

ARTIFACTS

Chronicles Of Technology, Talent, Innovation & Inspiration



DEPT. OF ELECTRONICS AND COMMUNICATION ENGINEERING

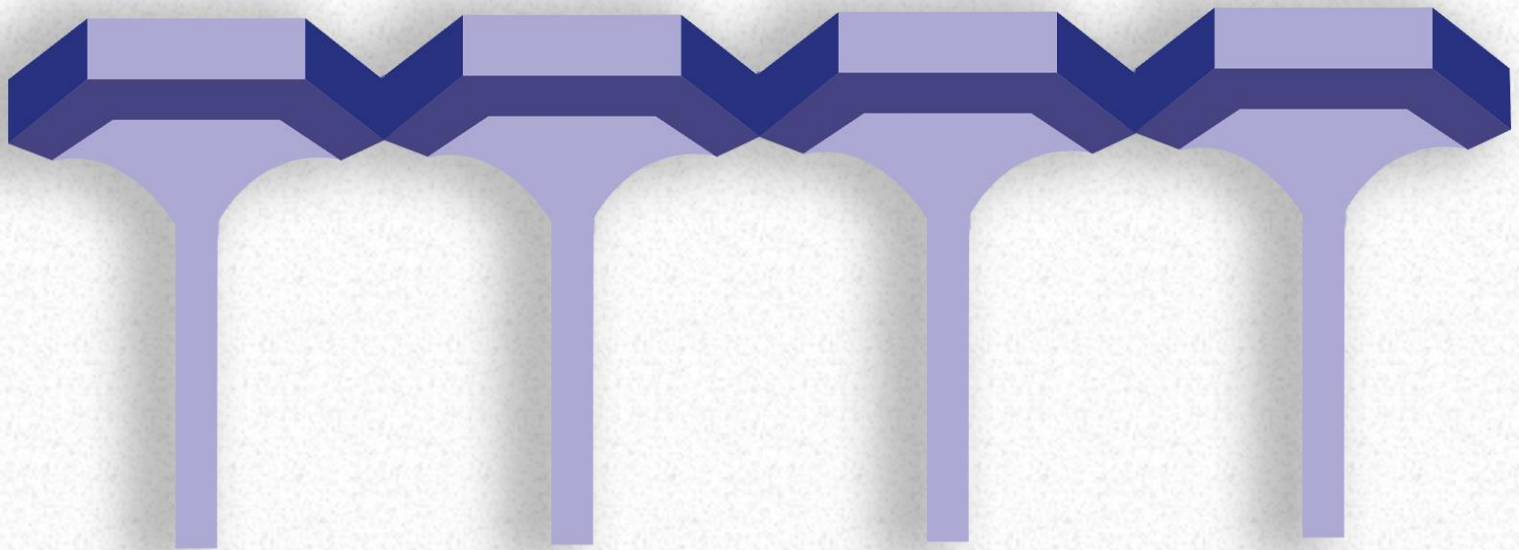


ART3FACTS

Chronicles Of Technology, Talent, Innovation & Inspiration

TECHNO-CULTURAL MAGAZINE

FIFTH EDITION, MAY 2020

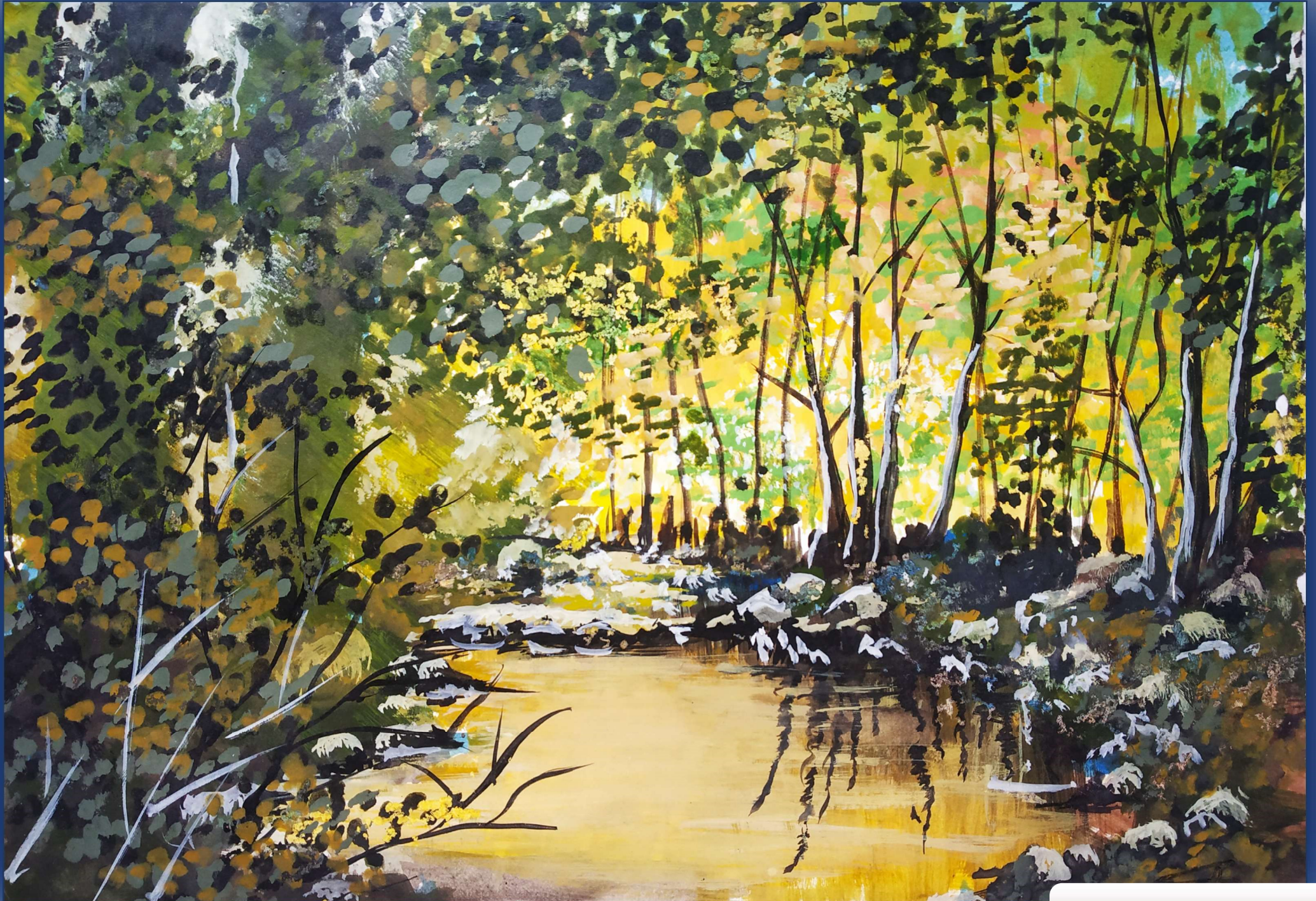


DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING



HALDIA INSTITUTE OF TECHNOLOGY

HALDIA, PURBA MEDINIPUR - 721657 (WB)



Oisik Das, First Year

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ABOUT

About Institute

Haldia Institute of Technology (An Institute of ICARE, Haldia, Approved by AICTE, and affiliated to WBUT) began its journey in the year 1996. It is the first private and accredited academic institution catering technical education in West Bengal. The institute has an enclave campus of 43 acres of land having an administrative block of 3332 square meters with nine academic blocks having an area of around 20350 square. There are 11 B.Tech courses (production engineering excluded), and 5 M.Tech and MCA, MBA courses.

Haldia Institute of Technology is accredited by the National Assessment and Accreditation Council (NAAC) with an "A" grade, valid up to September 2021. Haldia Institute of technology ranked "174" among engineering colleges in India by the National Institutional Ranking Framework (NIRF) in 2019.

Department of Electronics & Communication Engineering

The Department of Electronics & Communication Engineering was established in 1998. National Board of Accreditation (NBA) accredited it in 2004 and subsequently in 2007. Presently, the department has an intake capacity of 180 student for the B.Tech course. It also offers M.Tech in Microelectronics and VLSI Design since 2005 with intake capacity 18 students. The department has several well equipped laboratories for the students as well as for researchers. It has a departmental Library, which contains text/reference books, more than 500 titles. The department of Electronics and communication stands by the vision "To produce dynamic human resources of global standards by imparting quality teaching, carrying out research and technology development in the emerging areas of Electronics & Communication Engineering".

The department also strives to produce electronics and communication engineers having strong theoretical foundation, good design experience and exposure to research and technology development in frontier areas of electronics and communication engineering. And also, to create competent professionals who can work as an individual or in a group with effective communication and leadership skills meeting the requirements of multi-cultural global environments and to help the student be a successful and responsible engineer for the betterment of mankind by inculcating social and ethical values in professional engineering program.

Presently, The Head of the Department is **Prof. (Dr.) Chanchal Kumar De** (2017-present).

Former Head of the Department(s):

1. Mr. Santi Prasad Maity (1998-2001)
2. Mr. Goutam Lohar (2001-2005)
3. Mr. Asim Kumar Jana (2005-2009)
4. Dr. Sunandan Bhunia (2009-2015)
5. Dr. Jaydeb Bhaumik (2015-2017)



Prof. (Dr.) M.N. Bandyopadhyay

Director

Haldia Institute of Technology Haldia,

Purba Medinipur

MESSAGE FROM DIRECTOR

I am extremely glad to note that Department of Electronics and Communication Engineering, Haldia Institute of Technology is going to publish the fifth edition of the techno-cultural magazine 'i-Artefacts'. It is an immense pleasure to know that this magazine covers four sections including Tech Trends, Picture Perfect, Youth Central & Campus Insider with Technical and Non-technical Articles, Drawings and Photographs, Inspirational Stories from Alumnus, Latest Happenings in the Department as well as Institute and Tech-updates.

Today, the Society seeks a generation of young people who are not only enlightened but also trained to think innovatively. They are expected to meet tough challenges and create opportunities in unconventional areas in a very short span with unprecedented success. It is my firm belief that obstacles do not deter success, rather they enhance one's possibilities to succeed. This type of magazine with vast diversification in both technical and non-technical fields will give the students a better understanding of all the trades.

Electronics & Communication Engineers should be jack in all trades. Their eyes should be open to observe all types of innovative ideas and thoughts which are being implemented throughout the world. They have to understand the technical as well as the cultural activities and how these can be interrelated, and this magazine can be one of the best mediums to have an idea about this.

It is my strong belief that obstacles do not deter success, rather, they enhance one's possibilities to succeed. So, I am providential enough to express my heartfelt contentment over the publication 'i-Artefacts'. I take this opportunity to convey my best wishes and congratulate all the committee members for their sincere hard work. I hope this magazine comes as a breeze of fresh air and encourages the youth to do constructive work and take the nation forward.



Dr. Anjan Mishra

Registrar

Haldia Institute of Technology, Haldia

Purba Medinipur

MESSAGE FROM REGISTRAR

In the era of rapid technological advancement and information revolution, we aspired and served two decades to build our youth for the development of the country. During the journey we always encouraged the growth of the students by our patronage, criticism, sympathy and guidance. Haldia Institute of Technology with these initiatives has now become a Centre for meaningful learning. It is my privilege to express my sincere satisfaction over the publication of the techno-cultural print magazine "i- Artefacts" initiated by the Department of Electronics and Communication Engineering.

The entire team of faculty and staff members at the Institute is tuned towards continuous improvement keeping the soul statement in mind that students are the prime-movers of technology. Apart from teaching and learning we have strong inheritance of research, consultancy work, cohesive industry-institute partnership, collaborations with industries and universities, journal publications and many more.

This institute is emerging as a trend-setter in the heart of West Bengal, offering a good mix of academic and co-curricular activities. I urge all the stake holders to make the most of the multiple opportunities, for self-development as well as the development of the Institute and the society as a whole. Please make the best use of all the facilities that are available. Please try to maintain a balance between academic and co-curricular activities. Enjoy yourselves by all means, but always remember the need for self-discipline, moral values and a sense of responsibility.

The mastery of mind cannot be termed complete unless the hidden potentials beyond the books are harnessed, nourished and properly shaped. The objective of all cultural events and programs at our Institute had always been focused on the same. I am sure that the initiative taken by the Department of Electronics and Communication Engineering, will definitely make our effort towards the achievement of the vision of our Institute stronger. I extend my best wishes to the faculty members and students involved of the magazine "i-Artefacts".



Prof. (Dr.) Asit Kumar Saha

Principal

Haldia Institute of Technology Haldia,

Purba Medinipur

MESSAGE FROM PRINCIPAL

I am glad to know that Department of Electronics and Communication Engineering is going to publish the fifth edition of its annual techno-cultural magazine “i-Artefacts” in April, 2020.

Innovation in Science and Technology is a highly philosophical subject. Congested mind cannot think freely unless it is relaxed with cultural taste. Swami Vivekananda believed “Education is the manifestation of perfection already in man”. So, even if we put efforts to impart education to match the advancement of technology; it would not be effective if it is not complimented with something where the thoughts of our young generation are reflected. Here, techno-cultural magazine can play a major role to manifest their thoughts and views towards its perfection.

“i-Artefacts” has many features which will install many good qualities not only in our young generation but also in all the people involved in this activity. Also, it will try to inculcate creativity, innovation and confidence in all of them.

This magazine is a milestone that marks our growth, unfolds our imaginations, and gives life to our thoughts and aspirations. It unleashes a wide spectrum of creative skills ranging from writing to editing and even in designing the magazine. So, it is almost like a dream to get the magazine publish.

I congratulate the entire team of “i-Artefacts” and the contributing authors for their hard work and dedication in making this dream into reality.



Prof. (Dr.) Chanchal Kumar De

Head,

Dept. of Electronics & Communication Engineering

Haldia Institute of Technology Haldia,

Purba Medinipur

MESSAGE FROM THE HEAD OF DEPARTMENT

I am happy to learn that our department, Department of Electronics and Communication Engineering, Haldia Institute of Technology is coming out with the fifth edition of the departmental magazine “i-Artefacts”. In fact, the name and fame of a department depends on the calibre and achievements of the students, teachers and staffs.

A magazine carries the contributions reflecting ethos and aspirations of the students, faculty and staff members of a department. “i-Artefacts”, the magazine provides a platform for students, teachers and staffs to share information and innovative ideas, spread the latest technical knowledge, exhibit the varied creativities and cultivate right ways that will equip all of us to stay competent in our respective fields of study and research.

Moreover, ‘i-Artefacts’ means something observed in a scientific investigation or experiment that is not naturally present but occurs as a result of the preparative or investigative procedure and in connection to the name of the magazine; I solemnly believe that the Electronics and Communication Engineering fraternity will certainly impart a shape to this tiny magazine to embark the meaning of the same in the days to come.

It is my pleasure to congratulate all the students, teachers and staffs who have made untiring efforts to make this magazine possible. I extend my warm wishes towards the success of this edition of the magazine.



Dibyendu Chowdhury

Assistant Professor (ECE)

Haldia Institute of Technology Haldia,

Purba Medinipur

EDITOR'S NOTE

Mid-way through editing and designing a pile of articles which I was nose deep in and with the thoughts of the zillion things that 'JUST HAD TO BE DONE'. I pulled at my hair for the very first time. This was the first of many such moments (hours)! Putting a magazine together was no cake walk. I along with my editorial team members have spent sleepless nights to make this magazine stand out.

So here you have "i - ARTEFACTS", the long awaited magazine of the ECE department for the year 2020. The name of the magazine, "i - ARTEFACTS" may seem difficult, but it just means "AN OBJECT MADE BY HUMAN HAND". This magazine gives an insight into the different hobbies of students, their creativity and activities. This magazine is a platform that exhibits the literary skills and innovative ideas of teachers and students. "i - ARTEFACTS" presents the hard work and dedication of students and contributions of teachers.

I would like to thank all my editorial team members for helping me to this through. I express my considerable appreciation to all the authors of the articles in this magazine. These contributions have required a generous amount of time and effort. It is this willingness to share knowledge, concerns and special insights with fellow beings that has made this magazine possible.

Thank you all!!



Sushant Mishra

Ankit Anand

4th year B.Tech, ECE

STUDENT EDITORS NOTE

Storytelling is an art of sharing ideas that humans have mastered over the course of time, the impact it brings in the formation of culture and societies can be seen through the extraordinary narratives of great minds. It involves constant observation and lots of creativity to make the process interesting and informative at the same time.

Making a subtle balance over the use of technical jargons and the ideas we attempt to share with our audience, we embark on making this magazine interactive and easy to comprehend. In this digital version we have put dynamic content to provide the best reading experience.

Believing in the best and maintaining the highest standards is what has been our legacy. We have given our best to uphold this. As a reader you will feel a dopamine rush while going through the recent advances in communications, electronics, automation, robotics and future end technologies. And while diving into the literature section you will embrace the remarkable efforts of our peers at HIT expressing their heart through beautiful words and pictures. We have thoroughly put visual illustrations and the emotions we share with our readers. And this endeavor would not have been complete without a rewind through the achievements of ECE department and the glimpses of some memorable moments we have lived together.

The entire process of publication has been a great learning experience for us. Building from scratch gave us the flexibility to work and improve our content at each step and share ideas throughout. This bottom-up approach of ours to complete this project made us deliver every bit of this magazine as original ideas of our team members.

Our strength lies in the size of our team contributing with a common goal to build something great, whose efforts have made this journey an easy ride. We invite our readers to share their views and remarks on our social media instances and make this endeavor an ongoing journey until we are back again with another version of your favorite iArtefact.

We would like to thank our HOD sir and all faculty members of the Electronics and Communication department for constantly mentoring us throughout the publication journey. We also thank the readers and contributors of this magazine who have been our major source of encouragement to deliver the best content.

TECH TRENDS



SD





1. Introduction:

Important information like text printed on paper or images projected onto microfilm which may be survived for maximum 500 years. However, the storage of digital information in conventional storage mediums for time frames exceeding 50 years is very challenging. As digital information continues to accumulate, higher density and longer-term storage solutions are necessary. DNA (deoxyribonucleic acid) has various potential advantages as a medium for immutable, high latency information storage requirements. The DNA can encode two bits binary information per nucleotide (nt) or 455 Exabyte (455 x 1012 mb) per gram of single-stranded DNA.

2. Basics of DNA:

The DNA is the storage media of heredity information of all living species. The information in DNA is stored as a code built of four chemical bases: adenine (A), guanine (G), cytosine (C), and thymine (T). Human body consists of about 3 billion of DNA bases. It has been observed that more than 99% of those bases are the similar in all human beings.

The DNA bases pair up with each other, C with G, and A with T, and to these consists base pairs. Each base is also attached to a sugar molecule and a phosphate molecule. Nucleotides are arranged in two long strands that form a spiral called a double helix. The structure of the double helix is somewhat like a ladder, with the base pairs forming the ladder's rungs and the sugar and phosphate molecules forming the vertical sidepieces of the ladder.

3. How digital information is stored in DNA?

The DNA is made up of repeating base pairs of the four nucleic acids, A, G, C, and T. Each sequence of three bases translates to a different amino acid, which are the building blocks of proteins. It's data storage just like what we do with hard drives but with much higher potential density. The four-lettered nucleobase alphabet of DNA (A, C, G and T) can be transformed into binary code.



Table 1: Binary to DNA base mapping

Binary bits	Nucleotide
00	A
01	C
10	G
11	T

Binary to DNA base mapping is shown in Table 1. Researchers observed at the algorithms that were being employed to encode and decode the data. These algorithms first converted the files into binary strings of 1s and 0s compressing them into one master file. Then split the data into short strings of binary code. They devised an algorithm called a DNA Fountain which randomly packaged the strings into droplets, to which they added extra tags to put the file back together.

4. Encoding and Decoding Techniques for DNA Storage

DNA digital information storage is the process of encoding and decoding binary data to and from synthesized DNA strands. The encoding and decoding style of DNA storage system is shown in Fig. 1. First binary data are mapping into DNA bases. DNA bases are now synthesised in synthetic DNA which is known as writing. . During transmission or storage of these synthesized DNA which contains valuable

Information may be affected by different types of disturbances like thermal damages, mutation, addition or deletion bases etc. In decoding side, DNA bases are recovered using sequencing technique (reading). Then DNA bases are mapped in to corresponding binary data.

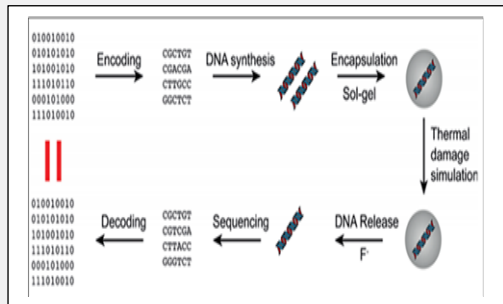


Fig. 1: Encoding and Decoding Techniques of Digital Information in DNA

5. Advantages and disadvantages of DNA storage system

5.1. Advantages:

- i. DNA is ultra compact i.e. extremely dense intensity.
- ii. DNA medium can store its data hundreds of thousands of years if kept in a cool and dry place.
- iii. DNA won't degrade over time like cassette tapes and CDs, and it won't become obsolete.

5.2. Disadvantages:

- i. Still now it is highly cost.
- ii. DNA is significantly harder and slower to read than conventional computer transistors i.e., in terms of access speed it is actually less RAM-like than our average computer SSD or spinning magnetic hard-drive.

6. Storage Comparison:

Estimates based on bacterial genetics suggest that digital DNA could one day rival or exceed today's storage technology.

Table 2: Comparison of DNA storage with conventional storage mediums

	Hard Disk	Flash Memory	DNA Storage
Read-write speed (μ s per bit)	~3,000 – 5,000	~100	<100
Data retention (years)	>10	>10	>1000
Power usage (watts per gigabyte)	~0.04	~0.01 – 0.04	<10-10
Data density (bits per cm3)	~1013	~1016	~1019

7. Some Existing Experimental Works:

Throughout the world different group of researchers have been developed DNA storage devices which are presented in Table 3.

Table 3: Existing different experimental works on DNA storage devices

Year	Project	Team	Size
1988	<u>"Microvenus"</u>	Joe Davis with Harvard and UC Berkeley	28 base pairs
2011	<u>Encoding 70 billion copies of Regenesi: How Synthetic Biology Will Reinvent Nature and Ourselves in DNA</u>	Church Lab @ the Wyss Institute	5.27MB
2016	<u>OK Go Music Video, top 100 books in Project Gutenberg, and more</u>	Microsoft Research/ UW	Over 1GB
2018	<u>Storing and retrieving information with template-free polymerase</u>	Molecular Assemblies	150 base pairs
2019	<u>Writing "hello" with fully automated end-to-end DNA data storage and computing</u>	Microsoft Research/ UW	5 bytes
2019	<u>Encoding all of Wikipedia (in English)</u>	Catalog	16GB
2019	<u>Long oligonucleotides</u>	Twist Bioscience	300nt

8. Conclusion:

Density, stability, and energy efficiency are all prospective advantages of DNA storage, although costs and times for writing and reading are currently impractical for all but century-scale archives. DNA-based storage remains possible on scales many orders of magnitude greater than current global data volumes.

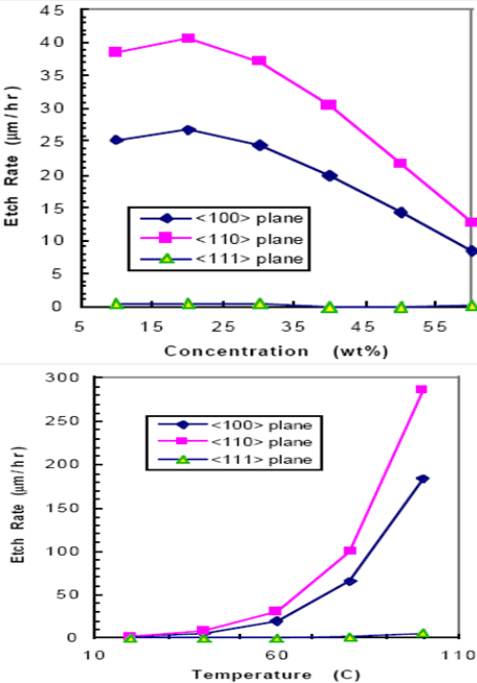
DNA synthesis costs drop at a pace that should make data storing on DNA cost-effective for sub-50-year archiving within a decade. So the best solution for future storage medium is the DNA storage system.



CORNER COMPENSATION

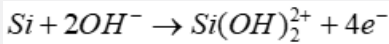
Dibyendu Chowdhury
Assistant Professor
ECE, HIT, Haldia

The recent growth in the number of MEMS (micro-electromechanical system) devices that are being fabricated using bulk silicon etching technology has necessitated efficient design and development. It is often difficult to predict the result of etching single-crystal silicon with typical wet etchant KOH (Potassium hydroxide) due to the anisotropic nature of the etching that is taking place. Etching rates for a given temperature and concentration of the etchant are not the same for the different silicon crystal planes. Figure-1 shows graphical representations of the silicon etch rate dependence on the crystalline plane, etchant temperature, and etchant concentration. As the complexity of mask increases and the time of the etching increases, it becomes increasingly difficult to predict the final 3D geometry based on heuristics.

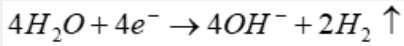


Etching of silicon can be done by the use of alkali metal hydroxyl ions and it's anisotropic in nature. The etching depends on crystal orientation (i.e. 110, 100 & 111 planes), temperature and concentration of KOH. Silicon atoms at the surface react with hydroxyl ions.

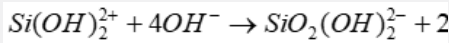
The silicon is oxidized, and four electrons are injected from each silicon atom onto the conduction band



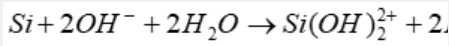
Simultaneously, water is reduced, leading to the evolution of hydrogen



The complexed silicon, $Si(OH)_2^{2+}$, further reacts with hydroxyl ions to form a soluble silicon complex and water



Thus, the overall reaction is



The three-dimensional feature by KOH etched into the silicon as shown in figure-2:

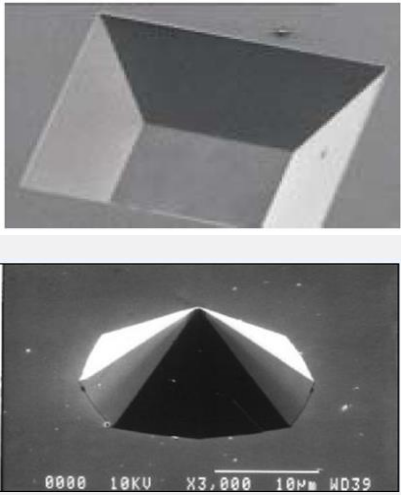
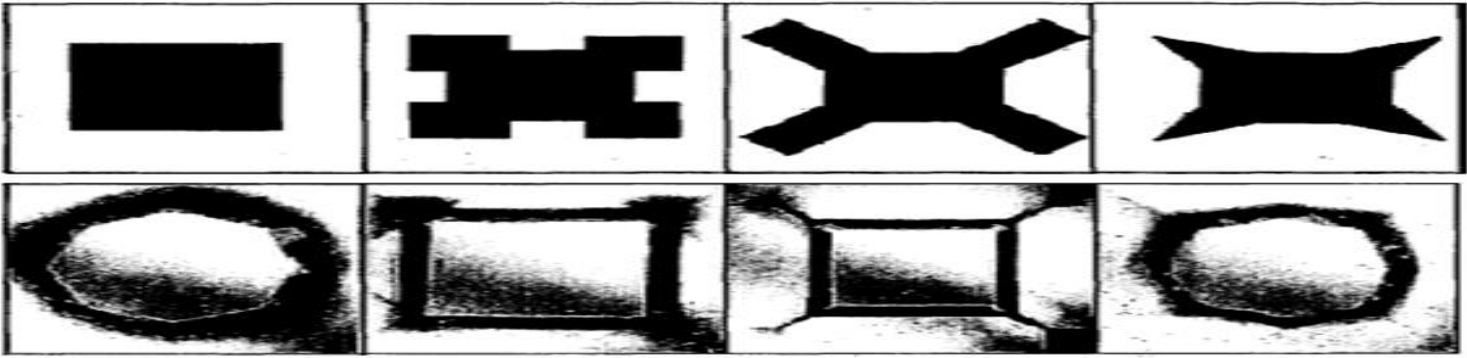


Figure-2: 3D view of a square feature etched into a <100> silicon substrate.

The cause for this shape is due to the fact that KOH is an anisotropic silicon etchant that etches the silicon substrate at rates preferential to the various crystal lattice planes. KOH etches quickly in the <100> and <110> directions and slowly in the <111> direction. Thus for a square or rectangular feature etched into a <100> silicon substrate, the flattened pyramid-like structure will result as the etch races in the <100> and <110> directions, leaving the <111> planes exposed to form the sidewalls of the pyramid.

KOH etching exposed corners quickly for this reason use star pattern or create interior corners of create outer corners. Undercutting depends on shape of mask and mask layer (which is made of either Si₃N₄ or SiO₂) for KOH etching. For micromachining the square or rectangular diaphragm and other complicated three-dimensional structures can be formed by the anisotropic wet etching with aqueous KOH method.

The disadvantage is that the corners undercutting of <100> silicon in KOH is quite serious. For solving this problem, a square or rectangular and triangle or strip mask patterns can be added on the convex corners.

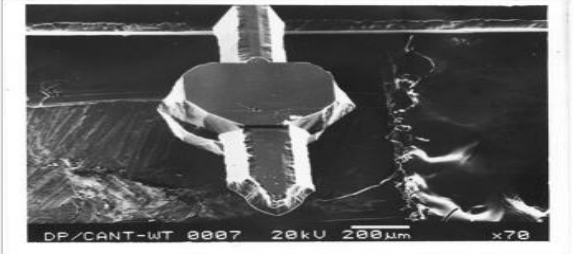


The pictures shown below are visualizing the cantilevers by SEM (Scanning Electron Microscope), implemented the corner compensation technique (without compensation and with over-compensation).

Without Compensation



Corner undercutting



SEM of undercutting cantilever

With Over-Compensation

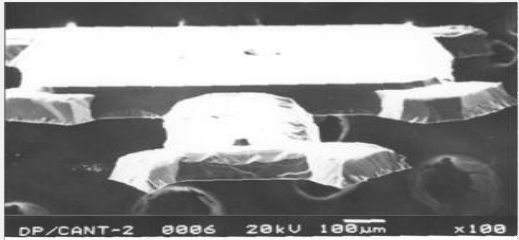
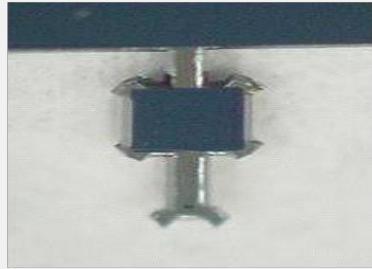


Figure-4: The picture shows without compensation and with over-compensation.

A Technical Explanation to the Recent Boeing 737 Max-8 Aircraft



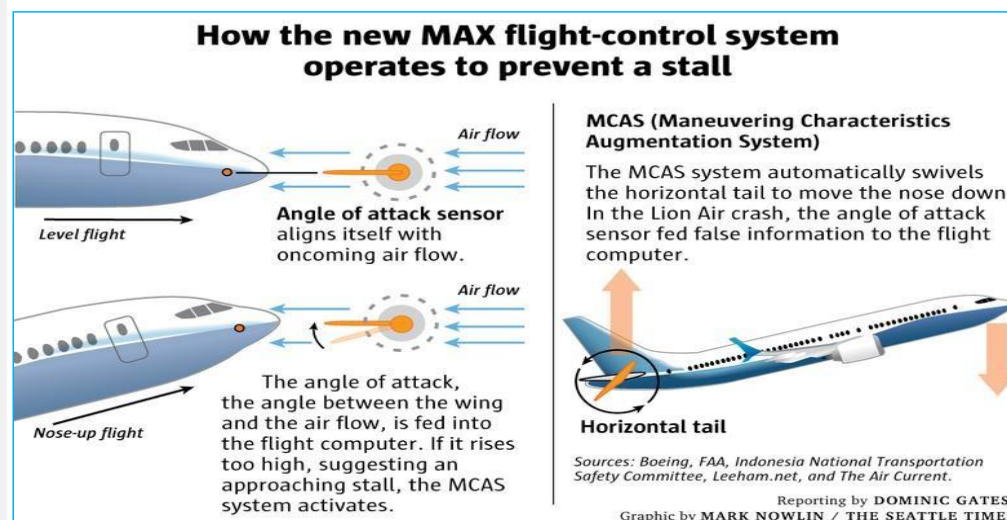
Kushal Roy
Assistant Professor,
Dept. of ECE
Haldia Institute of Technology

This article explores one of the technical possibilities pertaining to the sudden stall that crashed two identical Boeing 737 Max 8 commercial airlines from October 2018 to March 2019. The accident report pointed towards a dangerous programming flaw in the aircrafts as pointed by NTSB (National Transportation Safety Board) and FAA. As a consequence Boeing had to ground almost 700 airplanes throughout the world.

It is widely believed that both Ethiopian and Indonesian recent accidents of the legendary 737 Max 8 aircraft were because of deliberate cyber-attacks. As all reports by the airlines, Boeing and FAA indicates, the accidents were caused because of malfunction of position sensors which determine the angle of attack sending erroneous signal to the Manoeuvring Characteristics Augmentation System, or MCAS. This specially designed system receives the information about a plane's position and auto correct the aircraft position even without the knowledge of the pilot. Boeing decided to keep this a trade secret.

The question asked by the world reporters was two accidents of almost same nature within a small time of 5 months in the world's most popular airplane models 737 MAX 8; can it be a mere coincidence? Why in Ethiopia and Indonesia despite several hundreds were in operation all over the world.

Even if the cause of the accident is not the mistake of Ethiopian airlines, why they gave wrong information like "the nose down problem starts from take off" and "the sensor was malfunctioning right from the beginning may be damaged" but later confirmed the sensor was not physically damaged but made to send MCAS



Why Boeing did not adopt a series of air flow sensors instead of a single sensor to feed MCAS control input signal? Why MCAS[1] software program designed to prevent disengagement by the pilots in case of such wrong sensor reading? Why both aircraft fell after few minutes of their take-off?

erroneoussignal about the plane angle of attack [2]. As researchers spent a year in Ethiopian airlines aircraft school and still being in related fields, their conclusive remarks clearly point toward a certain cyber-attack.

It is widely believed that somehow a group of people knew that 737 MAX has got erroneous programming software on MCAS operation which gives no manual access to flight control to the pilots; the pilots action make things worse when the aircraft begins to stall; the system totally depends on a single position (angle of attack) sensor for feedback control to MCAS - not only these, they also knew that the sensor output can be hacked and wrong feedback signal can be sent to MCAS. Therefore, knowing all this, most probably an acoustic or similar signal must have been used either from inside the plane or nearby distance from outside before the aircraft leave the range of accessible altitude. Both the planes fell out of the sky almost within minutes.

The technical flaws in the planes cannot be over ruled completely but was ruled out by FAA. First, as per the report it is believed that the airframe structural design of 737 Max 8 is perfect and flawless and a result of the cutting age technology of 21st century aerospace engineering despite many comments and complains on a layman perception of unusual engine positions and overall structure compared to the previous models. The only option it leaves for the experts is to concentrate on MCAS errors (Maneuvering Characteristics Augmentation System). MCAS itself has no problem except it denies manual access to pilots and depend solely on a single and unreliable gyroscopic sensor about angle of attack signal data for decision making to adjust flight control surfaces to restore back to the desired flight position value. The software itself is harmless as it works on the outputs received from the only air flow sensor on board 737 Max. The software has no way to cross check if the data provided by the sensor for its accuracy, it has to perform the corrective action in fraction of seconds.

When the cyber-attack caused the position sensor to send wrong information, the aircraft was still ascending to increase its altitude After 4 and half minutes post take-off,

the plane begins stalling and starts losing altitude according to the flight record reports. Why? A logical answer is the failure of sensor at that particular time. Let's say the aircraft was ascending at angle of attack $\theta=10^\circ$ but the sensor tells MCAS as if it is at 30° , so MCAS took the feedback and understood the plane is ascending by more than 20° (that means $10^\circ - 30^\circ$) than the desired value and therefore immediately adjusted it back to 10° degree but what happened in reality was θ became -20° , that means its nose started going down by 20° thus the aircraft to stall. Imagine the pilots have no access to the manual operation to the anti-stalling controller because the MCAS system forbids it. Even if the pilots desperately tried, the MCAS program kept on incrementing the angle and the immediate fast response correction made the accident worse. Normally once the plane is stalled, No further cyber attack was needed as coming to normal mode from this stage was practically impossible the plane was fully governed by the pull of gravity. After 90 seconds of the attack, which was after 6 minutes of takeoff from Bole Airport, the plane crashed.

It is obvious from news information that Boeing seems to understand the problem after Indonesian Lion Air accident and presented its proposed correction on the software update that address the issues to the Federal Aviation Administration (FAA) but its rigorous testing took a lot of time and consequently, the same accident occurred on Ethiopian 737 Max 8 before update is approved and installed. This update is one of the solutions to avoid further problem which cause the "nose down", as Boeing believes, which gives access the pilot to disengage MCAS when the aircraft starts to stall. A nasty alert warning is provided at the cockpit against plane stalling. It also gives alert at the cockpit for stalling and error signal, and lastly, they decided to include two sensors one at the left and other at the right to determine the angle of attack (θ) measurements thereby

making the aircraft safer and more reliable. The final and most vital question now being asked for Boeing and FAA is what percentage of passenger safety do they guarantee post modifications? The modified software with more technologically enhanced sensors which Boeing claims have been installed is safe from the cyber attacks? Does increasing number of sensors completely solve the actual problems or minimize the probability of sensors' wrong reading.

The FAA recommendation strongly believe Boeing still miss the fact that taking gyroscopic information from both sensors to MCAS has no guarantee to avoid further accident since still both sensors and MCAS software are equally vulnerable to hacking and errors and may lead to denial of access or disengage MCAS to manually operate the anti-stalling control.

What Boeing should do, as we are convinced, is to use perfect shielding protection technology for all sensors that provide the necessary flight data to the instruments, design other alternative sensors for alert in the cockpit to make the system more reliable and update the software to give hardwired access to disengage MCAS when stalling alert comes so that the pilots could manually operate the anti-stalling control and last and most importantly, a frequent update of MCAS program following state of the art technology and security precautions.

FAA strongly suggested in its notice to Boeing that no system should be incorporated in any commercial airliner outside the knowledge and de activating capability of flight officials. A well trained and experienced pilot is more reliable than Artificial Intelligence (AI) based MCAS. We should not forget the fact the advancement of technology is also favoring the bad guys and therefore, related industries like Boeing are expected to exceed in intelligence to guarantee a secured and safe high-tech transportation service to the best of humanity.



3D Printing

Prof (Dr) Malay K Pandit
ECE Dept

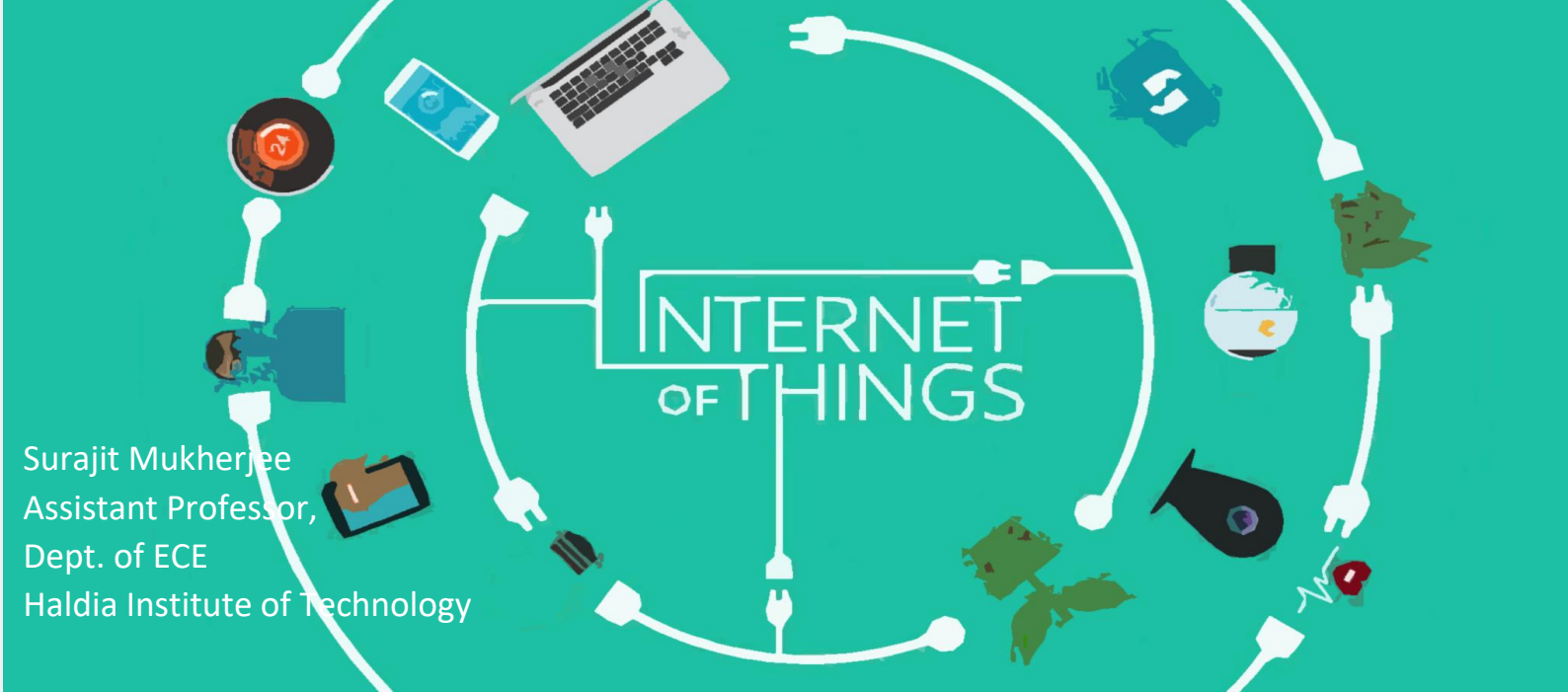
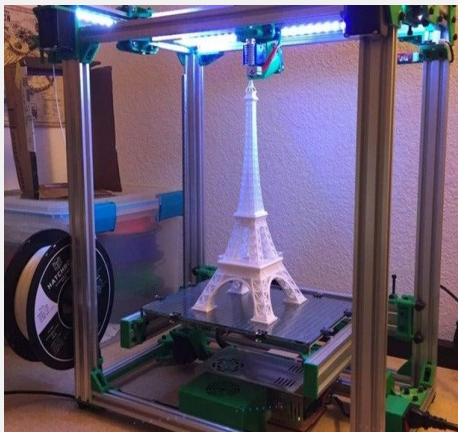
3D printers are fast occupying a central position in modern electronics-controlled manufacturing systems. They can make solid 3D objects controlled by computer software. Convenient and affordable – they use the material in the form of polymers. Materials are progressively added layer by layer unlike in conventional machining or shaping where either material is removed or shaped by means of dies. The design is conceived by a CAD model and high-end inkjet printers translate it into finished products.

CAD models are stored in either STL (stereolithography file format) or AMF (additive manufacturing file format). The STL file is processed by 'slicer' software which converts the model into a series of thin layers and produces a G-code file containing instructions compatible with a 3D FDM (fused deposition modeling) printer. This G-code file is then printed with 3D printing client software (which loads the G-code, and uses it to instruct the 3D printer during the 3D printing pro



FDM is a 3D printing process that uses a continuous filament of a thermoplastic material. Filament is fed from a large coil through a moving, heated printer extruder head, and is deposited on the developing work. The print head is moved under computer control to define the printed shape. Usually the head moves in two dimensions to deposit one horizontal plane, or layer, at a time. The speed of the extruder head is controlled to stop and start deposition and form an interrupted plane without dribbling between sections.

The 3D printer head, in other words, 3D printer extruder is a part in material extrusion additive manufacturing meant for raw material melting and forming it into a continuous profile. A wide variety of filament materials are extruded, including thermoplastics such as acrylonitrile butadiene styrene (ABS), polylactic acid (PLA), thermoplastic polyurethane (TPU) and aliphatic polyamides (nylon).



Surajit Mukherjee
Assistant Professor,
Dept. of ECE
Haldia Institute of Technology

Internet of Things (IoT) was a very rare term in the last decade. The rapid advancement of technology makes it very popular in this decade. Today's life much easier, faster and smarter in many senses. This is due to the interconnectivity between several electronic devices. Gradually people are adopting these systems. According to the recent study conducted by Gartner- the world's leading research and advisory company, about 20 billion devices will be connected to the IoT by 2020. So, we can understand that huge technological advancement is going to happen. This is due to the various advantages of IoT. Also, it has a vast area of applications. Some have been implemented and many are still in experimental or research level.



Smart houses and smart cities are some of the important aspects of IoT application. We can able to conserve and track our energy consumption by a smart lighting system. An intelligent thermostat can conserve energy by controlling the room temperature. These will lead to less monetary loss for consumers and lower carbon footprint for the world. The cities can be smart through the application of IoT. Traffic management, security enhancement, pollution control, garbage control, etc. are the major aspects.



Modern healthcare services are expanding with the help of IoT. Nowadays many healthcare apps are being developed which can able to collect different body parameters. Evaluating those parameters, the app can identify diseases and providing their cures. Research is going on to understand the medical test results (such as x-ray images, CT scans, MRI scans, etc.) in a better way to predict the diseases more accurate and efficient way. This leads to a healthier life of the people which results in an increment of the average life span of human beings. Telemedicine is also a vital improvement in the current scenario



Currently, people are discussing AI (Artificial Intelligence) and Big Data. These have gained an immense level of interest amongst the tech. people and various organizations. IoT has an important role in these fields. Various types of data collection have become much easier with the help of smart devices.

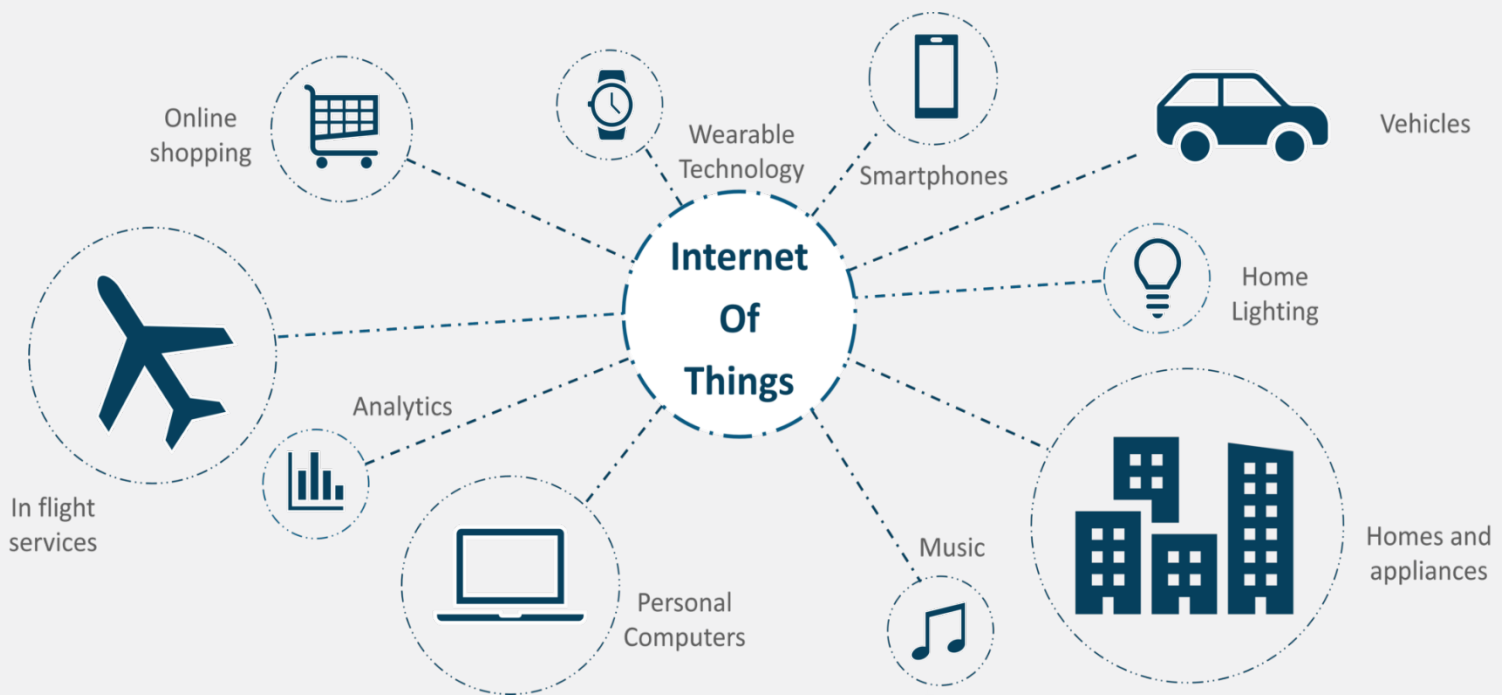
Human interaction requirement becomes less compared to earlier days. Precision and accuracy will also improve in this process. Overall the data analysis will be more effective.

Resource management is an essential feature of any system whether it is a living house or an organization. Embedding smart devices inside a system will manage the resources in a very efficient way. An intelligent warning system can help to conserve water. Supply chain management could be much better with the application of a smart system. It can be possible to cut down the loss of organic foods which happens often due to improper management.

Farmers will be benefited from the implementation of IoT. The intelligent device can predict the amount of fertilizer required for the best productivity by measuring various parameters like moisture content, salinity, structure, etc. of the soil.

Cloud computing is a very well-known process in the field of smart computation. Sometimes locally executed computation becomes very difficult and time-consuming. It can be much effective through cloud computing. But this trend is replacing by edge computing. In the case of edge computing, IoT devices share data with the nearest possible node to process the data.

This reduces network traffic and computation complexity. We can expect more development soon. Finally looking towards the Indian aspect, we can't expect rapid changes at this moment. Internet connectivity in major parts of our country is very disappointing. Our broadband internet services need to improve a lot. At the same time, it must be affordable. Need initiatives by the government to promote the internet in a distant location. We need to educate people about the internet. Private players must improve their services. Concluding with the hope for a better digital India in near future. Requesting all to adopt IoT in our daily life.



PHOTOGRAPHY



Rishika Roy

*“Taking an image,
freezing a moment,
reveals how rich
reality truly is.”*



Roushan Kumar



Rahul Mishra



Rishika Roy

*“In Photography there is a reality so subtle
that it becomes more real than reality.”*

BLUE EYES TECHNOLOGY

RISHIKA ROY

THIRD YEAR

QUANTUM BATTERIES

OISIK DAS
FIRST YEAR

One of the recent trends in the field of Science and Technology is a better understanding and interaction between machines (computers) and humans. Blue Eyes Technology is being considered as one of the giant steps in this field.



Blue Eyes is a technology, which is conducted by the research team of International Business Machines in California, since 1997. The main aim is to build a better understanding of human emotions and behaviour within the computers. In near future the computational machines will be able to understand one's emotional state by analysing his/her facial expressions. This process of making a computer that can sense human emotions is called 'Affective Computing'. Wouldn't it be amazing to sit in front of your personal computer that can

What does Blue Eyes consists of and how does it work? Blue Eyes consists of, Data Acquisition Unit, (DAU) whose main aim is to collect physiological information from sensors, used by the users, and send it for further verification process

Central System Unit (CSU), contains codec and a wireless blue tooth module which is used for the verification of information gather by the DAU and gives the output accordingly. The Software, continually supervises the operators physiological conditions. Through these, the 'Blue Eyes' software enables the supervisor to know about the user.

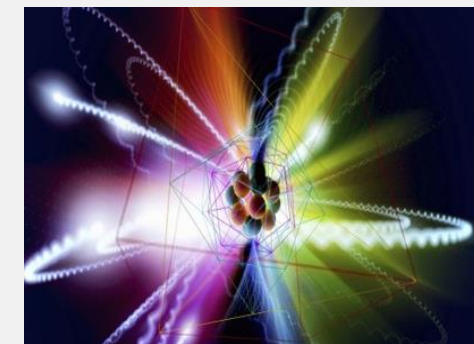


The objective of this technology is to design a system that has ceaseless abilities like humans, like us. Speech recognition and facial recognition techniques would be required to gather information from users. Further, this information will be used by computational machines to interact with the users according to their mood variations. In near future it might be possible that the machine feels your presence, verifies your identity and starts interacting with you. In cases of urgency, it can even dial and call to your home. Blue Eyes can make these come true. This approach assures a convenient technique to simplify life by supporting a user friendly provision in computing devices.

Scientists from the University of Alberta developed a new kind of batteries known as quantum batteries. The special characteristic of this battery is that it does not loose charge. A quantum battery is a tiny, nano-size battery meant to be used for applications on the nano scale.

The lead scientist said the research provides a theoretical demonstration that creating a loss-free quantum battery is possible—offering an advantage over previously proposed quantum batteries. The batteries that we are more familiar with—like the lithium-ion battery that powers your smartphone—rely on classical electrochemical principles, whereas quantum batteries rely solely on quantum mechanics.

He said the batteries may become an important component in many quantum devices—able to power quantum computers, for example—and in practice, they could be built using current solid-state technologies.



To realize their idea, the research team considered an open quantum network model with high structural symmetry as a platform for storing excitonic energy—energy harnessed when an electron absorbs a sufficiently energetic photon of light. Using this model, they showed it is possible to store energy without any loss, despite being open to an environment.

The key is to prepare this quantum network in what is called a dark state. While in a dark state, the network cannot exchange energy with its environment. In essence, the system becomes immune to all environmental influences. This means that the battery is highly robust to energy losses.

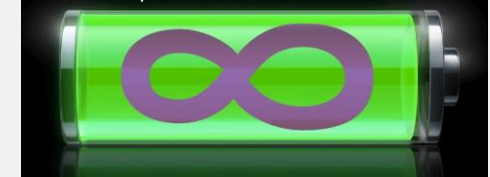
Using this model, the researchers also suggested a general method of discharging the stored energy from the battery upon demand that involves breaking the structural symmetry of the network in a controlled way.

Future research will explore viable ways of charging and discharging the battery, as well as ways of scaling it up for use in practical applications. Tired of charging, time to get rid of chargers



The Battery that Never Dies:

Science (might) eliminate the need to charge your phone with quantum mechanics!



GRAPHENE

RAKSHAT KASHYAP
FIRST YEAR



NaVIC

NILOY GHOSH
SECOND YEAR

Imagine an elephant placed on the top of a pencil over a sheet just one atomic layer thick. Sounds insane, right? But that's how strong and versatile graphene actually is. Also known as wonder material, it was discovered by Professor Sir Andre and Professor Sir Kostya of the University of Manchester in 2004. The pair received the Nobel Prize in Physics in 2010 in recognition of their breakthrough.

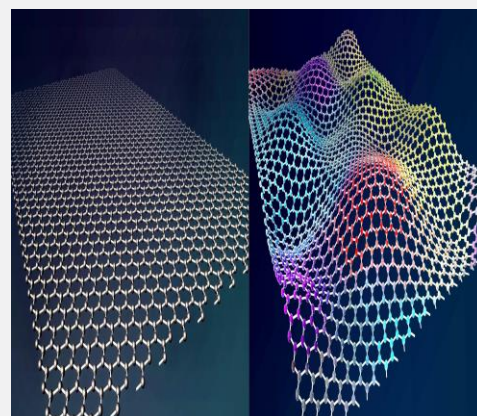
is dramatically lower than any steel, with a surface mass of 0.763 mg per square meter. It conducts heat and electricity very efficiently and is nearly transparent. Now you know why it's so wonderful.

The carbon atoms in graphene are arranged in an interlocking hexagonal ring, like a chicken wire mesh and the C-C bonds in it are extremely strong

So now you might think that something this amazing would be hard to get but that's not actually the case with graphene. There are quite a few ways to obtain graphene but for the most common one you'll need some graphite(pencil) and a piece of tape. All you need to do is deposit a thin layer of graphite on a sheet of paper, now place a piece of tape over graphite layer and peel it, then fold the tape in half and peel it again, do this repeatedly for 20 time and boom! What you have in your hand is the wonder material we're talking about. Further by dissolving the tape using chemicals, we can obtain pure graphene. Easy as apple-pie, isn't it?

Due to its insane properties, graphene finds its uses in many products and industries like bullet proof armor, ultralight aero planes, graphene

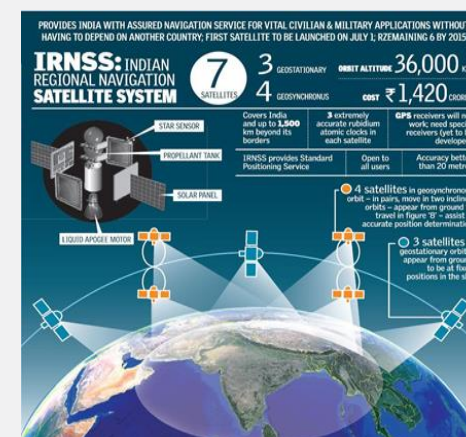
medicines, even space-elevators. Graphene inks are printed on water-proof fabrics to make electronic wearables. These clothes can be heated, washed, wrinkled without damaging the circuits.



That's what graphene is. Insanely strong, extremely light, good conductor of heat and electricity. It got nearly everything one needs. Like plastic was the wonder material of last century, graphene is going to inherit the throne this century.

Remember the last time you were stranded in an unknown place and you had to ask someone for directions? If you do then kudos!! But seriously, who does that nowadays? All we have to do is to tap the smartphone a few times and voila! All thanks to **GPS (Global Positioning System)** developed by the USA, which is the backbone of Google Maps. But wait, here is a catch! India doesn't like to stay behind and being called a loser.

So **ISRO (Indian Space Research Organisation)** has developed our very own navigation satellite system, the new kid in town, **NavIC**. The name is inspired from the Hindi equivalent of "sailor" and is a tribute to the brave fishermen of India.



It all began when USA refused to help India by providing more accurate guidance to missiles during Kargil war, which resulted in unexpected calamities. From 2013, ISRO started to launch an array of satellites to establish what we know today as **NavIC (Navigation with Indian Constellation)** which was initially called **IRNSS (Indian Regional Navigational Satellite System)**.



NavIC has cost the ISRO **U.S. \$220 million** for the orbital section and about **U.S. \$45 million** for the ground segment. The project was approved in **2005**. Since **1st July, 2013**, IRNSS had 9 launches which include **IRNSS 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H** and **1I**. The IRNSS 1A had malfunctioning atomic clocks, so IRNSS 1H was launched to replace the three **Rubidium Atomic Frequency Standard (RAFS)** clocks on the 1A. But the launch failed due to malfunction of the heat shield. Finally, it was replaced by 1I, making the total tally of operational satellites to 7, out of which, 3 are **Geostationary**, and 4 are **Geosynchronous**, always keeping India and neighbouring countries in the line of sight. The advantage is that the Geostationary satellites are placed high above the Earth's surface, so the signals aren't affected too much by obstructions, and are always directly above the receivers.

As of now, NavIC mainly focuses on India, and covers major portions of Pakistan, Bangladesh, Sri Lanka and parts of Middle-East and North-East Asia. NavIC provides two modes of services.

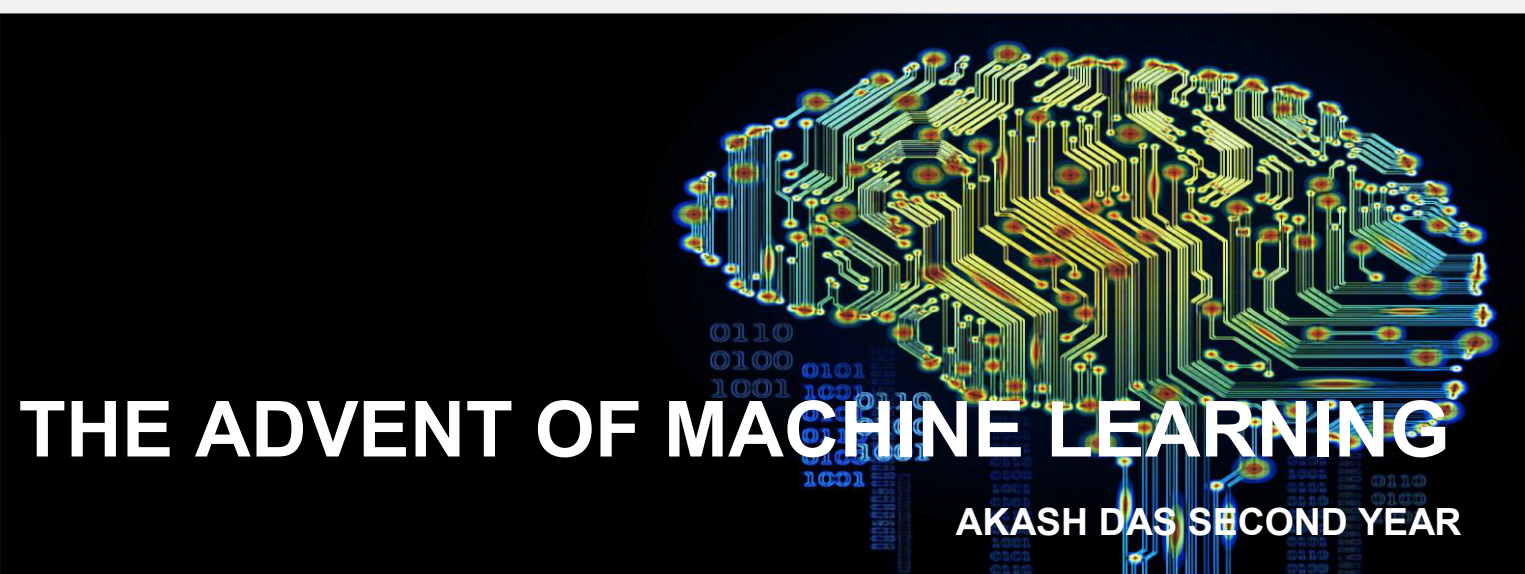
The **Standard Positioning Service**, which is available to the public, claims to provide accuracy of approximately 20m, which may be brought down to less than 10m by coupling with cellular networks in India. However, NavIC doesn't provide full control to users as it has capability to provide an insane accuracy, which is present in the other mode that is **Restricted Positioning**, available only to Indian Government and Indian Army. Reportedly, Restricted Positioning can provide accuracy of less than 1m. Both operations will be carried on **L5 (1176.45 MHz)** and **S band (2492.08 MHz)**.

The great news is that, **Qualcomm** has dedicated its resources to build chipsets compatible with NavIC, which will hit South-East Asian markets soon. In addition to NavIC, these chipsets will also support USA's **GPS**, European Union's **Galileo**, Russia's **GLONASS** and China's **BeiDou** Navigation Satellite System for Global Coverage. This compatible chipsets will be **Snapdragon 720G, 662 and 460**. We would get to see these chipsets incorporated in mid-range smartphones on the Indian market soon.

"ISRO is satisfied with the efforts of Qualcomm towards incorporating NavIC and we urge OEMs to leverage it for future handset launches in India.

The availability of NavIC across multiple mobile platforms will help enhance the geolocation capabilities of smartphones in the region and bring the benefits of this indigenous solution to Indian consumers for their day-to-day use," **Dr. K Sivan, chairman, ISRO** said in a press statement.

Standing at present time, a goodbye to Google Maps is perhaps an overstatement considering the global effect of GPS. But, at least in India, we can expect better positioning, resolution and accuracy from NavIC than GPS. And ISRO is not finished up yet. ISRO has planned to expand the horizons of NavIC by launching some more satellites. We hope NavIC reaches Global Navigation standards soon, and make us Indians proud.



"Machine Learning" sounds mysterious to many. Indeed, only a small fraction of professionals and students really know what it stands for. And there is a serious reason for it — this field is rather technical and difficult to explain to a layman. However, we would like to bridge this gap and explain a bit about Machine Learning (ML) and how it can be used in our everyday life or business. Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

ML works with data and processes it to discover patterns that can be later used to analyse new data. ML usually relies on specific representation of data, a set of "features" that are understandable for a computer. For example, if we are talking about text it should be represented through the words it contains or some other characteristic such as length of the text, number of emotional words, etc. This presentation depends on the task you are dealing with and is typically referred to as "feature extraction".

Machine Learning is nothing but learning new things or new algorithms from its previous experiences.

It could be concluded that ML is being practised by almost all the big companies of the Silicon Valley

such like Google, Amazon, Facebook and many more at present, just to provide their best services.

Whether we realize it or not, we use machine learning in our daily lives. By using Google Photos, we can see that google itself would make a folder in the google photos drive of people, pets ,places, videos, collages, animations etc. It's just because of Machine learning Algorithms, just like auto tagging in Facebook or Instagram to your photos by the app this is the power of ML ,another one Google Maps which help the travellers in route predictions and would also give the fare charges of cabs, face recognition in your laptop or in your smart phone and many more are the biggest examples of Machine Learning.

According to the dictionary data is facts and statistics collected together for reference or analysis. Well that is for a single individual, but when all data from many such individual lumps up, it gives rise to big data. And when we talk about big data, it's not just something in gigabytes or terabytes, an example of big data can be petabytes (1,024 terabytes) or exabytes (1,024 petabytes) of data consisting of billions to trillions of records of millions of people—all from different sources like web, social media, mobile data etc Big data is a field that treats ways to analyze, systematically extract

systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with, by traditional data-processing application software. Big data is quite useful, big data analytics is used to discover hidden patterns, market trends and consumer preferences, for the benefit of organizational decision making.

There are several steps and technologies involved in big data analytics.

Data Acquisition is a method to analyze big data. Data acquisition has two components: identification and collection of big data. Identification of big data is done by analyzing the two natural formats of data – born digital and born analogue

Been captured through a digital medium, e.g. a computer or smartphone app, etc. This type of data has an ever expanding range since systems keep on collecting Born Digital Data - It is the information which has different kinds of information from users. Born digital data is traceable and can provide both personal and demographic business insights. Examples include Cookies, Web Analytics and GPS track.

Born Analog Data - When information is in the form of pictures, videos and other such formats which relate to physical elements of our world, it is termed as analogue data. This data requires conversion into digital format by using sensors, such as cameras, voice recording, digital assistants, etc. The increasing reach of technology has also raised the rate at which traditionally analogue data is being converted or captured through digital mediums. The second step in the data

acquisition process is collection and storage of data sets identified as big data. Since the archaic DBMS techniques were inadequate for managing big data, a new method is used for collecting and storing big data. The process is called MAD – magnetic, agile and deep. Since, managing big data requires a significant amount of processing and storage capacity, creating such systems is out-of-reach for most entities which rely on big data analytics. Thus, the most common solutions for big data processing today are based on two principles – distributed storage and Massive Parallel Processing a.k.a. MPP. Most of the high-end Hadoop platforms and specialty appliances use MPP configurations in their system.

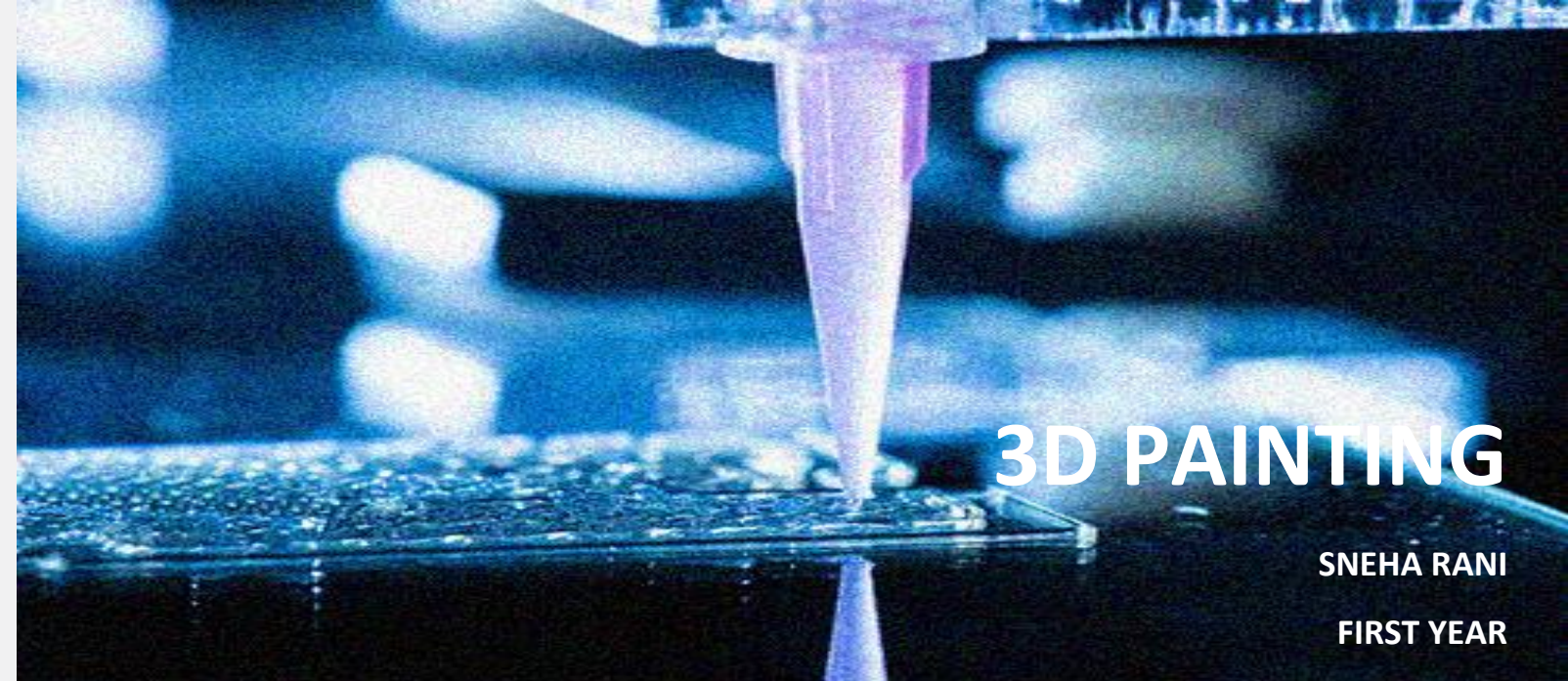
The information extracted by big data analysis is very useful for the market, companies and even individuals, it actually represents the opinion of the masses which can be used to predict the trends and help is selecting target audience. Not only that, it also helps in making and validating the decision on an organization. Although there were problems with big data analysis a few years back, today it has gained momentum and is growing even bigger and faster.



CYBERSECURITY

JAI KUMAR

THIRD YEAR



3D PAINTING

SNEHA RANI

FIRST YEAR

If you are Netflix user, you may have come across a new series a new series “JAMTARA”. The infamous city of Jharkhand is one of the biggest hubs of cybercrimes in the country. According to Jamtara police station record between April 2015 and March 2017, police teams from 12 different States have visited the station 23 times and arrested around 38 accused. These figures are enough for you to decide the extent of cybercrimes that are happening from Jamtara.

This place was once workplace of Ishwar Chandra Vidyasagar. The place where he lived for 18 years is just few hundred meters away Vidyasagar railway station. He taught girls in a thatched school and distributed medicines from a home clinic. Place synonymous for one of the greatest reformer of India is now known for phishing calls. Quoting Palo Alto Network “Cybersecurity refers to the preventive techniques used to protect the integrity of networks and program and data from

Quoting Palo Alto Network “Cybersecurity refers to the preventive techniques used to protect the integrity of networks and program and data from attack, damage or unauthorized access.” According to the survey conducted by Gartner Study global in 2018, cybersecurity market is expected to reach US \$170.4 billion by 2022, another report published Fortune Business the information security market is expected to grow to \$289.9 billion. This rapid growth of market is fuelled by cloud based application and workload. Recent cases of WannaCry and Not Peysa Ransomware are burning examples of cybersecurity challenge faced by world. In 2016 Yahoo and Uber Big players in their respective industry had 3 billion and 57 million accounts data made public by hackers, so everyone is at potential risk of being a victim. Statistically 94% of malware were delivered by email. So e-mail that we are reading is a potential malware.. It’s our responsibility to know about suspicious links and act accordingly. It’s our responsibility to know about suspicious links and act accordingly.

suspicious links and act accordingly. Some data related to cybersecurity- Data breaches increased by 160% from 2006 to 2019 as said by Bluefin. Windows is most targeted platform by hackers and android is at number two as reported by Computer World. More than 4000 ransomware attacks occur every day.(Source FBI)Damage related to cybercrime is projected to hit \$6 trillion annually by 2021. To put things in perspective FORTUNE 500 companies represent \$22.6 trillion in market value.Kevin Mitnick widely regarded as The Most Famous Hacker. He is hacker turned security consultant. Ways to protect yourself from attacks-

Anti-virus and anti-spyware. Firewall – to block unauthorized access to your network. Intrusion prevention systems(IPS) to identify fast spreading treats, such as zero-day or zero-hour attacks Virtual Private Networks (VPNs), to provide secure remote access. If any Enterprise fails to implement cybersecurity measures they are liable for compensation. So cybersecurity needs to be taken seriously else we are going to face threats in future.



Have you ever imagined that a sense of touch could replace the sense of vision . How a painting, photography or print can be appreciated by a visually impaired person. Developments in the field of sensory substitution i.e. “the ability to see with one’s hand” have allowed the blinds to more fully experience the art.

The three dimensional artwork cofounded by John Olsen , embedded with sensors open up the wonders of

The three dimensional artwork cofounded by John Olsen , embedded with sensors open up the wonders of art . A computer program converts 2D images to 3D data and print the digital image having three sensors embedded outside the art; one talks about the history, one talks about the artist and one talks about the art itself. Additional 24 sensors are embedded throughout the artwork for better coordination within the art.

A tongue can be used instead of an eye to feel the art. The device sends electrical impulses to the brain through nerves in the tongue instead of the optic nerve. A head mounted camera gathers pixels of information which are translated by a computer and sent to an array of electrodes attached to the tongues and hence the results are confound. Charles W. Hull was the first person to develop the technology to print in 3D using the technique called as STEREO LITHOGRAPHY. 3D printing which is the part of a process known as additive manufacturing where an

object is created by adding materials layer by layer. Hence, allows the designers to create the complex parts for the art work. The first step involved in 3D printing is to create a blueprint of the image you want to print. Modeling software like Blender is used to create the designs and once the design is finished it's time to send it to the printer. Some printers like the Maker bot Replicator 2, have removable bioplastic spools in the back of the device almost like a string. When the printer receives the data it pulls the material through a tube and the object is created through layering and so 3D printing enables to produce complex shapes using less material than traditional manufacturing methods. hence this technology is something which helps people who have the disability of seeing and thus providing them a good opportunity to experience artworks regardless of their ability to see.



Cricket Trophy 2018



TEAM IARTEFACT, 2018



Avinash Pandit, chairman of IETE, 2015



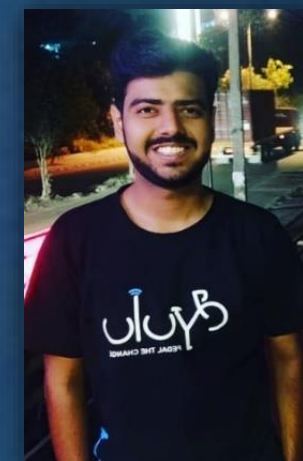
Ankur Priydarshi
Best Student of 2016



Sumit Anand
JS of SWC and IETE, 2019



Alok Shaw, founder of Roboshala



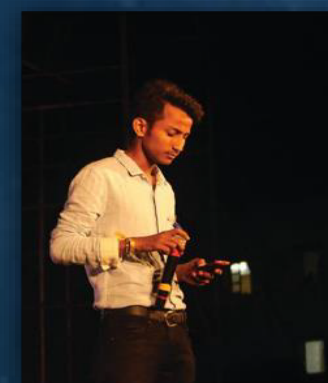
Piyush Sinha, Data Scientist



Avinash Singh, JS of SWC and
IETE & cofounder of Hitian
Inside, 2016



Sumit Aggrawal,
Chairman of IETE, 2016



Rajarshi Ghosh, J.S
Of SWC and IETE, 2017



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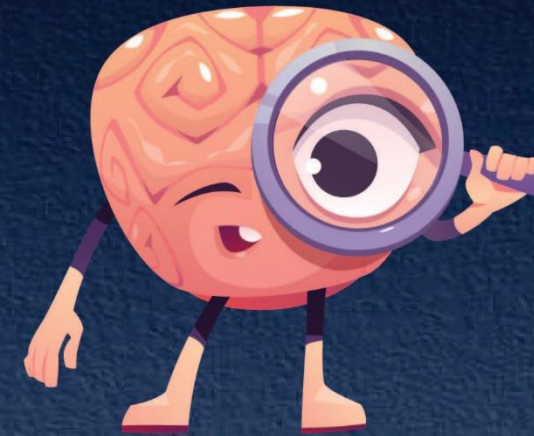
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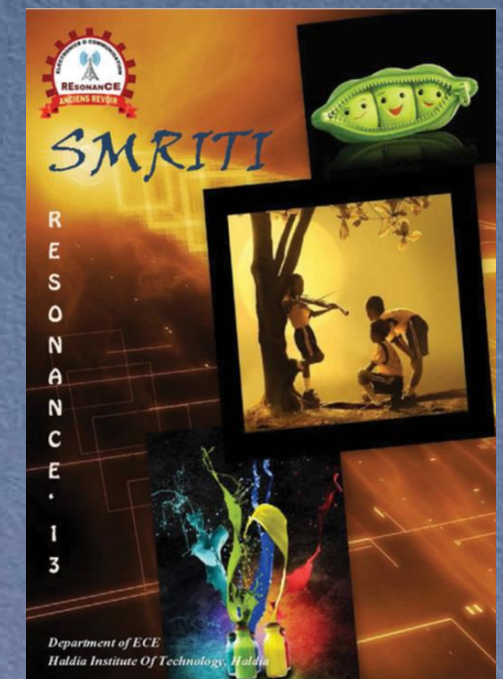
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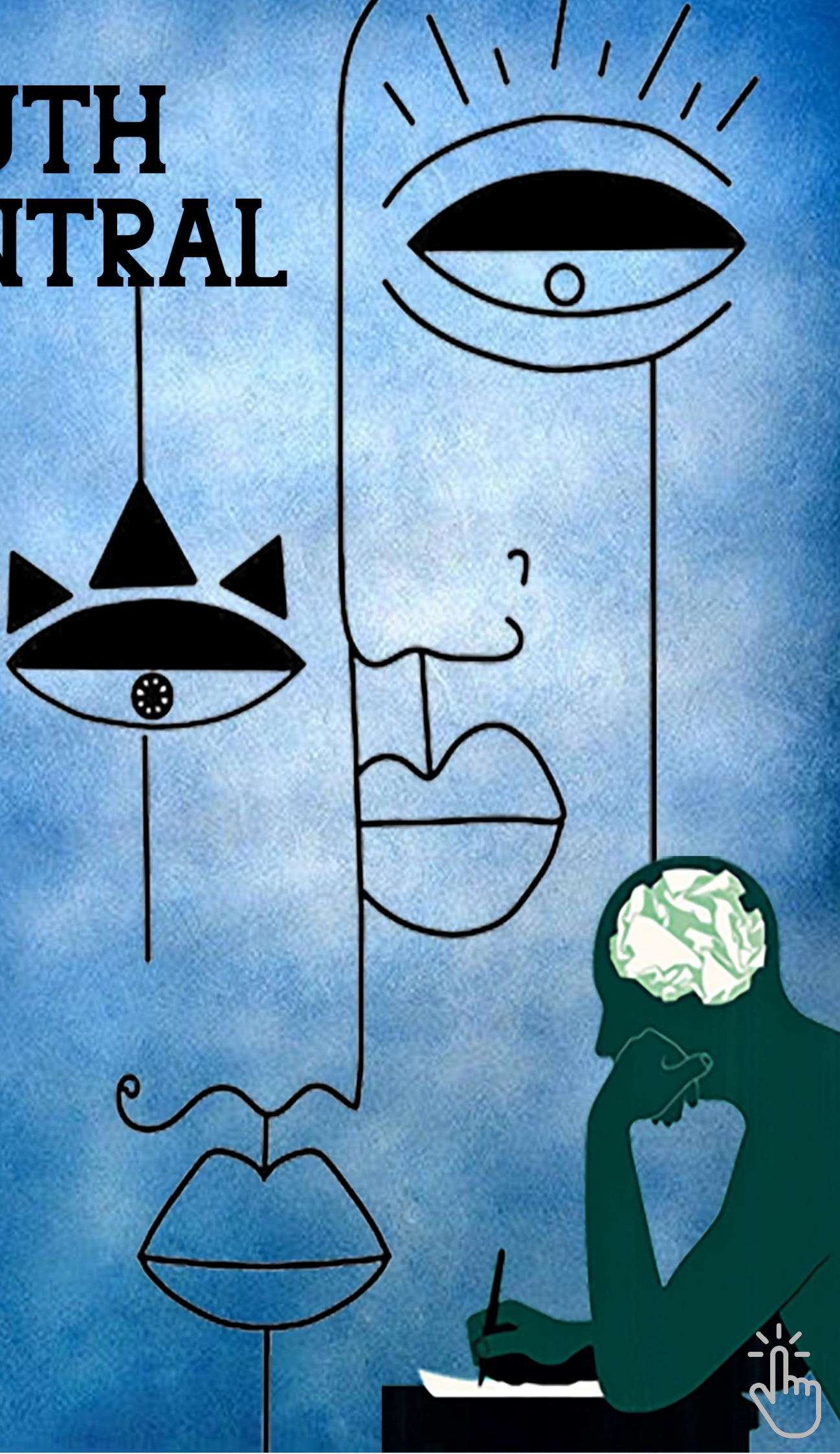
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The real voyage of discovery consists not in seeking new lands but seeing with new eyes.
-Marcel Proust

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YOUTH CENTRAL



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Kang Rinpoche

- The spiritual center of the universe

In the Indian mythology, rivers and mountains have been always regarded as source of life and sustenance. Since ancient times, Hindu people regarded mountains and rivers as very sacred and even till today worship them as manifestations of Gods and Goddesses. The mighty *Himalayan* ranges have been home to the many Hindu legends and also the abode of their gods. The *Mt. Kailash*, the spiritual center of the universe and abode of *Lord Shiva*, is regarded as the earthly manifestation of the Hindus and is most sacred to Buddhists, Jains and Tibetans also. Worship of *Lord Shiva* may be the oldest surviving religious cult in the world. Each year, millions of Hindus devotees travel to circumambulate *Mt. Kailash*, in order to fulfil Karma of sacred pilgrimage which will lead them to attain Moksha.

But here lies a biggest mystery that, no human has managed to scale *Mt. Kailash* till now. There have been many legends of people dying in the attempt to climb the mountain. The Chinese authorities, knowing the religious sensitivity of the matter, have officially banned alpinists from attempting a climb.

Mount Kailash (*Kang Rinpoche* in the Tibetan language) is situated in the south-western part of Tibet bordering the Kumaon hills and Nepal. It is two hundred and forty miles from Almora in U.P. and 800 miles from Lhasa. *Mt. Kailash* is a rock pyramid of 21,778 feet height. The mountain is located near Lake *Manasarovar* and Lake *Rakshastal*, close to the source of some of the longest Asian rivers, the *Indus*, *Sutlej*, *Brahmaputra*, and *Karnali* also known as *Ghaghara*.

Russians, like Indians, have been fascinated with the mountain for a long time. *Nicholas Roerich* wrote about *Mt. Kailash* and one of his most famous paintings portrays the path to the mountain. There are several legends of Russian climbers in the 19th and early 20th centuries trying to scale the mountain and vanishing. A Siberian mountaineer has confessed about a group of climbers who climbed beyond a particular point and suddenly aged by a few decades. According to his story, they died of old age a year later. Roerich believed in the existence of a mystical kingdom called Shambala in the vicinity of *Mt. Kailash*. Some Hindu sects refer to Shambala as *Kapapa*, and believe that perfect people reside there.

In 1999, Russian ophthalmologist Ernst Muldashev decided to go on an expedition to Tibet to try and discover the secrets of *Mt. Kailash*. His team comprised of experts in geology, physics and history. The team met several Tibetan lamas and spent several months around the foot of the sacred mountain. Muldashev's team came to the conclusion that *Mt. Kailash* is actually a massive man-made pyramid that was built in ancient times. He claimed that it was surrounded by many smaller pyramids and could be the centre of all paranormal activities. Muldashev, author of 'Where Do We Come From?' wrote in an academic paper, "In

the silence of the night, there often were strange gasping sounds in the belly of the mountain. One night both my colleagues and I distinctly heard the noise of a falling stone that undoubtedly came from the interior (of the mountain)." He suggested that some beings lived inside the pyramid.

In Tibetan texts it is written that Shambhala is a spiritual country that is located in the north-west of Kailash. Mulsashev wrote, "It is hard for me to discuss this topic from a scientific point of view. But I can quite positively say that Kailash complex is directly related to life on Earth, and when we did a schematic map of the 'City of the Gods,' stone mirrors, we were very surprised – the scheme structure of DNA molecules."

Many alpinists have several times, but they spanish alpinist have tried permission of China Govt., the expedition was not Govt. has banned any type



attended to scale *Mt. Kailash* failed. In the year 2001 a to reach *Mt. Kailash* with the but due to religious pressure accomplished. After that China of expideton on *Mt. Kailash*.

DR. AVISANKAR ROY

"Can I
climb
Mount
Kailash?"



LIJA SAHA
[THIRD YEAR]



Autobiography of a semester question paper

- Ms.Pallavi Pahari

I am proud to present myself as an Engineering Physics question paper and I am thrilled to tell about my life story. I was born in a computer screen by a highly intelligent being commonly referred to as “teacher”. For me he is like a father figure who infused into me great values which the students denote as “marks”. My father helped me grow from page to page and made me tough. Literally! A while later I was sent to serve my purpose, i.e., of becoming a semester question paper. Basically I was cloned in a laboratory several times using a weird looking machine with lights coming out from all of its sides. I don’t actually know what the humans call it these days! Ah yes, it’s called photocopying...so I was photocopied for about 1000 times as if I was about to become a man and serve my duty to the education system. I was ceremoniously placed on a stack of other question papers and was introduced to my colleagues Industrial Stoichiometry and Fluid Mechanics, my two brothers. The elder one was Fluid Mechanics who was a tough guy, very hard to beat and he always got my back. However, Industrial Stoichiometry was kind of a hopeless romantic who always fell for his crush Basic Electrical Engineering in spite of getting “short circuit” numerous times. There was a rumour going on that initially he was head over heels over Computer Applications for such a long time that he developed a “bug” which is still living and growing inside his head. Anyway, my sister Heat Transfer was very supportive of me and used to tell me that one day I am going to be famous just like a movie star and all the students would be on their hands and feet just to have a glimpse of me. Ohh Man!! I started imagining what a life I was about to have full of stardom and fame just like the paper on Theory of Relativity which was one of the Gods that we worshiped. Just as I was about to finish my dream, I was grabbed and snatched like a very ordinary paper and within a moment put inside an envelope and sealed with my clones. There, I was kept overnight and almost died due to claustrophobia. Next morning, I woke up and was placed on the hands of beautiful girl with apple red cheeks who looked very very nervous and received me with trembling hands. She looked at me for some time and slowly started smiling and writing furiously. There was a tinge of cuteness and virtuousness in her eyes which made me glad. Although I was tough, she solved all my difficulties and questions perfectly just as I wanted. While I was admiring her red cheeks I almost fell in love with her innocence. But wait!! She wasn’t as innocent as she looked. Suddenly I felt a sharp tug in my ear and I found myself furiously and hastily handed over to a guy sitting behind her. I swear to almighty Einstein (Our version of God), that the guy did not have apple red cheeks or beautiful eyes. In fact just the opposite...

His eyes were bloodshot and his cheeks looked like a road which recently had a car accident! He wrote a lot of differential equations and some weird looking symbols on me which made me really really upset! Then all of a sudden, I was once again returned to the girl in front of him in the same hasty manner. This time the girl had a

long bright smile. The highlight of my life came when she kissed me after the completion of the exam. I still remember those beautiful lips!!! After this whole examination fiasco, I remembered what my sister Heat Transfer told me about fame and I felt satisfied and content. I have served my purpose and a got a kiss for free!! After the exam, just as I was reminiscing that kiss, I was grabbed in a very dishonourable manner and made into an aeroplane. I flew and flew and finally landed in the dustbin. What a fate!! How the tables turned!! I remained there for few days and then was taken to a recycling machine and was about to brainwashed so that new things can be written on me. Later on I learned that I was to be recycled into a post card...so life wasn’t that bad as I was once again ready to meet a bevy of beautiful girls who would write their feelings of love and passion over me!

That’s how life is. We grow, never knew existed. We will but patience, love and faith made me a decent “paper happy with my life, life threw Einstein be with all our day the humans can crack the universe was formed. I know

say that it was formed by the big bang but I still believe what my grandfather Douglas Adams told me that it was sneezed out from one of the noses of Great Green Arkleseizure.



we face many problems which we have many ups and downs in life, were my three pillars by which being”. When I felt content and me new opportunities. May Lord brothers and sisters and maybe one code convincingly about how the the majority of people



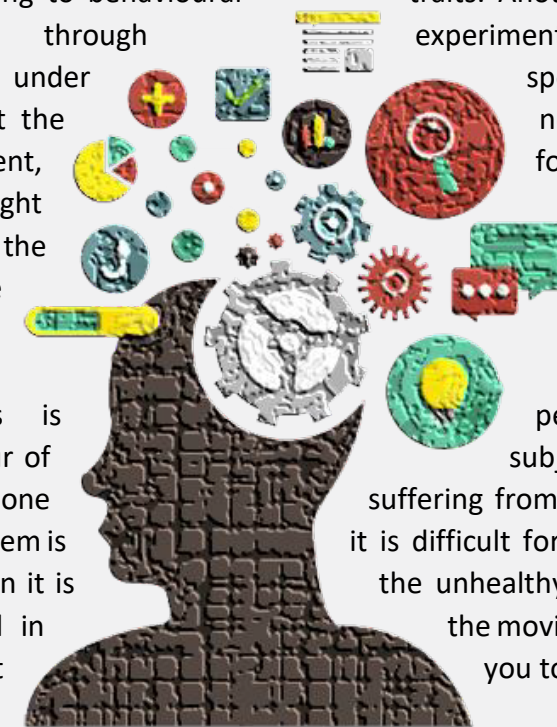
Rahul Mishra



The paradox is that the tool to understand the mind is through the mind itself, it is like sitting in a painting and trying to see the whole painting. Is it possible? It is very difficult. Psychologists study the behaviour of persons to differentiate the mind according to behavioural traits. Another approach is to monitor the physical structure of brain through experiments like Electroencephalography (ECG) which requires the subject under specific lab condition because of which it is never possible to get the normalised readings as the subject is prone to bias towards environment, for instance the experiment to monitor the brain during sleep might require subjects to have a natural sound sleep but the equipment does interfere with the experimental conditioning of natural behaviours.

What about the Mental illnesses?

In psychiatry mental illness is which differentiates the behaviour of in a social situation where someone needs special treatment. The problem is what is wrong with them, as again it is themselves. As famously quoted in a mental illness is, people expect



perceived as the behavioural traits subject in his living environment, like suffering from Autism is perceived insane and it is difficult for an unhealthy mind to perceive the unhealthy mind itself, which has to cure the movie, Joker “The worst part of having you to behave as if you don’t.”

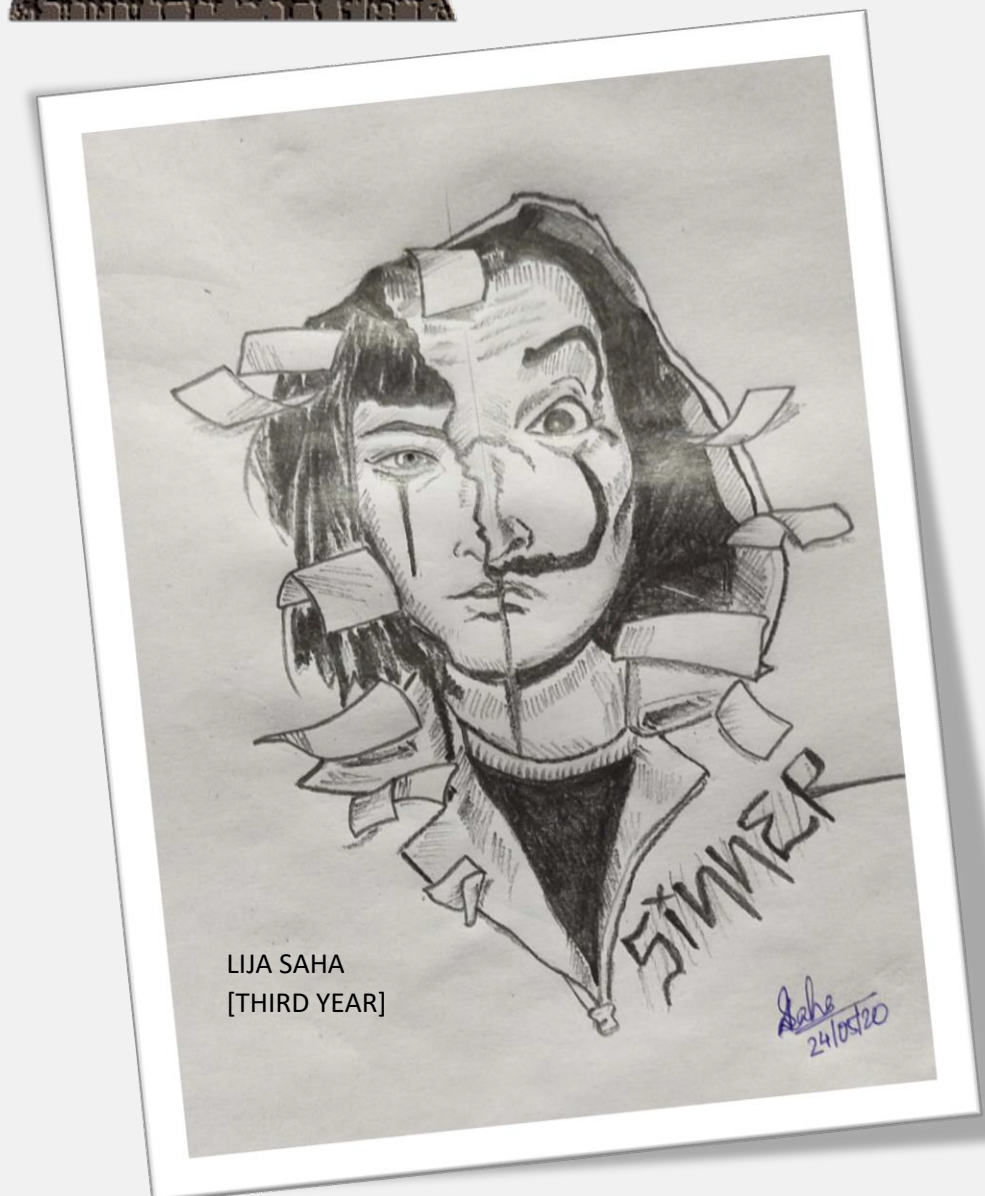
Looking back to the history of modern man and first expression of its mind. One would certainly not miss primitive cave paintings, the colours of which were taken from leaves and flowers to make simple paintings of hunting, animals and all other patterns. It would have been this moment that would qualify as the first recorded evidence of expressions from our ancestors that have survived till date.

How did the Human brain evolve? There is an interesting study in the field of neuroscience, embracing the fact that during evolution, three major capabilities developed in the human brain, the motor capabilities, associated with neuro motor coordination, which are also present among the primitive organisms like amoeba and paramecium. Our brain continuously guides the entire body to maintain its posture and other involuntary actions through an excellent network of neurons

The second capability, associated with faculty of emotion and expressions like hunger, sex, rage, joy, sadness etc and memory. Brains of all higher vertebrates like elephants, lions and all pets have this capability which gives them the edge to overcome the threats and survival and a feeling of trust and wellbeing. The associations of emotions to certain stimuli in a particular ecosystem is encoded in a universal language of emotion. Brain would trigger the fight or flight mode in case there is a danger and would induce fear. As this is the time-tested way to ensure the survival of species.

Apart from these the human brain has evolved to a higher level of emotions, got the capabilities of thought, language, verbal memory, cognitive thinking, planning and analysing. This leap of evolution let humans have a beautiful mind, which could even question its existence and its structure. We began to ask questions to understand the human brain.

“The worst part of having a mental illness is, people expect you to behave as if you don’t.”



LIJA SAHA
[THIRD YEAR]



Voyage

I could perceive my backpack,
lying in a corner of my room.
Trying to fly high and break free,
embark on a journey anew.
Everytime I see it lying,
With a wish too hard to attain;
I wish I could go on a voyage,
With an urge to rediscover life;
But every time I find myself in my room,
Restraining myself, going against the drain.
Life is short and “you only live once”
Grab every chance to leave behind the farce;
But when heart contradicts the brain,
We retreat and suffer in disdain.
Friends, family and pets tether to our minds,
Suppressing our dreams, that know no bounds.
Is it too hard not to refrain from these feelings?
And not to suffer in silence, while caged in my room?
I can still complain, but what about the backpack,
When will its dreams and aspirations bloom?

- Ritaban Biswas
(18/ECE/042)

কাগজ

- মৌমিতা জানা (সংহিতা)

শব্দ খুঁজছি আমি বৃষ্টির শব্দে,
শব্দ খুঁজছি আমি কালো মেঘের গর্জনে,
শব্দ খুঁজছি আমি ক্ষত বিক্ষত হৃদয় থেকেও।
হীরের খনিতে পাথরের বুক চিরে
কালি মাখা শ্রমিক দল যেমন খুঁজছে হীরে -
তেমনি খুঁজছি আমি জীবনের ভিতর থেকে মনশব্দ,
যে মনশব্দ থেকে বিচ্ছুরিত হবে আলো,
জন্ম নেবে এক স্বাধীন কাব্য।
যে কাব্য আকাশের নক্ষত্রের মত জ্বলবে আঁধার বেলা,
এ অন্ধকার সময়, আধার মুখ তার
আমার দিকেই চেয়ে বসে আছে যেন-
এ অন্ধকার সময়, এক বিছিন্ন দ্বীপের মত বড় একা, বড় অসহায়-
আর আমি ব্যর্থ লেখনি হাতে যেন একটা সাদা কাগজ।



Secret to a happy life

We live in an extraordinary time: increased number of us are living longer than ever imagined before. It is a major achievement of modern science and healthcare. The tough part of longevity is to ensure that those extra years are spent happily and financially secure and living independently in activities we value.

Every one of us wants to live a happy life. But in true sense happy are those who find happiness in small things." From school we went to a rural area for a study and we saw an old woman living in a hut and doing her chores. From her face we deduced that she is satisfied and happy with whatever she has". One does not need everything to be happy. The real happiness is experienced by those who get satisfied with whatever life gives them, it is experienced by those who have less expectation and more peace of mind just like the old woman taught us during our short conversation with her.

At last I want to conclude a famous dialogue from the movie Anand and that is

‘Gentlemen, life should be bigger not longer’.

Oisik Das

The Broken Swing

It was a beautiful evening, the cold breeze was touching her face and making her hair strands to flow and hence enhancing the enchanting beauty of hers adding an extra shine on her angelic face. Her eyes, she has got some hypnotising powers in her eyes. Those who look into it, just cannot resist themselves to adore the beauty. If God is an artist then she must be one of his masterpieces. Clouds came floating in the sky, the dark clouds and the cold breeze refreshed the surroundings announcing the soon arrival of the rain. She sat in the corner of that beautiful park. She looked here and there and found some beautiful couples looking in each other's eyes, holding hands. Some kids were playing and some were enjoying on the swing. She looked at the broken Swing beside her and got lost in her memories and then she felt him, he closed her eyes from behind and she could feel the essence of him and said it's you love. She asked why you love me. He replied if there's a reason to describe why I love you then it cannot be love. He said I love you because I love the person I become when I am with you. You love me that time when even I wasn't able to love myself. You are my moon in the darkest of the nights and you are my shade in the scorching sunlight. You are my happiness in the saddest part of my life, you are my ray of hope in the world of despair. Suddenly, the drops of the rain starts falling on their faces and she started feeling the beauty of the rain. He wrapped her in his arms and she started feeling the cold breeze. She wanted to dance on the rhythmical sound the rain produced but at the same time she just wanted to be wrapped inside her arms. They both looked towards each other and lost in their eyes, they leaned towards each other and breathe mingled. Suddenly the **cloud** roared and now she was getting hurt by the rain, the same sound of the drizzling rain that was making her dance are now hurting her. The wind becomes turbulent and she looked towards him to found he was not there, tears fill in her eyes and with her hazy vision she looked at the broken swing where there was two names scratched in that swing, the name they wrote together. She looked at those names and told herself “How can he be here when he is not in this world anymore”. – **NUTAN KUMARI**

Benefits of reading books.

Only true chum of a human being is a book. Because with the others, a person may doubt perfidy, but a book won't ever betray any person. However, it has to tell a person, the truth no matter how much truth it is, well there are merely innocuous lies that enthrall people. We can't sell short the noteworthiness of the contribution books have in our lives. The act of reading is remunerative in physical ways also, not to mention the contributions of varieties of books for the amelioration of our intellect. The more we read, the more we can elucidate ourselves to others. Thus reading upgrades us by communication, knowledge and skills.

The paramount purpose of reading is to connect the outlook of the book to our point of view on any arbitrary topic. But why is reading important? Simple. We are living in a world where every day our proficiency of converging our attention on any particular thing for a sizeable span of time is dwindling, thanks to all the forms of communication technology. Every book has benefits like vocabulary, writing skills, promotes mental health, amplifies memory and helps build focus and many more.

Every book is presented in a different way, be it in the narrating approach or the choice of words. We learn atypical symptoms of lucid words and the methodology of implementing them in sentences that help us to communicate better.



When we fasten our minds on the plots the part of our brain that is accountable for analysis and concentration gets triggered. That fine tunes our brain.

Reading books act as stimuli to the part of the brain associated with memory and attention and also focus is exercised. It also enhances imagination, creativity levels, empathy and promotes broadmindedness.

A good book at the end of a bustling day is bound to boost our endorphin levels, and is a great form of recreation. When a person swims in a sea of despair, knowledge, reading autobiographies or any other inspirational books will motivate people stop them from losing hope and give inner peace.

Books are the key ingredient to a healthy lifestyle. Once a person falls in love with reading books are never gonna let him down. Every book has a special positive aspect. The more we read the more we learn, which expands our minds to discover new things every day. So let's grab a book to read and get more educated, self-dependant, motivated, and strong.

Thank you....

- **DEEPTIMAN HALDER**
18/ECE/082

Life of a mariner

Amid blue bars
Amidst fiery water,
Water that adventure on our lives bouncing,
blushing and hitting.
Sometimes I feel caged,
sometimes seeing my wounded hands I am
raged.
I feel red, I feel floating in death bed but longing
for
those happy faces.
For my daughter' prettiness,
For my Wife's decorated smile,
I feel safe, I feel rich.
For not to miss my mother's well being by even
an inch,
I go miles apart,
I work in that world's salty heart.
Sometimes iced and blanketed with cold nerves
trimmed with blood flow punctured with white
all over. I cross myself With my mates over,
I do my errands with conditions,
Which you would mention saying
*never",
*however' & 'whosever' ,
so that we can pull that black all over.
The price for your comfort, your food, your fuel,
your fruits and your anything to everything
we pay is
high tides, rough oceans & seas.
Sometimes our last sighs,
in gulf with heat waves are those
parted smiles.
Longing to see mother face,
And Wish to walk barefoot on grass it seems as if
everything is preparing our carcass.
And still the first thing
we come across,
the foremost thing
we are thrown at.

How much do these fill our pockets, barely
seen.
Anybody asking how we rowed in
those gales and billions risks are unforeseen.
Push sometimes yourselves
to lean and to learn
from our fights,
With those gigantic strides.
Hug our bruises to admire our pain,
It would be a way bigger
than those few pennies gain.
And those dollars
which you address as mockery
to our pain, to our pain.

MD.AMINUL HAQUE

19/ECE/73



TANYA SINGH
[FIRST YEAR]

স্বপ্ন

- মৌমিতা জানা (সংহিতা)

মনের রাজ্যে বইছে ঝোড়ো হাওয়া –
আমি তখন শুকনো ঝরা পাতা ,
বাতাসের গতিপথে উড়ছে শরীর ,
হয়ত ভালোবাসা ।

আকাশ জুড়ে মেঘের খেলা ,
আমি তখন মেঘবালিকা ,
তপ্ত রৌদ্রে পুড়ছে শরীর ,
হয়ত বা প্রেম একা।

তুমি তখন এক পাহাড়িয়া নদীর মত ,
হৃদয় ভরা নুড়ি পাথর ,
খুঁজছ প্লাবন ভাসিয়ে দেবে মনের ওজন ,
হয়ত বা এক স্বপ্ন ।



तिरंगा

तिरंगा ये हमारा बलिदान की गाथा सुनता।
सियाचिन के ऊंचे रणछेत्र से सम्मान हमें दिलाता।
सुंदर तिरंगा ये हमारा एकता भाईचारे की परंपरा सिखाता।
सर्वप्रथम केसरिया रंग शूरवीरो के बलिदान को दरसाता।
मध्यमा रंग सफेद सदाचार शांति और निर्मलता का संदेश दिलाता।
तीजा रंग हरा प्रकृति का रथ संभालता।
बीच मे सुशोभित चौबीस धारियों वाला नीला अशोक चक्र,
कहता सदैव है चलते जाना ज्ञान धर्म सत्य गौरवता को अपनाना।
तिरंगा ये हमारा जन जन को एकत्रित रहने का संदेश पहुंचता ।



तिरंगा ये हमारा कहता अमर भारत देश है हमारा।
तिरंगा ये हमारा गुरु ग्रंथ का पाठ सुनता,
गीता के स्लोको का अर्थ समझता।
तिरंगा ये हमारा बाइबल के ज्ञान को दर्शाता।
आयत ए कुरान के आलोक को बताता।
तिरंगा ये हमारा धर्म की हर राह का सम्मान करना सिखाता।
तिरंगा ये हमारा सुभाष के त्याग और भगत के बलिदान को सुनता।
तिरंगा ये हमारा हर भारतिय की जान तीनों रंगों में रंगा हुआ अपना
प्यार हिंदुस्तान कहलाता।
जय हिंद ।

अभिजीत बोस (18/ECE/124)

नारी शक्ति

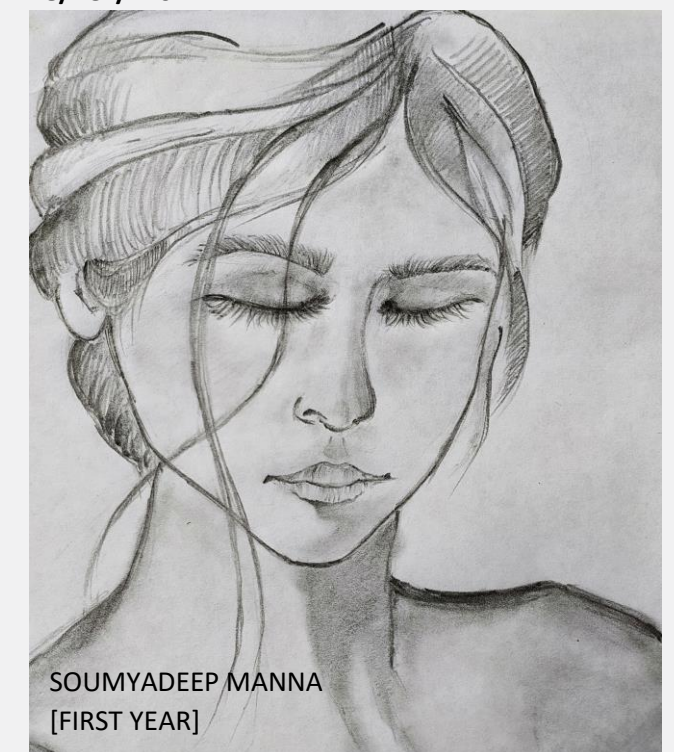
देख इन काली रातों में,
एक अंधेरी चादर के पीछे,
दुर्योधन खड़ा वहीं किनारे,
दुःशासन भी है संग उसके,
सोच वहीं है पुरानी दुराचारी वाली,
आने दो द्रौपदी को फिर इस रात हम चीर खींचें।
अब नहीं साम्राज्य में है कृष्ण कोई,
ना खड़े पार्थ में अब योग्यता वहीं,
ना भीम के सीने में वो उबाल रहा,
और ना युधिष्ठिर का धर्म ज्ञान सही,
सारे के सारे मौन कर्ण पड़े,
अपने झूठे वादों में उलझे,
मिलते सारे द्रोण और भीष्म यहीं।
क्या करोगी ध्रुपद कन्या,
भूल जाओगी अग्नि जन्म अपना,
सब याद रखना हे नारी श्रेष्ठ,
बस डर कर पीछे मत हटना।
भुजाओं में अधिक बल होगा उसका,
अपनों की शक्ल के पीछे शकुनी जैसा छल होगा उसका,
पर याद रखना तुम दुर्गा की वो रूप हो,
जिसने कितनों महिषासुर का है वध किया,
तुम काली की ज्वलंत वो क्रोध हो,
शांत करने स्वयं जगतपति शिव को आना पड़ा।
अपनी बुद्धि को अपनी तलवार बनाओ,
स्वयं तुम वज्र धार हो जाओ,
कर के संहार उस पापी का,

दिखा दो शक्ति तुम अपना दम,
हर वो शख्स झुकेगा सामने तुम्हारे,
जिसने कहा था कभी तुम्हें असक्षम।
और वो कोई मर्द नहीं है,
बस उस दुर्योधन का भेष कुछ वैसा है,
ना ही कोई इंसान है वो,
भली समाज पर एक द्वेष के जैसा है।

असल में वो सबसे कमजोर,
खुद की झूठी अभिमान के नीचे दबा पड़ा,
कर दो देवी आज्ञाद उस बंधक रूह को,
जो उसके शरीर के भीतर अब मर रहा।
मिला दो उसे आज मिट्टी में,
कर के तुम संहार उसका,
युग की नारी अब कमजोर नहीं रही,
बदल दो रूढ़िवादी विचार इस दुनिया का।

आदित्य प्रकाश

18/ECE/116



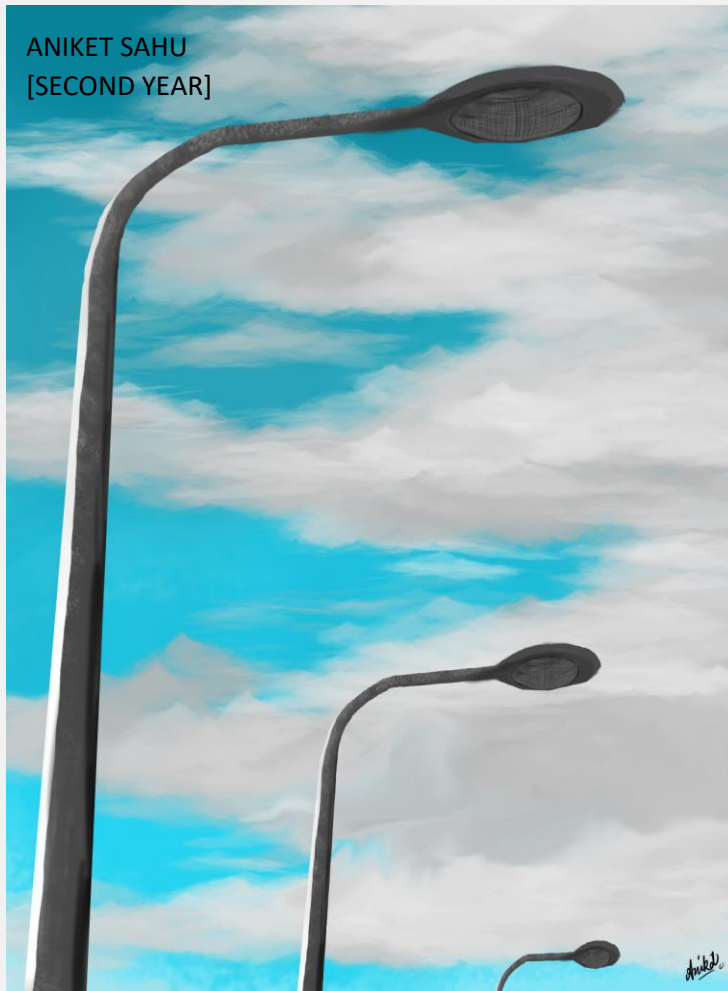
স্মৃতি চিরঞ্জীবি

কলেজের প্রথম দিন।

চাপা উত্তেজনা বুঝে, সিঁড়ি ভেঙে তিনলতলা,
ভীতু ভীতু আমরা।
পা গুনে গুনে ক্লাসরুমে;
সেখানে নতুন তৈরি খাতা, নতুন ব্ল্যাকবোর্ড,
অপরিচিত বেঞ্চের মাঝে একদল ছাত্র।
নতুন বইয়ের গন্ধের মত,
নতুন খাতার ছন্দের মত,
সব কিছু নবান্ন উৎসবে মেতে উঠেছিল যেন।
নদী থেকে সাগরে এসে পড়ার উত্তেজনা
হয়তো এই রকমই;
তার একফোঁটা নিলে,
হৃদয় জুড়িয়ে যায়।
তারই মাঝে বন্ধু বানাই করিডোরে বা ক্লাসরুমে,
কখনও বা আনমনে-
ব্যাগের উপর মাথা রেখে
দূরের গাছটির দিকে তাকিয়ে থাকি।

বয়ে চলে সময়,
থিয়োরি আর প্র্যাকটিক্যাল এর ঠেলায়।
আর তার সাথে,
কলেজের কোনো এক প্রান্তে কাউকে ভালো লেগে যায়।
তবে, ডিপার্টমেন্ট এ আসতে আসতেই
কোথায় যেন হারিয়ে যায়!

প্রায় ই ক্লাস এর ফাঁকে আড্ডাতে বসে গোল টেবিল বৈঠক।
হাসি, ঠাট্টা আর বিতর্ক তো রোজকার বিষয়।
কখনও স্যার এর বোর্ড ভর্তি হিসাব নিকাশ,
আমাদের কাছে যা সংস্কৃত শ্লোকের সমান।
কখনও বা উদ্ভার হয়,
আবার কখনও বা ঘাড় নাড়ি অবুঝ হয়ে।
কখনও কখনও
চকের ওই কারসাজিকে চাপা হাসির আমেজে উড়িয়ে দিই।
কিন্তু, তাতেও কি আর নিস্তার আছে?
ল্যাব এ গিয়ে কারেন্ট এর গতিপথ নির্ণয় করতে হবে,
এখনই!



ডার্করুম এ আলো খোঁজার কাজটাও,
খুব একটা সোজা না।
কখনও ধোঁয়া বেরোয় আমাদের কান থেকে,
আবার কখনও বা ট্রানসিস্টার এর মাথা থেকে।

তবুও, কলেজ শেষে হোস্টেল ফেরার আনন্দটা অদ্বিতীয়।
এই রকমই কতশত অল্পমধুর স্মৃতি,
তুলে রাখা আছে সযত্নে।

এক থেকে হয়েছিল শুরু,
দুই এ ভর দিয়ে; এবার চার এ শেষ।
জাহাজ গুলো এবার রওনা হবে বন্দর ছেড়ে,
নতুন নতুন দিগন্তে দেবে পাড়ি।

তবু এই এই বন্দরের গন্ধ তাদের শরীর এ থাকবে,
হয়ে থাকবে একটা পরিচয়,
সারাজীবন।

-জয়দীপ মন্ডল।

TRANSIENT

Something there is that
keeps on saddening us,
everyday,
That bars our way to shine
and remain gay.
Destroying the tranquility
that we yearn for,
Bringing in and stirring
conflict, that we abhor.
Don't we deserve to be happy?

Transient that everything is,
including happiness;
When sad memories
surpass happy ones,
And keeps you down the entire day,
With a heart full of grim and dismay.

Why is it that hard,
to be happy for a couple of instants?
The answer lies in the beauty of life,
As nothing remains perpetual,
including happiness.

Complaining about life
is what we shouldn't do,
Rather,
enjoy what God has for us,
amidst the blue.

Happiness is transient,
as everything is.

-RITABAN BISWAS

खयाल

दिल के धड़कन में राज़ छुपाए बैठा हूँ,
ईन खाली पन्नों में अल्फाज़ छुपाए बैठा हूँ।
तुम नहीं जानती कितने अनजानी बातें,
जर्रे-जर्रे में दबाए बैठा हूँ।
यू नाराज़ होकर ना बैठो
ऐसा है! ...



कि कुछ तुम्हारे ज़ज्बात भी छुपाए बैठा हूँ।
तुम जब पूछती हो कि मैं चुप क्यों हूँ,
अफ़सुर्दा सी इन आँखों में इश्क छुपाए रखता हूँ।
मेरी ख्वाहिशों का एक तराजू लिए
बाज़ार तेरी ख्वाबों का लगाए रखता हूँ।
ये कहाँ आ गये
अब कहाँ जाए...

यारों!
मैं अपने लबों में खुदा के नज़्म छुपाए बैठा हूँ!!

नितिन

19/ECE/87



ঘোলাটে চোখ

- মৌমিতা জানা (সংহিতা)

যদি বলি আমাকে ঠুঁয়ে দেখ –

তবে কি নষ্ট হলো আমি ?

যদি বলি আমাকে যাবে না ছোঁয়া তোমার শুষ্ক ঠোঁটের উষ্ণ আদরে –

তবে কি বলবে আমায় পবিত্র গঙ্গার মত –

আচ্ছা ধরো একদিন –

এক নির্জন পথে , হাতে হাত ধরে হাঁটি কিছুক্ষন –

তবে কি তোমার সাথে আমার প্রেম?

যদি বলো না না প্রেম নয় –

বিরহ কি আসবে তখন ।

যদি বিরহ না আসে , বৃষ্টি ভেজা বিকেল নষ্ট সাজ আমার ,

আমি কি নষ্ট একাই ? তুমি নও ? –

আমি নারী , বক্ষ আঁচল যদি ওড়াই আকাশে ,

যদি দীপ্ত চোখে তাকাই সুস্মুখে –

যদি শরীরের ভাঁজ আরো করি উন্মুক্ত – ,

যেমন এঁকেছিল ঈশ্বর এ নগ্ন পৃথিবীর রূপ ও আমাকে ,

যদি তেমনই হই আভরণ মুক্ত –

তবে কি দিলাম তোমায় আবাধ স্বাধীনতা , বলবে আমি তোমার ভোগ্য পণ্য ?

কেন এভাবে দেখ আমায় ঘোলাটে চোখে?

রাতের আঁধার আকাশে লাজহীন চাঁদের উন্মুক্ত রূপে ,

শধু কি দেখ এক নষ্ট নারীকে ?

তোমার ঘোলাটে দুচোখে অথবা তোমার স্পর্শে

আমার পবিত্রতার সঙ্গা আমি কখনো লিখিনি, না লিখেছে
ঈশ্বর -

তবে তুমি কেন ?

আমি নারী , আমি নই কোন কবি

- সংহিতা

কত নীল প্রেমে ডুবল পৃথিবী , কত লাল ছিল আকাশে –

কত নদী বইল রক্ত স্রোতে ,

ক্ষুধার সাম্রাজ্যে হিংস্র বন্য থাবা শরীরের বাঁকে বাঁকে ,

স্পর্শে স্পর্শে মৃত্যু ভালোবাসার -

কি লিখব আমি ?

আমি নারী , আমি নই কোন কবি -

কিছু চিহ্ন রাখিনি আমি , হারাবার আগে কিছু রাখিনি পরিচয় –

তীর ভাঙা ঢেউয়ে হাজার সহস্র টুকরো হয়ে

অর্থহীন আঁকি বুকি , এঁকেছে অভিমান –

আমি পড়তে পারিনি –

তুমিই পড়েছ - তুমি কবি যে -

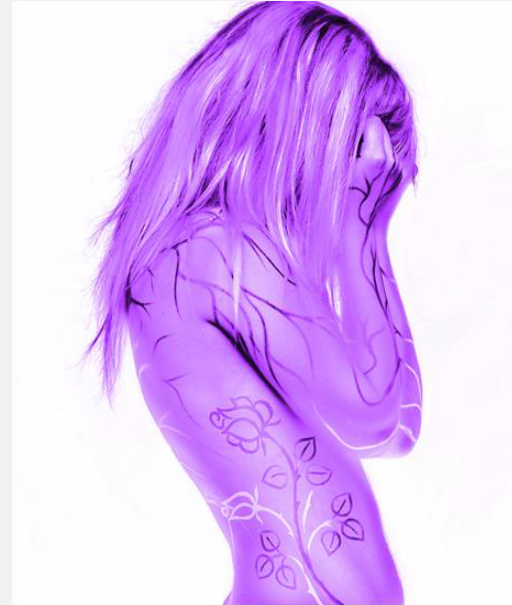
তাইতো ঢেকেছ হৃদয়ের ক্ষত কিছু শব্দের ব্যর্থ কান্নায় –

আজ না হয় ছুটি -

আজ কাব্য নয় -

ব্যর্থ মানব জীবন বারুদের থেকে কম নয় -

কাব্যের ঠোঁটে, উষ্ণ চুষনে একটু আগুন রেখো ।



সমাজ বিকাশের ধারা

ইতিহাসে জেনেছি মোরা

সমাজ বিকাশের ধারা।

আদিম সমাজ আধুনিক হয়েছে

জ্ঞান বিজ্ঞানের দ্বারা।

মানুষ যখন বাস করত

বন জঙ্গলে গুহায়,

হিংস্র পশুর আক্রমণে ছিল না কেউ সহায়।

প্রকৃতির সঙ্গে লড়াই করে

বেঁচে থাকত তারা,

খাদ্য টানে জঙ্গলে গিয়ে

অনেকে জীবনহারী।

কাঁচা মাংস খেয়ে তারা

করেছে জীবনধারণ,

স্বাধীন ভাবে ঘুরে বেড়াত

ছিল না কোনো বারণ।

আগুন জ্বালাতে শিখল যখন

পাথরে পাথরে ঘষে,

কাঁচা মাংস পুড়িয়ে খেত

একসাথে বসে।

গুহাবাসী হল যখন

গোষ্ঠী হতে শিখল,

গোষ্ঠীবাসীর দায়িত্ব নিতে

নেতা তৈরি করল।

দলবদ্ধ থেকে তারা

ভাবল বসে বসে,

সবাই মিলে চাষ করতে হবে

গুহার আশেপাশে।

চাষ-আবাদ শিখল তারা

আপন বুদ্ধিবলে,

খাদ্য সংগ্রহ করতে তারা

গেলনা আর জঙ্গলে।

অনেক কিছু শিখল মানুষ

যন্ত্র আবিষ্কার করে,

আধুনিক সমাজে পৌঁছল তারা

অনেক সংগ্রাম করে।

এইভাবে মানুষ এগিয়ে যাবে

অনন্তকাল ধরে।

-সুধাংশু শেখর মাইতি।

ECE dept.

HIT, Haldia.

তুমি

সুনতা তো তেরে লফ্‌জ হর রোজ হूं मैं,

মংগর বাকিফ মুझे उन बातों से होना है,

जिनसे तेरी जद्दोजहद हर रात होती है।

इस कदर डूब जाना है तुझको मुझमें और मुझे
तुझमें,

कि मेरे हर ज़र्रे में तू हो और तेरे हर ज़र्रे में मैं,

गर कहीं बिखर जाए और बिछड़ जाए हम,

तो लोग पहचान ना सके मैं हूं या तुम हो या हैं हम

तकरार का क्या है महज कुछ बातें हैं,

मजा तो तब है जब ताराजें में तेरा साथ हो।

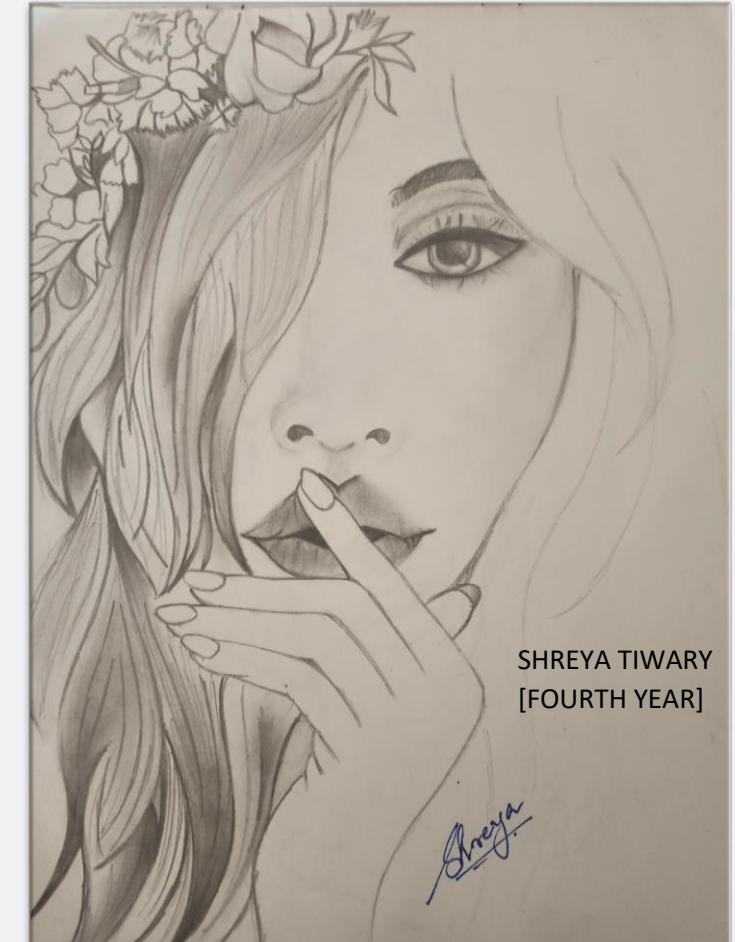
हर शाम तो फिरदौस है तेरी मौजूदगी से,

मगर मेरी मशियत ये है रात की,

ख्वाबों में भी हम साथ हो।

जय कुमार

17/ECE/082



SHREYA TIWARY
[FOURTH YEAR]

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রাজা-রাণি

অস্বস্তি ও কুষ্ঠা মিশ্রিত মনটা থমকে যায় তাঁর সামনে ;
সকালবেলার কাঁচামিঠে রোদ হৃদয়-দর্পণে ঝলসে ওঠে,
আমার পেরেক মারা হৃদয় আর জীর্ণ শব্দ চয়ন তখন বড়ই নগন্য ;
আমার ক্ষুদ্র সামগ্রী বলতে , এই কবিতা ঠাসা খাতা
সেটা নেড়ে-চেড়ে, ঘেটে-ঘুটে দেখি,
আর বারবার অতীতের ছবি ভেসে ওঠে;
যদিও পুরো ব্যাপারটা বেশ আঁতেলমার্কী,
আসলে দু-একটা ভারী শব্দ প্রয়োগ করলে-
অদ্ভুত কয়েকটা উপমা দিলেই তো আর কবিতা হয় না।
এক কালে বেশ ভালো লিখতে পারতাম,
তা দেখে, অনেকে হিংসা করতো।
কথার জালে লেখার মান আকাশ-ছোঁয়া ছিল;
তা দেখে অনেকে আবার পিঠ চাপড়াতো...
সব যেন কেমন হারিয়ে গেল,
তার সাথে আমার কলমটাও হারিয়ে গেল
আর তার সাথে হারিয়ে গেল
আমার আকাশ ছোঁয়া লেখা আর সেই হলুদ পাতা;
হারিয়ে গেল বৃষ্টি ভেজা দু...পুর-বসন্তের সন্ধ্যা আর পূর্ণিমার চাঁদ।
আমার এই পাগলামো দেখে বেশ কিছু অভুক্ত অতৃপ্ত হৃদয়-
অতি উৎসাহে হাততালি দিল, আবার অনেকে জড়িয়ে ধরলো।
তাই বেশ কিছুদিন পর হাজির হলাম,
আমার ক্ষুদ্র আসবাবপত্রগুলো নেড়েচেড়ে দেখলাম,
আর সমান্তরাল ধরে দৌড়লাম
দিকশূন্যপুরের দিকে,
আবার সেই অতৃপ্ত হৃদয়গুলো আরও উৎসাহে
হাততালি দিয়ে গেল আমার এই অদম্য দৌড় দেখে।
হৃদয়ের প্ল্যাটফর্মে জীবনের অসম্পূর্ণ ইচ্ছার শেষ ট্রেনটায়-আর
জায়গা হল না,
তাই আমি রাজার মতো বসে রইলাম দিকশূন্যপুরের JUNCTION-এ,
আর আমার রাণি হয়ে রইল আমার কবিতা ঠাসা খাতা।

দত্তাত্রেয় সিকদার
(L12/EC/130)

কুচ্চ কম

अब कुछ कम हसीन है जिंदगी
तो क्या हुआ ,ये बंजर तो नहीं
अब कुछ टूटा है अपना आशियां
तो क्या हुआ, हम बेघर तो नहीं
अब कुछ खुशियां ही बची है पास में
तो क्या हुआ कोई गम तो नहीं
अब कुछ रिश्ते ही बचे हैं साथ में
तो क्या हुआ ,अपने गुम तो नहीं
अब कुछ हासिल नहीं कर पाए,
तो क्या हुआ कुछ खोए तो नहीं
अब कुछ कामिल नहीं कर पाए
तो क्या हुआ ,हम रोए तो नहीं
अब जो गिर पड़े ठोकर खाकर,
तो क्या हुआ ,कोई मंजर तो नहीं
अब कुछ कम हसीन है जिंदगी
तो क्या हुआ, ये बंजर तो नहीं

समीर सिंह राजपूत

19/ECE/131



क्रिकेट

हमने अपना बचपन वो 22 याड्स में गुज़ारा है,
हां क्रिकेट के उस जुनून में,
वो ज़ज्बात शायद सभी समझ नहीं पाएंगे,
जब भी खाली समय मिले हाथ में बल्ला और गेंद लिए मैदान की ओर दौड़ पड़ते थे,

अगर दो ही लोग हुए तब भी मैच खेल लिया करते थे,
कभी मैदान सूना हो तो छत पर अकेले ही गेंद से खेला करते थे,
और कभी-कभी मोज़े में बौल रखकर घंटों बैटिंग प्रैक्टिस करते थे,
अकेले होने पर दिवाल में विकेट बनाकर बौलिंग प्रैक्टिस भी कर लिया करते थे,
हर ब्रेक में डाइव कैच एवं लंबी दूरी का कैच लपककर खुद की फिलड़िंग को सुधारते थे,
गेम्स प्रिएड तो मानो हमारे लिए केवल क्रिकेट ही था,

हर शनिवार एवं जल्दी छुट्टी होने पर स्कूल में
रूककर देर तक दोस्तों के साथ क्रिकेट खेला करते थे,
यूं खेलने के जनून में, हार जीत से उतनी फर्क नहीं पड़ती थी,
पर हां हर बार जीत के लिए अंतिम क्षण तक लड़ते ज़रूर थे,

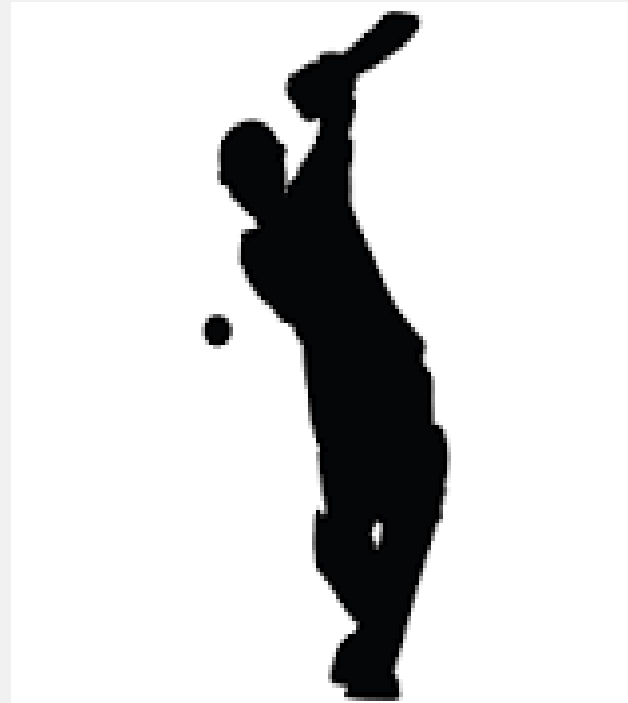
पर हर मैच के बाद खुद को समझाना, खुद की गलतियों को सुधारा करते थे,
ख्वाइश थी देश के लिए क्रिकेट खेलूं, धोनी को अपना आदर्श माना करते थे,
उसके हर शौट की प्रैक्टिस भी किया करते थे,
आज भी मैच के हायलाइट्स को बहुत उत्सुकता से देखते हैं,
यूं तो बैटिंग और फास्ट बौलिंग करते थे,
पर शायद लेंथ से कभी-कभी भटक जाया करते थे,

कभी-कभी बल्ले का भी दिन खराब होता था,
और फिर ना ही इसके लिए खुद को पूर्ण रूप से समर्पित किया,
ना ही परिवार से इतना खेल के लिए प्रोत्साहन मिला,
क्योंकि "पढ़ोगे लिखोगे बनोगे नवाब,
खेलोगे कूदोगे तो होगे खराब",

अब क्या करें मिडिल क्लास फैमिली इतना रिव्स नहीं ना उठाती है।

अभिनीत सौरभ (विशु भट्ट)

18/ECE/121



জিজ্ঞাসা

হে বিজ্ঞান তুমি এগিয়ে চলেছ
দুর্বীর গতিতে সন্ত্যতার বিকাশ ও পরিবর্তনে।
বিধিবদ্ধ কুসংস্কারের জগদল পাশান কে দমন করে
মানব কল্যাণের উদ্দেশ্যে প্রকৃত সত্যের সন্ধানে।
তোমার তুলনা তুমিই।
শিথিয়েছ তুমি মানবজাতিকে
পরিবর্তনশীল সমাজ গড়ার পথ,
প্রকৃতিকে জয় করে মানব সন্ত্যতার বিকাশে,
সুগম করেছ জীবন জীবিকার যাত্রাপথ।
কিন্তু, হে বিজ্ঞান, তোমার কাছে আমার জিজ্ঞাসা
একবিংশ শতাব্দীর সন্ত্যতার সন্ধিক্ষণে
কেন আজও আমরা দেখতে পাচ্ছি-
বিজ্ঞান অবহেলিত হচ্ছে কুসংস্কার এর আচ্ছাদনে।
চেতনা প্রসারহীন মানুষেরা ব্রান্ত মনের উন্মাদনায়
পিটিয়ে মারছে অসহায় মানুষকে ডাইনি অপবাদে,
অন্ধবিশ্বাসের পঙ্কিলতায় ডুবে আছে যারা
দিশেহারায় ভুগছে তারা অসাধুদের ফাঁদে।
হে বিজ্ঞান! তোমার জ্ঞান এর প্রজ্জল প্রভাব
নেই কেন আজ ওই অবুঝ মনের প্রাণে?
আধুনিক সন্ত্যতা আজ হয়েছে তিলোওমা
তবু কেন অগণিত যাযাবর পৃথিবীর কোনে কোনে।

-সুধাংশু শেখর মাইতি।
ECE dept.
HIT, Haldia.



PICTURE PERFECT



SD



UTKARSH BHASKAR
[FIRST YEAR]

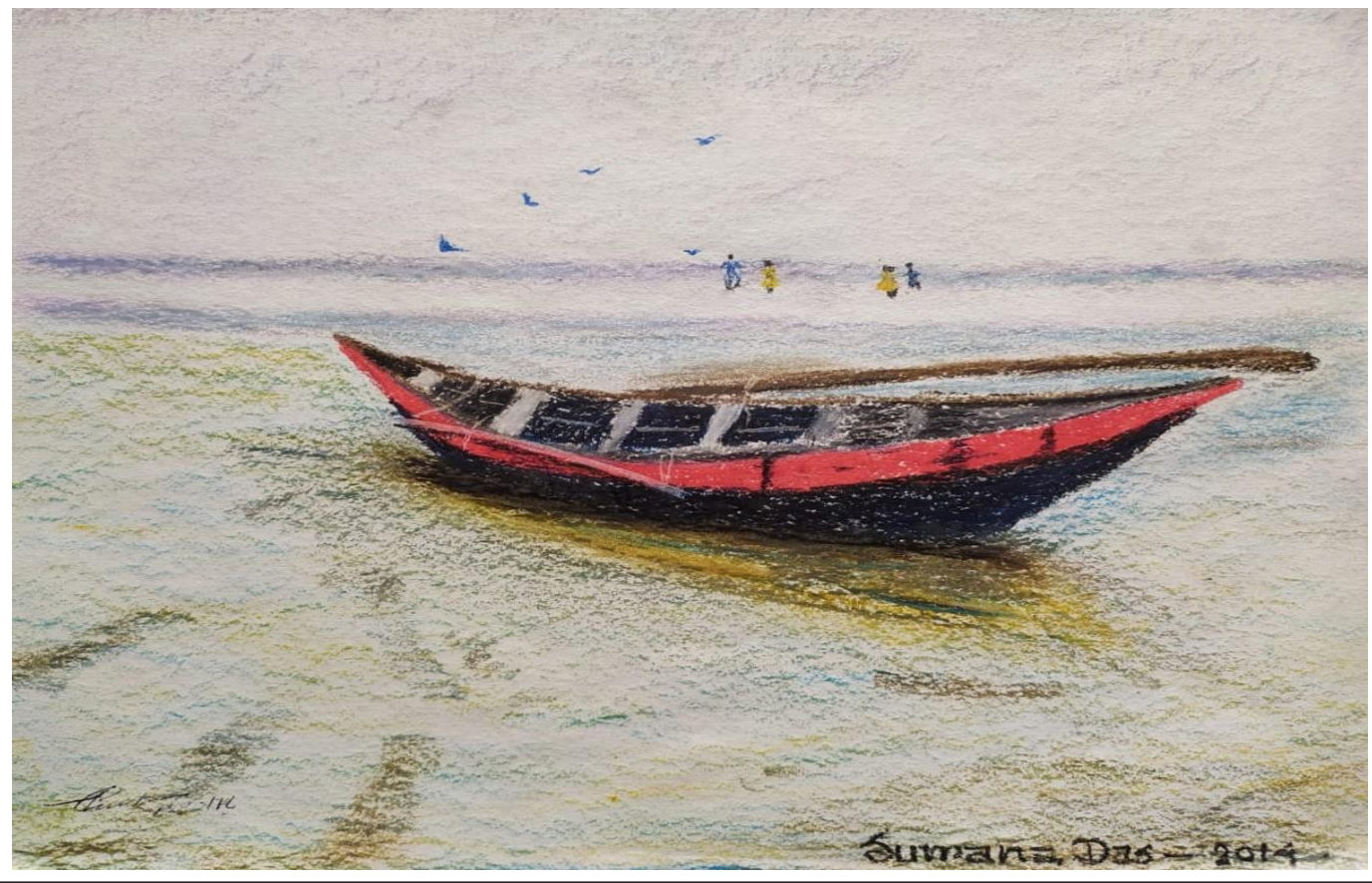
NILANJAN DUA
[SECOND YEAR]



SUMANA DAS
[FIRST YEAR]

OISIK DAS
[FIRST YEAR]





SUMANA DAS
[FIRST YEAR]

UTKARSH BHASKAR
[FIRST YEAR]

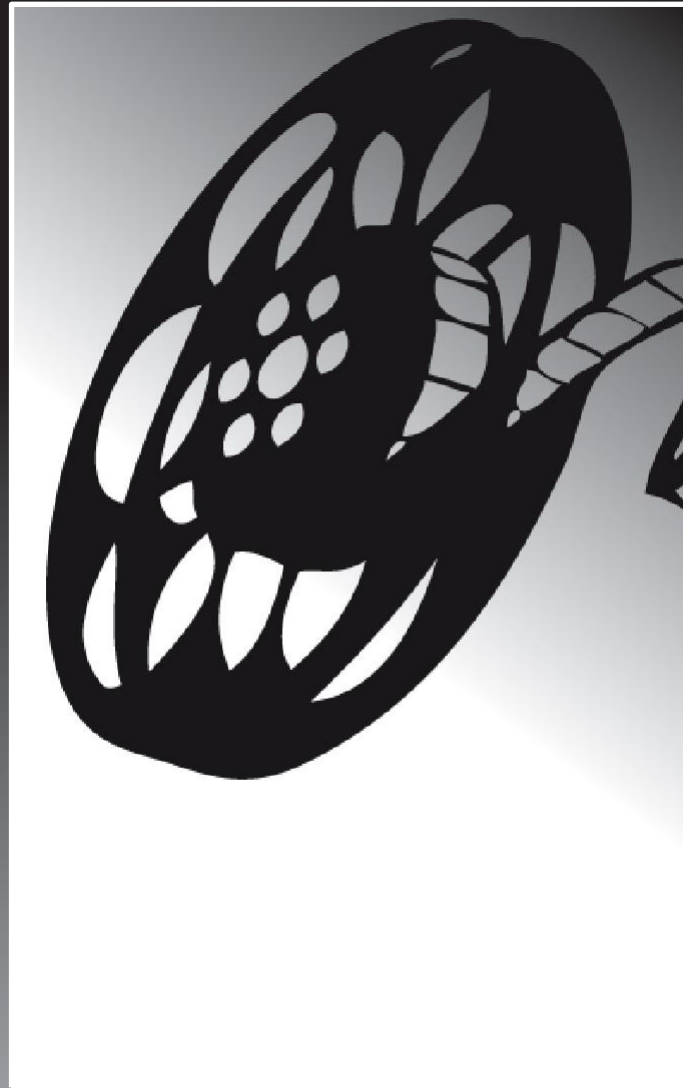
TANYA SINHA
[FIRST YEAR]

SANCHITA LAIK
[FOURTH YEAR]

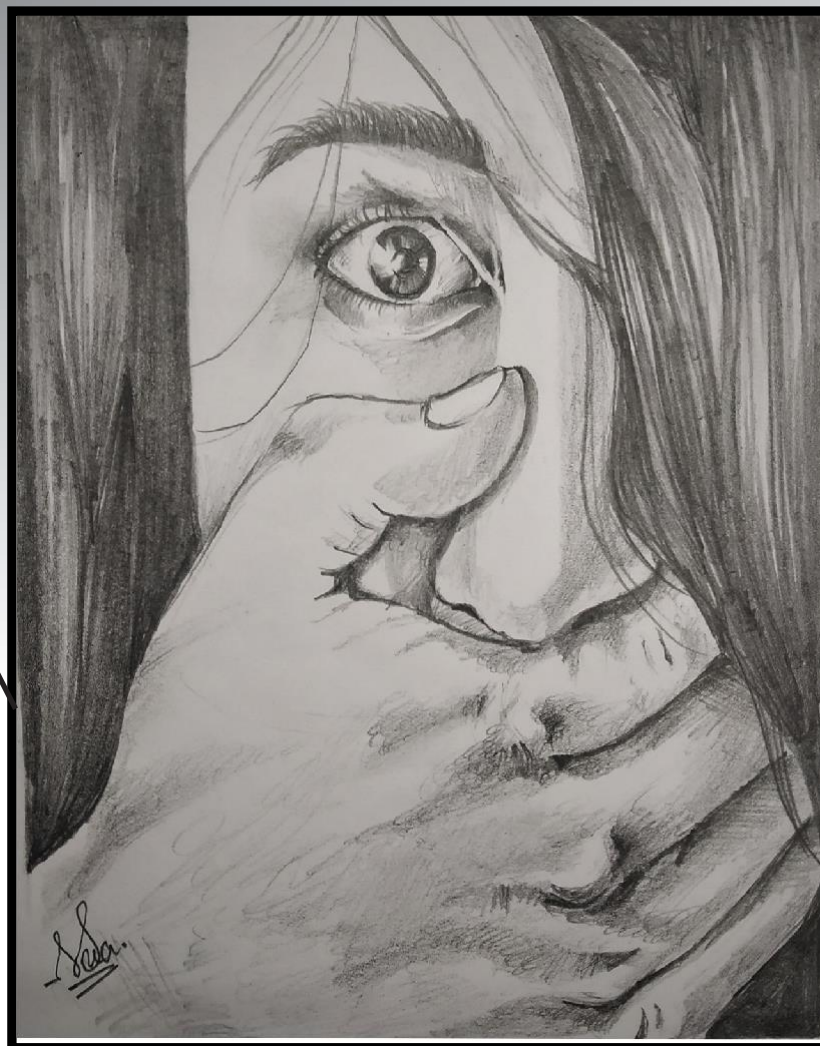




SHREYA TIWARY
[FOURTH YEAR]



SUMIT KUMAR
[FIRST YEAR]



NILANJAN DUA
[SECOND YEAR]



SHREYA TIWARY
[FOURTH YEAR]

CAMPUS INSIDER

LATE MRS. TAMALIKA PONDA SETH:

Flowers blooming, birds chirping indicate welcoming of the spring season. It would not have been a better opportunity for unveiling the statue of late Mrs. Tamalika Ponda Seth (Co-founder of HIT) whose sudden demise was a setback. The inauguration was done by our very own chairman Shri Lakshman Seth on 21st January, 2016. The standing Beauty adds to our inspiration along with enhancing the picturesque view of our college. We hope that this mark of respect is remembered through ages.

STUDENTS' GROUPS:

NEEDS : The non profit organization of the college, held a cleanliness drive ,where the members of the organization divided themselves into several teams and unfolded themselves in different corners of the college premises. The success of the campaign, focused on bringing a positive impact of the societal mindset. This initiative was taken on Chacha Nehru's Birthday, 2019. NEEDS acts as a bridge between the college members and financially or physically disabled class of the society. To bridge this gap, the organization has setup several donation campaigns where the students of the college donate wollen clothes, food items notebooks and stationaries which are later distributed in an ashram of differentially abled people. Along with these, they put their efforts in many community development programmes such as blood donation camps. Besides, for the budding talents of the college, Needs organizes Benevolence, an event which comprises of sub-events such as creative writing, theme drawing and many more.

JIGYASA : Another group which is now a registered NGO giving rays of hope to the deprived section of our society is 'JIGYASA'. Besides focusing on its foremost objective of upliftment of poor, it also organized an online event 'Phoenix' for the college students. Another event called 'Pradarshini' was organized during the month of December, 2016 to make the underclass society aware of the sprouting technologies and their applications

HITIAN INSIDE : The web based platform founded by the Hitians, Jishnu Samanta and Avinash Kumar provides the HITians daily dose of HIT happenings. Having completed five successful years of its evolution, the members now proudly claim that they are not only presenting better ideas but also invoking a desire of creativity among the fresh minds to turn down dreams into reality. Soon, it is going to organize an online event Extravaganza v6.0 for the students. The team has proved themselves by informing the students about the ongoing related to the university, or webinars or events organized by different clubs.

THE BACKBENCHERS: Team backbenchers, an initiative by the students of the college takes the pride of conducting Fortitudo every year for the last four years. Fortitudo not only provides the students an opportunity to participate in the exciting co-curricular activities, but also helps the student to upgrade their thinking skills and determination to complete a task. Besides, the Team

Focuses on inducing a sense of team work, which will certainly prove to be beneficial to them in their future endeavours.

RANG MILANTI: The cultural club of the college brings the students of HIT under one canvas painted with the colors of drama, dance, song and emotions. It provides the students with an opportunity to showcase their cultural skills every year. The club aims at providing the students with experiences that would help the students to increase their cultural capital. The artistic expression of the students under the guidance of the club members helps them to expand their horizons.

TEAM MANAB: Manab Racing is the official Formula Student team of HIT. A mutual passion for automobiles and zeal to learn formed the essence of Manab Racing. The team made its national debut in 2014 at Speedway, Coimbatore, and Tamil Nadu. The general goal of the team is to build the best Formula Racing Car. The team's, fourth car in their segment, MR04, received third runner up prize at the MAKAUT Industry Conclave. Also the team secured AIR-17 out of 64 participating teams from all over the country in Business Plan Presentation of Formula Bharat 2019 which was held in Coimbatore, Tamil Nadu.

CAMPUS RECRUITMENT FOR ECE STUDENTS:

For any graduate, placement is the culmination of all the hard work he has put. The department and the placement cell successfully performs its duty to give the students a cutting edge to enable them to face the growing competition both at national and global level. As on November 15th, 2019, 105 students of the batch 2016-20 got placed in the companies including -

Infosys, Wipro, TCS, Cognizant, IBM, Labvantage, Extramarks Education and Innoraft Solutions. The department successfully sets up its own benchmark every year.

CONFRENCES /SEMINARS/WORKSHOPS held during the year 2019:

CIRCUITRIX: Held on August 21st and 22nd, 2019, the workshop focused on providing the students with a basic knowledge of various electrical components. The workshop was organised by the team IEEE HIT. Circuitrix helped to the students to design basic electric circuits by the end of the workshop.

FIX-A-ROBO: Held on Jan 25th and 26th, 2020, the workshop focused on introducing the best of Robotics in HIT. The workshop was organized by the member of IEEE and it provided the students with the knowledge of wireless bots.

MANUAL ROBOTICS'19: Held on 19th and 20th October, 2019, by the team of IETE. The workshop was organized on Manual Robotics. IETE organized a free workshop on C programming on January 31st and Feb 1st, 2020. Another workshop on Autonomous robotics was held on 8th and 9th February, 2020, by the members. IETE had organised a CODING EVENT to improve the coding skill and to make a good use of quarantine period. It held on 25th April and 1st May 2020

IETE Kolkata centre hosted a Zonal Seminar on 'IoT in Present Wireless Revolution' from 28th March, 2020 to 29th March, 2020.

STUDENTS' ACHIEVEMENTS:

THIRD YEAR:

1. PUJA KUMARI(17/EC/54): Achieved first position in painting ,MRA Junior Diploma
2. JAI KUMAR(17/EC/82): Achieved third position in an event,Requizzit,held at Prayukti 2018
3. HARSH KUMAR(17/EC/85):Achieved first position in Robowar (IIT ISM Dhanbad) , first position in Robowar (BIT Sindri,Dhanbad), third position in the lift off (IIT Kharagpur) and second position in Robowar IEEE , HIT Haldia
4. YASHWANT AGARWAL(17/EC/02): Achieved second position in ICARE Inter College Table Tennis Championship

SECOND YEAR:

1. RITABAN BISWAS(18/EC/42): Achieved second position in CreativeWriting,ACM'19 , Third position in Face Painting,ACM'19 ,Third position in creative writing, Recognito(organized by ME Club)
2. ABHINEET SAURABH (18/EC/121): Achieved second position in English Debate Competition, Extravaganza'19; under top four in Debate Competition District (Paschim Medinipur), conducted by The Times of India and Federal Bank and participated in zonal level at IEM Kolkata as a
3. ANUP JHA (18/EC/99): Achieved third position in Aqua Drift Prayukti'19
4. MANISH KESHRI (18/EC/69): First Position in Robo War, BIT sindri, second position in Armagedon at HIT, first position in Death Race at IIT ISM Dahnbad
5. ANIKET SAHU (18/EC/105): First position in Death Race, at IIT ISM Dhanbad
6. BHUSHAN YADAV (18/EC/87): Achieved first position in Dive Bomber and second position in Udaan, Prayukti'19
7. KUMAR ABHISHEK (18/EC/74): Third position in Aqua Drift, Prayukti
8. MRITYUNJAY KUMAR (18/EC/003): Third position in Aqua Drift, Prayukti
9. ZAIUL RAHMAN (18/EC/63): Third position in Aqua Drift, Prayukti

FIRST YEAR:

1. ARKABHA MUKHERJEE (19/ECE/33): Achieved second division from Arians club (state level from school), district level from sangram samiti football club
2. ALYONA ROY (19/ECE/16): Achieved first position in ICARE debate competition, first position in Extempore in HIT Annual Cultural meet
3. ANIKET CHATTERJEE (19/ECE/22): Achieved second position in ICARE solo dance competition
4. SACHIN KUMAR (19/ECE/128): Achieved second position in Musical Instrument playing competition ACM'19; achieved second position in ICARE musical competition; achieved third position in video making competition organised by ME club.
5. SHUBHAM KUMAR (19/ECE/150): Achieved first position in Quizzit event conducted by ME CLUB
6. SEJAL GUPTA (19/ECE/143): Achieved first position in Armageddon (Auto Bot)
7. SNEHA RANI (19/ECE/154): Achieved first position in Armageddon (Auto Bot)
8. PRIYA SINGH (19/ECE/102): Achieved first position in Armageddon (Auto Bot)

9. RASHIKA RAJEEV (19/ECE/115): Achieved first position in Armageddon (Auto Bot)

10. SUMANA DAS (19/ECE/168): Achieved first position in Armageddon (Auto Bot)

11. ROHAN KUMAR NONIA (19/ECE/122): Achieved third position in video making organized by ME CLUB

12. PIYUSH KUMAR SINGH (19/ECE/94): Achieved third position in video making organized by ME CLUB

13. PRASHANT KUMAR (19/ECE/96): Achieved third position in video making organized by ME CLUB

14. MANISHA KUMARI (19/ECE/70): Achieved third position in video making organized by ME CLUB

15. Md. AMINUL HAQUE (19/ECE/73): Achieved third position in video making organized by ME CLUB

16. GAUTAM KUMAR (19/ECE/51): Achieved third position in video making organized by ME CLUB

17. SAMEER KUMAR (19/ECE/131): Achieved second position in video making organized by ME CLUB

18. SHREYAN GAUTAM (19/ECE/149): Achieved third position in Painting competition organized by Art and Craft club

19. AKSHAY KUMAR (19/ECE/15): Achieved first position in Armageddon (Robo Rush)

20. TASNEEM AHMAD ANSARI (19/ECE/178): Achieved third position in circuitrix event organized by IEEE

21. ARYAN KUMAR (19/ECE/38): Achieved first position in Armageddon (Robo Rush), second position in circuitrix event organized by IEEE

22. JYOTIRMOYEE SANTRA (19/ECE/61): Achieved first position in Armageddon (Robo Rush)

23. AVINASH KUMAR JHA (19/ECE/41): Achieved first position in Armageddon (Robo Rush)

24. ARTHA BISWAS (19/ECE/36): Achieved third position in Chess competition (Shatranj)

25. PARTHIB SEN (19/ECE/93): Achieved second position in Mechnovate 2K20 (Meaningful assembly)

26. AMAN SNEHI (19/ECE/20): Achieved third position in Armageddon (Robo Rush)

27. DAYEETA ADHIKARY (19/ECE/47): Achieved third position in Armageddon (Robo Rush)

28. AMAN SARTHAK (19/ECE/19): Achieved third position in Armageddon (Robo Rush)

Cultural Fiesta



Fiesta Like There's no manana

Sports Triumph



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Ms. Pallabi Pahari
Sri Pulak Maity
Sri Subhendu Barman
Sri Atanu Pradhan
Sri Tapan Maity
Sri Sourav Kumar Das
Sri Sachindeb Jana
Mrs. Ira Samanta
Sri Asim Kuilya
Suman Mitra
Tanushree Bera

Professor & HOD
Professor
Professor
Associate Professor
Associate Professor
Associate Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Instructor
Instructor
Instructor
Instructor
Demonstrator
Demonstrator
Demonstrator
Demonstrator
Demonstrator

Team iArtefacts



Sushant
Mishra



Shreya
Tiwary



Ankit
Anand



Aditi
Sengupta



Mithlesh
Kumar



Tanusi
Lahiri



Pabitra
Malick



Prakash
Kumar



Souvike
Saha



Jai
Kumar



Lija
Saha



Ankit
Pairwar



Rishika
Roy



Aman
Srivastava



Nilanjan
Dua



Mashhood
Ahmad
Danish



Sudhanshu
Ranjan



Ritaban
Biswas



Abhineet
Saurabh



Abhishek
Kumar



Sachin
Kumar



Shubham
Kumar



Rahul
Mishra



Oisik
Das



Rakshat
Kashyap



Nitin
Kaushik



Nafisa
Sadaf



Sneha
Rani



Priya
Singh



Sejal
Gupta



Rashika
Rajeev



Sumana
Das



“Invention is the most important product of man’s creative brain.
The ultimate purpose is to complete mastery of mind over the
material world, the harnessing of human nature to human needs.”

—by ‘the unrecognized genius who lit the world’

NIKOLA TESLA
(1856-1943)