RIVISTA

2018

Fostering Technical Excellence Through Education.

HMR Institute of Technology and Management

(An ISO-2008 Certified Institute, Approved by AICTE & Affiliated to Guru Gobind Singh Indraprastha University)

Vol 1 | Issue 4

Contents

RIVISTA 2018

HMRITM

Life skills training to improve communication, presentation skills, business club, etc. are the part of daily routine in activity plan.

About Us

HMR Institute of Technology and Management established in 2001, has progressed a lot in infrastructure, facilities, qualified faculty and students' placements to match with the best in Delhi NCR region. HMRITM is continously working on 'Project Based Learning', over and above University curriculum, which gives students opportunities of training on latest technologies, Industry projects. Student are trained practically so that they may become design engineers, who are industry ready and can start entrepreneurships.

Vision

To be an institute which will create design engineers and business professionals according to the needs of industry by imparting project based learning through our collaborations with global universities and research centre.

Mission

The institute strives to involve students in training projects and life skill activities over and above curriculum to fulfil the vision. Empowerment of students and faculty will be continuously endeavoured to create a globally competent centre of teaching and learning in Engineering technology and Business management.

"Efforts help students to earn technical and life skills to a great extent."

From the Chairman's Desk

It has been my pleasure that HMR Institute of Technology & Management is bringing out the 4th edition of its Magazine 'RIVISTA'.

In a short span of time the Institute holds a prominent place among technical Institutes imparting Higher Education. The annual magazine 'RIVISTA-2018' provides an excellent platform to the students and teachers to exhibit their creative skills and innovative ideas related to technology. The magazine is a reflection of our multifarious activities and academic achievements.

I extend my greetings and felicitations to the contributors and editors of this piece of work. I congratulate the team and wish great success to the magazine.

Mr. Anil Gupta
CHAIRMAN

Message from the Director General

The engineering students are supposed to be equipped with scientific fervor, technical skills & innovative ideas but at the same time they also have creative ideas, imaginative and writing and rhyming skills. The versatile talent of the students gets expression in the form of poetry, stories, articles and annual magazine is the best platform to showcase this latent talent. At HMRITM also the students are encouraged to inculcate and develop their artistic skills, creative talent and innovative fervor besides doing excellent in academics which is reflected in RIVISTA.

I am sure that like earlier editions of RIVISTA in this edition also, we will get a glimpse of the literary as well as the creative facet of budding engineers.

I heartily express my best wishes for the great success of RIVISTA 2018.

Mr. S.N. JHA
DIRECTOR GENERAL

From the Director's Desk

Nurturing creativity and inspiring innovation are two of the key elements of a successful technical education, and a college magazine is the perfect amalgamation of both. It harnesses the creative energies of the academic community, and distils the essence of their inspired imagination in the most brilliant way possible. Hence, I am delighted to know that HMRITM annual college magazine 2018 "RIVISTA" is ready for publication.

Providing ample opportunities in technical education is one of the most fundamental obligations we owe to our students because in HMRITM we are driven by the belief that every student deserves a high quality technical education and exposure. In last few years we succeeded to implement Project based learning apart from university curriculum. The outcome of which is being realized by the HMRITM in the form of the success in various project competitions.

I take this opportunity to congratulate the team of students and the faculty for their tireless efforts that have come to fruition in the form of this magazine. I wish it all success and hope that this tradition that has been set by the current students will be carried through by the following generation of students to come.

Dr. V.C. Pandey

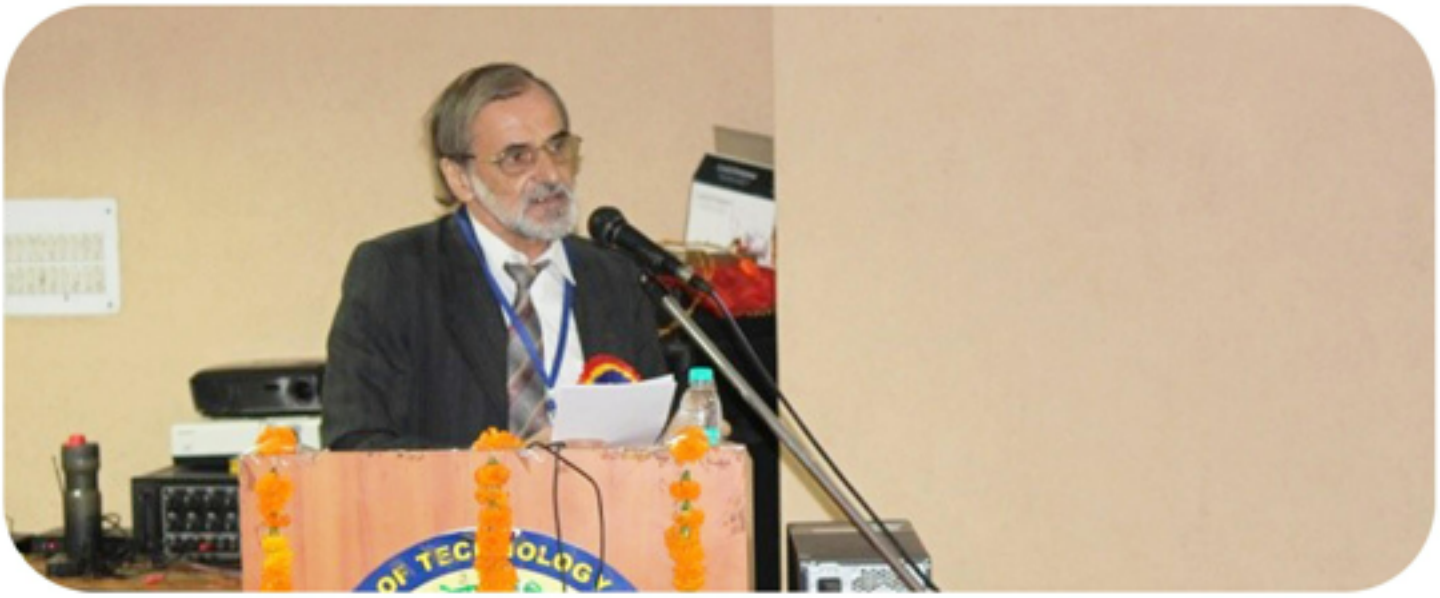
DIRECTOR

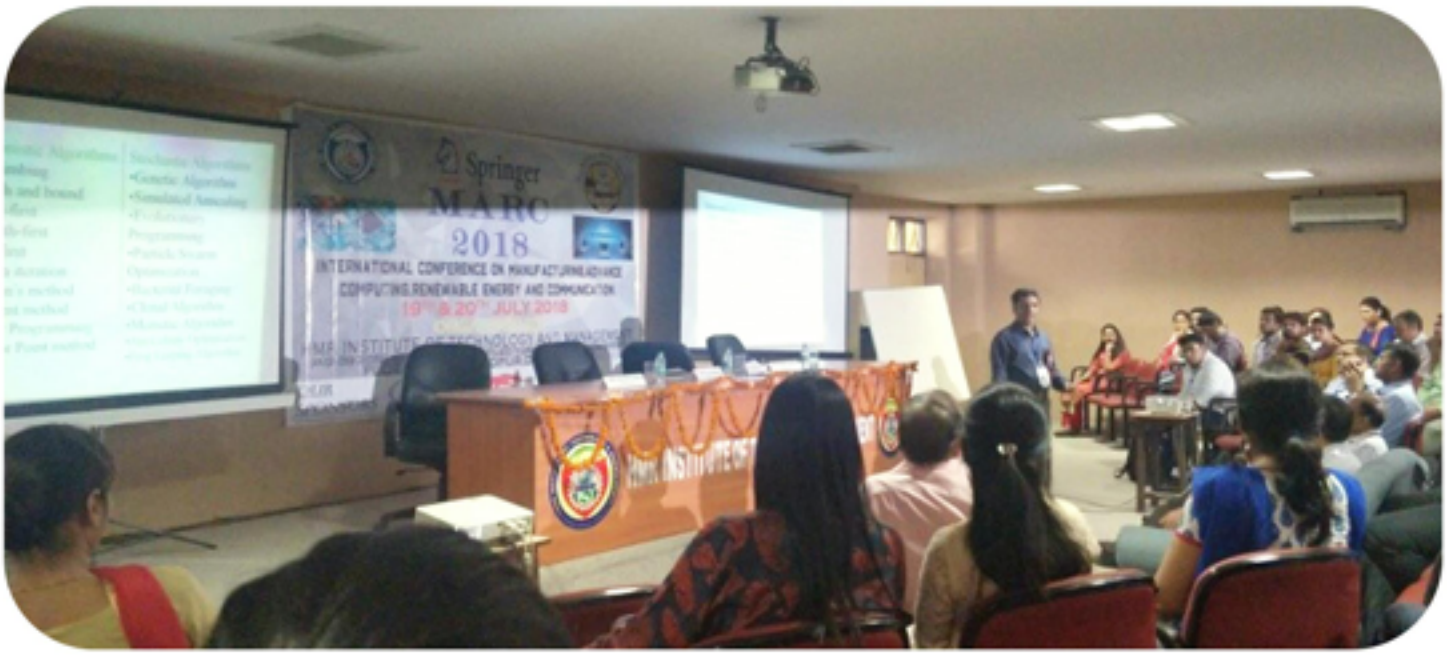
MARC 2018

International Conference MARC 2018.

The MARC 2018, International conference on manufacturing advance computing, renewable energy and communication was held at HMRITM on 19th and 20th of July 2018. The scope of MARC 2018 was to provide an international forum to promote, enhance, and stimulate international research interactions. and collaborations. Many researchers, practitioners, and academia of related fields were gathered together at HMR Institute of Technology and Management to explore, discuss ideas, and potential solution of challenges.

MARC conference received 534 papers out of which 124 were published.There were total 12 sessions in 4 tracks for presenting papers on topics related to 'control and transmission', 'application of advance computing and informatics in electrical engineering', 'application of wireless and embedded in electrical engineering' and 'application of electrical engineering in manufacturing.

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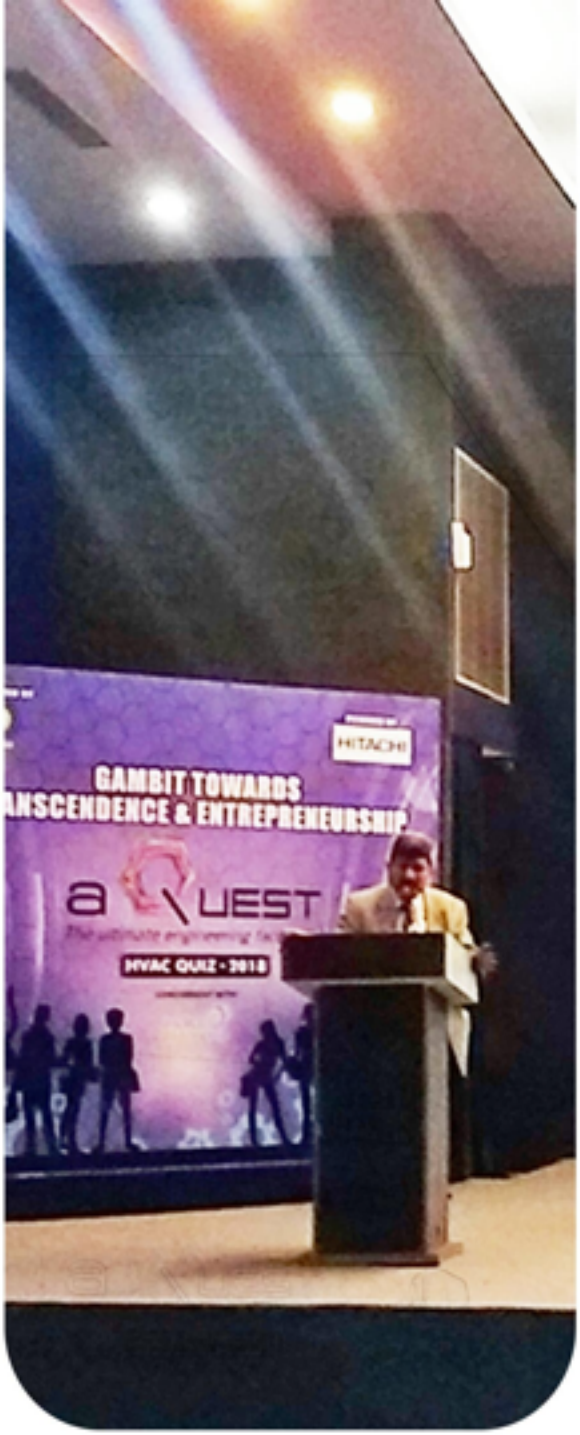
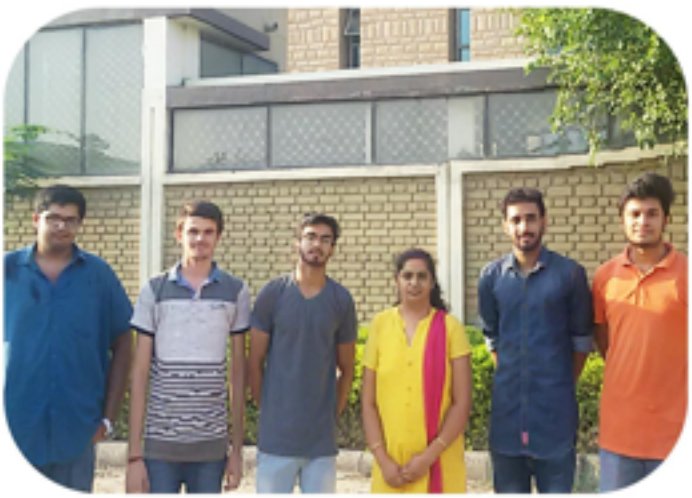


HMRITM
—
ISHRAE
STUDENT CHAPTER

HMRITM – ISHRAE student chapter has been working in the field of HVAC&R since its advent in 2011. Our students participated in the various events conducted by ISHRAE. This year ISHRAE- HMRITM student chapter organized Expert Lectures, industrial visit, Job junction, workshops, A Quest quiz, Ventconf (HVAC-RAC Conference) for its student members. Various distinguished Lecture Programs on the topics like Kitchen, Hospital and Hotel Ventilation, HVAC industry for Mechanical Engineers and Exhibitions were organized for the members to discuss, promote and display the state of the art technologies, systems, products and services. Invited talk on Cooling Towers by Rashtriya Udyog Ratan Winner, Mr. Subir Das (MD, Flowtech Pvt. Ltd) Outlined technical look into the functionality of cooling towers as a product of heat rejection. Students visited companies like Edgetech, Humidin as a part of HMRITM - ISHRAE industrial visit program.



IEEE HMRITM

IEEE HMRITM, the student Branch of HMRITM under the IEEE Delhi Section (Region 10) is continuously working for the enhancement of student's professionalism and career life.

Under the guidance and support of Branch Counselor, branch conducted workshops including Overview of MATLAB, Introduction to Programming using Scratch and participated in intra-college competitions like IEEE WIE Open House Project Exhibition and IEEE Delhi Section Congress. With that, as quoted "Knowledge can be acquired by eliminating the gap of Industry and College Academics". Under that consideration, IEEE HMRITM conducted an Industrial Training to Network Bulls, Gurugram to understand the basic concepts of Networking and Cloud Field by attending program under Practical Implementation on CISCO Packet Tracer Software.

Further, under the supervision of present Faculty Coordinator, Dr. Purnima Lala Mehta, the branch organized an Orientation Program 2018 followed by various workshops i.e. Introduction to PCB Designing and Fabrication and Introduction to IEEE Career Tools.

The main purpose of conducting such events/workshops/trainings program is to sharp the skillset of each student. Thereby, IEEE HMRITM with the support of HMRITM Family, is on the track to conduct various events, workshops and different trainings for the Technical/Non-Technical enhancement of student's career life.

Talk by Eminent Personalities

AICTE, New Delhi

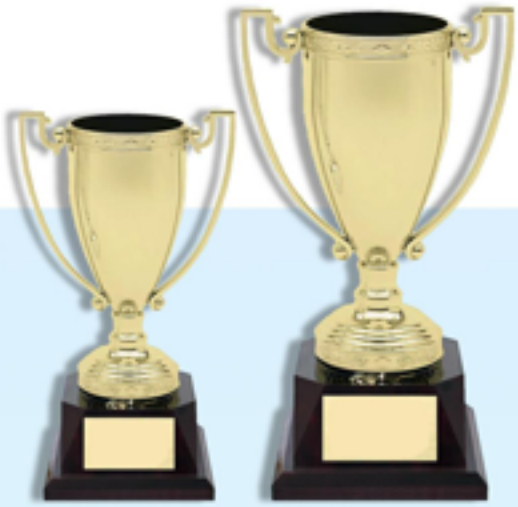
Students from various branches attended a talk by eminent personalities organized at AICTE Delhi on 6 Feb 2018 as one of the initiatives to motivate students and faculty towards development of technical and moral skills.. In this workshop Mr Virender [vedic NIP trainer] emphasized on non-existence of 'Impossible', citing examples from Swami Vivekanand, "It is wrong to say 'I' am weak or others are weak".

Another eminent speaker Dr Pradeep Deshpande, CEO from 'Six Sigma' dwelt on the management and implementation of Six Sigma. He spoke of his recent book, "A small step for man: Zero to Infinity with Six Sigma" which is on providing solutions for societies struggling with competitive challenges. He said, "To make a bench mark for technical brothers, go to ancient wisdom and Yoga."

PM Talk

It was a very invigorating experience for the students to attend honorable PM Mr NarendraModi's Interactive talk 'Pariksha Per Charcha'on 16 Feb 2018 at Talkatora Stadium. A group of students with Dr Kaushal Sharma and Ms Ekta attendedthe talk where Mr Modi cited the need of self-competition to improve ourself. "Indian child is a politician by birth, he knows how to persuade different family members to complete his work." Mr Modi emphasized on teaching or learning soft-skills as a part of General Intelligence. He said ,"Intelligence quotient is Natural but we have to necessarily develop 'Emotional Quotient' because now –a- days tolerance is less than anguish. The students were much delighted and elated to listen to the PM.

Hall Of Fame

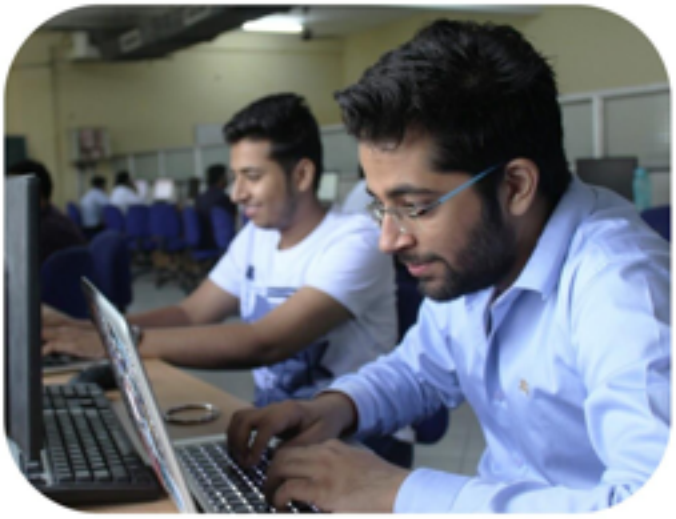


Academic Excellence 2017-18

B.Tech - 1st year	CSE	Deepanshu Bajaj	1st
B.Tech - 1st year	CSE	Vanshika Munjal	2nd
B.Tech - 2nd year	CSE	Aishwarya Kumar	1st
B.Tech - 2nd year	CSE	Chirag Malhotra	2nd
B.Tech - 3rd year	CSE	Kamakshi Arora	1st
B.Tech - 3rd year	CSE	Molisha Sachdeva	2nd
B.Tech - 4th year	CSE	Kannav Dhawan	1st
B.Tech - 4th year	CSE	Harshita Puri	2nd
B.Tech - 1st year	ECE	Rashmi Sharma	1st
B.Tech - 1st year	ECE	Saloni	2nd
B.Tech - 2nd year	ECE	Jaideep Puri	1st
B.Tech - 2nd year	ECE	Shubham Gupta	2nd
B.Tech - 3rd year	ECE	Apaar Gupta	1st
B.Tech - 3rd year	ECE	Tanmay Sharma	2nd
B.Tech - 4th year	ECE	Bhavna Kohli	1st
B.Tech - 4th year	ECE	Sakshi Garg	2nd
B.Tech - 1st year	EEE	Manish Aryal	1st
B.Tech - 1st year	EEE	Himanshu Rana	2nd
B.Tech - 2nd year	EEE	Anjali Upadhyay	1st
B.Tech - 2nd year	EEE	Shivani Goel	2nd
B.Tech - 3rd year	EEE	Ramanand Pathak	1st
B.Tech - 3rd year	EEE	Rupesh Kumar	2nd
B.Tech - 4th year	EEE	Aditi Mishra	1st
B.Tech - 4th year	EEE	Sanjoli	2nd
B.Tech - 1st year	IT	Tanmay Singla	1st
B.Tech - 1st year	IT	Hemlata	2nd
B.Tech - 2nd year	IT	Kanika Gupta	1st
B.Tech - 2nd year	IT	Shubham Kr Singh	2nd
B.Tech - 3rd year	IT	Rachit Mann	1st
B.Tech - 3rd year	IT	Atul Aman	2nd
B.Tech - 4th year	IT	Shobhna Sharma	1st
B.Tech - 4th year	IT	Ankit Kumar	2nd
B.Tech - 1st year	MAE	Dhrumi Pithwa	1st
B.Tech - 1st year	MAE	Rajat Bora	2nd
B.Tech - 2nd year	MAE	Pooja Yadav	1st
B.Tech - 2nd year	MAE	Amel Varghese	2nd
B.Tech - 3rd year	MAE	Sourav	1st
B.Tech - 3rd year	MAE	Tushar Singh	2nd
B.Tech - 4th year	MAE	Diksha	1st
B.Tech - 4th year	MAE	Richa	2nd

Evening Shift

B.Tech - 1st year	CSE	Arushi Uppal	1st
B.Tech - 1st year	CSE	Vansh Uppal	2nd
B.Tech - 2nd year	CSE	Anureet Kaur	1st
B.Tech - 2nd year	CSE	Archee	2nd
B.Tech - 3rd year	CSE	Gunjan Bahl	1st
B.Tech - 3rd year	CSE	Shubham Jain	2nd
B.Tech - 4th year	CSE	Rajat Gupta	1st
B.Tech - 4th year	CSE	Shubham Sharma	2nd
B.Tech - 1st year	EEE	Vishwajit Verma	1st
B.Tech - 1st year	EEE	Aditya Kumar	2nd
B.Tech - 2nd year	EEE	Vishu Singhal	1st
B.Tech - 2nd year	EEE	Prabhat Singh	2nd
B.Tech - 3rd year	EEE	Shivam Sharma	1st
B.Tech - 3rd year	EEE	Sourav Kumar	2nd
B.Tech - 4th year	EEE	Nikita	1st
B.Tech - 4th year	EEE	Ashish	2nd

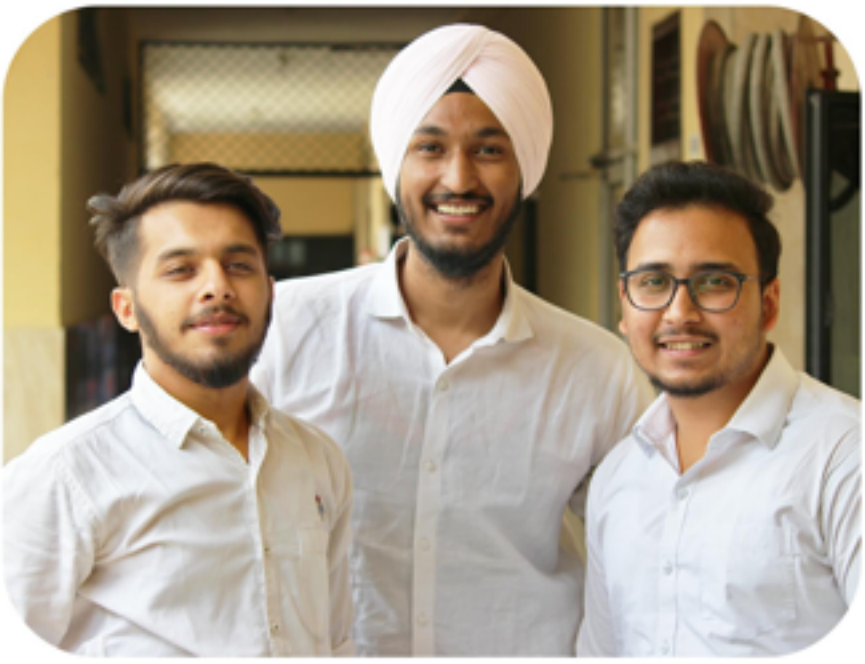


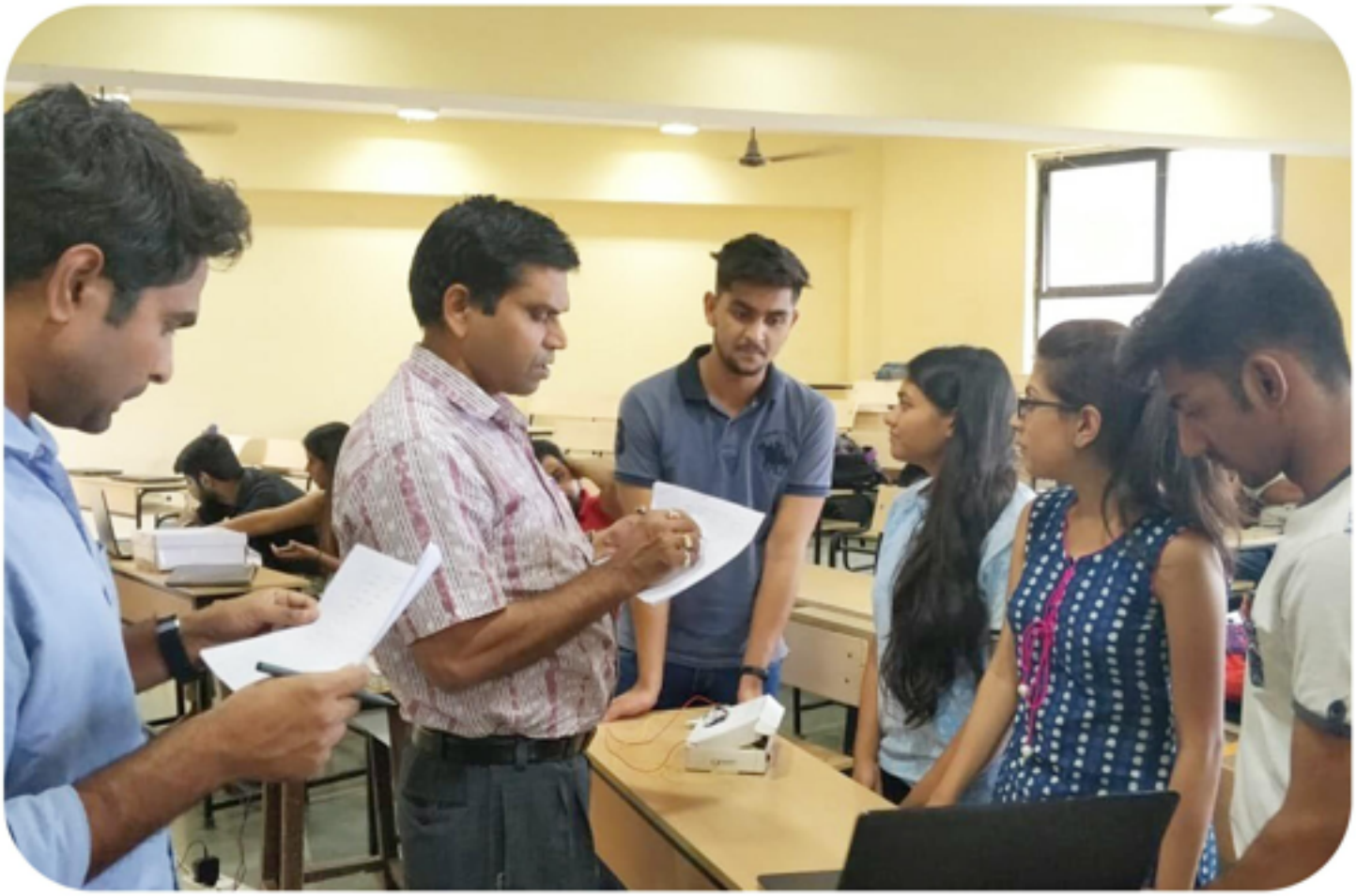
Tech Fest & Tech Expo 2018

Techfests at HMRITM have always been the best platform to showcase the technical, innovative prowess of the students. Like previous years this year also Tech Expo 2018 and Tech Fest 2018 were organized to promote and appreciate the technical projects of engineering students of various branches.

Technical Fest named "Tech Expo" was organized by Computer Science Department on 4th April 2018. The chief guest for the event was Mr. Nitin Wali who has worked with leading organizations such as IBM, Intel, and Oracle & Version, straddling roles across Marketing, Project Management and Sales,Alliances. The four major events of the day were "Project Exhibition", "Technical Quiz", "Coding Battle" and "Technical Paper Presentation" in which more than 300 students participated with utmost enthusiasm.

HMRITM organized its annual technical festival event Tech Fest 2K18 on November 02, 2018. Mr. Sanjay Singhal, GM Planning & Development, MTNL Delhi inaugurated the event. This year, the event was organized by EEE department.





Workshops & Seminars

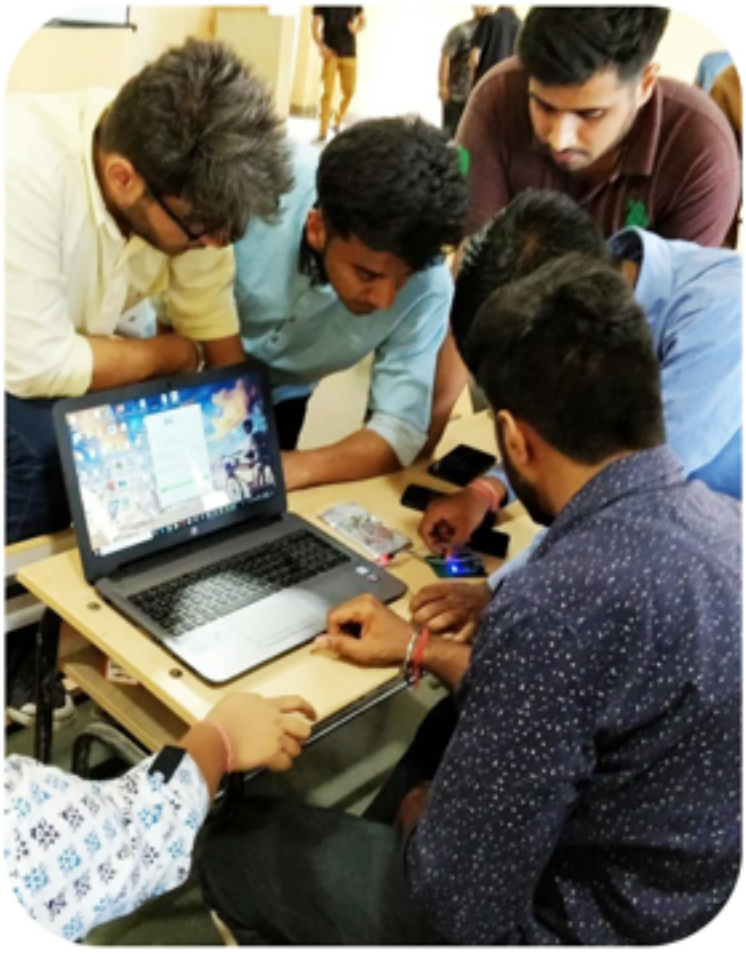
IEEE organized a workshop on **ARM MICROCONTROLLER** in HMR Institue of Technology and Management hosted by **I3INDYA TECHNOLOGIES**, where the students were taught how to program the arm microcontroller and manipulate it for various functions.

The participants were delighted when they got to practice on their own on the microcontroller kit which was provided by the coordinator. Along with the workshop the college organized an event titled "Code Breakers" in which students were asked to create innovative projects. Students were given suitable time and adequate workspace. The environment was filled with great, sustainable, new ideas and everyone present learnt either by performing or by interacting with fellow competitors. The students were focused and determined not only to win but also to learn new ideas and sharing their interests. The projects made by the students were evaluated by HOD of EEE Department.

The projects were analyzed on the basis of innovative thinking along with skills and techniques used to achieve success. Everyone had a great time exploring fascinating ideas, gaining knowledge and connecting with each other.

On 31st January 2018, a seminar hosted by the founder and CEO of the EMTECH FOUNDATION 'Mr. Naveen kumar' was organized on "Opportunities and Challenges for Employment of the Electronic Engineers" was organised,. The seminar covered all the new opportunities and challenges faced by electronics engineers, which turned out to be quite helpful for the students. The seminar also covered upcoming India's world skill competition in 2018.

Another Seminar on Sandwich Technology Model by Tecpxerts (a venture of Milestone Achievers Private Limited) was organised on 23rd March 2018. The Sandwich Model or the Sandwich Technique is widely used in corporate and international businesses to combine all the requisite knowledge and technology under one-roof. Three main parameters and technology which are at-par with the industry standards i.e. NetComm, ITSIM and Cloud Computing were focused. Students were imparted awareness about the main contents and benefits of these technologies.



Industrial Visits

In order to give an industry exposure to the students various Industrial visits are organized by different departments. Students attend the workshops and learn to work on new technologies by getting knowledge from various live projects.

Department of CSE organized an industrial visit to Network Bulls, Gurugram, Haryana. It helped the students understand the working of CISCO devices for Network Operation and Management.

This year Department of MAE organized a visit to " Edge Tech Air Systems Pvt Ltd", Bahadurgarh -an industry related to refrigeration and air conditioning system and another visit to the exhibition on Cutting/Welding Equipments, Consumables and Accessories at Pragati Maidan, Delhi to explore the knowledge in the field of cutting and welding technologies and equipments.

A visit to "All India High Power Transmitter", Nagli, Delhi, was organized by the department of ECE to make the students understand current market scenarios, and latest most-demanding technologies through an informative session on Transmission Lines and on Antenna.

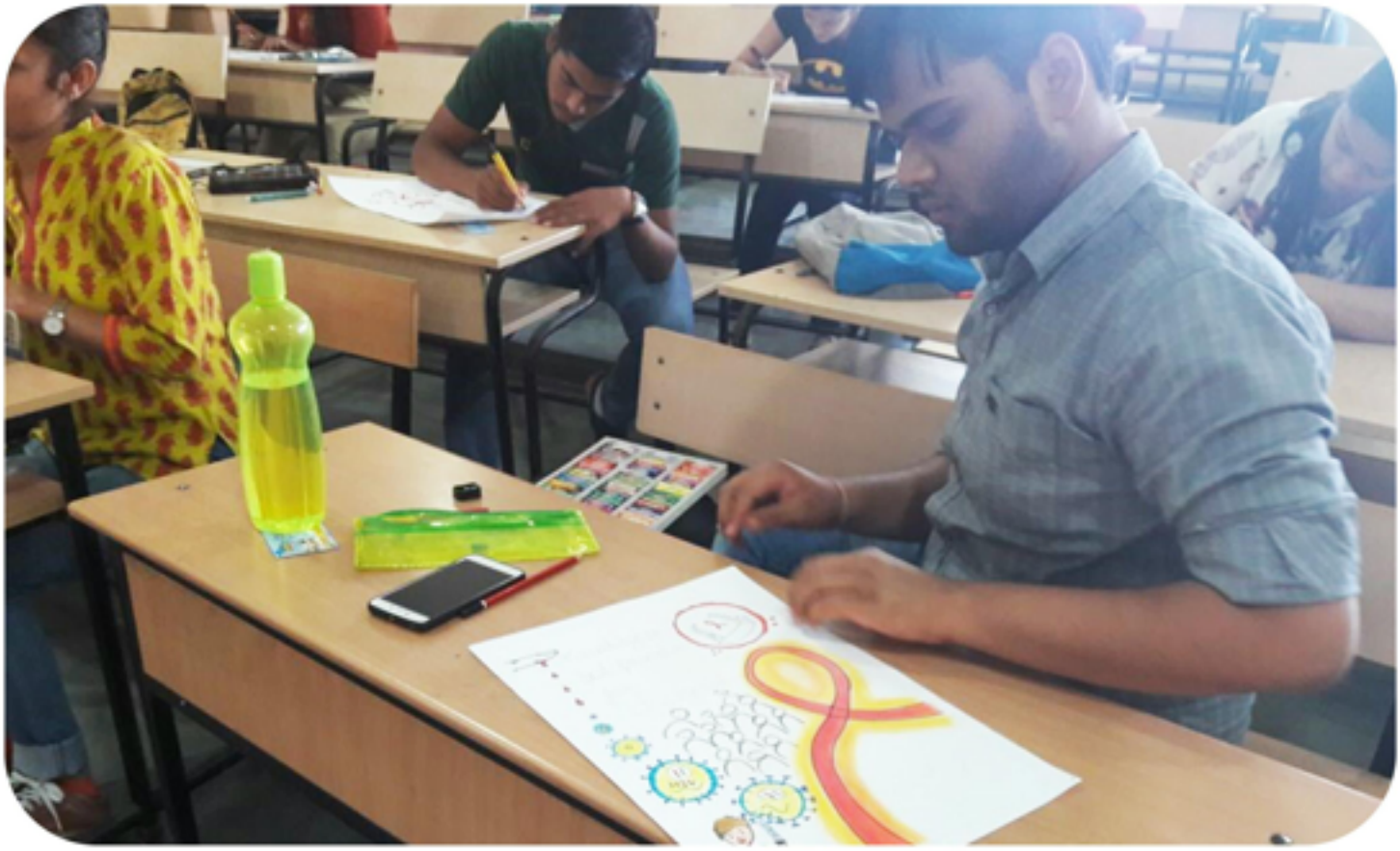
EEE department students visited Yakult Danone India Pvt. Ltd. Sonipat, Haryana to know the practical application of PLC and SCADA.

An educational visit to the Bio-Diversity Park, New Delhi also was organized for 1st year students by the Department of Applied Science.

The Pragmatic Indian Society

The Pragmatic Indian Society at HMRITM organized a couple of events in the busy schedule of engineering curriculum on 22nd April 2018.

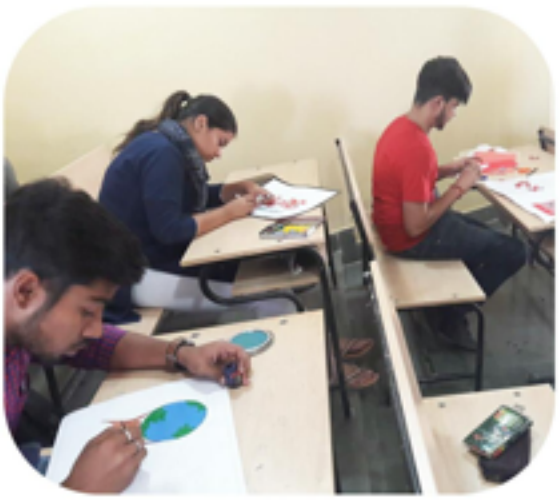
In the two mega events Melange and Labyrinth, a remarkable participation by the participants and audience was witnessed. The former had three while the latter had four fun events.

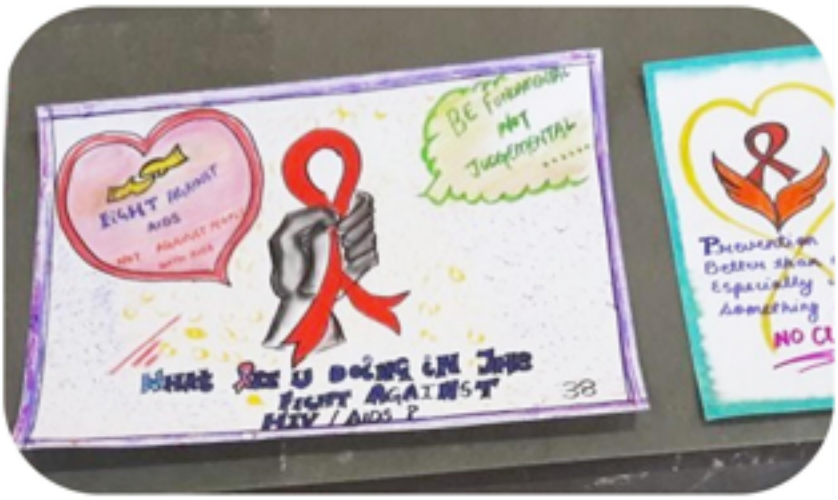


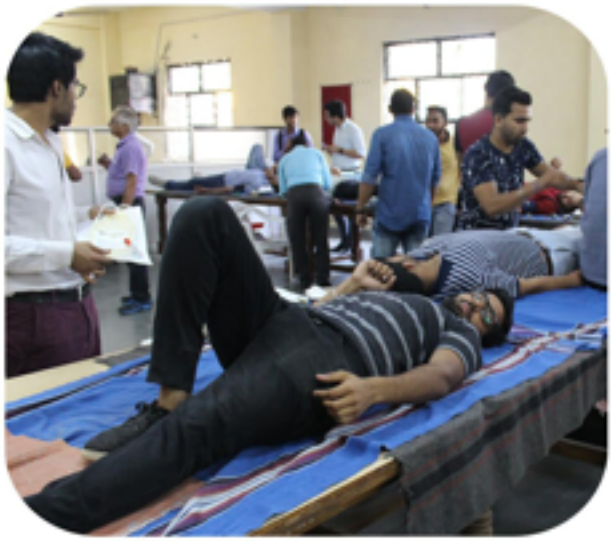
Melange commenced with a creative task of joining knowledge with junk to form some enticing piece of art. Next was an intellectual competition of Group Discussion showing the different views and opinions on various topics ranging from world politics to sports to fiction followed by the final round of Pictionary. Labyrinth had four events- Rapid fire on fan fiction, Minute to win it, Gluttony, and Hindi Mein Kehte Hain, all full of fun and frolic.

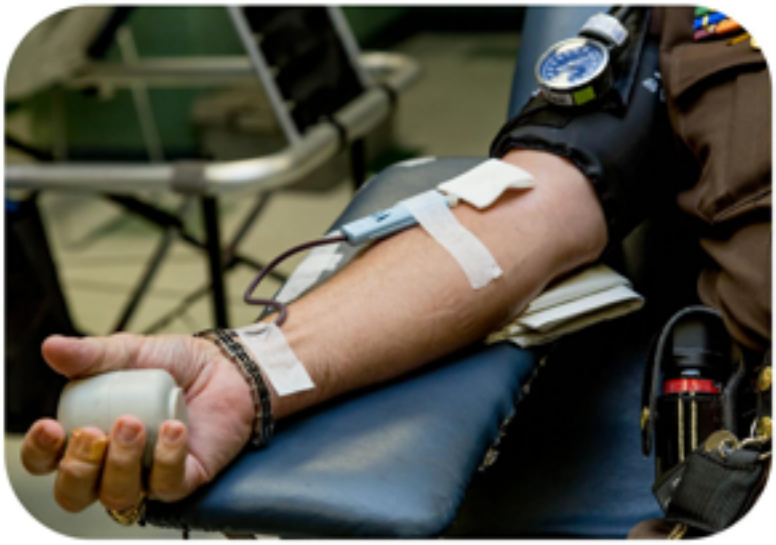
Poster Making Competition

Poster making Competition was organised on 28th March 2018 on "HIV Awareness". A number of students participated with great enthusiasm and made beautiful, motivational posters to convey the message.









Social Initiatives

Blood donation is one of the noblest and greatest donations a man can make. Blood donation is our life-sap. It has no substitute. Blood donation is not only has benefits toward society but also for the donor, as after donating blood the human body regenerates the blood after few days.

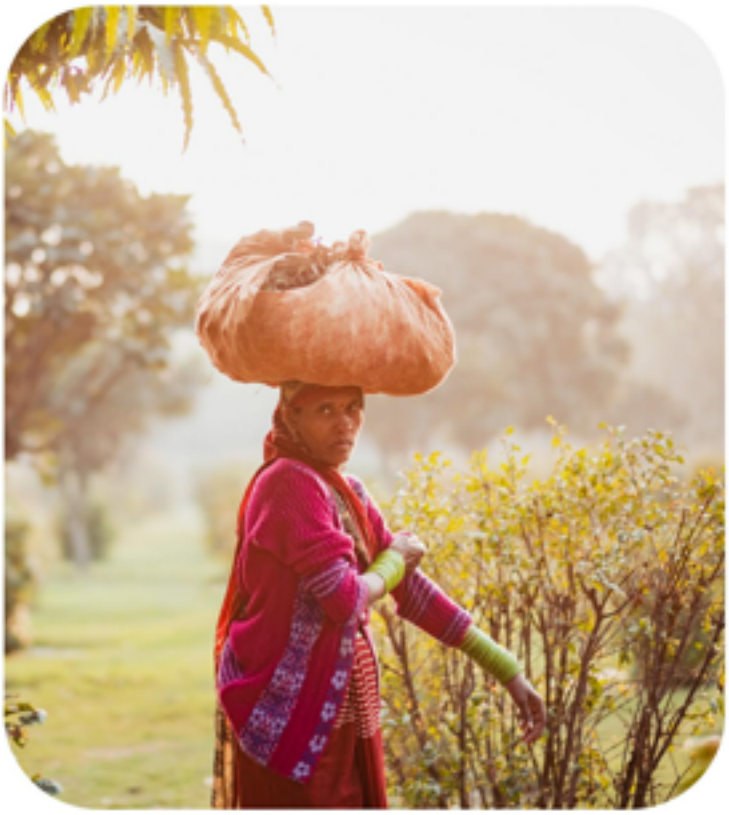
Rural Development and Digital India

In spite of poverty, poor infrastructure India is moving smoothly and feasibly towards digital India. But due to unawareness and some other known and unknown reasons the policy-makers in India tend to justify the adoption and expansion of e-governance in India. Obviously and truly e-governance is the key factor for the Good Governance in developed and developing countries like India.

E-governance has become the key to good-governance in a country like India. According to an Information System Auditor: Robert E. Davis," Developing and implementing IT governance design effectiveness and efficiency can be a multi-directional, interactive, iterative and adaptive process." Therefore, the ICT is being used to provide people with services of central agencies and central and state government departments. Several G2C and G2B plans are implemented to cut out the processing cost and to enhance reach. Large numbers of e-governance projects are governed to provide easy access to citizen services and improving government to citizen relationship.

E-governance allows policy-makers to reach people beyond social and economical barriers. There is tremendous potential for e-governance in India to provide citizens with benefits and facilities and also to improve governance.
Government of India has taken many steps to improve e-governance in rural India.
Central Government Initiatives such as Vikaspedia, 3 – Tier Implementation Framwork
State Government Initiatatives such a Gyandoot, Warana

There are number of challenges in implementing aforementioned initiatives. Information and communication technology (ICT) can be a help to meet good governance goal in India. Yet the potential largely remain unexploited till date that is because of reasons like: Lack of Standardization; Lack of Understanding; Lack of Infrastructure; Unawareness; Language Dominance and Security.



There is a need to improve the effectiveness. What is done is not sufficient, lots are to be done to reach each and every citizen of India. Few of the suggestions have been gathered such as - Common Service Centre (CSC) for providing multiple e-services of the government at a single location. Further lack of physical broadband connectivity and telecommunication infrastructure in rural areas only a few can avail benefits of e-governance. To improve e-governance in rural areas broadband connectivity is must.

Dr. Shafiqul Abidin
Professor & Head, IT Department

POEM

Lets Us Think Together

My heart aches and tears roll down
When I see the world around
How barbarous and cruel humans can be
Without any compassion, sympathy and dignity
No values, no ethics, no regards
Unscrupulous, contemptuous and fraud
Outrageous brutality has left us stunned
To throw the law and order into
The winds has become the greater fun
Protests, agitations, demonstrations prove to be futile
There is no one who could stand by the people
How disturbing and ruthless these incidents are
Justice for victims has not been given so far!
God! Sensitize their hearts to excruciating pain the girls suffer
Life indeed becomes traumatic, unbearable and tougher
God! Provide some tranquility and some peace to tormented mind
Pour your blessings and relief to them, being so kind.
Being so kind.

Muskaan Malhotra
IT 5th Sem

The Ganges

Descending from the Himalayas
All frisky and full of life
Transcending the meaning of just being a river
Wiping off red from people's life

From mounts to plains to the vast ocean
Spreading the divinity all over
Yet being scathed by the ones
Who call her their holy mother

Brought to this world by a saint
To get the salvation for the people of earth
Only to come this day to find
The Goddess of Heaven weeping here.

Tanish Kaushal
IT 5th Sem

The Crying Kashmiri Carpet

The roots of the carpet industry in Kashmir are deeply connected with the culture and economy of Kashmir. As per most historians, the industry owes its existence to Persian origin. The trade which has been handed down by the great artisans of Iran, flourished during the Mughal rule over Kashmir. The Kashmiri carpet is a product that has captured the hearts of people the world over, mainly on account of their intricate designs and durability. Apart from the traditional use of the carpet as a covering for the floor, it serves some other uses too, like that of wall hanging or as bedding.

The Kashmir carpet industry is a specialized industry, providing livelihood to a significant number of people residing in the area. Kashmiri carpets are comparatively more expensive on account of the materials used (wool and silk) as well as the elaborate production process involved.

Despite of its individuality and durability, the industry has suffered due to lack of financial resources, lack of modern technology in dyeing and designing, production of duplicate Kashmiri carpets, lack of skill up-gradation training as well as lack of innovations. Carpet workers are exposed to different types of health risks in different seasons of the year. Furthermore the plight of skill owner is worth considering. Exporters earn 1.5 lakh per carpet on the other hand artisans earn a meager Rs 80 per day. People are still engaged in this traditional industry of making carpets. Although Government did set up some looms but still the number was quite less than actually required. Many people have shifted to other industries in search of the livelihood of 1.5 lakh people is at risk. Moreover cheaper Chinese carpets have crushed the Kashmiri Carpet makers.

One of the most significant has been implementation of the Geographical indications (GI) act and the use of the Radio frequency identification tag (RFIT) –a measure designed to check the sale of fake Kashmiri shawls. There are NGOs supporting the artisans and raising their wage level. The funds allocated are not enough to help the industry to sustain long. The J&K bank announced an interest and mortgage free 18 months bailout package for the carpet industry artisans. The fact that J&K gets less grants and financial assistance for this sector than other states is also a big impediment. However, stocks of carpet have now piled up.

So, what is required is a series of steps such as exhibitions should be held,work on product development and marketing strategies.We have to create self help groups in the form of societies consisting of artisans. The ultimate aim will be to bring these societies in direct contact with the foreign buyers and show them the route to the export market. Such societies already exist in many states like Karnataka ,Kerela and Andhra Pradesh. India accounts for only 3% of the world's export market in which Kashmir can hardly be spotted whereas China's share is 30%. The Kashmiri carpet industry is very vibrant and has considerable potential for growth. If not helped, it will soon be seen as a lost art. Loss to India!

Vasvi Sharma
1st year, IT

Experience 360 degree leadership in oneself

"When all think alike, then no one is thinking."

-Walter Lippman

Introduction: Leadership

When you have something valuable to share with the world, people will start following you in that area and they let you feel like leader or guide. Leading people according to your vision is an art and requires lots of efforts physically, mentally and intellectually. World has shown us lots of leaders and their style of leadership and efforts have given a lot to the society. There have been many leaders: valuable and invaluable according to what they have given to the society. World need leader in different areas like politics, healthcare, manufacturing industry, spirituality and religion, finance etc. for its growth and development. Good leaders give direction to the society to how to think in particular direction. Society needs leaders to get enthusiasm in particular direction. I have read somewhere that good leaders are not those who create followers but make more leaders and I personally feel that good leaders must be able to make new leaders through him and if some leader is able to make one more leader, this is one of the important success of his life. This also proves that leaders are not born but developed within the society.

360 degree leadership

This concept was started by John C Maxwell, renowned management speaker. According to him, even if one is not at high position in industry, one can lead the industry from within.

When we are employee in the company, there are some colleagues, who are above us in rank, some are at same position and some are below us. Many of us feel powerless in leading those who are above us or at similar position. But, John C Maxwell says that even if one is at lower position or at middle management, one can turn out to be good leader. Influencing people from all side is 360 degree leadership. Feeling not powerless in front of seniors is important principle of 360 degree leadership. 360 degree leadership gives power to oneself to connect with employees of all level of the company.

Methods to develop 360 degree leadership

360 degree leadership initiates with the desire of leading all members of the organization. For this, one has something to share with the members of organization. One should understand the psyche of different members of the organization and should give something valuable to them. Getting trust and faith of every employee of an organization is important element of 360 degree leadership. For this, one should be able to take the responsibility of different colleagues. One should know how to make their colleagues happy. One should know how to help their colleagues. One should keep updating oneself and share his information through different tools with others.

Benefits of 360 degree leadership

360 degree leadership makes the person more responsible, happy, confident and inspired. This makes the person stronger and efficient in organization. This enables oneself to show leadership skills before he actually gets into leadership position. It gets the respect from every member of an organization. 360 degree leadership enables you to get fast promotion in the company. It enables one to understand the activities of organization in more matured way. 360 degree leadership makes one to be proactive and self-dependent. Chances for employees to get friendly to 360 leader is more. 360 degree leadership enables one to understand organization from all levels- lower, middle and higher and hence their decision will be more matured and successful.

Developing habit of 360 degree leadership

360 degree leadership can be learnt by anyone if one is ready to transform his habits according to required skills for 360 degree leadership. One should be ready to connect with all employees. One should be always prepared to share oneself with other colleagues. One should have an eye to see one's career in the vision of organization. One should know how to manage their emotions, time, energy, priorities and activities. 360 degree leaders are having loads of responsibilities on them and they should know how to lift those responsibilities. Lifting of responsibilities get you noticed and shows you as team player.

Impact of 360 leadership in organization

Organizations always need good leaders. Having leader from middle management is always beneficial for overall development of an organization. Most of the time, leaders are at top and they can plan high ideals for the company. But, to execute those goals, company needs many 360 degree leaders in middle management. 360 leaders are keen to tough jobs and give all efforts to get the results, which is always good for organization. 360 degree leader is ready to sacrifice personal goals for the development of organization. For 360 degree leaders, goal is more important than their role. Organizations always want to promote 360 degree leaders as they are more effective in terms of getting results. 360 degree leaders think beyond management and lead in terms of longer goals. 360 degree leadership help to push beyond limits.

Think beyond 360 degree leadership

Think one has become owner of the organization, how will then one will deal with the company? One will care for that organization as its own baby, shows concern for everything. Thinking beyond 360 degree leadership means the same. One should feel that organization belongs to oneself and every member of an organization is part of one's family. In this way, more responsibility will come to an employee. Managers are needed to teach to not to control but to release power to other employees. One should learn to listen the heartbeat of higher management and work in synchronization with the vision of higher management. Teach leaders to think- beyond 360 degree leadership!

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"Nature Of Mind & Soul"

Every mind has its nature. But we should not misinterpret the nature of mind as nature of soul. Mind by nature is always under turbulence because of sadness, excitement, jealousy, hatred, lust etc. But nature of soul is very peaceful. When human being is identified with mind, he or she feels the world is full of disturbing elements. But when human being is identified with soul, he or she feels lots of positive vibes within him like feeling of love, happiness, peace, ecstasy, etc. The process of renouncing mind and accepting soul as its nature is known as meditation. As soon as one goes deeper and deeper into this process, one starts entering into deeper and deeper meditation. This makes the human being receptive to more positive qualities of oneself.

Qualities of soul

Until a person learns the methods to focus mind on its soul, it doesn't feel free in oneself. He finds himself dependent on outside people, circumstances, etc. He doesn't feel self-integrity. He may not dare to take decision full heartedly. Some outside factors will surely influence his decision making. The being who is totally soul dependent is very strong minded too. He gets data / views from different sources of outside world like friends, relatives and environment but takes decision independently. Independent decision means reflecting on all the information one has got from outside and take decision accordingly. This reflection is unbiased, deep, creative, innovative and of full of self-learning. Others will start finding some uniqueness in the nature of that person. This person does not run, where whole world is running but make its own path and on later stages, he himself and others around him realize that the path chosen by him is the best path for him. The path one chooses should totally be based upon analysis of his own nature, it should not be only according to other's advices. Sometimes parents force their children to do that which is not according to their nature. In result, child gets uncomfortable and never succeeds in life. Actually, parents should not take decisions for their children, but teach the child how to understand his nature and act accordingly. Even in Bhagavad Gita Lord Krishna has taught to work according to one's own nature. Whole Bhagavad Gita was based upon how to understand one's own nature and take decision accordingly.

Dealing with outside theories

There have been many renowned thinkers who have given their commentaries on soul and mind analysis on the basis of their own experiences. One should always try to expose the mind to those theories. It will help them to reflect more and more in their life. But one should not get dependent on those theories or thinkers. One must understand that what others are saying are their own experiences. Everyone has to find its own way according to its nature. No one can live life of other person, no matter how much connected you feel to the other person. Even in some strongly bonded teacher student relationship, teacher understand that deep inside student and he himself are same, but still he respects the uniqueness of his

student and after teaching student, he expects his student to find his own path.

Types of minds

Can human mind know the soul? This is very important question. Spirituality reveals that spirit reveals itself after seeing how much genuinely that human mind put efforts, but human mind on its own can never understand soul. And this truth is accepted by many mystic thinkers after self-experience, as revealed by them through their talks and books. Different minds have different ways to know the soul. Some minds are emotional and they understand soul through deep love to its ideal, guru or idea. Some minds are rational, and they see things so objectively rejecting all emotions with truth. They do scientific study of soul and finally experience the soul. But most of the souls are mixed and they follow the mixed path of emotions and rationality. And through correct understanding and efforts, they too reach the destination.

Psychology and spirituality

Interaction of soul with mind is also a very interesting phenomenon. Thoughts in mind vibrate through the help of soul. Soul itself does not transform the thoughts, it just exposes the state of mind according to qualities of mind: Goodness, Laziness, Passionate in a mixed form by these different qualities and it is in purest form within. It is like electricity (as soul) flowing through different electrical appliances (as minds). Different electrical appliances act according to its inner qualities and their application is due to purest form of electricity. Electricity does not interfere in the applications of appliances, it just energize the appliance to work on its own nature. Similarly soul doesn't interfere with the workings of human brain, it just activates it. At the time of death, brain stops expressing itself as if the source of its expression has gone out of the body. This gives us validation that brain and soul are two different things. This gives rise to two different sciences in terms of mental plane: Science of brain or human mind (Psychology) and Science of soul (Spirituality). In other words, mind and soul communicate with each other so intricately that even though mind and soul are separate, they seem inseparable. Only through thorough understanding, one can reach the experience, where he sees everything separate from soul and at that time, he himself is identified with its purest nature called soul. That stage is a state of nirvana. That stage is so blissful and beautiful and gives the experience and feeling of heaven within himself, even though outside he may be living in hell environment. This was what was experienced by Jesus Christ even at the time of His crucifixion.

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"Great minds discuss ideas;
average minds discuss events;
small minds discuss people."

- Eleanor Roosevelt

Non-violence - The Gandhian way

"Happiness is when what you think, what you say, and what you do are in harmony."

"Resist tyranny wherever you find it by all means resist encroachment upon your liberty, but not by shedding the blood of the tyrant. This is not what is taught by our religion. Our Religion is based upon Ahimsa, which in its active form is nothing but love. Love not only your neighbours, not only your friends, but love even to those who may be your enemies'.
This was the message given by M.K. Gandhi to humanity.

He knew that he was not teaching something new; Being a firm believer in truth and non-violence, he applied it with utmost sincerity to tackle all problems faced by society. He strongly believed that ahimsa was not a weapon of the coward. Hence he clarified that 'I am not pleading for India to practice non-violence because she is weak. I want her to practice non-violence being conscious of her strength and power'.

He only wanted to diminish the gulf between, belief and behaviour. He wanted man to follow the relative truth persistently, which he called Satyagraha, Hence he fearlessly scattered the seeds of non-violence amidst the masses. Gandhiji trusted the people because it was his living faith that there was in every human being a spark of Divine which would respond to the call of love in action. So complete was his faith that he considered it a remedy against all social evils.

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The lover of peace said 'Do not kill the sinner. This will double the sins. Instead fight against the sin with all your determination and strength'.

"In a Gentle way you can Shake the World."

-Mahatma Gandhi

With the genesis of the Gandhian movement for the freedom of India based on
Satyagraha or the holding on to truth, came not just India's independence but
also emerged a personality, a point of hope for the human future in a strife torn world.

'If we are to make progress, we must not repeat history but make new history. We must add to the
inheritance left by our ancestors. If we may make new discoveries and inventions in the phenomenal
world, must we declare our bankruptcy in the spiritual domain? Is it possible to multiply the exceptions
so as to make them the rule? Must man always be brute first and man after, if at all?

Shikhar Singh Tondak
ECE 3rd Sem

Peace Of Mind

"Best decisions are taken when we're calm."

Lord Buddha used to travel from one town to another with his followers. During one of the visits they happened to pass a lake. They stopped there and Buddha told one of his disciples, "I am thirsty. Please get me some water from that lake there".

The disciple walked up to the lake. When he reached it, he noticed that some people were washing clothes in the water and, right at that moment, a bullock cart started crossing the lake right at the edge of it. As a result, the water became very muddy, very turbid. The disciple thought, "How can I give this muddy water to Buddha to drink"! So he came back and said to Buddha, "The water in there is very muddy. I don't think it is fit to drink".

Buddha said, "Don't worry. Let us take a little rest here under the tree." After about half an hour, Buddha asked the same disciple to go back to the lake and get him some water to drink. The disciple obediently went back to the lake. This time he found that the lake had absolutely clear water in it. The mud had settled down and the water above it looked fit to be used. So he collected some water in a pot and brought it to Buddha.

The Buddha looked at the water, and then he looked up at the disciple and said, "See, You let the water be and the mud settled down on its own. You got clear water. It didn't require any effort".

Moral: Your mind is also like that. When it is disturbed, just let it be. Give it a little time. It will settle down on its own. You don't have to put in any effort to calm it down. We can judge and take best decisions of our life when we stay calm.

Aniket Rana
IT 1st Sem

Wonders Of Life

"Value what you have, use what you have and trust what you have."

Anna was a 9-year-old girl from the small village. She finished attending elementary school till 4th grade at her village. For the 5th grade onwards, she will have to get an admission in a school at a city nearby. She got very happy knowing that she was accepted in a very reputed school in a city. Today was the first day of her school and she was waiting for her school bus. Once the bus came, she got in it quickly. She was very excited.

Once the bus reached to her school, all students started going to their classes. Anna also made it to her classroom after asking fellow students for direction. Upon seeing her simple clothing and knowing she is from a small village, other students started making fun of her. The teacher soon arrived and she asked everyone to keep quiet. She introduced Anna to the class and told that she will be studying with them only from today.Then the teacher told the students to be ready for the surprise test now! She told everyone to write down the 7 wonders of the world. Everyone started writing the answer quickly. Anna started to write the answer slowly.

When everyone except Anna had submitted their answer paper, the teacher came and asked Anna, "What happened, dear? Don't worry. Just write what you know as other students have learned about it just a couple of days back".

Anna replied, "I was thinking that there are so many things, which 7 I can pick to write!" And, then she handed her answer paper to the teacher. The teacher started reading everyone's answers and the majority had answered them correctly such as The Great Wall of China, Colosseum, Stone hedge, Great Pyramid of Giza, Leaning Tower of Pisa, the Tajmahal, Hanging Gardens of Babylon etc

The teacher was happy as students had remembered what she had taught them. At last the teacher picked up Anna's answer paper and started reading.

"The 7 Wonders are – To be able to See, To be able to Hear, To be able to Feel, To Laugh, To Think, To be Kind, To Love!"

The teacher stood stunned and the whole class was speechless. Today, a girl from the small village reminded them about the precious gifts that god has given us, which are truly a wonder.

Nitin Tyagi
IT 1st SEM

Modern Woman in Megacities of India

She is modish and particular, a straphanger, an eager beaver, hefts responsibilities over her shoulders of being a nine to five as in coequally represents the devoir of perfection in the home. In dungarees or culottes; no matter, she represents her western procurement in sustenance with her cultural modesty. She suffices incessantly to earn her self - respect by educating herself and manifesting her career into visible solidity. Indeed, she is buoyed up by her family to reach to the epochin every sphere that also professes her to enable herself as a complete engineer of the systems belong to her life. She is nurtured in the way that she becomes capable of taking right decisions to live with confidence and dignity in the modern age thus outshining her abilities as a modern woman especially in the megacities where she is either born or migrates to.

However, amidst the superstructure and winsomeness of the megacities, she feels the lack of the ambience of gender sensitization because of the prevailed "historical monotony of phallocentrism" that still looks down upon her as "a mere commodity". It is ironical because a modern woman renders an indispensable aid to the society in unison. She is a consistent succor to her parents, teaches her siblings and befriends all in need. When ties herself in nuptial, she propagates a sense of grit and concentration to her "in-laws" and her "husband".

"I am no bird, and no net ensnares me. I am a free human being with an independent will"

- Charlotte Brnte, Jane Eyre

Besides, she also begets a neonate in the form of a "boy" that later acquiesces "the real world" or unfortunately a "girl" for a societal genesis. She is also a helping hand in the times of economic demand. She is dexterous to handle every chore satisfactorily. She fulfills the in - exorable necessity of nature and society equally but if she speaks to demand "a room of her own"; she is hailed as 'a free woman'that has no affirmation of representing her as an independent human being living in freed India rather sarcastically 'free'is seen as 'too free' or implied as 'fallen'.

A modern woman seeks her space so as to commune to the society with her frame of mind. She pursues a vocation and excels in the succinct expressions of her progression in the modern society.

In her cognizance, she competes in the global world which is still, unfortunately, exists as the male dominating society. A modern and independent woman who liberates herself from every clutches of the patriarchal domain and is an autoist not allowed in Indian domain. She is "Nirbhaya"; hope for her destitute parents but a mere submissive marionette for regnant dominating men who see women only as 'object'. She is brave and craves to bring her existence in recognition, but while planning mega for her future or her nation, she misunderstands in her naivety; in what equation men still consider her; to rpefy her aspirations and her advent of herself as a 'self-sufficient human'.

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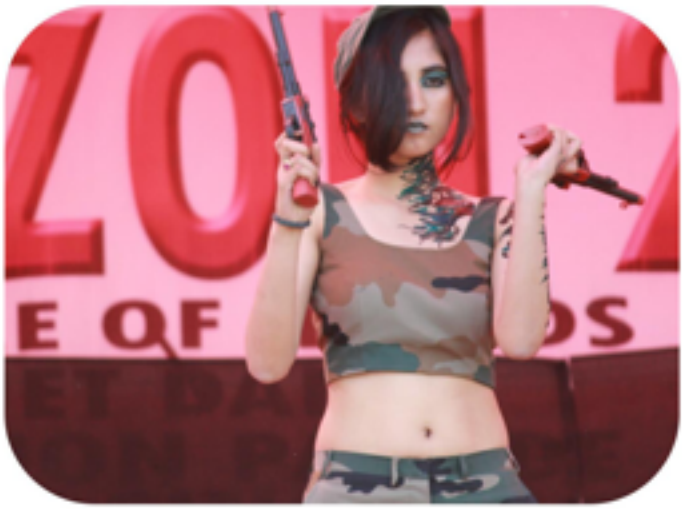


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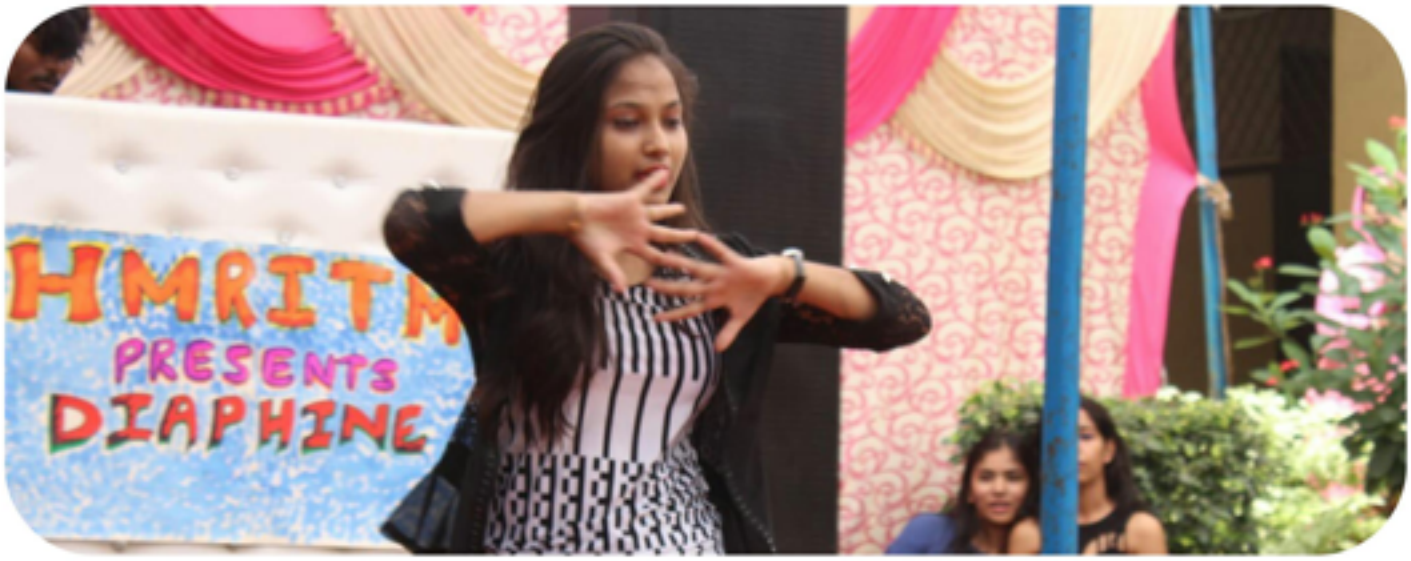

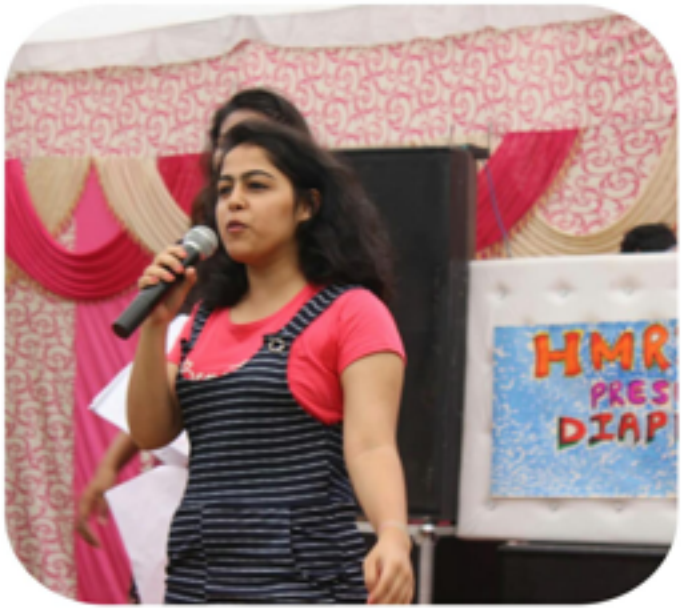

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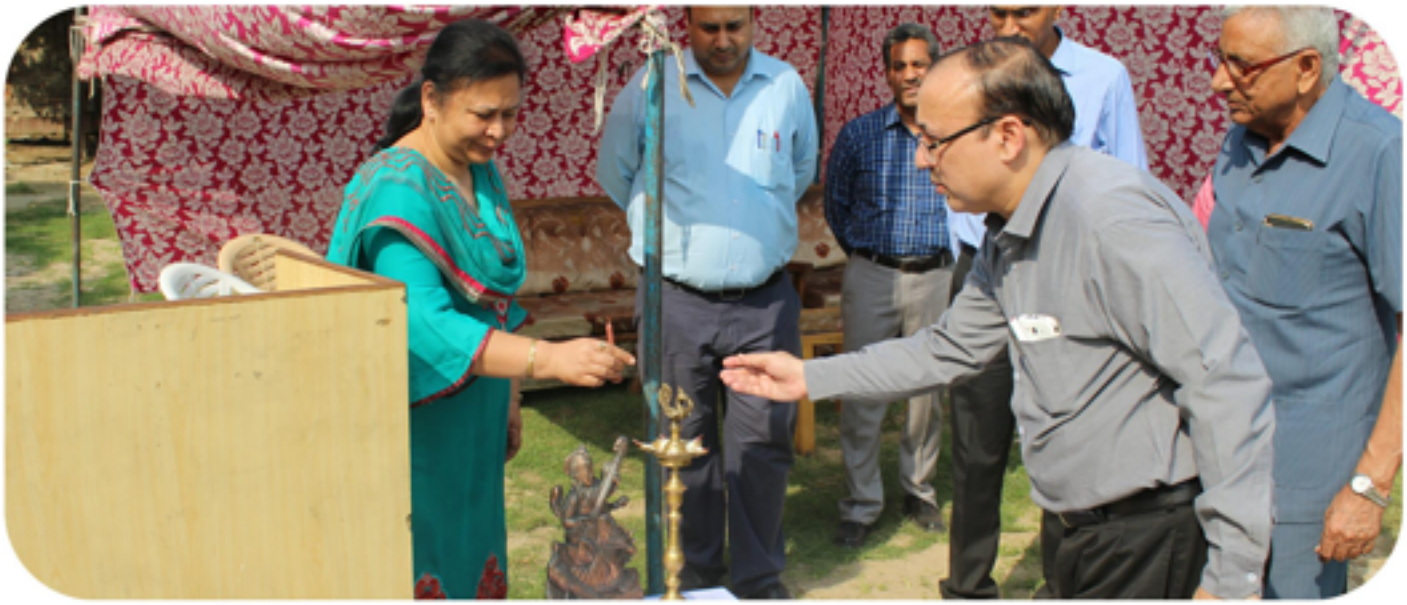
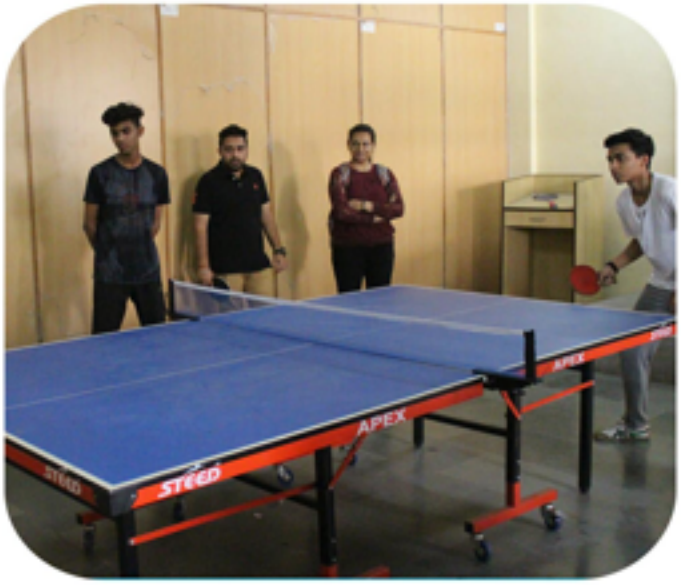
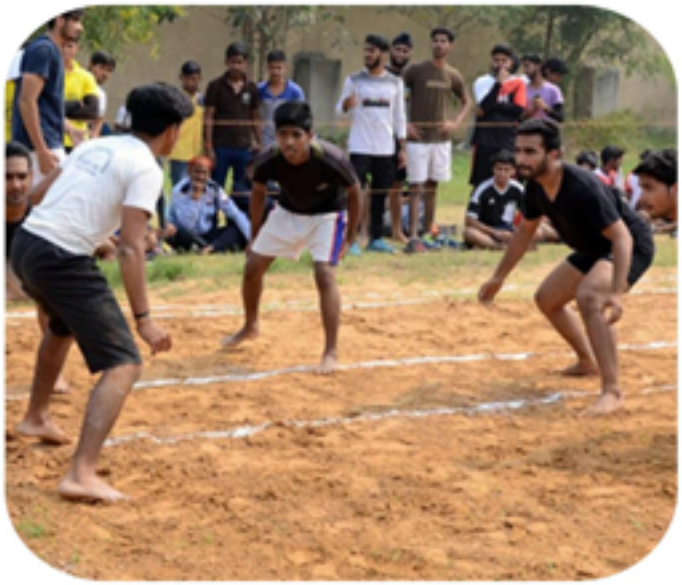
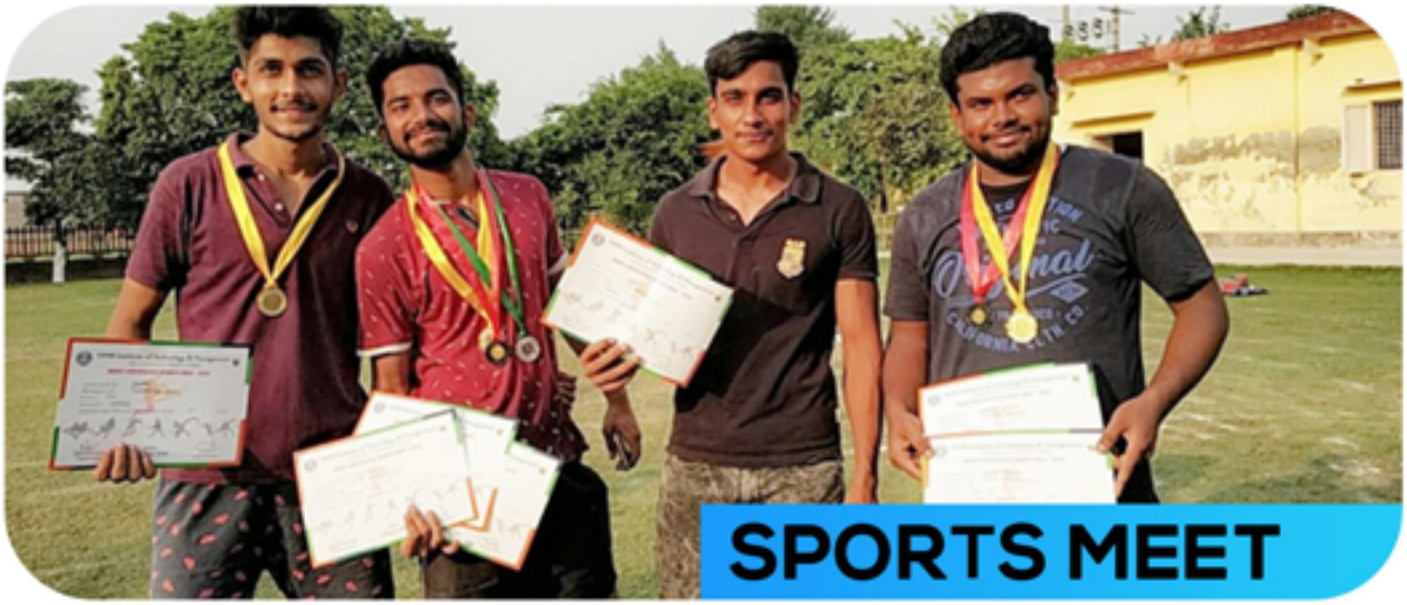




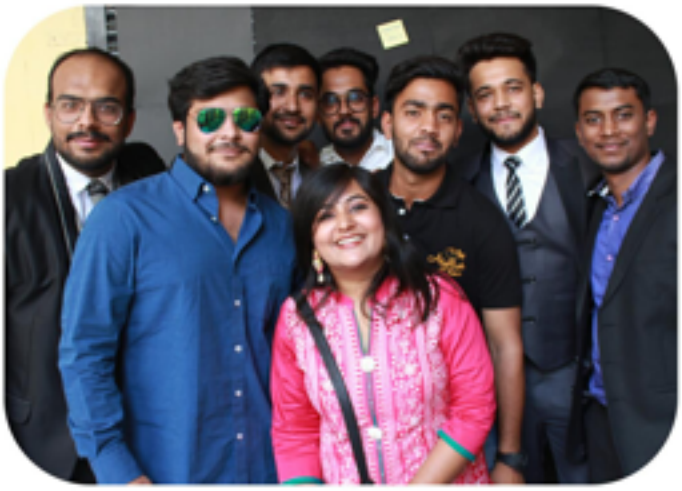


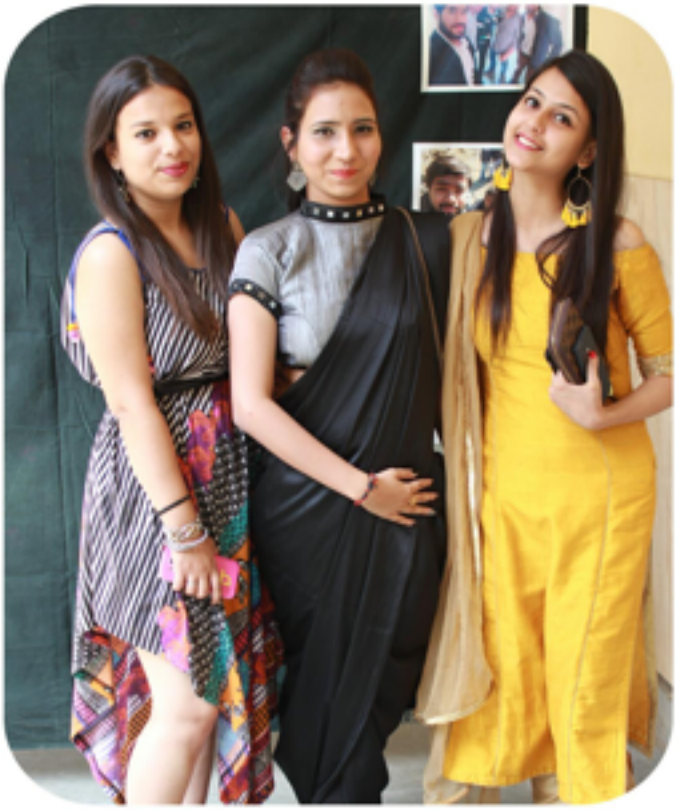


SPORTS MEET


HMR INSTITUTE


MARVEL-2005






FAREWELL

RFID: A replacement to Bar Code

RFID systems are closely related to the smart cards. Like smart card systems, data is stored on an electronic data-carrying device – the transponder. However, unlike the smart card, the power supply to the data-carrying device and the data exchange between the data-carrying device and the reader are achieved without the use of galvanic contacts, using instead magnetic or electromagnetic fields. The underlying technical procedure is drawn from the fields of radio and radar engineering. The abbreviation RFID stands for radio frequency identification, i.e. information carried by radio waves. Due to the numerous advantages of RFID systems compared with other identification systems, RFID systems are now beginning to conquer new mass markets. One example is the use of contactless smart cards as tickets for short-distance public transport.

RFID (Radio Frequency Identification) is a technology for automated identification of objects and people. Human beings are skilful at identifying objects under a variety of challenge circumstances. For example, a bleary-eyed person can easily pick out a cup of coffee on a cluttered breakfast table in the morning. Computer vision, though, performs such tasks poorly. RFID may be viewed as a means of explicitly labeling objects to facilitate their "perception" by computing devices. An RFID device – frequently just called an RFID tag – is a small microchip designed for wireless data transmission. It is generally attached to an antenna in a package that resembles an ordinary adhesive sticker. The microchip itself can be as small as a grain of sand, some 0.4mm2 [1]. An RFID tag transmits data over the air in response to interrogation by an RFID reader. In both the popular press and academic circles, RFID has seen a swirl of attention in the past few years. One important reason for this is the effort of large organizations, such as Wal-Mart, Procter and Gamble, and the United States Department of Defense, to deploy RFID as a tool for automated oversight of their supply chains. Thanks to a combination of dropping tag costs and vigorous RFID standardization, we are on the brink of an explosion in RFID use.

Radio frequency identification (RFID) allows the identification of multiple RFID tags simultaneously. The detection or recognition method is performed through a wireless channel without requiring line-of-sight alignment. Compared with traditional method for object identification—barcode, RFID systems have multiple amazing features. RFID tags can be identified automatically and simultaneously in spite of light, whereas barcode requires an attendant (person) to scan codes through line-of-sight one by one to identify the codes. These features improve efficiency of an identification system significantly. Moreover, RFID tags can identify every single object with a unique ID, while barcode possesses limited capability in this aspect. Barcode is usually used to identify one type of items. For example, the same type of Cadbury Chocolates has the same barcode in a mall nowadays. In future, it is possible that every chocolate bar is attached an RFID tag with a unique ID. In this way if a customer meets a problem with one chocolate bar, not only does the mall's supervisor know exactly that there is a problem with chocolate bar, but also he knows exactly which bar has the problem.

These attractive features along with others like meager implementing costs, flexible and manageable, computer processing etc. in RFID Technology are being preferred over traditional options. Recently several RFID systems are extensively deployed worldwide, namely for assets tracking (e.g. Air Canada decided to use this technology to control their food trolleys so as to reduce more than $2 million in unexplained losses [3], manufacturing (e.g. Boeing uses RFID to track parts as they arrive, and as they move from one shop to another within their facilities, thus reducing errors and the need for people to look for parts [4], supply chain management (e.g. Paramount farms, the largest producer of pistachio in the US, receives 50 per cent of its production from a network of about 400 partners; the shipments are processed by using RFID that reduces processing times to up to 60% [5]), retailing (e.g. Walmart started to explore the RFID technology in 2003 and devoted at least three billion dollars to implement it [6]), and for other applications such as payments, security and access control.

The RFID technology has the potential to collect trajectories of moving objects. But it differs from other positioning systems like the GPS, RFID system does not continuously track a moving object. But RFID readers located at different locations or waypoints create trajectories by identifying tags passing through those waypoints. All the aforementioned advantages have been attacked by security and privacy threats. RFID tags are resource-constrained devices that respond to any reader interrogation through an insecure channel.

This means that both the data stored in the tags' memory and the data transmitted to readers cannot be protected by cryptographically strong primitives and/or large key sizes. Instead, lightweight cryptography requiring no more than 3000 logic gates should be used [7]. In this scenario, the privacy of tag bearers could be seriously compromised by disclosing the individual's locations or other sensitive information contained in the RFID tag's memory. Moreover, other security risks like tag impersonation and counterfeiting increase due to the lack of randomness and computational power in the tag's side. This is particularly problematic if we consider that millions or billions of tags should be managed by typical RFID applications (e.g. for supply chain management or inventory control). That is why many other RFID identification protocols have been proposed aimed at being secure and private, yet scalable. Nevertheless, none of them has achieved those three goals at the same time [8], especially when strong privacy definitions must be met. In the present dissertation, efforts are being made to design such algorithms that improve the security, privacy and defensive against different attacks.

There are number of attacks on RFID means that even assuming secure, private, and scalable RFID identification/authentication protocols at the application layer, there exists the need for designing protocols that thwart the challenging attacks. It is estimated that in the near future, millions of RFID tags will transmit information to thousands of RFID readers so as to enrich our interaction with the environment and make our processes more efficient and resilient. Therefore, gathering huge databases of trajectories by using the potential of the RFID technology to track moving objects will be a reality. Analyzing this kind of databases can lead to useful and previously unknown knowledge [9].
An RFID system is supposed to identify and track objects by using radio waves. Similar to other identification systems such as barcodes, fingerprints or eyes' iris, the reader (RFID reader) reads from some source of identification data (RFID tag). Then, the identification data are usually processed by a data processing subsystem or server. However, RFID systems outstand from other identification systems because they may be nearly as cheap as barcode systems, use a wireless channel like GPS or GSM, and have some computational capabilities like magnetic cards. That is why more and more attention has been paid to this technology in recent years. In technical terms, an RFID system consists of three key elements:

RFID can be applied to 5 market spaces.

- Work in Process Manufacturing (WIP)
- Asset Supply Chain Management
- Management
- Security and Control Access
- Consumer Applications

RFID	Barcode
No need of Line-of-sight	Need Line-of-sight
No human-intervention	Need human-intervention
Proceed in Bulks	Proceed one by one
Identify objects in item-level	Identify objects in type-level
Wireless	Closely scanned
Low cost 5 cents, recycled	Low cost, unrecycled
People unconsciously scanned	People consciously scanned

Intuitively, all objects to be identified shall be physically tagged with RFID tags. Then, RFID readers should be strategically distributed to interrogate tags where their data are required (e.g. a bicycle race timing system needs to place, at least, a reader at the start line and another one at the finish line). Other properties, namely readers' interrogation field size, computation capabilities, and memory size of tags, vary from application to application.

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Satelite Based Automatic Weather Station

Weather is complex phenomenon & mercurial. So monitoring it by traditional methods of surface laboratory is difficult. Also due to variation of different landforms, sometimes it becomes difficult to establish surface observatories. Also cost of operating these surface laboratories is high. So, need of Automatic Weather Station (AWS) /Automatic Rain Station Gauge (ARG's) arises. This AWS/ARG operates without human interference and use a communication mode to transfer collected data to server. These models include Satellite Mode GSM/GPRS Mode & Landline Mode. Another mode of communication IOT has become a promising choice with advancement in technology.

AWS/ARG systems are unmanned surface weather data collection centres, which operates collects data via. Various sensors attached to it, and transmit it to a centralized location for further processing. Collects & transmits weather data at pre-set intervals. It enables regular measurements from remote areas, due to the solar panels, rugged batteries and advancing modes of communication. Technology has made it possible to have wireless stations that are not connected to the electrical grid or hard-line telecommunications network. The surface weather data can be collected with a very accuracy & frequency. Automatic Weather Stations (AWSs) are versatile units/ stations that save both time and effort by collecting weather data at regular pre-set intervals without any human intervention. IMD is the principal agency responsible for meteorological observations & weather forecasting. IMD is also one of the six Regional Specialized Meteorological Centers of the World Meteorological Organization. It has the responsibility for forecasting, naming and distribution of warnings for tropical cyclones in the Northern Indian Ocean region, including the Malacca Straits, the Bay of Bengal, the Arabian Sea and the Persian Gulf. In the interest of the public services, IMD is constantly upgrading its surface observatory network as per the existing technology. With the technical support of IMD, many state governments & other government & private agencies are also installing & maintaining AWSs for a wide range of cover of Surface weather data. IMD has already conceptualized the IOT & it is also in the process of setting IOT based AWSs.

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"Success is on the far side of Failure."

-Thomas Watson Sr.

Big Data

In the age of computers, While sharing the data be it a particular game or some software , We often say that this file is too big when the size of that file exceeds to few GBs but is it really big? Coming to the term big data you can consider any data as a big data when the size of that data is so large that you cannot process it using the commonly used traditional data analyzing software. Let us take an example suppose you want to arrange the books of you books self in some defined order, you can easily do it in few hours but if you are asked to arrange books in the huge library it might take few years and even if you are able to arrange those books the probability of finding the error is very high here the library of books represents big data. We all use internet when we need to search for some information, but have you ever wondered how much of the information is there on internet? Considering only the huge data storage giants like Microsoft , Google etc the data is estimated to be around 1200 million gigabytes .So is 1200 million gigabytes is a big data ?Perhaps yes, this data is so huge that it cannot be stored in a single machine. Such big data analysis requires highly efficient software frame works like Apache Hadoop ,Statistica and other softwares like that. Coming to the humans we have the capability to store a whooping 150 trillion Gigabytes of data .There is perhaps no end to the information and using this information a huge amount of data is generated each day .The amount of data generated each day is estimated to be around 2.5 exabytes. Amount of data that we have to deal is increasing and the concept of big data is just a beginning for the vast ocean of data which is yet to be analysed.

Raunak Goswami
CSE-4A

Blockchain Technology

Blockchain is a new type of database. The reason why there is such a call for this new type of database is because it solves the previously unsolvable double spending problem without a middleman, opening up a range of new possibilities. Blockchain was invented by Satoshi Nakamoto in 2008 to serve as the public transaction ledger of the cryptocurrency bitcoin. The bitcoin design has inspired other applications and blockchains which are readable by the public are widely used by cryptocurrencies. Private blockchains have been proposed for business use. Some marketing of blockchains has been called "snake oil". A blockchain is a decentralized, distributed and public digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the consensus of the network.
In this database the data is saved in a block, which in turn is linked to other blocks in a chain creating the blockchain. To secure the blockchain a system called proof-of-work is used. In short this means there is so much work (i.e. processing power) needed to find a block, it is virtually impossible to alter the blockchain afterwards. This work is done by so called miners who -when they find a block- get a small payment for their effort. Blockchain does have some important aspects to keep in mind. For instance what is saved in blockchain can never be removed or altered. Depending on the cause, this can either be a major advantage or disadvantage. Blockchain can even be damaging to the environment because the security system used demands extreme amounts of energy.

Blockchain made its appearance with Bit coinamong people. Other than that it has its application in the field of bit mortgage (some sort of market for mortgages), Loans , Obligations(special type of loan),voting system, supply chains and many more. If all parties involved in supply chains can join in one blockchain, this can ease the communication. Everything will be visible for all parties at all times, making the whole process run smoother.

There are three main challenges which blockchain technology id facing and researcher are making attempts to overcome them. The first challenge it is facing the storing of large number of transaction per second which is need to be limited. The second major challenge is restricting the number of neighboring nodes, increasing the unknown part of the blockchain and making it even harder for a Byzantine node to plan a double spending attack. The third challenge which is need to be overcome is energy consumption necessary for the proof-of-work.

Riya Gupta
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Hyperloop

A Hyperloop is a proposed mode of passenger and/or freight transportation, first used to describe an open-source vactrain design released by a joint team from Tesla and SpaceX.[1] Drawing heavily from Robert Goddard's vactrain, a hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient.
Elon Musk's version of the concept, first publicly mentioned in 2012,incorporates reduced-pressure tubes in which pressurized capsules ride on air bearings driven by linear induction motors and axial compressors.
The Hyperloop Alpha concept was first published in August 2013, proposing and examining a route running from the Los Angeles region to the San Francisco Bay Area, roughly following the Interstate 5 corridor. The Hyperloop concept has been explicitly "open-sourced" by Musk and SpaceX, and others have been encouraged to take the ideas and further develop them. Hyperloop One's technology uses passive maglev for the same purpose. Linear induction motors located along the tube would accelerate and decelerate the capsule to the appropriate speed for each section of the tube route. With rolling resistance eliminated and air resistance greatly reduced, the capsules can glide for the bulk of the journey. In Musk's original Hyperloop concept, an electrically driven inlet fan and axial compressor would be placed at the nose of the capsule to "actively transfer high-pressure air from the front to the rear of the vessel", resolving the problem of air pressure building in front of the vehicle, slowing it down. A fraction of the air is shunted to the skis for additional pressure, augmenting that gain passively from lift due to their shape. Hyperloop One's system does away with the compressor.
A deal has been signed that paves the way to build what could be the world's first hyperloop track in the Indian state of Maharashtra.
The announcement by Virgin Hyperloop One, lays the groundwork for a hyperloop system capable of travelling between the Indian cities of Pune and Mumbai — about 100 miles by road — in 25 minutes. Under the proposal, the final route would be built within seven years, following the successful completion of a test track.

Naman Rao
ECE-5th SEM

MIMO Communication Technology

Multiple-input multiple-output, or MIMO, is a radio communications technology or RF technology that is being mentioned and used in many new technologies these days.
Wi-Fi, LTE; Long Term Evolution, and many other radio, wireless and RF technologies are using the new MIMO wireless technology to provide increased link capacity and spectral efficiency combined with improved link reliability using what were previously seen as interference paths.
Even now many there are many MIMO wireless routers on the market, and as this RF technology is becoming more widespread, more MIMO routers and other items of wireless MIMO equipment will be seen. Typical modern WiFi router using MIMO technology with multiple antennas MIMO technology has been developed over many years. Not only did the basic MIMO concepts need to be formulated, but in addition to this, new technologies needed to be developed to enable MIMO to be fully implemented. New levels of processing were needed to allow some of the features of spatial multiplexing as well as to utilize some of the gains of spatial diversity.
Up until the 1990s, spatial diversity was often limited to systems that switched between two antennas or combined the signals to provide the best signal. Also various forms of beam switching were implemented, but in view of the levels of processing involved and the degrees of processing available, the systems were generally relatively limited. However with the additional levels of processing power that started to become available, it was possible to utilize both spatial diversity and full spatial multiplexing. The initial work on MIMO systems focused on basic spatial diversity - here the MIMO system was used to limit the degradation caused by multipath propagation. However this was only the first step as system then started to utilize the multipath propagation to advantage, turning the additional signal paths into what might effectively be considered as additional channels to carry additional data.
Two researchers: ArogyaswamiPaulraj and Thomas Kailath were first to propose the use of spatial multiplexing using MIMO in 1993 and in the following year their US patent was granted.
However it fell to Bell Labs to be the first to demonstrate a laboratory prototype of spatial multiplexing in 1998.

A channel may be affected by fading and this will impact the signal to noise ratio. In turn this will impact the error rate, assuming digital data is being transmitted. The principle of diversity is to provide the receiver with multiple versions of the same signal. If these can be made to be affected in different ways by the signal path, the probability that they will all be affected at the same time is considerably reduced. Accordingly, diversity helps to stabilize a link and improves performance, reducing error rate.
Several different diversity modes are available and provide a number of advantages:

- Time diversity: Using time diversity, a message may be transmitted at different times, e.g. using different timeslots and channel coding.
- Frequency diversity: This form of diversity uses different frequencies. It may be in the form of using different channels, or technologies such as spread spectrum / OFDM.
- Space diversity : Space diversity used in the broadest sense of the definition is used as the basis for MIMO. It uses antennas located in different positions to take advantage of the different radio paths that exist in a typical terrestrial environment.

MIMO is effectively a radio antenna technology as it uses multiple antennas at the transmitter and receiver to enable a variety of signal paths to carry the data, choosing separate paths for each antenna to enable multiple signal paths to be used. One of the core ideas behind MIMO wireless systems space-time signal processing in which time (the natural dimension of digital communication data) is complemented with the spatial dimension inherent in the use of multiple spatially distributed antennas, i.e. the use of multiple antennas located at different points. Accordingly MIMO wireless systems can be viewed as a logical extension to the smart antennas that have been used for many years to improve wireless.

It is found between a transmitter and a receiver; the signal can take many paths. Additionally by moving the antennas even a small distance the paths used will change. The variety of paths available occurs as a result of the number of objects that appear to the side or even in the direct path between the transmitter and receiver. Previously these multiple paths only served to introduce interference. By using MIMO, these additional paths can be used to advantage. They can be used to provide additional robustness to the radio link by improving the signal to noise ratio, or by increasing the link data capacity.
The two main formats for MIMO are given below:

- Spatial diversity: Spatial diversity used in this narrower sense often refers to transmit and receive diversity. These two methodologies are used to provide improvements in the signal to noise ratio and they are characterized by improving the reliability of the system with respect to the various forms of fading.
- Spatial multiplexing: This form of MIMO is used to provide additional data capacity by utilizing the different paths to carry additional traffic, i.e. increasing the data throughput capability.

As a result of the use multiple antennas, MIMO wireless technology is able to considerably increase the capacity of a given channel while still obeying Shannon's law. By increasing the number of receive and transmit antennas it is possible to linearly increase the throughput of the channel with every pair of antennas added to the system. This makes MIMO wireless technology one of the most important wireless techniques to be employed in recent years. As spectral bandwidth is becoming an ever more valuable commodity for radio communications systems, techniques are needed to use the available bandwidth more effectively. MIMO wireless technology is one of these techniques.

Massive MIMO benefits
There are many advantages to using large MIMO technology. Using more antennas in a MIMO system creates more degrees of freedom in the spatial domain and therefore this enables greater improvement in performance to be achieved:

- Increasing data rate: The increase in the number of antennas allows for a greater number of paths to be used and hence a much greater level of data to be transferred within a given time.
- Increasing basic link signal to noise ratio: One of the basic advantages of the use of MIMO systems is that it can be used to improve the signal to noise ratio of the overall system. The use of large MIMO or massive MIMO enables this to be taken to a greater level. There is also an increase in hardening against intentional jamming as a result of the large diversity.
- Channel hardening: Increasing the number of antennas significantly to make a massive MIMO system means that the system becomes less sensitive to the actual entries of the channel matrix. In turn this has further advantages in the area of signal processing. It is necessary for linear detectors to perform matrix inversions and this can be done more easily within the processing as this capability increases with technology developments.

Sumer Singh
ECE Department

Engineers Hack Cell Create 3-D Shapes from Living Tissue

Many of the complex folded shapes that form mammalian tissues can be explained with very simple instructions, bioengineers report. By patterning mechanically active mouse or human cells to thin layers of extracellular fibers, the researchers could create bowls, coils, and ripples out of living tissue. The cells collaborated mechanically through a web of these fibers to fold themselves up in predictable ways, mimicking natural developmental stages.

Development is starting to become a canvas for engineering, and by breaking the complexity of development down into simpler engineering principles, scientists are beginning to better understand, and ultimately control, the fundamental biology," says senior author Zev Gartner, part of the Center for Cellular Construction at the University of California, San Francisco. "In this case, the intrinsic ability of mechanically active cells to promote changes in tissue shape is a fantastic chassis for building complex and functional synthetic tissues." Labs already use 3D printing or micro-molding to create 3D shapes for tissue engineering, but the final product often misses key structural features of tissues that grow according developmental programs. The Gartner lab's approach uses a precision 3D cell-patterning technology called DNA-programmed assembly of cells (DPAC) to set up an initial spatial template of a tissue that then folds itself into complex shapes in ways that replicate how tissues assemble themselves hierarchically during development.

Gartner and his team are now curious to learn whether they can stitch the developmental program that control tissue folding together with others that control tissue patterning. They also hope to begin to understand how cells differentiate in response to the mechanical changes that occur during tissue folding in vivo, taking inspiration from specific stages of embryo development.

Neeraj Rawat
MAE-7A

Visible Light Communications

With the exponentially increasing data demand but limited available radio spectrum, alternatives will be necessary to accommodate the needs of wire-free communication systems. Visible light communication is a new way of wireless communication using visible light. Typical transmitters used for visible light communication are visible light LEDs and receivers are photo diodes and image sensors. It uses light as medium for communication between source and receiver. There are many applications of VLC which include under water communication, inside airplane communication, vehicle to vehicle communication, indoor broadcast system for internet use (i.e. Li-Fi) etc. Visible light communication (VLC) is a data communications variant which uses between 380 nm to 750 nm (i.e. 430 THz to 790 THz) for communication. Data to be transported are modulated by modulating light and are usually illuminated using LED sources.

The receiver uses photo-diode for its operation in order to recover the data back.
Both source and receiver should be in LOS (Line of Sight) for its operation. VLC is a subset of optical wireless communications technologies.

The technology uses fluorescent lamps (ordinary lamps, not special communications devices) to transmit signals at 10 kbit/s, or LEDs for up to 500 Mbit/s over short distances. Systems such as RONJA (Reasonable Optical near Joint Access) can transmit at full Ethernet speed (10 Mbit/s) over distances of 1–2 kilo meters (0.6–1.2 mi). Specially designed electronic devices generally containing a photodiode receive signals from light sources, although in some cases a cell phone camera or a digital camera will be sufficient. The image sensor used in these devices is in fact an array of photodiodes (pixels) and in some applications its use may be preferred over a single photodiode. Such a sensor may provide either multi-channel (down to 1 pixel = 1 channel) or a spatial awareness of multiple light sources.

VLC can be used as a communications medium for ubiquitous computing and IoT ecosystems because light-producing devices (such as indoor/outdoor lamps, TVs, traffic signs, commercial displays and car headlights/taillights) are used everywhere. Using visible light is also less dangerous for high-power applications because humans can perceive it and act to protect their eyes from damage. There are many advantage of VLC. It supports larger bandwidth and hence overcome bandwidth limitation of RF communication. VLC communication works when both source and receiver are in LOS within the same room. VLC based data communication cannot be intercepted by any one from the another room. Hence VLC provides secured communication unlike RF communication.VLC source is used for both illumination and communication, it has low power consumption. Hence VLC is power efficient system. VLC is light based communication. Hence it is not affected due to EM radiations from RF systems. It does not have any health risks to human beings. It is easy to install. VLC based communication has interference issues from other ambient light sources. VLC communication supports short coverage range. There are challenges to integrate VLC with WI-FI system. Other drawbacks with VLC system are atmospheric absorption, shadowing, beam dispersion etc. It requires both source and receiver should be in LOS. Hence non-LOS communication is difficult to be achieved. These are some disadvantages of VLC communication.

The potential for VLC is being driven by the increasing adoption of mobile electronic devices. The demand for wireless capacity as predicted most recently by Cisco (Cisco VNI, Feb 2015) indicates a 10x growth in mobile traffic over the next five years. But over the same time period, mobile carrier speed is predicted to grow by only 9 percent. Because more than 70 percent of all mobile traffic occurs indoors, and much occurs at fixed locations, there is a huge opportunity to offload traffic to localized access points as WiFi or small cells. Key to this technology is the placement of access points where mobile users are active but also to reconcile contention caused by these populous indoor spaces. The problems with contention are where VLC can provide significant benefits over RF technologies. VLC can provide very high data rates when used directly as a directional medium. When combined with a lighting mission - providing light - VLC is ideally suited for where humans exist in these indoor spaces because they consume light at the same time that they consume data. While traditionally VLC had been conceived as a point-to-point, cable replacement technique, there are many works that highlight that VLC has the potential to augment cellular communications by providing a means to decrease the cell sizes in cellular communications even further without incurring significant installation cost by piggy-backing on existing lighting infrastructure. This is especially important as current research into 5G suggests that typical cell sizes will be around 50 m, which will pose severe challenges on backhaul and infrastructure deployment. As LEDs increasingly displace incandescent lighting over the next few years, general applications of VLC technology are expected to include Internet-of-Things, wireless Internet access, vehicle-to-vehicle communications, broadcast from LED signage, machine-to-machine communications, positioning systems, and navigation. The long lifetime of LED lights means infrequent replacement of lights, resulting in the need for new business models in the lighting industry, and we see light-as-a-service (LAAS) being introduced, especially as it relates to the adoption of new integration of lighting as controllable devices, each with its own Internet address.

Rajput Jyoti Prakash
Assistant Professor (ECE)

Technology That Sees the World: Computer Vision

The initial goal of computer vision was to enable machines to see the visual world and interpret it the way a human would, but AI has advanced computer vision beyond human vision and now machines can see things humans can't, like air quality and temperature. Big data is essential to furthering what computer vision can recognize and the conclusions it draws from what it sees, which is why companies leading the way in the field are tech giants that already have a foot in the data gathering and machine learning door.

Major players in the computer vision and AI world include user-generated content platforms like PicsArt, Pinterest and Instagram whose users make accessing data and tracking behavior a walk in the park. Such companies also use object recognition, but rather than using it to determine risks on the road they use it to categorize posts and make advanced editing options available to end-users.

Image segmentation is the part of computer vision that makes it possible for users on various social media and editing platforms to do things like blur background images automatically (an effect called bokeh in traditional photography) or even transpose a subject onto a new background with a quick point and click. Applying filters to images is also dependent on computer vision technology. Style transfers, which are filters that allow subjects to take on the look of a painting or pointillism or pop art character, only work because computer vision makes it possible to map three-dimensional objects and sense not only color and shadow but also depth and shape. This is also how augmented reality (AR) masks, filters and stickers work, and it's the reason you can move your head while using such features. Even smart filters, like those used in popular photo editing software and apps, depend on a vast well of data from which to draw information.

One of the most complex and high profile ways computer vision is being used is in the advancement of autonomous cars. Driverless vehicles depend on advanced AI computer vision, with deep machine learning woven throughout for guidance. Since data is the gas that fuels AI and ML advancement, it's no surprise that Google owns the most advanced driverless technology on the market.Waymo, Google's name for its self-driving car project, is growing its computer vision through testing on public streets. By gathering data from real-world scenarios and recording variables that can occur during daily driving, the tech giant will be able to implement even more complex object recognition algorithms and tracking methods. Using ML and AI to drive advancement means less legwork for developers and continual improvement. In fact, analysts estimate driverless cars will become widespread sometime between 2020 and 2040.

Similar techniques are being used to develop computer vision security cameras, to conduct marketing research (by analyzing the pupils of testers as they try different products and watch different ads), create health care scanners that help technicians, and even build smarter green buildings that react to daily usage.

Computer vision provides direct benefits to the user by cutting down on development times and creating an end-product that meshes with what the user wants and needs to do. Rather than functionalities being determined behind closed doors among a small group of developers and C-level executives, features are evolving based on natural usage. This is a boon for both developers, who can rely on AI and ML to identify major patterns for them, and for users, who end up with a more tailored user-friendly product. Computer vision is the future, and it's a massive step toward creating truly invisible technology that adapts to users' needs instantly and predicts their future needs with uncanny accuracy.

Ritu Jangra
Assistant Professor(ECE)

editorial.

Year is gone, semesters are changed, but as always once again we are ready with the next edition of our annual magazine RIVISTA 2018, where every article gives a glimpse of the thoughtful and philosophical bent of minds in the form of their expressions in black and white. This edition of RIVISTA also showcases the glories garnered by the budding engineers under the guidance and supervision of the faculty in different areas of learning.

Their achievements in academics as well as in co-curricular activities, sports and other skills, giving an insight into their talent and caliber have been presented to appreciate them and motivate others.

On this occasion, we would like to express our sincere thanks to Mr. Anil Kumar Gupta, Chairman, for his unequivocal support. We would also like to extend our gratitude to Dr. Shalini Gupta and the entire management for their active support and consistent motivation which inspired us to give a final shape to "Rivista 2018". It met its accomplishment with the coop-operation and collaboration of various persons who worked unrelentingly with sheer determination.

We anticipate, collective attempt to present this magazine will garner appreciation and readers will reap the benefits from its ingredients.

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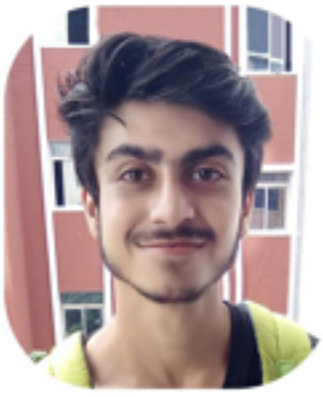

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