuff

Must See

Message from Branch Councellor & Dean

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

It is a matter of extreme pride and satisfaction to observe that USIT IEEE is coming up with a bi-annual newsletter "TECH VEDA" . Being a part of a globally integrated organization like IEEE undoubtedly has a gamut of advantages. It brings to the fore, the technical expertise of an individual and opens up a world full of opportunities for them, especially in the field of technical research. Today's youth has immense power in its hand. It has been correctly said by Pamela Vaull Starr *" Reach high, for stars lie hidden in your soul. Dream deep, for every dream precedes the goal."* Hence,my honest advice to all students is to think deeply over their potential, nurture it and contribute towards the development of our nation. I hope that the USIT IEEE student branch through the medium of Tech Veda will definitely further this approach and will always continue to make every individual, a better professional in this competitive world.

There is no adjective good enough in my dictionary to describe the contribution of IEEE in planning, designing, developing and maintaining the zeal, enthusiasm and exuberance of budding engineers in the vast pastures of technology. IEEE is not merely an institution, its a way of living, a way that many have followed and left their footprints on. Its indeed an honor to be one of them.
Taking the legacy forward, the USIT IEEE branch has decided to come up with its biannual newsletter "Tech Veda". I solemnly congratulate them on reaching this milestone and expect that we'll achieve many more.

Udayan Ghose
Branch Mentor
USIT IEEE Branch

I congratulate the team of "Tech Veda" for publishing their first edition and appreciate the hardwork put in by them to bring out the same. The very concept of the newsletter speaks volumes for their spirits and ambition and the fact that the concept has materialized, reflects their devotion for the cause and work-ethics they abide by.
I also congratulate the entire USIT IEEE family for their effort to organize various events round the year and sincerely hope that they carry on with the good work.

Sanjay Malik
Teacher-in-Charge
Student Activities ,USIT

QUOTES

Not everything that can be counted counts, and not everything that counts can be counted.
-Albert Einstein

Technological progress has merely provided us with more efficient means for going backwards.
-Aldous Huxley

The perfect computer has been developed. You just feed in your problems and they never come out again.
-AL Goodman

The real problem is not whether machines think but whether men do.
-B. F. Skinner
Contingencies of Reinforcement, 1969

Man is still the most extraordinary computer of all.
-John F. Kennedy

FOOTPRINTS ON THE SANDS OF TIME....

Headquarters

The seeds of the world's largest technical organization were sowed nearly 125 years ago by a group of people who were absolutely in love with technology. These great minds came together and started an organization whose primary aim was aiding professionals in this field and serving them in all aspects of electronics, electrical and computer disciplines.
It furthers technical innovation and creates a worldwide platform where over 375,000 members in 160 countries collaborate on every possible arena of technology that one can dream of : ranging from computing and sustainable energy systems, to aerospace, communications, robotics, healthcare, etc.

About USIT IEEE

THE JOURNEY TILL NOW

USIT has collaborated with IEEE and regularly organizes seminars, workshops , technical paper presentations and other events concerned with cutting edge technologies. During its inception in 2002 Prof. Yogesh Singh , founder Dean, USIT played an instrumental role. The Dean of USIT is the ex-officio branch counsellor of USIT IEEE and currently this honorable position is being held by Prof. B.V.R. Reddy , who has always guided us with his knowledge and experience.
Mr. Udyan Ghose has always been our branch mentor and has given endless support to each of our endeavours.

USIT IEEE organizes workshops and seminars on the latest technology and aims at bringing out the technical best in all its members. Neurotrix ,the annual technical festival organized by USIT IEEE is highly beneficial for students as it enables them to keep abreast of all technological advancements and gives them an opportunity to manifest their technical skills to the fullest potential.

NEUROTRIX 2010 PHOTO GALLERY

NEUROTRIX 2010: A SUMMARY

Neurotrix, the annual technical festival of USIT IEEE Student Branch, was held on 4th & 5th March 2010. It received a huge response from colleges and industries all over country. Neurotrix comprises of seminar series accompanied with competitions for engineering students to showcase their technical and logical skills at intercollegiate level.

The fest saw a myriad of technical events with really enthusiastic participants throughout the two days .The healthy competition took the spirit of the fest to a different level altogether.

Neurotrix, apart from being a fest, was a stage where a web of interactions was spinned between students of USIT and other institutes.

NEUROTRIX 2010 Sponsored by:

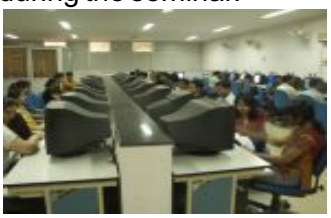
PHILIPS
sense and simplicity

With Neurotrix, the USIT IEEE Student Branch aimed at providing out of classroom, practical experience to budding engineers. It also gave ample opportunity to students to polish their organizational, management and leadership skills. Hence, Neurotrix was not just bound to a handful of students, it spread its reach all over.

On the closing ceremony of the fest, the winners of all the events were appreciated for their efforts and were awarded with cash prizes and certificates.

MATLAB Workshop & Quiz

MATLAB is a numerical computing environment which allows matrix manipulation, plotting of functions and data, implementation of algorithms, and creation of user interfaces. The seminar turned out to be a myth buster and showcased that MATLAB is not only a fancy calculator, but also an integral accomplice for people working in the fields of Economics, Biology, Engineering, etc . Relevant study material and CD's were distributed during the seminar.



Java Programming

The programming event was divided into 2 major sections.The first one being MCQs, tested the efficiency and code-breaking skills of the teams. The other section focussed on Programming Puzzles, which was aimed at testing logical ability and core programming skills. The contest provided an opportunity to programmers for testing their JAVA programming skills.

Tech Quiz

Tech Quiz was a challenging quizzing event, that aimed at judging your technical knowledge. The participants were questioned upon basic and advanced tech facts which accounted for a rich storehouse of information.

Windows Azure & VS2010 seminar

Windows Azure had been a hype for past few months. The seminar organized aimed to solve the mystery of what actually Windows Azure is and why it is used. A general discussion was held on cloud computing & its benefits. In the second hour, some of the GUI elements of the studio language were illustrated along with programming of GUI components to render powerful GUI software which are easy to build in VS 2010.

Crypto Invasion

Crypto Invasion, an exciting event, had been organized with an objective to analyze and comprehend the hazards of cracking encrypted codes. The event endeavoured to test the competency of techno students in the sphere of cracking crypto codes.

WEBSTER

Webster was a competitive website designing event held on the fifth of March. This event saw a huge participation from enthusiastic web crafters who worked tirelessly during the event to build user friendly and interactive sites. Finally, the best among everyone was crowned the 'Webster".

Technical Paper Presentation

Technical paper presentation provided an exemplary opportunity for demonstrating competent, technical and innovative talents in the form of papers. Technical paper sessions provide an opportunity for presentation of your work in front of a large audience in a short time . Some innovative technical papers presented during the fest included Information Security, Six Stroke Engine,etc.

LAN Gaming

LAN Gaming is an event where one can use a computers connected over a LAN, primarily for the purpose of playing multiplayer computer games. The games played during the tournament in the fest were Counter Strike and NFS Most Wanted.

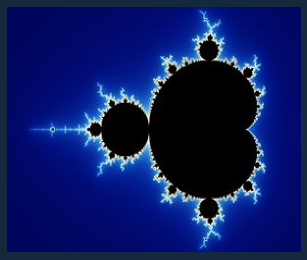
C++ QUIZ

C++ quiz tested the programming and logical reasoning of the participants through various MCQ's and practical programming test.

Offliners

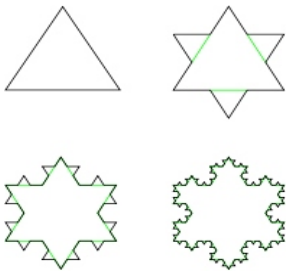
Offliners were conducted at help desk throughout the fest having a plethora of quizzes and puzzles (general quiz, keyboard shortcut, sudoko, sports).

More Fractal Images



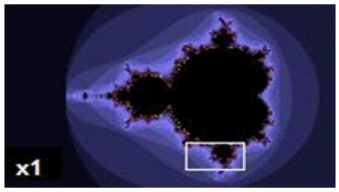
FRACTALS

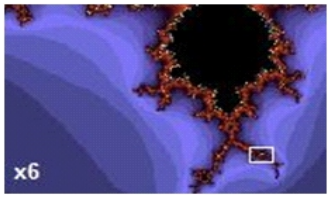
One of the early developed fractals images. It can be created by beginning with an equilateral triangle and then replacing the middle third of every line segment with pair of line segments that form an equilateral bump. Same procedure when applied iteratively increases the perimeter by one third of the previous length.

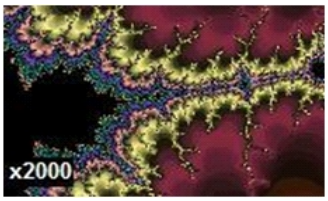


The above ornately designed figure is not a masterpiece of any artist, but the result of a mathematical equation. For those who can't digest this fact, the above image is a computer rendered mathematical equation called fractals. The image when split into parts, produces an exact or a similar reduced-size copy of the whole and this property is called self-similarity. The surprising fact is that even if you zoom in the features, it always looks like ever-smaller copies of whole figure without any distortion. Few famous fractals are Cantor Sets, Sierpinski Triangle and Carpet, Menger Sponge, Dragon curve, space-filling curve, and Koch curve.

Mathematics of fractals can be traced back to the 17th century when mathematician and philosopher Gottfried Leibniz explored new arenas in this field. Though, before the end of 18th century, most of the work was based on straight lines rather than higher order equations.







The Koch Snowflake was

Some GUI applications like Sterling, Apophysis, UltraFractal, Zyfracal, ChaosPro ,etc are available to create fractal images, hence bringing the power of creating mesmerising images.

OTHER APPLICATIONS OF FRACTALS INCLUDE:

Fractal landscape or Coastline complexity
Enzymology
Creation of digital photographic enlargements
Technical analysis of price series, etc
Signal and Image Compression
Seismology
Fractography and Fracture Mechanics
T-shirts and other fashion

FACTS ABOUT 3G

Around 132 countries across the world already have been running 3G.

Africa's poorest region in the world, 31 countries have access to 3G network includes countries like Mozambique, Rwanda, Sudan and Botswana.

In 2001, peak speed was of 348 kbps, today network can hit peak speeds of 21Mbps.

There are 4.7 billions mobile users worldwide of which 450 millions uses 3G network roughly making it to 10%.

In Asia 32 countries have 3G network but still India doesn't have it.

India, Pakistan are among the last nations to get in into 3G.

Latest Events at USIT IEEE Student Branch

USIT IEEE's Executive Commitee 2010 election

USIT IEEE held it's election of new Executive Committee on 20th April this year. The election process includes nominations followed by member voting. Quorum of 70% members is required for the process. Nominees were called on stage to share their vision for USIT IEEE. Anyonomous voting ensured just and unbiased selection of the candidates.

Ajeet Singh, Chairperson (USIT IEEE) wishes to thank all student members for support provided to initiatives taken by the branch. He also emphasized on learning opportunities provided by IEEE within engineering science, research, and technology to bring an unmatched inquisitiveness. He enthusiastically emphasized that USIT IEEE will strive for its further improvements and would set an example for the outside world as well as present and future members.

QUATERLY MEETS GALORE:ACTIVE PARTICIPATION

PEC-7 FEB 2010

JMI-MARCH 2010

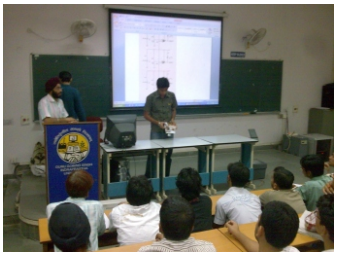
WIE MEET

BVP-SEP 2010

Farewell to 2010 Batch

USIT IEEE Student Branch organized a farewell ceremony for final year students on 7th May 2010. Shields and certificates were given to them for their contribution to the branch.

Sessions during the summer break



The USIT IEEE student branch has conducted several interactive sessions during the summer break on various topics like:

#Web development
#How to code effectively
#Google tips and tricks
#Graphic Designing

TECH COLLAB

The USIT IEEE branch proudly hosted the IEEE GINI Delhi Technical Collaboration meet on 24th April 2010.

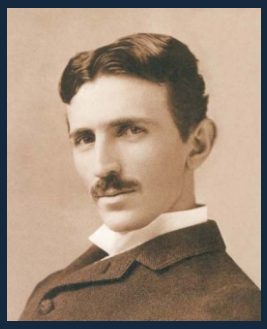
W3C SEMINAR

Piyush Madan & Tarun Madan represented USIT IEEE in an International Confrence held by W3C (w3c.org) at Hotel Lalit, Delhi.
(Date: 6th May , 2010)

Robot Facts

•8.6 million robots inhabit the world today.

• The father of Robotics



Nikola Tesla

•According to The Guinness Book Of World Records, the largest robotics competition named RoboGames (formally ROBOlympics) hosts over 70 different events, modelled on the human Olympics.

•The first robot in the world was developed way back in the summer of 1961.

• Games using AI:
  1. Lost Planet 2
  2. Heavy Rain
  3. Mass Effect 2
  4. God Of War 3

AI in Games

Artificial intellegence incorporates the fun experience in a gameplay. The better the AI the more you are involved in a game.It is nothing but intellengent codes written in programming languages to make decisions based on your actions in a game. All non player characters (NPCs) in the game are being controlled by the AI. Each NPC should be aware of the surrounding world i.e. detailed information of the objects around it and their behaviour. It's the programmer who decides the extent of knowledge that a NPC should posses. This knowledge consists of all decision making routines that determine how the NPC's in your game should behave and interact. Another important aspect involved in a gameplay is World Navigation which is definately interesting for the budding game developers. It takes into consideration the complete geography and the positions of the objects in the game world and then help NPCs decide how to navigate point to point. Every possible corner is accounted while coding for AI. Once you have knowledge of the basic game engine architecture, you now can try and twiddle different game engines that suit your needs the best.

A few decent, free and opensource engines are: Unity, Ogre, Panda and 3D Sage.

Invisible Mouse

Pranav Mistry, PhD student and Researcher at MIT Media Lab developed a system to capture hand movements of a person, through which the person can control user input to the computer. It works like an invisible mouse. The system comprises of an infrared laser beam and camera. Mistry also claims that you can build this system of your own for as little as $20(₹1000).

Check out more stuff on www.pranavmistry.com

Sweet Search

A Search Engine for Students

SweetSearch is a specially designed search engine for students. It searches only the 35,000 Web sites that research experts, librarians and teachers have evaluated and approved. Results are constantly evaluated and "fine-tuned" by increasing the ranking of websites from organizations such as the IEEE, PBS and university websites.

Source:
http://www.sweetsearch.com/info/about

Adam killed the iPAD!

Indian employees at Notion Ink. have come up with an exemplary tablet called the Adam that is a serious competitor to Apple's iPAD.

It ranks over the iPAD in many ways with smarter web browsing capacities, lower power consumption and multi-tasking enabled on all the OS that are installed on it.

QUOTES CORNER

"Failure is simply the opportunity to begin again, this time more intelligently."
--Henry Ford

"After Climbing a great hill, one only finds that there are many more hills to climb."
-- Nelson Mendela

"Its not the length of life, but the depth of life."
-- Ralpho waldo Emerson

"The strongest among the week is the one who doesnt forget his weakness."
-- Danish Proverb

"Be nice to people on your way up because you meet them on your way down."
--Anonymous

JEE to GMAT : Engineers At Management

Keeping in mind the numerous questions and myths that engineering students have about management, USIT IEEE held a session on "Engineers at Management". JEE to GMAT was a thirst quencher for all such doubts. Mr. Ankit Goel, an alumnus of USIT, who is currently pursuing his masters in Information Technology and Systems from the Strathclyde Business School, Glasgow, UK guided us on this issue.

The session started with a brief introduction about business, it's basic principles and the strata of its implementation at various levels in a corporate firm. This was followed by an exercise on interpersonal skills, an attribute that every professional must have before stepping into the world of management.He then went on to describe the job profiles where we find these two disciplines coming together.

The next session took into account the crucial factors one must consider while pursuing higher

studies abroad. Students were advised to choose their destinations carefully , keeping in mind the cost of living, visa considerations , distance factor and most importantly the academic system there. We were also suggested to be prudent while picking a particular B-school by thoroughly doing proper groundwork such as the checking the school's rankings, its curriculum, class profile etc.

The importance of work experience before pursuing management was stressed upon, as it gives a deeper understanding and insight of the industry and how it functions. It also helps one to adjust better into the competitive environment there. Most importantly, we learnt that following one's interests and passion is the key to build a successful career.

Many interactive activities were also held: the first virtually turned the venue into a B-School classroom , where the students were budding to be managers and were given a real life project to manage. The second tested a person's business acumen and convincing power.

The session had a lot to offer for each of it's participant and served as an eye opener to all.

Google facts

Google uses white screen which consumes high power. If Google had a black screen, taking in account the huge number of page views, according to calculations, 750 megawatts / hour per year would be saved!

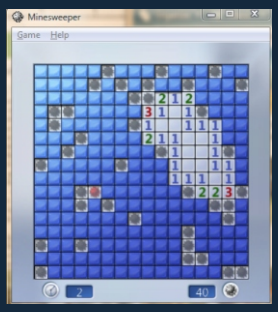
In response , Google created a black version of its search engine, called Blackle, with the exact same functions as the white version, but obviously with lower energy consumption.

You can help spread the word.

Please use

www.blackle.com

•Have you ever played Minesweeper?? Well,this game has it's roots in NP complete!!



•Other games that are in the domain of NP Complete include:

1. 15 Puzzle
2. Dots and squares
3. KPlumber

MINDBOGGLER!!
One Way Functions

These are functions that are easy to compute when given input, but hard to invert,if user gives random inputs.

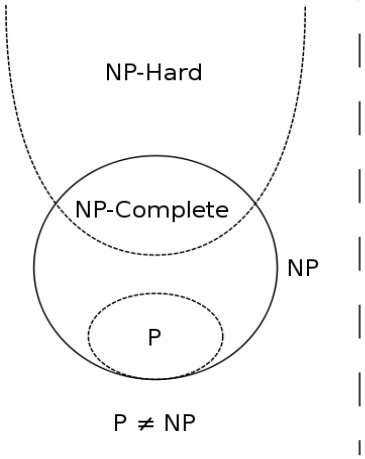
Though they are used in cryptography, authenicaion and data security, their existence is still an open conjecture.

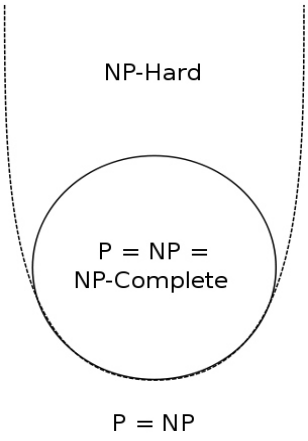
Is P=NP?

US $1 million prize
The Clay Mathematics Institute is offering US $1 million to anyone who prove that P=NP or otherwise .

THE MYSTERY OF P AND NP PROBLEMS....

One of the specific fields in the branch of computer science and core mathematics is the Computational Complexity Theory that deals with the classification of computational problems according to their level of difficulty. The problems are divided into Complexity classes: wherein the set of problems in each class are those that can be solved by an arbitrary computing machine M in O(f(n)) time, where n is the size of the input.
It first becomes imperative to be familiar with a few computational classes to have a full understanding of this problem. P is a set of problems that are characterized by a quick, polynomial solution while NP problems are those whose answers are verified quickly. NPC(or NP Complete) is a subset of NP but the time taken for solving such problems increases exponentially as the size of the input increases. Hence, no typically fast solution to such problems is known as yet. This, till date, remains one of the most challenging and arduous problems of computers.





Also a strange but true correlation that exists between the two sets is that if any problem in NPC gets solved quickly, then all the problems of NP will also get solved in finite polynomial time automatically .This is because by definition, each problem of the NP set should reduce to an NPC problem.
The NPC problems are encountered all the time: In network design, graph theory, sets, partitions, sequencing and traversal problems. It is really important for a programmer to identify such problems in order to refrain from spending unnecessary time on it.
The base of P & NP was laid down by Stephen Cook In 1971 in his paper titled "***The complexity of theorem proving procedures***" . This field is definitely one that has garnered huge interest from computer programmers all over the world, who are working continuously to solve this mystery.

Facts about Bill Gates

Bill Gates earns $250 every second; that's about $20 million a day and $7.8 billion a year.

If he drops a thousand-dollar bill, he needn't even bother to pick it up because in the four seconds it would take him to pick it up, he would've already earned it back.

Bill Gates is 54 this year. If we assume that he will live for another 35 years, he has to spend US$6.78 Million per day to finish all his money before he can go to heaven or hell.

If Microsoft Windows users can claim US$1 for every time their computers hang because of Microsoft Windows, Bill Gates will be bankrupt in 3 days!

[Source: www.selfgrowth.com]

Message from Alumnus

Ankit Goel
B.Tech (2004-08)
USIT

Currently postgraduate student at Strathclyde Business School Glasgow, UK

The IEEE Student Branch at our college is the platform that provides the biggest opportunity to blend technical skills and soft skills. This blend not only enhances career prospects but also develops the confidence to make a smooth transition into the professional world. It provides the space to look beyond the horizons of campus because it enables networking with people who are not only from the state, home country but also worldwide. When I joined the branch as a volunteer, I never knew that I had the capability of managing tasks, handling risks and organizing teams.

It was the participation and zeal to perform that gave me an in-depth insight of almost every situation that I could face in the professional world. Although unknowingly, I could perform well and meet the targets to become the Chairperson of the branch later. At this stage, a great door was waiting for me to open and that was management. It was there where I first learned the basis of management and operations. I must admit that wherever I went, be it the admission to one of the top business school of the world or a job in one of the finest company of its kind, the addition of skills from IEEE has been the foremost reason for its success. I am very happy to note that USIT IEEE Branch is coming up with more interactive & innovative live wire sessions. Congratulations to the organising team of Neurotrix 2010 to make it bigger & better. I would also like to give my best wishes to the editorial team of this newsletter. I strongly believe that USIT IEEE student branch shall continue to scale new milestones.

DON'T LET THEM CRUMBLE!

Don't rover ,fend for yourself
Seek your destination, accost your fascinations
Soar free like a bird, don't follow the herd
Strive for it, go ahead, bit by bit.

Stop wandering ,stop scrabbling
Adorn your surging lure
Do everything to turn it into reality
Don't let it fade into oblivion ,into anonymity!

Start your adventurous journey.
Be firm,stick to it
Don't burn your pepped dreams, don't loosen their seams
That will push you down the chasm
Of despair,
Where all of them will be beyond repair.

Follow them, for they will give you a ruck of happiness.
And along with it,untamed success
When all this comes your way, be humble
And never let your dreams crumble!

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 Xtreme , 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 colleg***e 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

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2009-10 & 2010-11

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Message from Editorial Board

Dear Reader,

IEEE Student Branch at USIT is continuously striving its best to foster various opportunities available to its members. In recent past, we have a discernible increase in number of activities at the branch as well as at the section level. Admist these efforts, we hereby present the first edition of Tech Veda: the bi-annual newsletter of USIT IEEE Student Branch, which we all have worked hard for. Tech Veda opens up channels of knowledge and innovation at various levels. Being, a bi-annual newsletter, It will keep you updated with the latest events and happenings in our USIT IEEE student branch. Secondly, it will keep you technically abreast with latest information and will awaken your technical side through its informative articles. As Elanor Roosevelt has correctly said " The future belongs to those who believe in the beauty of their dreams". Tech Veda will give you food for thought, to dream, imagine and work upon. We like to thank all the contributors and well wishers of the newsletter to make it happen. Hope you all would appreciate the efforts made and this newsletter will be as delightful to you as it is to us.

We look forward to your endeavour to enrich the newsletter by sending us your contributions, achievements and suggestions about topics you would like to read about. Kindly send your reviews to techveda.usit@gmail.com.We will try our best to publish few reviews in next edition of the newsletter.

Editorial Board

1.Udayan Ghose	**Convenor**	**Asst. Professor, USIT** **Branch Mentor, USIT IEEE**
2.Piyush Madan	**Technical Editor-in-Chief**	**B.Tech(IT) 5th Sem**
3.Shreya Pandit	**Editor-in-Chief**	**B.Tech(CSE) 3rd Sem**
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