2017-2018

Parshvanath Charitable Trust's

A. P. SHAH INSTITUTE OF TECHNOLOGY

NIRMITI

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

Editorials

Prof. Mamta Kurvey

Prof. Manisha Samant

Mrs. Priti Farkade

Arohi Joshi

Archana Gajula

From,

Principal's Desk

It is a matter of great pride and satisfaction for A.P. Shah Institute of Technology to bring out the newsletter "Nirmiti" released by the Department of Electronics & Telecommunication. The department aims to create a centre of professional learning in the field of Electronics and Telecommunication Engineering in sync with the technological progress to meet global industrial challenges and social requirements.

This newsletter is an eloquent exression of the progress and outstanding achievements that a department has to its credit. It highlights the quality of education and the extra curricular activities that the department has undertaken to develop the all round personality of the students.

The readers would be greatly benefitted as the contents are going to unfold for them new information on various scientific and literary topics.

I congratulate the Editorial Board of this newsletter who have played the wonderful role in accomplishing the task. Also my heartfelt congratulations to the Head of Department and the faculties for their fruitful efforts.

Dr.Uttam D Kolekar.

From,

HOD's Desk

It gives me immense pleasure to present before our readers the first publication of the Electronics & Telecommunication Department's newsletter "Nirmiti".

Nirmiti is an amalgamation of all the events held in the department and it plays an instrumental role in providing a greater exposure of the achievements accomplished by the students and the faculties.

In the era of engineering and technology, Nirmiti, which is creation in Sanskrit, will motivate the teachers and students for sharing their creativity and new ideas with the world and will help in their overall development. Even as we impart education to match the advancement in technology and globalization, we march our students ahead with APSIT's ethos of moral values and principles. We constantly endeavour to instil these qualities in our students. We feel proud to help them grow and develop into sensitive and responsible citizens of the next generation.

Learning becomes powerful and engaging with the combined efforts of students, parents, teachers and staff. Together, we work in inspiring the students to continually strive for excellence.

I congratulate the entire editorial team for their hard work and dedication and request everyone to go through this newsletter. Your feedback and suggestions would be appreciated. Thank you.

Prof. A. M. Deshpande.

VISION

To create a centre of professional learning in the field of Electronics and Telecommunication Engineering in sync with the technological progress to meet global industrial challenges and social requirements.

MISSION

To provide facilities, infrastructure and training to students and faculty members and thereby create the ambience for excellent learning in Electronics and Telecommunication Engineering.
To provide project based and value added education.

About the Department

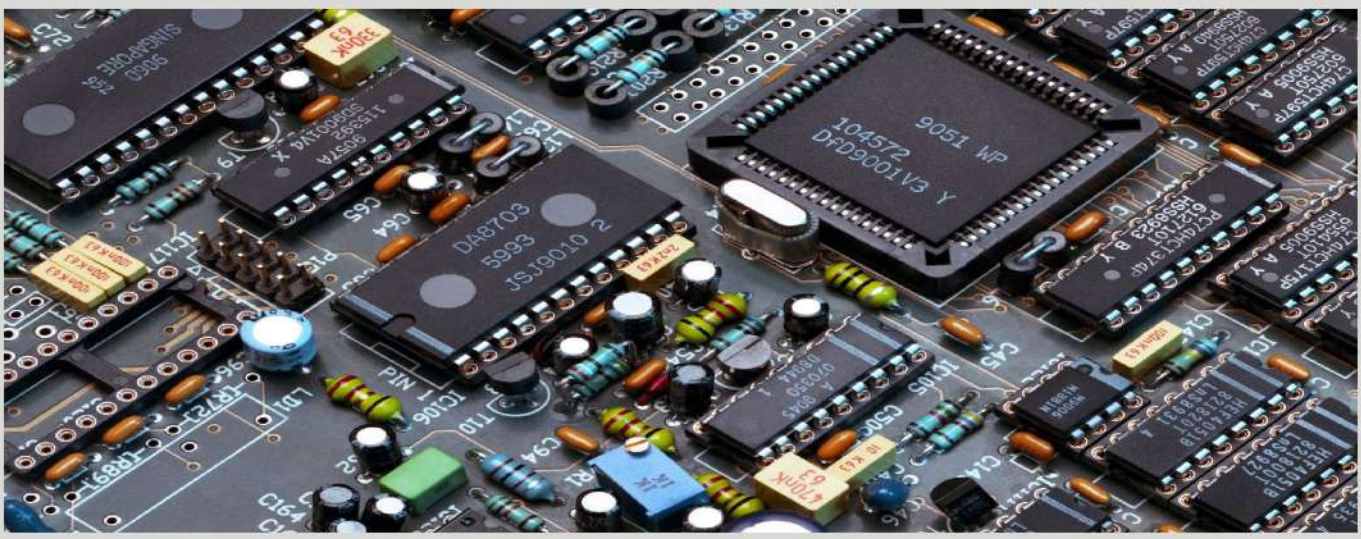
Electronics and Telecommunication sector revolutionised the world. World is moving towards the fifth generation of mobile communication, the backbone of Smart cities is wireless communication. This has resulted into ever increasing demand for Electronics and Telecommunication Engineers in India and abroad.

To cater the requirements of the communication industries, the department offers excellent infrastructure and resources in the form of knowledgeable faculty and a library having a vast collection of informative books.
The Department is well-equipped with laboratories containing latest equipment's, along with software and hardware tools to cater to the need of advanced communication technologies.

The laboratories have state-of-the-art equipment like Spectrum Analysers, Digital Storage Oscilloscopes, High Frequency CRO and Radio Frequency Signal Generators and software tools like MATLAB, MultiSim, LabView etc.
The department is involved in a number of technical and co-curricular activities encouraging students to broaden their horizons of thought, innovate and implement their ideas.

The department has acquired expertise in the area of Electronic devices and circuits, Embedded System Design, Analog and Digital communication, Wireless Communication and Networks, Optical Communication and Networks, Antenna and RF System Design.
Faculty members are actively involved in research activities and have many research publications in international & national journals and international conferences to their credit.

The department also offers consultancy services to the industries and R&D organizations in the area of the expertise.



Student Achievements

Sahil Palekar, Ashish Lohar & Anil Singh of BE EXTC secured Third position in Technical Paper Presentation Competition of "EXALT 2K17" held in APSIT on 15th and 16th September 2017.

Archana Chauhan of BE EXTC secured 2nd position in "Technical Paper Presentation" in the Event "Electra Buzz" conducted by New Horizon Institute of Technology and management, Thane on 29th September 2017.

Yash Dedhiya, Shreyas Somani, Ishwar Prajapati of TE EXTC secured Second position in Quiz Competition of "EXALT 2K17" held in APSIT on 15th and 16th September 2017.

Shreyas Somani, Ishwar Prajapati of TE EXTC secured Second position in Mini Project Competition of EXALT held in APSIT on 15th and 16th September 2017.

Nitu Bhati, Sonam Mathur of TE EXTC with the students of allied departments secured Second position in Robotron Competition of "EXALT 2K17" held in APSIT on 15th and 16th September 2017.

Shubhankar A.V. of SE EXTC participated in Mini Project, Robotron, Technical quiz, Best of waste, Tech race and Lan Gaming competition of "EXALT 2K17" held in APSIT and secured 1st position in Mini Project and 3rd position in Best of Waste on 15th and 16th September 2017.

Nisha Francis of SE EXTC participated in Robotron, Technical quiz, Best of waste and Floating Deck competition of "EXALT 2K17" held in APSIT and secured 3rd position in Best of Waste on 15th and 16th September 2017.

Ruchi Rane of BE EXTC participated in Technical Paper Presentation Competition of "EXALT 2K17" held in APSIT on 15tth and 16th September 2017.

Pooja Pawar of BE EXTC participated in "Present around the World" competition held by IET (Institute of Engineering and Technology) Mumbai Local Network on 11th March 2017.

Pooja Pawar of BE EXTC participated in "National Level Project Showcase" (VNPS 17) conducted by VCET, Vasai on 7th April 2017.

Ruchi Rane of BE EXTC participated in "Technical Project Presentation" and "Electra-Buzz" events conducted by New Horizon Institute of Technology and management, Thane on 29th September 2017.

Archana Chauhan of BE EXTC participated in "Technical Paper Presentation" conducted by New Horizon Institute of Technology and management, Thane on 29th September 2017.

Archana Chauhan and Nihal Chowkekar of BE EXTC participated in "Tantragyan 2017" for the project titled "Cellphone Dectector" conducted by Lokmanya Tilak College of Engineering, Koparkhairane, Navi Mumbai, on 30th March 2017.

Archana Chauhan, of BE EXTC participated in"National Level Project Showcase" (VNPS 17) conducted by VCET, Vasai on 7th April 2017.

Virendra Bhoir of BE EXTC participated in "National Level Project Showcase" (VNPS 17) conducted by VCET, Vasai on 7th April 2017.

Bhavika Bhanushali, Ankita Jadhav, Jyoti Kale and Twinkle Inamdar of BE EXTC participated in "Tantragyan 2017" for the project titled "Finger Print based Bank Locker System" conducted by Lokmanya Tilak College of Engineering, Koparkhairane, Navi Mumbai, on 30th March 2017.

Bhavika Bhanushali, Ankita Jadhav, Jyoti Kale and Twinkle Inamdar of BE EXTC participated in mini project competition of "EXALT 2K17" held in APSIT on 15th and 16th September.

Nihal Chowkekar of BE EXTC participated in "National Level Project Showcase" (VNPS 17) conducted by VCET, Vasai on 7th April 2017.

Mayur Waghmare of TE EXTC secured First position in Relay Race in Sports Meet 2017 held in APSIT.

Pallavi Fadtare and Archana Gajula of SE EXTC participated in Technical quiz competition of "EXALT 2K17" held in APSIT on 15th and 16th September 2017.

Soham Kasture of BE EXTC selected in Washkewicz college of Engineering (Cleveland State University).

Training and Placement

Bhavika Bhanushali, Ankita Jadhav, Jyoti Kale, Vaibhav Gupta of BE EXTC are selected in QSPIDER company.

Manish Nikam, Ankita Jadhav, Ruchi Rane, Twinkle Inamdar, Anil Singh, Archana Chavan 0f BE EXTC are selected in Hinduja Global Solutions.

Zaid Kadri is selected in DXC(CSC) technology and Sampada Shelar is selected in HP.

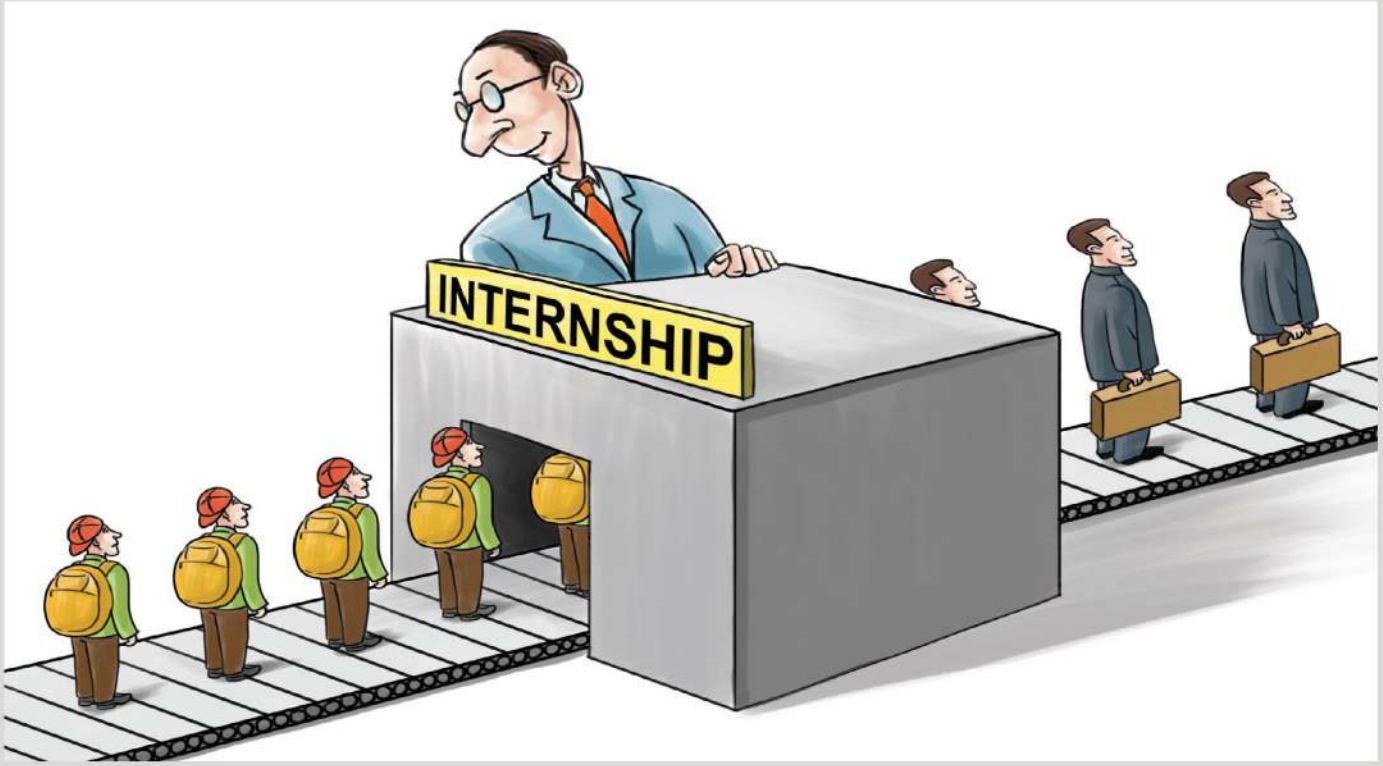
Internships

Pooja Pawar, Ankita Vaity, Virendra Bhoir, Bhupen Kulkarni, Chetan Kadam and Ashish Ubale, of BE EXTC have done Internship in Doordarshan Kendra, Worli, Mumbai from 17th July 2017 to 22nd July 2017.

Ruchi Rane, Archana Chauhan, Bhagyashree Gavhane of BE EXTC and Tanuj Shukla and Guruprasad Singh of TE EXTC are selected for the Internship in Doordarshan Kendra, Worli, Mumbai from 8th January 2018 to 13th January 2018.

Sampada Shelar of BE EXTC have done Internship in Doordarshan Kendra, Worli, Mumbai in the month of June 2017.

Aniket Jadhav of BE EXTC have done one week Internship on Satellite Communication in BSNL Mumbai in 2017.



IETE Student Forum

An IETE Student Forum (ISF) was formed and inaugurated on 22nd August 2017 to provide the students with a platform to explore and display their technical skills.

The dignitaries for the inauguration of ISF were:

1) Prof. Uttara Gogate, Secretary of IETE Mumbai Chapter
2) Prof. Madhuri Rodge, Convenor of IETE Mumbai Chapter
3) Dr. U. D. Kolekar, Principal APSIT
4) Prof. A. M. Deshpande, Vice Principal and HOD of EXTC, APSIT

The elected members of ISF are:

1) President: Ms. Sampada Shelar
2) Vice President: Mr. Vaibhav Gupta
3) Secretary: Ms. Sonam Mathur
4) Treasurer: Mr. Yash Chopra

Inauguration of IETE Student's forum (ISF) by Prof. Uttara Gogate, IETE Secretary, Mumbai Chapter on 22nd August 2017 at A. P. Shah Institute of Technology.

Ms. Sampada Shelar, President, speaking on the occasion of Inauguration of IETE Student's forum (ISF)

Mr. Vaibhav Gupta, Vice President, speaking on the occasion of Inauguration of IETE Student's forum (ISF)

Ms. Sonam Mathur, Secretary, anchoring the Inauguration program of IETE Student's forum (ISF)

Mr. Yash Chopra, Treasurer, offering a vote of thanks, while concluding the Inauguration ceremony of IETE Student's forum (ISF)

Visit to GMRT

An Industrial visit to GMRT Narayangaon was organized for Final year students on 14th July 2017.
The Giant Metrewave Radio Telescope (GMRT), located near Pune in India, is an array of thirty fully steerable parabolic radio telescopes of 45 metre diameter, observing at metre wavelengths. It is operated by the National Centre for Radio Astrophysics, a part of the Tata Institute of Fundamental Research, Mumbai. At the time it was built, it was the world's largest interferometric array offering a baseline of up to 25 kilometres.

An Industrial visit to GMRT Narayangaon for BE EXTC students on 14th July 2017

The Giant Metrewave Radio Telescope (GMRT), located near Pune in India, is an array of thirty fully steerable parabolic radio telescopes of 45 metre diameter, observing at metre wavelengths. It is operated by the National Centre for Radio Astrophysics, a part of the Tata Institute of Fundamental Research, Mumbai. At the time it was built, it was the world's largest interferometric array offering a baseline of up to 25 kilometres (16 mi).

The GMRT is located about 80 km north of Pune at Khodad. A nearby town is Narayangaon which is around 9 km from the telescope site. The office of NCRA is located in the Savitribai Phule Pune University campus.

One of the aims for the telescope during its development was to search for the highly redshifted 21-cm line radiation from primordial neutral hydrogen clouds in order to determine the epoch of galaxy formation in the universe.

Astronomers from all over the world regularly use this telescope to observe many different astronomical objects such as HII regions, galaxies, pulsars, supernovae, and Sun and solar winds.

"Oscillation" IETE Event on Circuit Building Competition

The "Circuit Building Competition" event was organized by the ISF faculty co-ordinator of EXTC department, Prof. M. P. Kurvey on 1st March 2018 at A. P. Shah Institute of Technology at Thane. The following faculty members have worked hard for successful completion of event: 1) Prof. Sonia Aneesh 2) Prof. Manisha Samant 3) Prof. Tejashri Kolhe 4) Prof. Veena Gawade 5) Prof. Jay Mehta 6) Prof. Adesh Hardas 7) Prof. Selvin Furtado 8) Mr. Avdhut Patil, last but not the least our laboratory assistant Mr. Vinod Shinde.

The competition was open to all students of SE, TE and BE EXTC. The registration for the competition was started from 16th February 2018 to 28th February 2018. The ISF members Sonam Mathur and Yash Chopra had taken the initiative for registration. A total of 27 groups participated in the competition. Each group was of two members. Rules and regulations were decided.
The winner's of the competition are:

Sr. No.	Name of the Students	Result
1	1. Siddhant D. Sawant (TE EXTC) 2. Shubham K. Sawant (TE EXTC)	1st Prize
2	1. Abhit Kotian (SE EXTC) 2. Nitish Chaudhari (SE EXTC)	2nd Prize

Students and Faculty involvement in circuit building competition

Faculty Achievements

Prof. Sameer Nanivadekar, Prof. S.L. Shelgaonkar and Prof. S. B. Sawargave have completed their Ph.D.

Prof. Sameer Nanivadekar has published a research paper on "Betterment of resource allocation in OFDM based cognitive radio with weightage based dynamic group search optimization" in IEEE explore on February 2017.

Prof. Sameer Nanivadekar has published a research paper on "Review of metaheuristic algorithm for cognitive radio" in international journal IJCESR approved by UGC on July 2017.

Prof. Shelgaonkar has published a research paper on "Scope for Improvement in Quality of Diagnostic Images for pelvic region" in International Journal of Modern Trends in Engineering and Research.

Prof. S. B. Sawargave has submitted a research paper on "Self-Adaptive Whale Optimization for design and modeling of Boiler plant" which is under review.

Prof. M. P. Kurvey has submitted a research paper on "RF Energy Harvesting System" which is selected for an IEEE Conference which will be conducted by Universal College of Engineering.

Prof. M. P. Kurvey has submitted a research paper on "Design and Optimization of Stepped Rectangular Antenna for RF Energy Harvesting" which is selected for an IEEE Conference which will be conducted by Sardar Patel Institute of Technology.

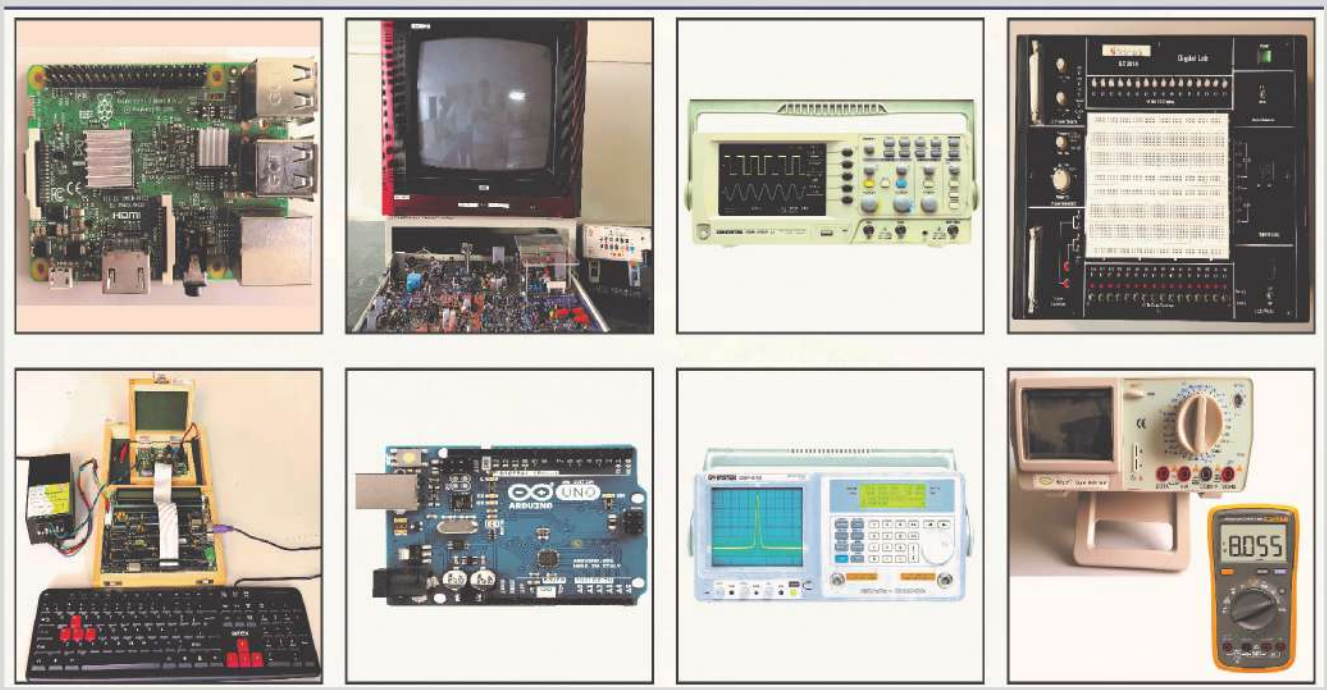
Faculty Development Programe

An in-house faculty development program was conducted on 9th February, 2017, in lab 317, on "Introduction to Arduino", for the faculties of EXTC, Computer and IT Engineering Dept., A P Shah Institute of Technology, Thane.

The said FDP was conducted by Asst. Prof. Selvin Furtado and Asst. Prof. Jay Mehta, of EXTC Dept., A P Shah Institute of Technology, Thane. The FDP was designed to introduce the participants to Arduino Embedded Development Platform using hands on approach. A library of example programs was specifically designed for this purpose, centring on sensor interfacing, serial monitor, and digital and analog input and output. A total of 5 nos. of Arduino UNO, along with required number of ultrasound and LM35 (temperature sensor) were specifically purchased for this purpose.

The said FDP was conducted to fulfil the prerequisites of WSN FDP planned in coming semester of June 2017. Also the FDP with required modifications is to be rolled out to students as an co- curricular course, useful from project point of view, during the summer vacation of 2017.

Participants of workshop on Arduino UNO conducted by Prof. Selvin Furtado and Prof. Jay Mehta 9th February 2017



Test Setup of EXTC

Software in EXTC

"LOG KYA KAHENGE"

The last sunday I had accompanied my little niece to a nearby park. We entered the park and noticed crowd getting assembled near the slides. I went there to check if anything was wrong to my sight and I observed an old lady say about 70-75 years was enjoying those slides.

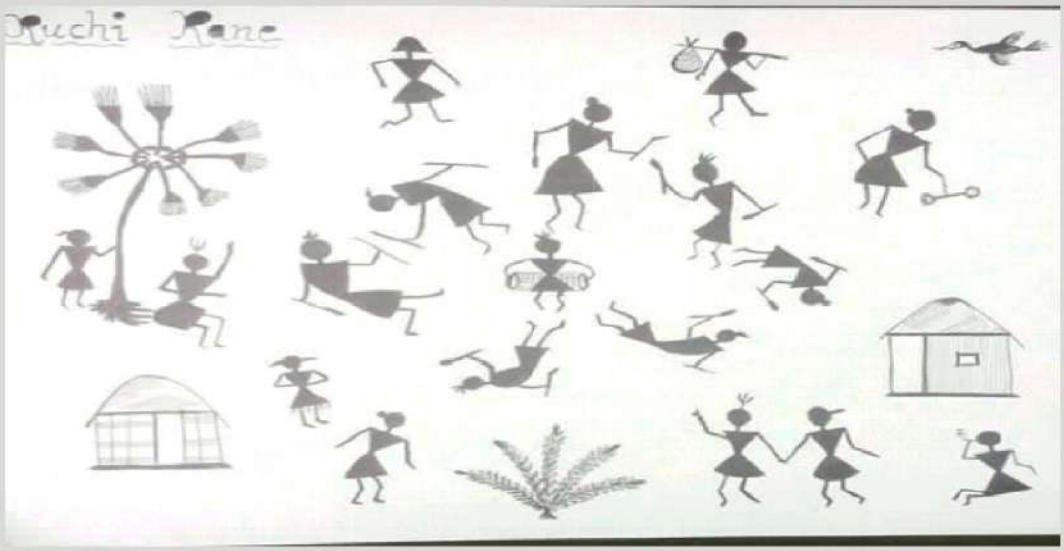
Some were giggling, promulgating her to be an idiot and what not. While the frustrated parents went to the guard to complain about that old lady. Meanwhile, without caring of what is happening in her environment, that old lady was enjoying those slides again and again. Finally, after a heap of turns she went off with a smiling curve and gleeful eyes.

MANN and BUDDHI, A BIT PHILOSOPHICAL but must know terms! Mann tells you to cry your heart out, to giggle like an idiot, to dance on the street but then like a VILLIAN in the story Buddhi enters and bombards your mind with a thought LOG KYA KAHENGE!!!

DUNIYA MEIN EK HI ROG….KYA KAHENGE LOG!

If that old lady would have cared about the society she would have never experienced those slides. Guys, REMEMBER day when you broke up, Remember the day when your mom and dad left this world, remember the day when you failed the most…. In such phases of your life, when you had fallen down very badly, where were these people (LOG) whom you think of every moment and create limitations for yourself. People whom you call great today were always criticized and called an idiot till the day they get success. So if people call you an idiot, Just smile because you are on the verge of becoming A GREAT PERSON.

Ruchi Rane of BE-EXTC



Warli Paiting by Ruchi Rane of BE EXTC

Award winning Rangoli by Shubham Sawant of TE EXTC

Portrait titled “Smile is the best make-up any girl can wear” by Shubham Sawant of TE EXTC

"Confessions of an Engineering Student..!!"

Being in college is a reckless period of life. We are often told that this is the best time of our lives. And of course it is because we learn the most of life's lessons during this time. But our recklessness knows no boundaries during our college days. Here are few confessions you can relate with...!

Confession#1:- The MATH problem...

Math, the universal trauma that we have to bear and that Greek language seems to be like something out of the world. It is of course a mind blowing subject as it improves our problem solving abilities. But still it was and will remain traumatic for the future generations as well..!

Confession#2:- We always tend to over exaggerate our problems in life..

Be it college hours, the saturating lectures, problems within friend circle or personal problems, we always express our agony for sympathy since it is freely given to an engineering student with a basket full of compassion because we are always a little young, dumb and broke....!!

Confession#3:- we live in a delusion that engineering is difficult to be completed without ATKT....

This is a delusion almost every engineering student has and it is made sure that this misconception is passed on as a legacy to the future posterity.

Confession#4:- Canteen is considered as a heaven on earth within the hectares of a college campus.

After attending long hours of lecture the only place to relax and to fill the belly is within the walls of a college canteen. And it becomes so difficult to get up and move back to the class after the break....!!

Confession#5:- Being a teacher's pet

Though we deny this fact when someone asks us about being a teacher's pet but deep inside we all desire that.....To be our teacher's favorite student...!

Nisha Francis SE-EXTC

.....हमारी अधुरी कहानी....

कधी कधी मला वाटते
कोण होतास तू माझा....?
क्षणभरासाठी आयुष्यात येऊन
माझे आयुष्य पार बदलून गेलास ...

तू शिकवले मला प्रेम म्हणजे काय....?
तुझ्या भावना नाही कळल्या म्हणून दूर केल तुला ...
पण आता तुझ्या प्रेमासाठी तडफडत आहे मी क्षणाक्षणाला...

राहून न राहून मन विचारते कधी परत येशील तू...?
माझ खरखूर प्रेम मला कधी परत देशील तू....?

मी तुझी आहे आणि तू माझाच...
यापलीकडे कोणी नाही या जगात...
परत ये तू माझ्याकडे मला पुन्हा प्रेम करायच आहे ...
जे त्या वेळी नाही सांगू शकले..
ते यावेळी भरभरून सांगायच आहे ...

खूप प्रेम आहे रे माझं तुझ्यावर...
पण काहीतरी आड येतयं...
ही सगळी बंधन तोडून आता तुझ्यात हरवून जायचंय ...

निदान या वेळी तरी मला जिंकायचय.....

सायली गुरव टी.ई.-ई.एक्स.टी.सी.

||तारुण्य||

जे सामर्थ्यशील असतं तेच तारुण्य, प्रकाश कधीतरी काळा असतो काय ? असल सामर्थ्यशील तारुण्यच आपल्याबरोबर इतरांचा मान वाढवत

महत्वकांक्षा हा तारुण्याचा स्वाभिमान , मी मोठा होईन परिस्थितीच्या डोक्यावर पाय ठेऊन मी तिला वाकविन . ही तरुणाची उभारीची उर्मी असते.

अभिमान असतो तारुण्यांचा आत्मा ! ज्या मानसात श्रद्धा नाही तो माणूस नाही आणि ज्या तरुणात अभिमान नाही तो तरुण नाही . तरुण माणूस हा आपल्या श्रद्धांचा नेहमीच अभिमान बाळगतो . त्याच्यासाठी प्रसंगी प्राण द्यायलाही त्याला तयार असाव लागतं.

अ. आ . पाटील.

तू.....???

तू कोण आहेस माझा
हे मला कधी कळलेच नाही ..
नकळत मने जुळली आपली..
मला चाहूलही लागली नाही ..
माझ्यासाठी तू म्हणजे ..
श्रावणातली पाहिली सर...
आणि त्या सरीचा पहिलाच थेंब..
तू म्हणजे मोकळा वारा..
तू म्हणजे थोडा विरंगुळा..
तू म्हणजे आनंद..
तू म्हणजे प्रेम.....
तू म्हणजे स्वप्न माझ..
तू म्हणजे सत्य ...
तू म्हणजे आसू माझी..
तू म्हणजे तृष्णा..
तुझ्यासोबत आयुष्य माझही होईल सुंदर ..
तुझ्या दृष्टीन पाहील तर सगळंच वाटत simple....
म्हणूनच मला एक दिवस तरी मनापासून जगायचंय..
तुझ्या डोळयांनी हे सुंदर जग पाहायचय...
माझा आनंद,माझ सुख,
सगळ तुला सांगायचंय...
तुझ्यात हरवून जायचंय,
तुझी होऊन जायचंय ...

श्रावणातल्या " त्या " पावसात चिंब भिजून जायचंय..
तुझी स्वप्न आपलीशी करुन तुझ्या सुखात रमायचं..
मलाही कधीतरी असं जगायचं...

सायली गुरव टी.ई.-ई.एक्स.टी.सी.

स्वप्न

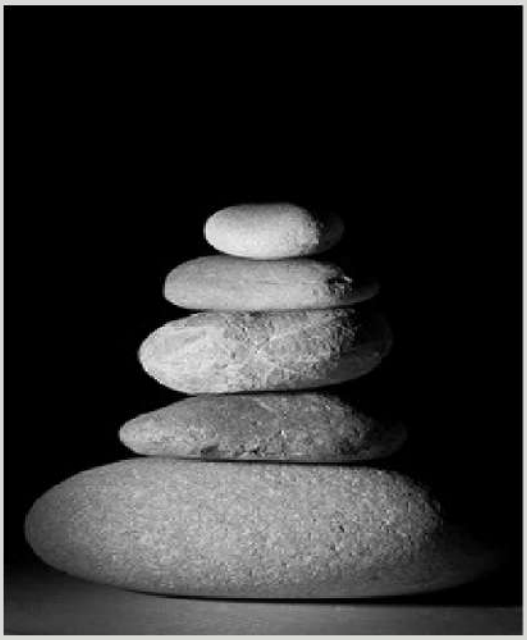
स्वच्छंद उडावे या आकाशी,
घ्यावा मोकळा श्वास....
नसावे बंधन या जगाशी,
असावा फक्त आभास....
तुझी साथ असावी या प्रवाशी,
असावा तुझा विश्वास....
स्वप्न फक्त इतकेच या मनाशी,
व्हावा सुरु हा प्रवास....

प्री. सं.फरकाडे.

Balancing Passion and Profession

Choose a job you love, and you will never have to work a day in your life.
Confucius

If you do what you love, you'll never work a day in your life.
Marc Anthony



While watching the annual social gathering of my engineering college in an auditorium , I saw many future engineers following their passion of singing, dancing, modelling, acting and so on. That time a thought crossed my mind that all these people have chosen to be engineers while their passion remains so diverse. So the question arises, should one follow his profession or passion?

I have observed that generally parents are all for the profession and the student is all for the passion. There was also a skit performed on this same topic which furthered my view. In my opinion, its roots lie in our family background.For example, you may go on forgein vacations with your family or someplace else that your family can afford.

You may travel by flights oftenly, eat food at pricey restaurents, use expensive phones etc all that your family can afford. Can following your passion allow you to afford the same attractions in the future ? Can you live up to the standards of your family's present income just by following your passion? Will you still be satisfied with your life if you couldn't? Moreover, will you be able to withstand the social pressures for not matching the economic standards of your family for a very long period of life? Probably, these must be the reasons why the parents are inclined towards building their child's profession which is financially rewarding in the present than pursuing passion.

Giving up the lifestyle that our parents have created for us, to take the road less travelled requires a strong mindset and years & years of struggle. Many of us succeed, and many of us don't. And for those of us who don't, being prepared to face hardships for most of our life is necessary.

Take example of Virat kohli, Captain of the Indian Cricket Team, is earning in crores. People look at him as an inspiration. But the main question lies in how many people have been left behind who couldn't reach his status. Probably thousands of them.There are only a few people who reach the top while following their passion and many who remain frustrated with the difficultes that life throws at them.

Following the profession, guarantees cash flow in the future which ensures that we would avail the same comfort & facilities that we do today. It ensures stability in terms of financial means.following the latter, requires a great mindset that even if all our comfort is taken away from us, we could still thrive & and be happy with our life.

Also, choosing your passion as your profession and ending up like Lata mangeshkar or Arijit Singh would mean that you have achieved your dream and you are also in a dictating position wherein you can control the kind of music that people should listen to . But the large portion of other artistes,who fail ,then sing at hotels, weddings or other social gatherings where they are being dictated by the people on how they want the music to be played wherein people are only concerned about eating their food and going about their own way with no sort of appreciation for the artist's passion and hard work, also resulting in depression and a sense of being a failure as you are not being recognized for the hours that you put in.

So the key lies in balancing both : Profession & Passion. Profession, for ensuring financial stability & being able to provide yourself with the same or more security in the future, and passion for your own personal satisfaction and contentment. And also to not have any regrets in your life.

When we talk about balancing both, the best example i can think of is, Mrs. Sudha Murthy, Chairperson of Infosys Foundation and also a renowed author. A computer scientist by profession and a writer by heart. She has multiple number of books under her wing which have become best sellers. She has also maintained her professional position at Infosys without compromising her passion for writing.

Another name that comes to mind is Mr. Vijaypat Singhania, former Chairman of the Raymond Group of Textiles and the former Sheriff of Mumbai. Being a keen aviator, he has set some of his own records. He holds the World Record for highest altitude gained travelling in a hot air balloon at the age of 67. This proves that a man can not only be successful in the professional front but can also fulfill the desires of his own heart.

An individual from a low income family, has greater ability to take risks as he has nothing to lose. On the other hand, a person from a well endowed family has multiple pressure including living up to his family's name & also earning the same or more than what his famiy did. Not to mention the social pressure.

From the above discussion, generally adversity is a boon and abundance is bane. However, even abundance can be effectively utilised as in the case of Abhinav Bindra, who hails from a rich family and pursued his passion of rifle shooting and became a Gold medalist.

Ultimately, there are no tailor-made soluions whether to choose professon or passion, but solution lies in the individual's ability to take risks in life.

Prof. A. M. Deshpande.

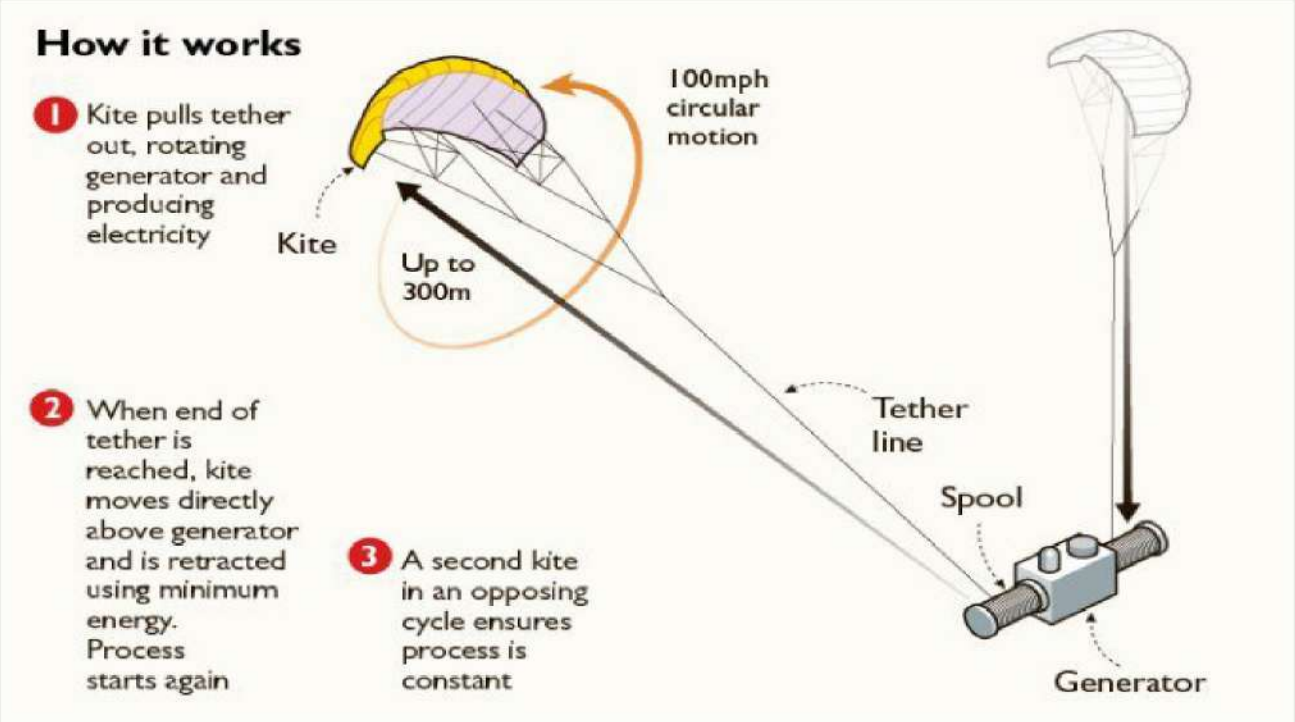
Energy Kites

Despite the focus on developing solar energy, wind energy in India has seen steady development in the last decade. With 32,279.77 MW of installed wind generation capacity (compared to 12,288.83 MW of solar power), India is one of the leading generators of wind energy worldwide. Yet, due to certain constraints, and more recently the more competitive rates in solar energy, there are concerns that the share of wind energy may decline. No doubt, unlike non-storage solar energy, wind turbines are not affected by night and day. However, generation of electricity depends on both the season and geographical location.

The wind is up there, right now, blowing continuously and free to all. But harnessing it to make electricity continues to be a costly affair. The typical two megawatt wind turbine has a price tag in the millions. And trying to tap higher, stronger winds with a turbine sends the cost up exponentially.

But the cost goes down, and efficiency goes up, when you throw out the tower and replace it with a kite and a bicycle wheel.

The government has announced that its target for wind energy generation by 2022 is 60,000 MW. Harnessing this potential will require huge investments as well as the requisite land. However, this problem may be resolvable through the use of a new technology – scores of kites to generate wind energy. This technology is believed to not only cut the cost of generating wind energy but also enhance the efficiency quotient. Although several companies are working on different models, the basic idea is to locate the kites, which are essentially light and controllable aerodynamic flying devices, in a formation at heights of around 750 metres and more in order to harvest the strong and consistent winds available in that region of the atmosphere.



This type of power generation could be the key to more widespread adoption of wind power. Depending on location, kite-based generators could provide stable, constant power almost every day of the year, eliminating the biggest disadvantage of renewable energy. Perhaps in a few years we'll all have kites flying overhead, powering our homes and lives. Kites aren't just for kids anymore. Just ask Makani Power, which is developing a smart energy kite that can generate up to 50 percent more electricity than a conventional wind turbine.

The company has been part of Google X since 2013, working to come up with a new, more efficient way to transform wind into energy.

To do that, Makani Power has built a craft that actually looks more like a drone but is tethered to the ground like a kite. It has four main components: the kite, the tether, a ground station, and a computer.

Eight rotors on the kite function much like the blades on a wind turbine. As the craft flies in a circular path, air moving across the rotors drives a generator which produces electricity. The electricity travels down the wire tether and is transferred to the ground station.

The station takes up significantly less space than a conventional wind turbine, and it can be installed in places not suitable for conventional turbines, such as areas that are too hilly or remote. The ground station also makes it easy to maintain the craft, which can be reeled in on its tether when it's time for a service.

The kite can reach higher altitudes than a conventional turbine, so it has access to stronger, more consistent winds, and the computer is the key to make the whole system efficient. Using a GPS and various sensors, it makes thousands of real time calculations to ensure the kite stays on the optimal path. That's important, Makani Power says, because whenever the wind speed doubles, the amount of available power increases eightfold.

Makani Power does not have energy kites on the market yet, but is currently working on its latest prototype, the M600. It has eight brushless motors and is able to produce 600 kilowatts of power. Thus the company is working towards establishment of energy kites for harnessing the wind energy.

Swara Vaidya TE- EXTC

FinFET Technology : Future of Transistor

Transistor are what make up the digital world. Since the inception of integrated circuits, continuous effort are being made to increase their performance by reducing the transistor size and implementing more transistors in small area, this observation by Gordon Moore led to the famous Moore's law. Moore's prediction proved accurate for several decades. It wasn't till late 2000s when further continuation of Moore's law was not possible because of losses like short channel effect, leakage current were considerable in typical MOSFET transistor beyond 90nm node. To overcome this FinFET transistor were used in place of MOSFET. FinFET are non-planar transistor i.e. Drain and Source and Channel above the surface of wafer.

A short history about FinFET, FinFET technology had its origins in the 1990s, as research possibility for replacement of the planar transistor. Proposed transistor by team lead by Dr. Chenming Hu was a thin-body MOSFET. Researchers Dr. Chenming Hu, Tsu-Jae King-Liu, Jeffrey Bokor were the first to call non-planar, double gate transistor as FinFET. "Omega FinFET" was the industry's first 25 nanometre transistor demonstrated in 2002 by TSMC.

Some of the benefits by using FinFET are better Gate control over the channel as Gate surrounds three sides of Channel instead of one, this reduces the amount of leakage current, also FinFET devices can operate at lower supply voltage. This drop significantly reduces the heat output of the system, it also improves the dynamic power consumption considerably. In one observation twenty percent improvement in performance was observed by drop of 0.1V in supply voltage.

Given that the transistor lower operating voltage than nominal, additional dynamic power saving are achievable, which in layman's term it saves battery in battery operated devices. Switching properties of FinFET are better than MOSFET which helps in lowering response time.

FinFET are multi-gate devices this means they can have more than one gate (tri-gate in some Intel processors), because of multi gate there is huge performance gain compared to traditional planar MOSFET. Designing of FinFET is flexible, they can be designed for performance specific design or power specific design. Impurities required in non planar transistor are less, thus reducing the unbalance between the amount of impurities in transistor, which provides faster operations.

Lets briefly look at construction of FinFET. Various process for a typical FinFET are Substrate, Fin etch, Oxide deposition, Planarization, Recess etch, Gate oxide, Depletion of various layers.The influence of the top gate can also be inhibited by the deposition of a nitride layer on top of the channel.Due to the presence of an oxide layer on an SOI wafer, the channels are isolated from each other anyway. Along with this, the etch process of the fins is simplified. However in recent times some setbacks are being observed in designing, like With the smaller device geometries lithography , optical manufacturing are no longer applicable as they don't have required resolution. Insted double patterning using litho-etch-litho processing is used. Fin: Fin is vulnerable as its doping concentration is low, its threshold voltage can't be minimized. FinFET has more parasitic capacitance. This parasitic capacitance decreases with increasing fin height and decreasing fin pitch. Other than the difficulties of dealing with a new, 3D transistor design in terms of parasitic extraction and physical behavior, the major issue is cost: building a finFET uses a number of additional steps in a manufacturing flow that is already struggling to contain the cost of advanced lithography. However with further development most of the setback will be overcomed.

Will FinFET ever replace MOSFET? In the mainstream, FinFET may not replace MOSFET, but nothing can't be said. But at the higher end , in companies like intel they have already replaced MOSFETs with FinFETs. Intel was first to release FinFET CPU technology in 2012 at 22nm node with its Ivy Bridge processors. Many semiconductor industries namely Samsung, TSMC, Intel are manufacturing advanced sub 14 nm FinFET geometries. Future scope of FinFet include further scaling down to 10nm by 2019. The optimization of the transistor fin will play a crucial role in this development. Further research is being conducted to scale down the FinFet so as to improve efficiency. It is worth mentioning that 14nm size is equivalent to the size of a virus. We have definitely come a long way in terms of scaling down a transistor. So the next generation of IC's will definitely have FinFET technology with a hike in price and a better durability.

Shrutika Shinde & Siddhesh Nikam TE-EXTC

Human Brain to Brain Wireless Communication

Tapping directly into someone's brain in order to share thoughts isn't just for Spock anymore. An international team of researchers were able to replicate the Vulcan Mind Meld by creating a device that allows two people to share information through thought. The researchers tested the technology by separating the users over 8,000 km (5,000 mi) apart—with one user in France and the other in India.

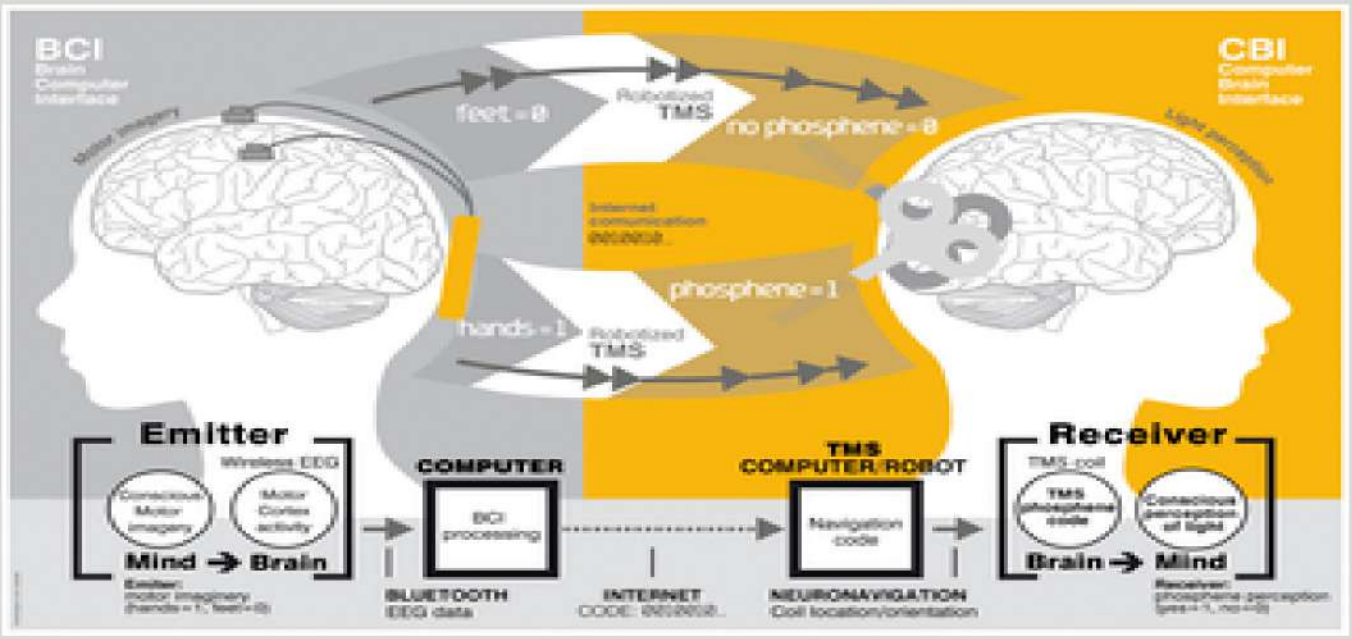
Research is done to find out if one could communicate directly between two people by reading out the brain activity from one person and injecting brain activity into the second person, and do so across great physical distances by leveraging existing communication pathways. "One such pathway is, of course, the internet, so our question became, 'Could we develop an experiment that would bypass the talking or typing part of internet and establish direct brain-to-brain communication between subjects located far away from each other in India and France?'"

The device connects directly to the users' scalps and impulses from the sender were picked up via electroencephalogram (EEG) as well as by image-guided and robot-assisted transcranial magnetic stimulation (TMS). The signal was encoded and sent via the internet to the user on the other end. Once it reached its target destination, the code was then interpreted by a computer interface and delivered to the recipient. The device worn by the recipient stimulates phosphenes, which appear as flashes of light even though there isn't actually any light entering the eye. The phosphenes are delivered in a pattern, which needs to be deciphered by the recipient who wears a blindfold to block out other visual stimuli.

Through this method, users were able to exchange simple messages of "ciao" and "hola" to one another without the use of speech, writing, or body language. Though there were minor errors during the trials, the system was, on average, over 90% accurate. There are other methods that would likely be more accurate, but require being embedded into the users. This EEG method is noninvasive and is therefore the best choice at this stage.

Human sensory and motor systems provide the natural means for the exchange of information between individuals, and, hence, the basis for human civilization. The recent development of brain-computer interfaces (BCI) has provided an important element for the creation of brain-to-brain communication systems, and precise brain stimulation techniques are now available for the realization of non-invasive computer-brain interfaces (CBI). These technologies, BCI and CBI, can be combined to realize the vision of non-invasive, computer mediated brain-to-brain (B2B) communication between subjects (Hyperinteraction). The conscious transmission of information is established between human brains through the intact scalp and without intervention of motor or peripheral sensory systems. Pseudo-random binary streams encoding words were transmitted between the minds of emitter and receiver subjects separated by great distances, representing the realization of the first human brain-to-brain interface.

In a series of experiments, internet-mediated B2B communication is established by combining a BCI based on voluntary motor imagery-controlled electroencephalographic (EEG) changes with a CBI inducing the conscious perception of phosphenes (light flashes) through neuronavigated, robotized transcranial magnetic stimulation (TMS), with special care taken to block sensory (tactile, visual or auditory) cues. Our results provide a critical proof-of-principle demonstration for the development of conscious B2B communication technologies.



These experiments represent an important first step in exploring the feasibility of complementing or bypassing traditional language-based or other motor/PNS mediated means in interpersonal communication. Although certainly limited in nature (e.g., the bit rates achieved in our experiments were modest even by current BCI standards, mostly due to the dynamics of the precise CBI implementation), these initial results suggest new research directions, including the non-invasive direct transmission of emotions and feelings or the possibility of sense synthesis in humans, that is, the direct interface of arbitrary sensors with the human brain using brain stimulation, as previously demonstrated in animals with invasive methods.

The widespread use of human brain-to-brain technologically mediated communication will create novel possibilities for human interrelation with broad social implications that will require new ethical and legislative responses

Using EEG to transmit information isn't completely novel, as it has previously used when operating powered wheelchairs. However, this is the first time that the technology has been used to connect human brains directly. In the future, this technology could be used to help communicate with patients who, following disease or injury, are still aware but unable to speak. More fully developed, related implementations will open new research venues in cognitive, social and clinical neuroscience and the scientific study of consciousness. We envision that hyper interaction technologies will eventually have a profound impact on the social structure of our civilization and raise important ethical issues.

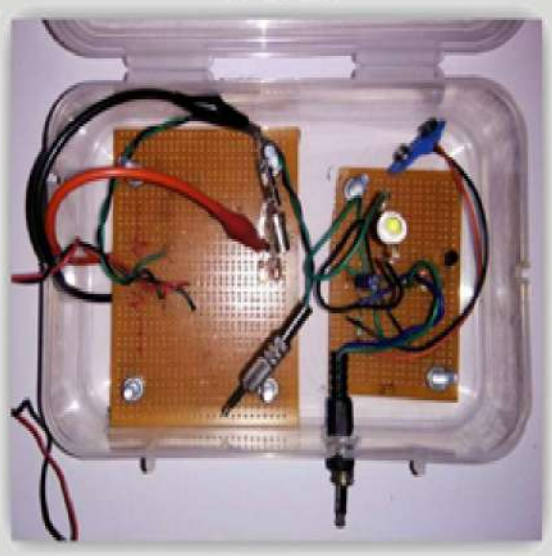
Shreyas Somani TE-EXTC

Introduction to LIFI Technology (LI-FI)

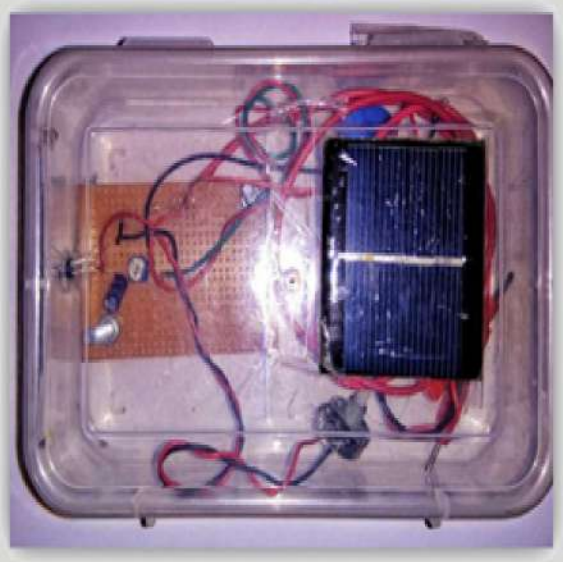
Today speed of the web is a noteworthy issue and everybody be it business foundations, associations, business people is pushed for getting right data at the correct time. This requires quick web network, innovation and substantial range of channels. The Future of Communication (LI-FI) may influence all lives. It is an innovation that may give hypothetically a speed of up to 10Gbps, financially savvy and more powerful and helpful than Wi-Fi. Li-Fi isn't required to totally replace Wi-Fi, however, the two innovations could be utilized correspondingly to make more productive systems. The innovator of Li-Fi, Harald Haas a German physicist and teacher has concocted this

innovation which he calls "information through light". It is a remote innovation that makes utilization of noticeable light to transmit information at terabits every second, speeds in excess of 100 times the speed of Wi-Fi. This innovation has colossal conceivable outcomes, from open web access through road lights to auto-guided automobiles that operate through street lights.

Li-Fi implies Light Fidelity. This innovation was proposed by Prof. Harald Hass, a German researcher, at the University of Edinburgh. Li-Fi gives transmission of information through enlightenment by sending information through a LED light. It is a VLC (Visible Light Communication) innovation that manages the exchange of information through enlightenment by removing fibre cables by sending information through LED light. The stream of Li-Fi is bidirectional. It is rapid and utilizes light rather than radio waves in Wi-Fi for the exchange of information. The researcher Harald Hass alluded this innovation as "Information through light". When contrasted with a general broadband association, this innovation gives higher information speed than 10 Mbps which is substantially faster. Li-Fi is an OWC (Optical Wireless Communication) framework which utilizes light from LED (Light Emitting Diode). Both Wi-Fi and Li-Fi transmit the information over the electromagnetic range just distinction is that Wi-Fi uses radio waves whereas Li-Fi uses visible light. As the speed of light is much faster, subsequently because of this the rate of information transmission is more when contrasted with Wi-Fi which utilizes radio waves for information transmission.



LI-FI TX



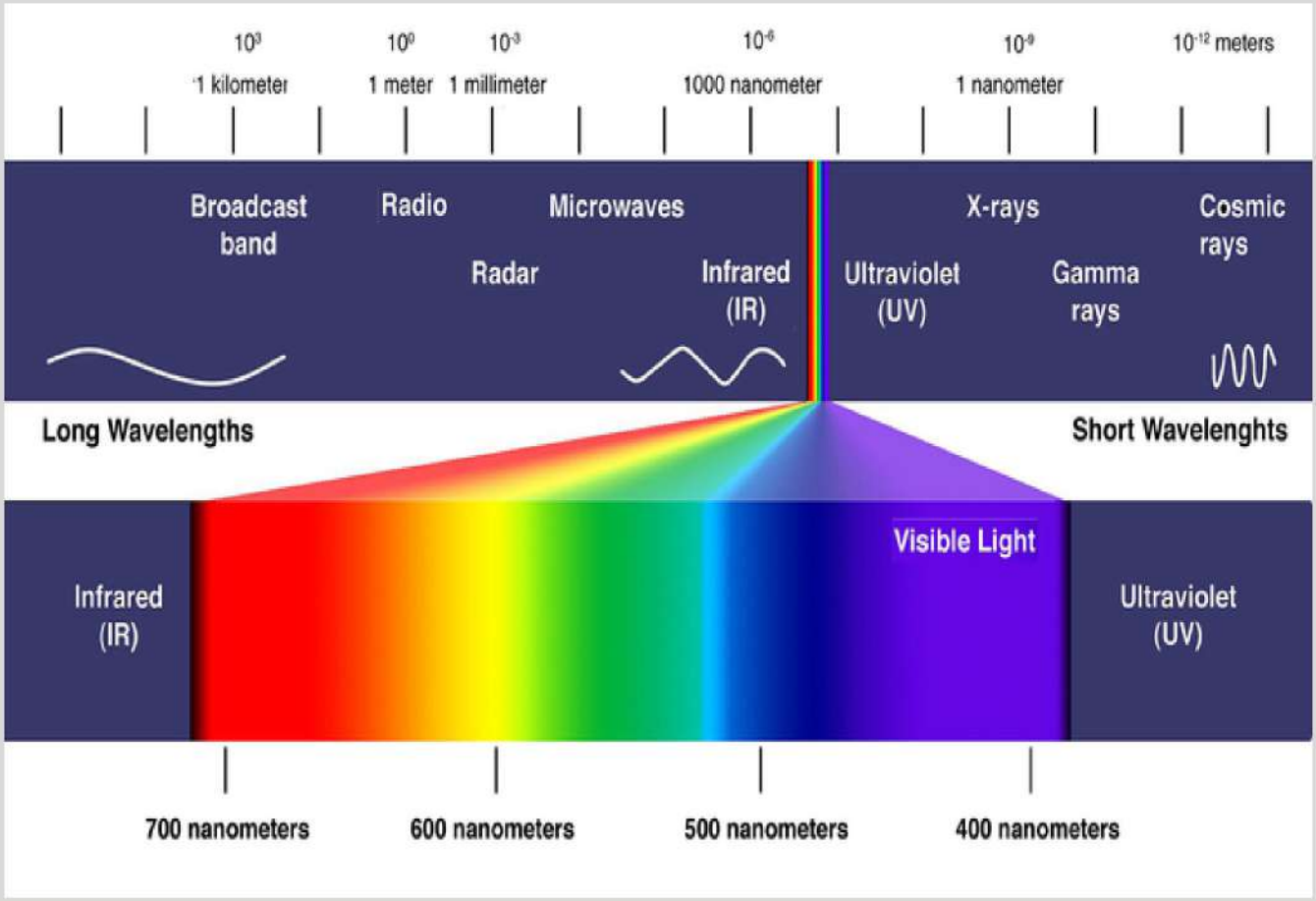
LI-FI RX

The working rule of li-fi is very straightforward, it depends on the transmission of computerized information 0's and 1's. The basis is, if the LED is OFF, a 0 is transmitted and if the LED is ON, a 1 is transmitted, this can't be recognized by a human eye. The LED's can be turned ON and OFF rapidly by means of which we can transmit information with the help of light. Bright and large, white LED globules are utilized for implementing the idea of li-fi which is utilized for the transmission of the data. The light yield can be made to fluctuate to a great degree of high speeds by quick variations of the current. To develop a message we are fluctuating the LEDs at various speeds. So as to acquire information rates in the scope of several bytes for each second we can utilize exhibit of LEDs which likewise encourage us for parallel information transmission or we can likewise utilize a mix of three essential hues LEDs red, green, blue to adjust the recurrence of light. The VLC (Visible Light Communication) utilizes obvious light between 400 THz (780 nm) and 800 THz (375 nm) as the optical transporter for information transmission and for brightening

The thought behind Li-fi is realized by utilizing white LED lights at the downlink transmitter, for brightening, a consistent current is connected to LEDs. The optical yield can be made to change at high speeds, by quick variations of the information current. It functions as when the LED is “ON” then the binary "1" is transmitted and when the LED is “OFF” then the binary 0 is given. Driver’s fluctuations happens at a quick rate and which is not visible to the human eye. In this technique, much headway could be achieved by utilization of a variety of LEDs for parallel information transmission. These kinds of progressions guarantee a speed of 10Gbps – that is one can download a full HD film in only 30 seconds Web association, switch and LED light are altogether associated with the light driver through an optical fibre link. An identifier is additionally associated with PC's, Laptops or LAN port. At the point when the LED is ON, the transformation of the computerized information into the light shape is finished by microchip. On getting the light flag the Light identifier changes over it again into the first advanced shape

The radio waves are exorbitant and less sheltered. The utilization of Infrared should be possible with a control which is low for eye security. Gamma beams can't be utilized as they are hazardous. UV beams can be utilized at places with people as they can be destructive. Presently visible light is safe to utilize that has no harmful effects and it likewise has a bigger transfer speed.

Visible Light Communication (VLC) is a medium, that utilizes light which is noticeable that is 400 THz – 800 THz of range, as an optical transporter for information transmission and brightening



The conceivable outcomes are various and innovation is in its underlying stage With increasing demands for high data speeds and only limited channels available which may cope up with such demands, Li-Fi is a comparatively inexpensive and promising tool which may help in coming up with high demands. Also, the ease of integrating Li-Fi systems in our day to day lives is seamless. Li-Fi being in the initial phases of advancement and implementation it offers potentials to be explor.

Shubham Sawant & Siddesh Sawant TE-EXTC

Concrete Pipe Home – Emergency Infill Housing in Big Cities…

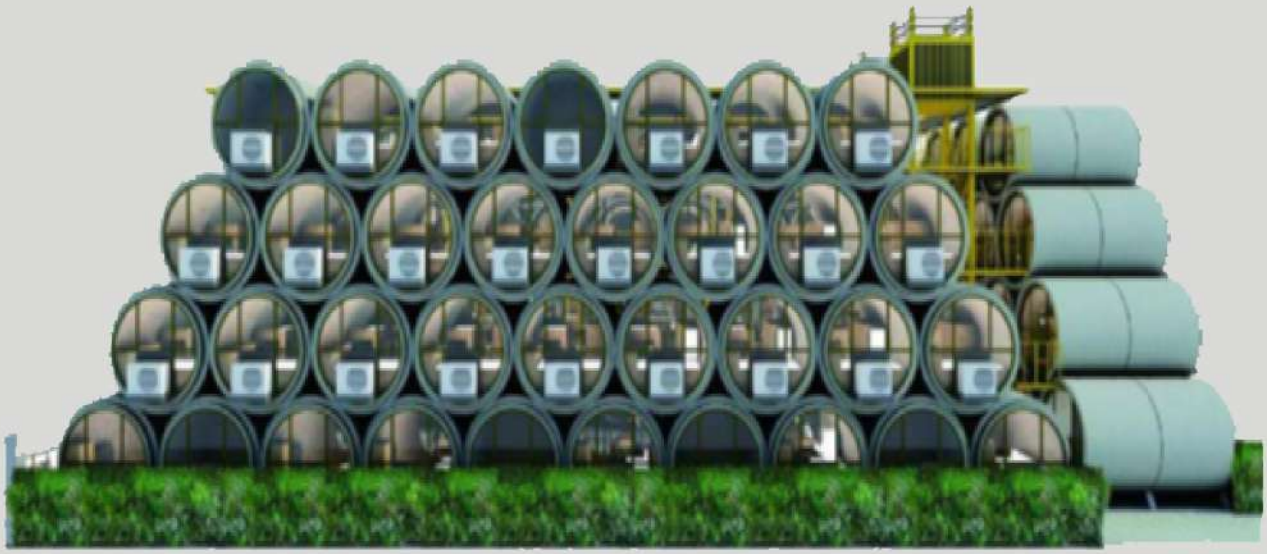
Scenario of modern suburb in Hongkong

Feeling the squeeze from Hong Kong's affordable housing crisis, one architect turns to a surprising new micro-housing solution.

With a population of 6,690 people per square kilometer in 2014, Hong Kong has one of the most competitive real estate markets in the world. In fact, it was named the most expensive housing market internationally for the seventh year in a row, according to the 13th Annual Demographia International Housing Affordability Survey: 2017. Affordable housing is hard to come by in the Asian metropolis, and space is a major problem. This situation inspired one Hong Kong architect to take a drastic, out-of-the-box approach to design options for living in a tiny footprint. Tube House is an experimental, low-cost, micro-living housing unit constructed as a temporary living space for young people, and made from a 2.5- meter-diameter concrete water pipe.

Close up view of a Pipe house

Truly a tiny home, the design concept takes a strong concrete structure and converts it into an apartment for one (or two) with petite living, cooking, and bathroom facilities squeezed inside a 100-squarefoot interior. Each tube house is equipped with smartphone locks for online access. Space-saving, micro-living furniture has been built into the side of the pipe to make the interiors feel a wee bit roomier. The pipes can be stacked to become a low-rise building as part of a modular community. Not much is needed in the way of construction, making quick-and-easy installation possible.



Cluster of pipe house

Sonam Mathur TE-EXTC

Know About Smart Grids

Energy sustainability and environmental preservation have become worldwide concerns with the many manifestations of climate change and the continually increasing demand for energy. As cities and nations become more technologically advanced, electricity consumption rises to levels that may no longer be manageable if left unattended. The Smart Grid offers an answer to the shift to more sustainable technologies such as distributed generation and microgrids. A general public awareness and adequate attention from potential researchers and policy makers is crucial.

Smart grid technologies can be defined as self-sufficient systems that can find solutions to problems quickly in an available system that reduces the workforce and targets sustainable, reliable, safe and quality electricity to all consumers. In this respect, different technological applications can be seen from the perspective of researchers and investors. Even though these technological application studies constitute an initial step for the structure of the smart grid, they have not been fully completed in many countries.

Associations of initial studies for the next step in smart grid applications will provide an economic benefit for the authorities in the long term, and will help to establish standards to be compatible with every application so that all smart grid applications can be coordinated under the control of the same authorities.

Prajapati Ishwar TE-EXTC

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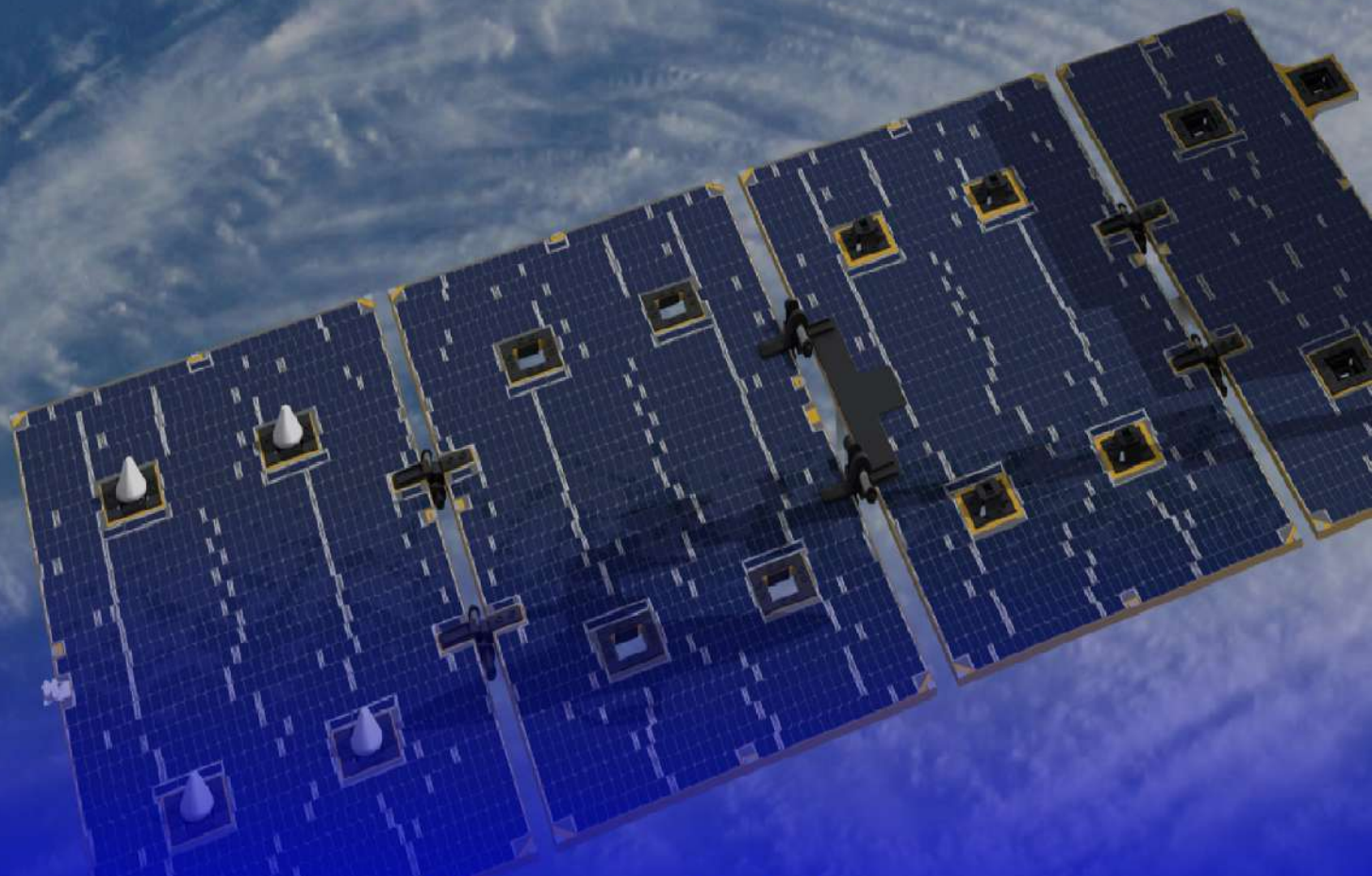

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