SIES Graduate School of Technology
RISE WITH EDUCATION

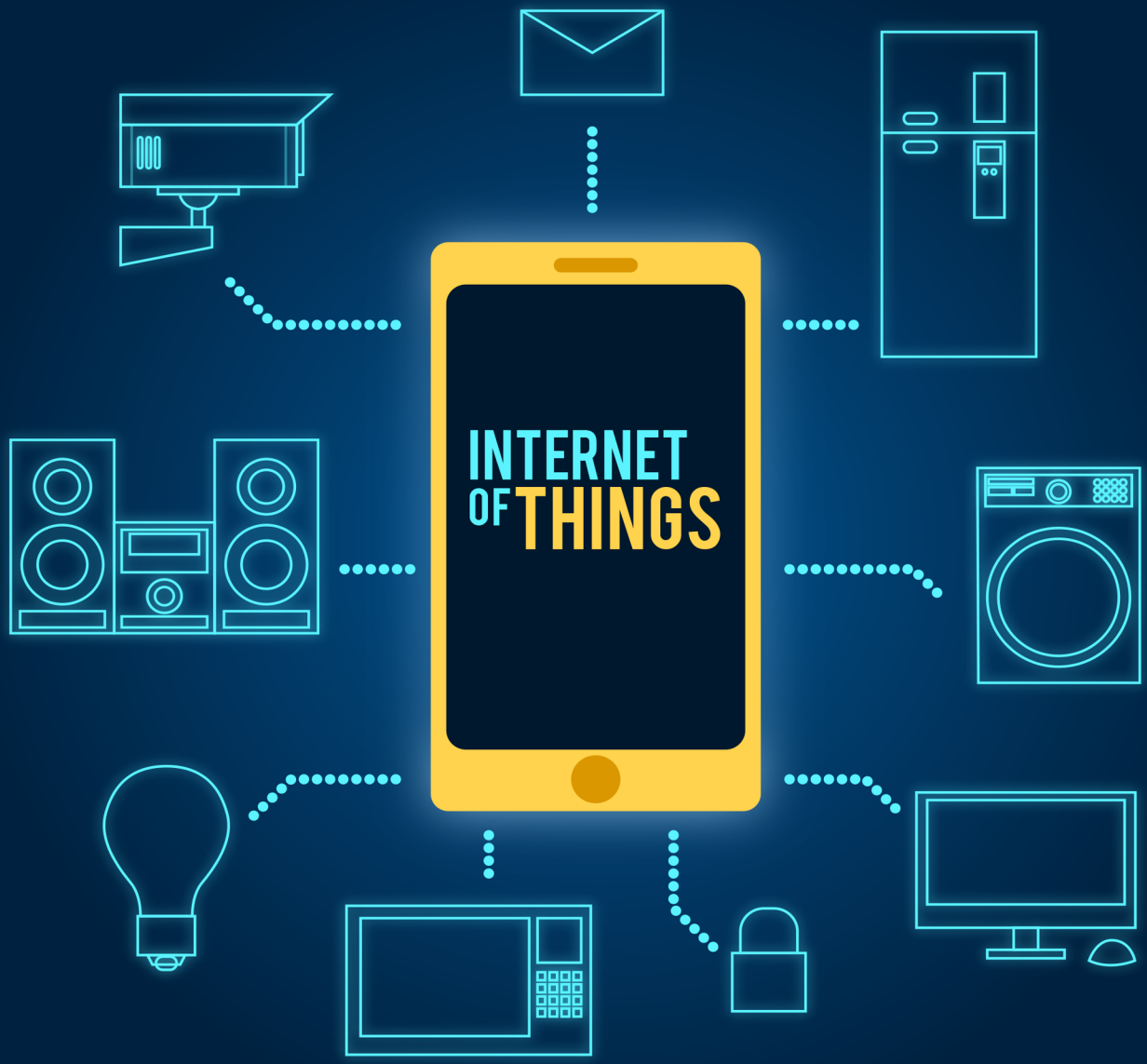
IEEE MTS SIES GST

IEEE SIES GST

IEEE-SIESGST STUDENT BRANCH PRESENTS

TECHNOZINE

27.09.2019
2018-19
ISSUE. 3



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The IEEE student branch was established in the year 2006-2007 in SIES GST. Ever since, it has seen a vast growth in the quality of the student branch as well as the intellectual growth of its students. It is one of the oldest student bodies of SIES GST which has been very active over the years in organizing various co-curricular, extra-curricular activities, events, fest and workshops.

"It is a great platform to build technical skills"
"We don't see things as they are, we see them as we are".

- IEEE ALUMNI

We aim to imbibe the latest technical advancement and knowledge in the young growing minds by organizing innovative workshops and events for all its students. Some of the various workshops organized under the student branch are, drone workshop, Arduino workshop, ML workshop, FPGA workshop and many more.

IEEE SIES GST proudly presents its annual technical festival '**TECHOPEDIA**' every year. In order to grab the attention and encourage the students to build on their technical knowledge, the branch organizes three national level events under the fest. They are **INQUISITIVE**- a national level quiz competition, **SQUABBLE**- a national level debate competition, **CIRCUIT MANIACS**- competition for testing the student's basic electronic knowledge. This major event sees active participants from within the college and many more students from colleges across Mumbai and Navi Mumbai. The winners of each event are encouraged with cash prize, certificates and medals as a token of appreciation.

We as a student branch also focus on building the student's knowledge on the current developments and advancements by organizing various seminars, lectures and guest lectures. The speakers for each of these events are a set of well qualified faculties and experts from various colleges and industrial organizations. We can proudly say that many of our own students have conducted many seminars successfully in recent times.

Apart from increasing the student's academic excellence, IEEE SIESGST also takes its students on Industrial visits to give them exposure and learning about the many evolutions taking place in the outside world.

As a whole IEEE has helped in carving out various young peers not only in the field of technology but also in leadership. Year by year the student branch has seen active participation and increase in interests in all its ventures which has increased the morale of IEEE SIESGST by leaps and bounds.

In a nutshell, IEEE SIESGST would like to thank our honorable principal, **Dr. Vikram Patil**, respected HOD, **Dr. Atul Kemkar**, branch counselor **Prof. Biju Balakrishnan** and last but not the least, the entire student council whose culmination of efforts has helped in the progress of IEEE SIESGST.

ABOUT SIES

The South Indian Education Society (SIES) was established in the year 1932. It is a pioneer in the field of education, knowledge and learning in this metropolis. The society has been serving the cause of education and has carved for itself a niche, as a provider of quality and value based education from nursery to doctoral level in a wide variety of fields. The institute seeks to achieve the educational mission by focussing on the modes of inquiry, which strengthens thinking skills and provides extensive field experiences, to bring together theory and practices.

"This society should sincerely serve the cause of education and the educational needs of the common man of this cosmopolitan city"

- SIES Mission set by our founder Shri M. V. Venkateshwaran in 1932

"To be a centre of excellence in education and technology committed towards socio-economic advancement of the country"

- SIES VISION

SIES Graduate School of Technology, an integral part of this well-established community, started in the year 2002 is located in the list of an educational hub in Navi Mumbai imparting quality based technical education, offering four year Bachelor of Engineering courses in Electronics and Telecommunication Engineering, Computer Engineering, Information Technology, Printing & Packaging Technology and Mechanical Engineering.

SIES GST has been well known in terms of producing quality and quantity. It stands to be a prestigious institution with a rich set of qualified faculties who have always been there to serve the young growing minds. SIES GST aims to enlighten its students and bring the best out of them.

SIES GST is now NAAC Accredited successfully.

EDITORAL BOARD:

Principal:	Dr. Vikram Patil
Head of Dept.:	Dr. Atul Kemkar
Branch Counselor:	Prof. Biju Balakrishnan
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SIES Graduate School of Technology
RISE WITH EDUCATION

SIES GST EXTC Department Vision

To be a Premier Department in Electronics & Telecommunications Engineering.

MISSION

1. To provide quality education satisfying the requirements of coporate world across diverse fields.
2. To develop life-long learning skills to cater to the socio-economic needs.
3. To strengthen Industry-Institute Interaction to bridge the gap between academic and industrial requirements.
4. To equip students with leadership and entrepreneurial skills.

PROGRAM EDUCATIONAL OBJECTIVES (*PEOs*)

1. Identify, formulate and solve engineering problems in the Industry, complying with ethical standards and societal needs.
2. Pursue higher studies and professional development courses leading to significant advancement in the field of specialization.
3. Apply technical concepts to develop applications and design products.
4. Exhibit leadership and entrepreneurial acumen in career.

FROM BRANCH COUNSELOR's DESK

2018 - 19

It is an honour for me to present the annual technical magazine '**TechnoZine**' of our very own IEEE student branch. Technology, like a new born baby keeps evolving and growing day by day. It is our duty to keep our self updated and develop ourselves with the upscale development happening. This knowledge which builds up will be the key factor to differentiate us from the herd.

I am indeed honoured to hold the post of the IEEE branch counselor in SIES GST and I aim to encourage the young growing minds of our college by igniting the spark in them. The student student branch has indeed made me proud with the smooth functioning of the student branch as well as conduction of the various events that would not have been possible without their corporation and efforts.

'**TechnoZine**' is a log book showcasing the culminative effort of the entire IEEE team and the minds who have worked behind the success of all events that have been conducted throughout this year. It also includes a plethora of technical articles written by our own students. None of this would have been possible without the support of our respected principal, **Dr. Vikram Patil** and our HOD, **Dr. Atul Kemkar**. I extend my warm regards and thanks to them.

I would also like to thank and appreciate the team of **IEEE SIESGST** and the ones behind '**TechnoZine**'. I wish success to each one of you for all your future endeavors.

- **Prof.Biju Balakrishnan**
(IEEE Branch Counselor)

WORDS BY CHAIRPERSON

The IEEE SIESGST student branch had been one of the biggest factors that drastically changed my college life experience and skills. Being the chairperson of this student body, brought numerous challenges along with excitement and the productivity that comes when you form a team that wants to make things happen. The student branch organised various workshops by the student bodies themselves as well as by guest lecturers and people from the IEEE Bombay section. We organised industrial visits for the students and also attended IEEE conferences with the soul purpose of building new networks, meeting new people and getting ourselves acquainted with not just the theory, but also the mammoth industry that is engineering. IEEE SIESGST aims to give the new students an open field to explore and create their hearts out in the field of engineering while being mentored by students and faculties who have been in their place, and are willing to give their time and efforts into creating something big. Exposure to machine learning, neural networks, competitive coding, web services, cloud computing, microcontroller hardware, nanotechnology etc can sound extremely overwhelming. But taking these things one step at a time over the whole academic year proves to be efficient and at the same time allows the student to improve his while performing great in his academics. All round it was a great experience leading a sheer determined team, and I hope this continues for the years to come. Wish you all the very best! *Godspeed!*

- **Aman Singh Rajput**
(IEEE-SIESGST Chairperson, 2018-19)

REPRESENTATIVE'S DESK

IEEE became a major part of my life during my Undergrad, it played the role of shaping me professionally and personally too. IEEE-SIESGST gives technical exposure to students by conducting seminars, workshops, Industrial visits, and even gives them opportunities to attend a few of the conferences.

There are many emerging technologies such as the Wireless Technology, Robotics, Machine Learning, Cloud Computing, Nanotechnology, etc. along with interesting tools like the SQL, R, Tableau for data analysis which I highly recommend all the data enthusiasts to get familiar with. Get yourselves exposed to Product Management, Project Management, SAP, etc. There is so much to learn in every field you will step into. Grooming your soft skills and becoming confident in all that fascinates you, will eventually help you in your life ahead.

Honestly, I want every member to make the most use of all the resources available. Speak up to the leaders if you are eager to learn a specific technical skill, they will surely help you with it. Also, Biju Sir is one of the best IEEE-SIESGST Faculty in-charges our college could have had! His organization skills and disciplined nature is something we all should inculcate. I am super proud of all you members out there, including my multi talented IEEE SIESGST student branch comittee members! You all guys will do great ahead. Explore, learn, connect and believe!
Good Luck :)

- **Aditi Kulkarni**
(IEEE-SIESGST Representative, 2018-19)

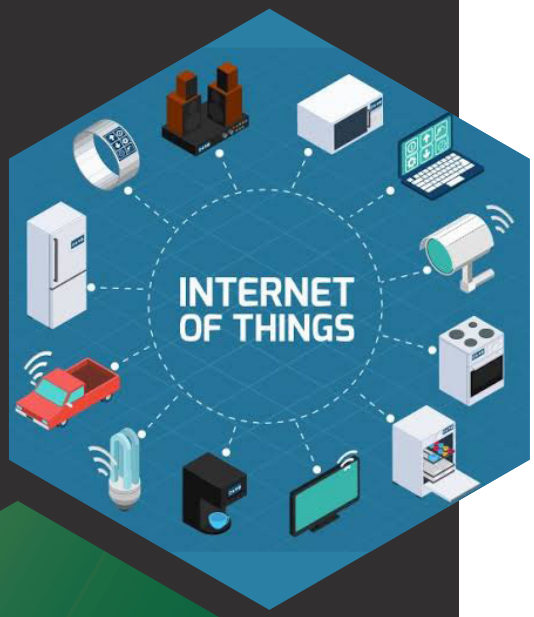
3D PRINTED CAR

Ever wondered how many parts are needed to build a car? Ever thought about the amount of time, money, labour and machinery put into building a fully functional car? Yes, it takes about 30,000 parts and a lot of labour and money to manufacture an automated 4-wheeler. Due to the technological advances we have achieved yet another feat by filling onto these hiccups. The answer to this is 3D PRINTED CAR.

It's an emerging technology that is an alternative to the traditional tooling and machining processes used in manufacturing. In 2016, a news broke out which made the headlines. At the International manufacturing Technology show in Chicago, a car-maker from Arizona made a car with 3D technology in 44 hours and assembled it in 2 days. This car came to be known as **"Strati"**, which means layers in Italian. This is because the entire car was made with the help of ABS with re-enforced carbon fibre into a single unit. **"The goal here is to cut down the number of parts iand to drop the tooling costs to almost 0"** said **John B. Rogers Jr.**, chief executive of Local Motors.

Imagine if you could customize and personalize your new car online and pick it up or have it delivered to you the next day at a fraction of the cost of buying one from a dealership? Wouldn't that be a revolution? The automobile industries are keenly interested in this technology and various micro industries are being planned out to be set in the world very soon. **John B. Rogers Jr.** believes that in the near future a car will be made in just 60 minutes.

Shreya Sridharan
EXTC Student, SIES GST



INTERNET OF THINGS (IoT)

What is IOT?

Internet as we know today is more of internet-of-people because it connects people. IoT (Internet of things) is a concept where every day electronic objects/devices can communicate over Internet Protocol (IP address) to send data which can then be mined to derive meaningful information. There are wide ranges of objects or devices which we use every day like refrigerator, washing machine, car, security camera, lamps, healthcare devices, Industrial equipment etc.

Why IOT?

1. Improving operational efficiency
2. New business opportunities
3. Increased Asset utilization
4. Delivering services faster
5. Integrate the data existing in silos to derive higher insightful information to make incisive business decisions
6. Competitive edge

How does IOT work?

A standard workflow would be something like this. A sensor (temperature, accelerometer, gyroscope, proximity, ambient light, pedometer, finger print sensor etc) will capture the data and transmit it over the gateway to the core network as per policy based & communication protocols like MQTT. The data will then be aggregated in the cloud for storage and big data analytics. The end consumer apps will dip into this data and data provided by external agencies to enrich the outcome and provide relevant information to the user based on the features and functionality of the app. There is end to end security requirement, right from the data capture to end consumption to prevent malicious attacks, privacy issues, malware, threats and hacking.

Almost all the technology leaders today are present and working tirelessly in this space to make their mark. IBM is leading the pack with its cognitive solutions centered on Watson. Cisco, Ericsson, Bosch and Juniper are doing continuous innovation in hardware space. There are joint partnerships like IBM-Samsung to provide one stop end to end ecosystem.

For telecom companies connectivity would be a commodity and connectivity ARPUs will continue to fall over period of time. The data is getting cheaper and voice calls could eventually become free. As such, telcos need to evaluate and adopt newer source of revenue generation not only to survive but thrive in future. There are potential opportunities to do partnerships and provide backbone of the entire ecosystem-connectivity, and strive to present end-to-end partnership.

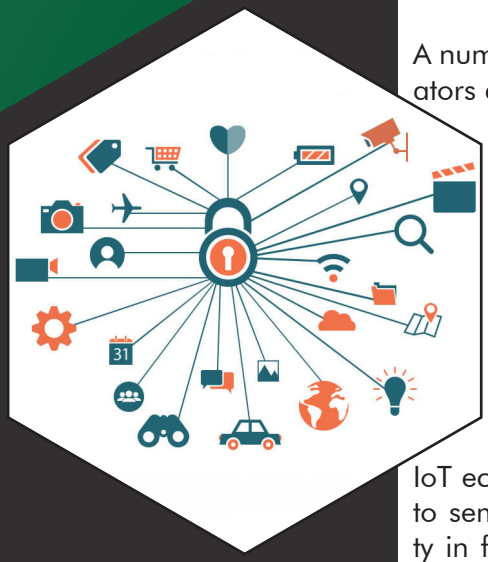
This is my first blog in the series. The next blog will be on the adoption of IOT by various industries and why it will go on to become a trillion dollar industry. Hope this was helpful with simplified understanding of IOT. Happy reading!

Prof. Kintu Patel
Dept. of EXTC, SIES GST

PROVIDERS IN IoT SPACE:

1. Devices, Sensors and gateways [Bosch, Delphi, etc.]
2. Telecomm. service providers for core network [ATandT, Telefonica, Airtel, Telenor]
3. Cloud services providers [AWS, IBM, Microsoft, Oracle, Bosch]
4. Data aggregators and big data analytics [SAS, Teradata, HP, IBM, etc.]
5. Application developers for end consumers [Amazon, Google, Microsoft]
6. External data providers like gov. agencies [IMD for weather, etc.]
7. Security products for end-to-end stack [Symantec, Cisco, Trustwave]

IoT SECURITY

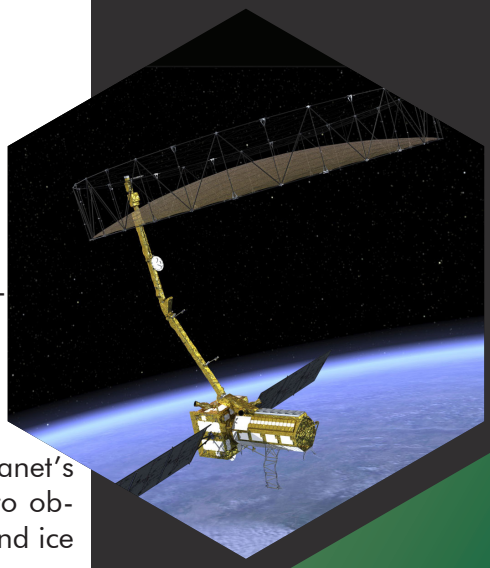


IOT is internet of things and security is protection and conservation of data. **But what exactly is IoT security ?**

IoT security is the technology area concerned with safeguarding connected devices and networks in the internet of things . IOT is simply giving internet connectivity to a system of interrelated computing devices, mechanical and digital machines, objects, animals and/or people. Each "thing" is provided a unique identifier and the ability to automatically transfer data over a network. Allowing devices to connect to the internet opens them up to a number of serious vulnerabilities if they are not properly protected. Implementing security measures is critical to ensuring the safety of networks with IoT devices connected to them. A major issue cited with IoT security is the use of hardcoded or default passwords, which can lead to security breaches. Even if passwords are changed, they are often not strong enough to prevent infiltration. Another common issue facing IoT devices is that they are often resource-constrained and do not contain the compute resources necessary to implement strong security. As such, many devices do not or cannot offer advanced security features. For example, sensors that monitor humidity or temperature cannot handle advanced encryption or other security measures. Plus, as many IoT devices are "set it and forget it" -- placed in the field or on a machine and left until end of life -- they hardly ever receive security updates or patches. From a manufacturer's viewpoint, building security in from the start can be costly, slow down development and cause the device not to function as it should.

A number of attacks subsequently have made headlines, from refrigerators and TVs being used to send spam to hackers infiltrating baby monitors and talking to children. It is important to note that many of the IoT hacks don't target the devices themselves, but rather use IoT devices as an entry point into the larger network. There isn't yet single industry accepted framework for IoT. However, simply adopting an IoT security framework can help; they provide tools and checklists to help companies creating and deploying IoT devices. Such frameworks have been released by GSM association, the IoT Security Foundation, the Industrial Internet Consortium and others. IoT security methods vary depending on your specific IoT application and your place in the IoT ecosystem. For example, IoT manufacturers; from product makers to semiconductor companies, should concentrate on building security in from the start, making hardware tamper-proof, building secure hardware, ensuring secure upgrades, providing firmware updates/patches and performing dynamic testing. Developer's focus should be on secure software development and secure integration. For those deploying IoT systems, hardware security and authentication are critical measures. Likewise, for operators, keeping systems up to date, mitigating malware, auditing, protecting infrastructure and safeguarding credentials are key.

Tanvi Joshi
EXTC Student, SIES GST



NISAR

(NASA-ISRO SYNTHETIC APARTURE RADAR MISSION)

NISAR is a joint NASA-ISRO (Indian Space Research Organization) Earth-observing mission with the goal to make global measurements of the causes and consequences of land surface changes. Potential areas of research include ecosystem disturbances, ice sheet collapse and natural hazards. The NISAR mission is optimized to measure subtle changes of the Earth's surface associated with motions of the crust and ice surfaces. NISAR will improve our understanding of key impacts of climate change and advance our knowledge of natural hazards.

NISAR will be the first satellite mission to use two different radar frequencies (L-band and S-band) to measure changes in our planet's surface less than a centimeter across. This allows the mission to observe a wide range of changes, from the flow rates of glaciers and ice sheets to the dynamics of earthquakes and volcanoes.

All NISAR science data (L- and S-band) will be freely available and open to the public, consistent with the long-standing NASA Earth Science open data policy. With its global acquisition strategy, cloudpenetrating capability, high spatial resolution, and 12-day repeat pattern, NISAR will provide a reliable, spatially dense time-series of radar data that will be a unique resource for exploring Earth change (Table given below)

OVERVIEW OF NISAR MISSION CHARACTERISTICS:

ELEMENTS	DESCRIPTION
Expected launch	Late 2021
Orbit	12-day exact repeat, sun-synchronous, dawn-dusk, polar, 747 km altitude
Mission duration	3 years nominal with extended mission fuel reserve
Science data downlink approach	• 30-45 minutes of data downlink per orbit at 3.5 GBps data rate through polar ground stations • 1 GBps direct downlink to India over Indian ground stations
Observation approach	• L-band multi-mode global radar imaging • S-band multi-mode targeted radar imaging • Dual-frequency capable • ~240 km swath for all modes • Full pol, multiple bandwidths up to 80 MHz • Near-zero Doppler pointing, fixed boresight • Primarily right looking, with occasional flip to the opposite side for better polar coverage
Mapping approach	Under study - Current approach defines a reference mission with fixed modes over broad targeted areas

Spacecraft:
In addition to the two radar instruments, the NISAR payload includes a GPS (Global Positioning System) receiver for precision orbit determination and onboard timing references, a solid-state recorder, and a high-rate data downlink subsystem to enable transmission of the high-volume science data to the ground. The radar payload integration (L-band and S-band integration) will occur at JPL, and the overall observatory integration will occur at ISAC (ISRO Satellite Center) in Bangalore, India.

NISAR CHARACTERISTIC	ENABLES
L-band (24 cm wavelength)	Foliage penetration and interferometric persistane
S-band (12-cm wavelength)	Sensitivity to light vegetation
SweepSAR technique with Imaging Swath > 240 km	Global data collection
Polarimetry (Single/Dual/Quad)	Surface characterization and biomass estimation
12-day exact repeat	Rapid sampling
3 - 10 metres mode-dependant SAR resolution	Small scale observation
3 years science operations (upto 5 years consumables)	Time-series analysis
Pointing control < 273 arcseconds	Deformation interferometry
Orbit control < 350 metres	Deformation interferometry
> 30% observation duty cycle	Complete land/ice coverage
Left / Right poining capability	Polar coverage, north and south

Development Status:
May 26, 2018: According to a GAO (Government Accountability Office) assessment, the joint collaboration between NASA and ISRO to orbit an advanced SAR (Synthetic Aperture Radar) imaging satellite is moving forward toward a 2021 launch date.

Prof. Vandana Sawant
Dept. of EXTC, SIES GST

MIXED REALITY

What is Mixed Reality?

It is the new way of interacting physical world with digital world, which usually blends two different dimensions to solve real world problems and make learning and understanding more interactive. It is combination of Augmented and Virtual Reality, where VR immerses the user in a fully designed digital world which is artificial and completely different from real world and AR overlays virtual objects on the real world environment considering the orientation and placement with respect to real world.

The Evolution of Mixed Reality with HoloLens 2

It took Microsoft four years to reveal its second generation of Mixed Reality headset, the HoloLens 2. It was unveiled at the Mobile World Congress 2019 in Barcelona, Spain on February 25th. The HoloLens is a tool that is suited to help people in education and training, health care and surgery, mechanical engineering and maintenance and service industries to be more productive.

What can you do with Mixed Reality?

- Simulation-based learning
- Remote working
- Functional mockup

Why Mixed Reality has an edge over Virtual Reality?

Virtual reality transposes users to an alternate world by offering interactive capabilities. Whereas, Mixed Reality with the blend of VR and AR changes the way users create, connect, and collaborate with a new holographic experience. Therefore, MR is the better choice for industries that are trying to improve their operational efficiency using holographic experiences.

Namit Naik
EXTC Student, SIES GST

INDUSTRIAL VISIT

FRIDAY, 1st March 2019

GIANT METERAVE RADIO TELESCOPE

Narayangao, Pune

SUMMARY

On morning of the big day 1st of March, everyone gathered at Assembly point near the 2nd gate of SIES Campus, Nerul. We left pretty much in time at around 7:40 a.m. from college by a 50 seater bus and headed directly towards Khodad, Pune. We had packed breakfast along the journey and also stopped at food plaza on expressway. It was roughly a 4-hours travel till we reached our destination, located 90 km north to Pune.

The temperature must have been around 35°C when we deboarded the bus. Weather was clear with slight wind. The place was well isolated from the major parts of city, the mobile phone connectivity too was hovering around 2-3 sticks. I suppose it wasn't Airtel's fault like usual and there were some guidelines set to network providers for the GMRT to function well.

The GMRT means Giant Metrewave Radio Telescope. The name itself suggests the telescopes operate in radio frequency range. The GMRT is former largest Telescope array in the world with 30 giant fully steerable parabolic radio telescopes. The diameter of each telescope is 45 meter. The collecting area of the whole array is around 47.113 K sq. m. The main purpose of building the largest telescope array in the world was to search for the highly red-shifted 21-cm line radiation from primordial neutral Hydrogen clouds. This would determine the epoch of galaxy formations in the universe. The actual visited started from 12:30 p.m. and ended in roughly just 1 hour (which was the only disappointing thing about IV). In that time, we went to one antenna and science exhibition near it on the occasion of Science Day. There we got some brief idea about how the entire project is built and its stages of operation.

We left the premises at 1:50 p.m., had lunch at nearby hotel and headed to Lonavla for sightseeing. I had brought binoculars with me to do birdwatching and it turned out to be a good decision. There were some Indian Robins at the place, I noted the list and uploaded on eBird. After having some light moments there, we finally returned to college, reached at 7:30 p.m.

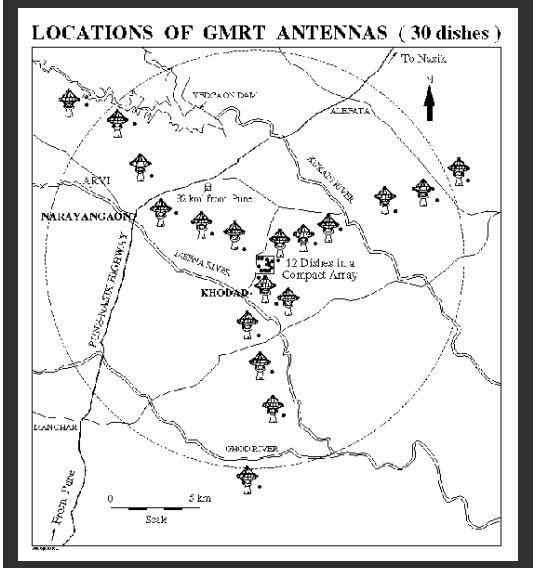
IMPACT ANALYSIS

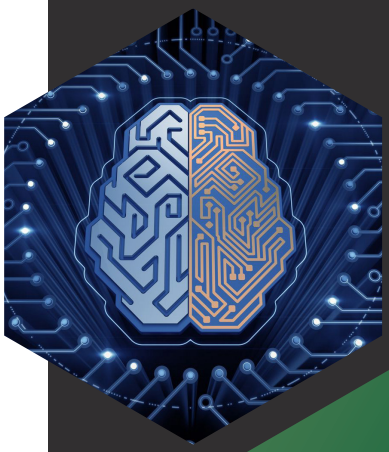
- The construction of the 30-telescope array is done in 'Y' shape, 14 from which are located somewhat randomly in central array and remaining 16 are spread in 3 arms of 'Y', 120°with each other. The longest of these arms is 25 km from the central region. This implies that with proper constructive interference of all 30 antennas will generate a highly resolved image, equivalent to an image generated by gigantic 25 km diameter parabolic dish telescope! Each of these telescopes is mounted using Alt-Azimuth mount and thus can focus on any area in the visible sky.
- The array operates in 6 frequency bands centered around 50, 153, 233, 325, 610 MHz and L-Band extending from 1 to 1.45 GHz. The lower frequency bands have dual circular polarization channels (named CH1) and L- band has dual linear polarization channel (named CH2). For observing strong sources of radio waves (like sun), solar attenuators of 14 dB, 33dB, etc. can be used.
- A low noise amplifier (LNA) is used to eliminate noises from nearby interstellar space in order to collect optimum band of signals from other galaxies. The LNA chops the frequencies into the above specified spectrums which gets us good data of a particular source.
- The data collected from 30-telescope array is passed to a distant receiver where it is down-converted to 70 MHz. This is done by using a superheterodyne receiver. Thus, it becomes easier to process large amount of data collected from array. The block diagram of this process is as follows :

  Receiver -> RF Filter -> Analog Filter (Receives filtered signal and local oscillator signal) -> Control and Monitor -> Baseband Filter -> Noise canceller

The entire signal transmission is done using high quality optical fibers. These connect all antennas with local oscillator for phase reference correction. The correction in received data has to done by a correlator which takes input from different antennas and cancel out the phase differences between particular patterns of signals resulted from time lag in reception of signal due to separation of telescopes. The correlator provides up to 128 spectral channels, covering a maximum bandwidth of 32 MHz.

Atharva Karnik
EXTC Student, SIES GST





SIGNAL PROCESSING IN NEUROSCIENCE

Machine learning and artificial intelligence systems have significantly advanced in recent years in signal Processing. However, they are currently limited to executing only those tasks they are specifically designed to perform and are unable to adapt when encountering situations outside their programming or training. DARPA's Lifelong Learning Machines (L2M) program, drawing inspiration from biological systems, seeks to develop fundamentally new ML approaches that allow systems to adapt continually to new circumstances without forgetting previous learning.

First announced in 2017, L2M is over a year into research in neuroscience and development of next generation AI systems. L2M supports a large base of 30 performer groups via grants and contracts of different duration and size. The first technical area focuses on the development of complete systems and their components, and the second will explore learning mechanisms in biological organisms with the goal of translating them into computational processes. The L2M research teams are now focusing their diverse expertise on understanding how a computational system can adapt to new circumstances in real time and without losing its previous knowledge.

The group from the USC Viterbi School of Engineering was recently mentioned for the development of a bio-inspired robotic limb based on an algorithm that can learn on its own. The other group, the team at University of California, Irvine, plans to study the dual memory architecture of the hippocampus and cortex. The team seeks to create an ML system capable of predicting potential outcomes by comparing inputs to existing memories, which should allow the system to become more adaptable while retaining previous learnings.

An addition to the L2M program during is represented by a multidisciplinary group from the Georgia Institute of Technology, which for two years will study how to improve machine learning performance by leveraging state-of-the-art neuroscience. The team, led by School of Computer Science Professor Constantine Dovrolis, Georgia Tech Research Institute Senior Research Scientist Zsolt Kira, Georgia State University neuroscience Professor Sarah Pallas, and Emory biology Associate-Professor Astrid Prinz will collaborate to address the five goals of the L2M project:

Continual learning, Adaptation to new tasks/environments, Goal-driven perception, Selective plasticity, and Monitoring and safety. In a recent interview, prof. Drovolis said, "…the brain is really the only example of general intelligence we have, and it makes sense to take that example, identify its fundamental principles, and transfer them to the computational domain," which perfectly summarize the main motivation for this research and its potential applications.

Prof. Shyamala Mathi
Dept. of EXTC, SIES GST

TECHNICAL FEST

TECHOPEDIA

SEPTEMBER 2018

Techopedia, the annual national level festival organised under IEEE Student Branch of SIES GST. It was a pleasure to organize this event seperately for the first time. This year Techopedia was conducted on 6th of September 2018. It included 3 events, namely Inquisitive (national level quiz), Squabble (debate) and Circuit Maniacs. There was a great response from the students of our college and from other colleges all over the city. The feedback that we have received from the participants was very much positive and appreciative. The inauguration was attended by all the faculty members of EXTC branch and also from other branches, also by participants and other students. The festival was inaugurated at 9:45 AM by our respected chief guest **Mr. Barure Omprakash N**. Later, the events commenced at 10:30 am and winded up by 6pm. Following is the detailed report for the day:

Inquisitive, a National level quiz competition, conducted every year by IEEE SIESGST under Techopedia. It started at 11:10 AM and ended at 5:10 PM. It was a one-day event wherein all your knowledge was tested in all fields especially in technical. It consisted of three rounds, first was a pen and paper round followed by a buzzer round and ending with a rapid-fire round.The participants were in a team of two. In all of these levels' participants had to dangle with mental evaluation of mathematics, aptitude test and general knowledge-based questions within the time limits. It was a team event and we had 101 teams participating. The winners of the event were Siddharth Sridhar and Omkar Wagh, the runner ups were Prasad Koli and Hrishikesh Venkatesh. According to the feedback the event was thrilling and also very informative.

Squabble, a debate competition and a platform to showcase your oratory skills with technical perspective. It started at 11:00 AM and ended at 5:15 PM. It was held under the guidance of our respected judge Mr. Sameer Valse. We had group discussion and one-on-one debate with time limitation. It was a team of two event with 84 teams participating. Participants were given guidelines about communication ethics before their performance. This event was quite helpful for participants to build their confidence on stage and to enhance their communication skills. The winners of the event were Aditi Thorat and Swapnil Singh, runner ups were Tanavi Joshi and Dhananjay Rao.

Circuit maniacs- An event which will provide opportunity for all electronic geeks to showcase their knowledge about circuit designing and implementation by competing with others with interest in similar fields. It began at 11:00 AM sharp and ended at 5:15 PM. It was exclusively for students of first and second years. We had 89 teams participating. The first round consisted testing of knowledge based on electronic components followed by a buzzer round and lastly circuit making and problem-solving techniques. The winners of Circuit Maniacs were Pratik Shinde and Vaishnavi Mukku, runner ups were Siddhesh Ghagare and Siddarth Jain.

Lastly the prize distribution ceremony was conducted at 5:30 PM. All the winners of respective events were given certificates by IEEE, medals and cash prizes. Thus, the festival ended on a good note.

BOMBAY SECTION CONGRESS

NASHIK
JANUARY, 2019

The biggest event of IEEE Bombay Section, **IEEE Bombay Section Congress (IEEE BSC 2019)** was held at Sandip Foundation University, Nashik from **18 January 2019** to **20 January 2019**. Our principal **Dr. Vikram Patil**, SB counselor **Prof Biju Balakrishnan** and 8 IEEE student members were attended the congress for all 3 days. Under the slogan 'Advancing Technology for Humanity', the congress was inaugurated by **Padmashri D. B. Pathak** and addressed by the Southeast Asia IEEE coordinator, **Prof. Hussain Mahdi**. Various student interaction sessions and cultural activities were organised on the first day of this three-day conference. The succeeding day was opened by a laughter yoga session to give the delegates a refreshing start to the day. As the day progressed a more startup based approach in the speakers as well as the interaction session including upcoming in demand skills like Digital Footprints, and cyber security by masterminds of the field like **Dr. Mahesh Rakheja** was seen. Post speaker sessions, delegates interested in internships and startup opportunities were provided with a startup expo. Successful entrepreneurs and student developers shared their experiences and challenges while developing products and marketing them to the public. There were workshops organised on two of the most in demand tech topics - Internet Of Things and Machine Learning - open to the delegates for interaction and learning. Day 3 was filled with contests, and presentation of student branch activities, posters, videos and social media contests. IEEE SIESGST participated in the poster presentation competition and secured the runners up prize for "Planning and Activities".

The closing ceremony reminds us of the journey of IEEE BSC, being the first ever conference attended by IEEE SIESGST student branch and it being one of the best experiences for the team. The seminars, workshops and sessions conducted have encouraged and motivated us in the technical as well as non technical fields. It was great to interact and build networks with the many like minded delegates and speakers. Kudos to the team. We hope to keep growing in the future.

Harsh Agrawal
EXTC Student, SIES GST

EVENTS HELD IN 2018-19

The year 2018-19 was a prominent year for our IEEE student branch of SIES GST. Some of the many events conducted in this year uplifted the standards of our student branch by leaps and bounds.

Some of the many events which served as a very knowledgeable and interesting experience for all the students are; **FPGA workshop**, **Machine learning workshop**, **Drone workshop**, **Arduino workshop**, **IoT workshop** and **MTT-S Student Chapter Inauguration** and some seminars. FPGA workshop was conducted by scientists from **Tata Institute of Fundamental Research**, the aim of workshop was to provide a platform for students to learn, design and implement digital system on FPGA using VHDL. A workshop on IoT was conducted by **Dr. Sourabh Mehta** (IEEE Bombay Section). Machine Learning workshop conducted by a **Prof. Santosh Chapneri**, St. Francis Institute of Technology. This workshop provided practical foundation level training that enables immediate and effective participation in big data and data science and it covered the basic algorithms that helps us to build and apply prediction functions with an emphasis on practical applications. Drone workshop, Arduino workshop were conducted by our **Technical team** of IEEE-SIESGST. A very informative guest lecture was conducted by **Prof. Aiyappan Pillai**, an Excom member, IEEE Bombay Section. "Technical Talk & Interaction: Design and Development of Analog Instruments" was conducted by the Director of Electronic Enterprises **Mr. Arun P. Wagle**. This year witnessed the inauguration of a chapter under IEEE SIES GST i.e. MTT-S (Microwave Theory & Technique Society).

The active participation of all the IEEE members and fellow EXTC branch students in the mentioned events helped to boost the morale of the team and indeed made it a promising year for IEEE SIESGST to celebrate and cherish.

PRINTED & PUBLISHED BY: Dept. of Electronics & Telecommunication, SIES Graduate School of Technology, Sri Chandrasekarendra Saraswathy Vidyapuram, Plot 01 - C D & E, Sector 5, Nerul, Navi Mumbai - 400 706

EDITORIAL BOARD: Dr. Vikram Patil, Dr. Atul Kemkar, Prof. Biju Balakrishnan, Aman Rajput, Rashmita Shetty, Rohit Vishwakarma

TECHNOZINE MAGAZINE: The Official Annual Magazine of Dept. of Electronics & Telecomm., SIES GST

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