HERITAGE INSTITUTE OF TECHNOLOGY
आत्म दीपो भव
KOLKATA

75 YEARS OF INDEPENDENCE

ECE Department Presents

AMPERE

SEPTEMBER '22

SCIENCE AND TECHONOLGY

CREATIVE WRITING

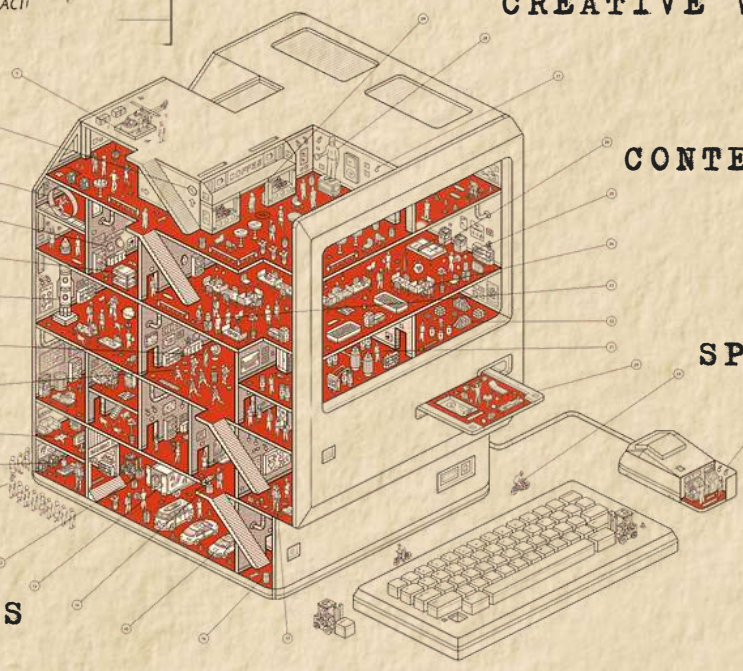
CONTEMPORARY

PAINTING

SPORTS

PHOTOGRAPHY

ELECTRONICS



75 YEARS OF INDPENDENCE SPECIAL!

REDUCE NOISE, AMPLIFY LIVES!

A MESSAGE FROM THE DESK OF THE HOD

We have started another academic session. The performance of our students, who completed their graduation in 2022, was quite good as far as placement percentage or the quality of the recruiting companies is concerned. The spectrum of the companies across different domains, who selected our students, is impressive.

We are sure the next batches will perform also brilliantly. We are updating our curriculum and the syllabi of the courses regularly with advice from experts in academia and industry. We have introduced a LiD program for our students, where the experts from different industries are talking about topics, which are part of the regular course.
Recently, we have started a 'Value Added Course' for students, belonging to different streams.
Our institute has received "A" grade from NAAC.

Our department has been accredited by NBA very recently till the academic session 2024-25.
We are NBA accredited without any break since 2008 and it is a great achievement indeed.
The grade and the accreditation establish the quality of our department beyond any doubt.
All the stake holders have been contributing to this superb achievement and I am sure that our department will continue to hold the ECE flag high.

I hope fervently that the education system is not derailed further.

I wish the AMPERE team all success for the forthcoming issue.

Sincerely,
Prof.(Dr.) Prabir Banerjee

A MESSAGE FROM THE MENTOR

My dear editors you have done an excellent job once again!!

Each and every issue of ampere reaches thelevel beyond my expectation.

It makes me feel proud of you.

Ampere has completed 4 years and each year a new editorial team takes the responsibility to publish the magazine.

Every time I enjoy your innovative approach to redesign each and every issue of Ampere.

This only could be achieved by your hard work, dedication & creative mind. The credit also goes to our contributors.

I hope your magazine performs even well in the future.

Congratulations to you all once again !!!

Prof. Sayantani Dutta

A MESSAGE FROM THE EDITORIAL BOARD

We expect to have a magazine which caters to all and spontaneously lives up to the reputation we bring forth to the table.
The name of AMPERE will be upheld and we hope to bring to you the best version of AMPERE we present to you as yet.
We have got various articles in multiple spheres with abundant insight and reflections to bring to you

We would like to thank the likes of Prof. Sayantani Dutta ma'am and our departmental HOD, Prof. Prabir Banerjee to make this version of AMPERE possible
Team AMPERE also extends a warm note of thanks to all the contributors whose efforts, creativity and insights made the magazine possible.
We sincerely hope to AMPLIFY lives.

Finally a huge thank you note to the outreach tam who has made sure that everybody gets access to the magazine and everybody gets to know about the magazine,
AMPERE SEPTEMBER 2022.

The editorial team has tirelessly worked to bring to you a glimpse of the magazine which is a product of the humble efforts put forward as they have worked tirelessly to make AMPERE 2022, SEPTEMBER edition come true.

REGARDS,
TEAM AMPERE

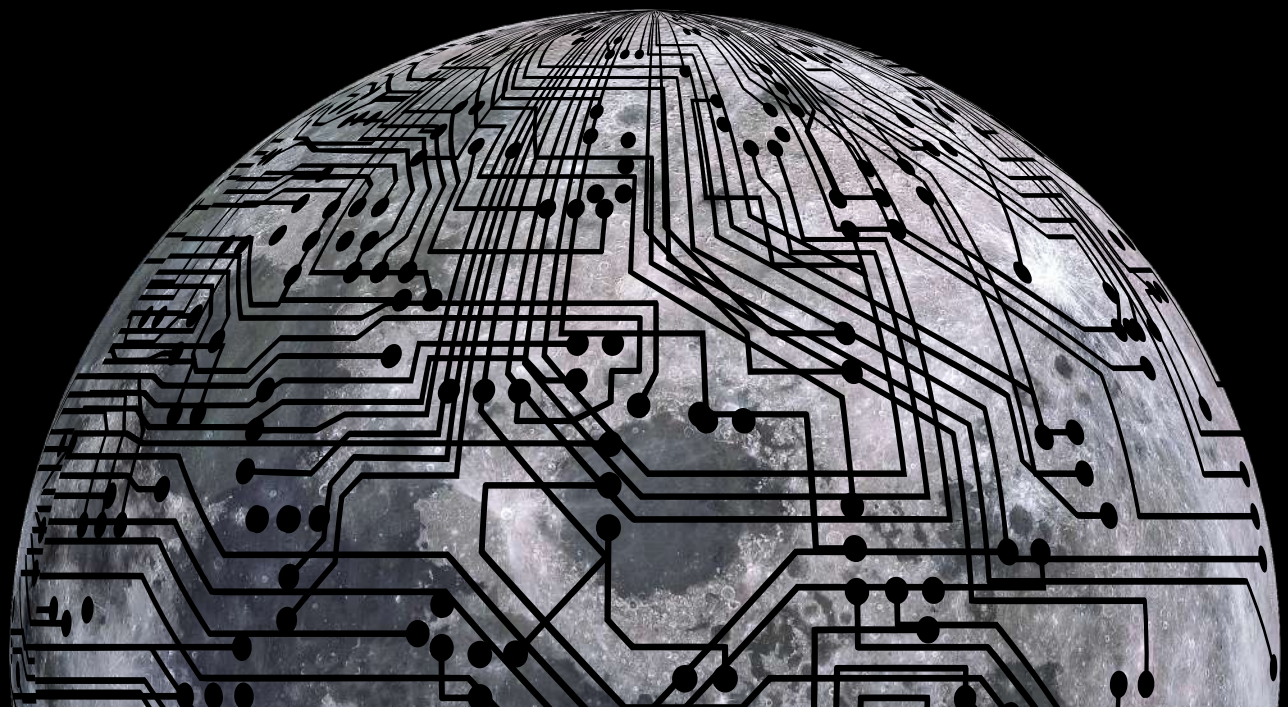
CONTENTS

Teachers' Section	6
Electroboom	13
Science Hub	24
Sportify	34
75 years of independence	45
Inked Thoughts	50
Words of Hue	61
ShutterBug	67
The World Today	74
Miscellaneous	87
Credits	97

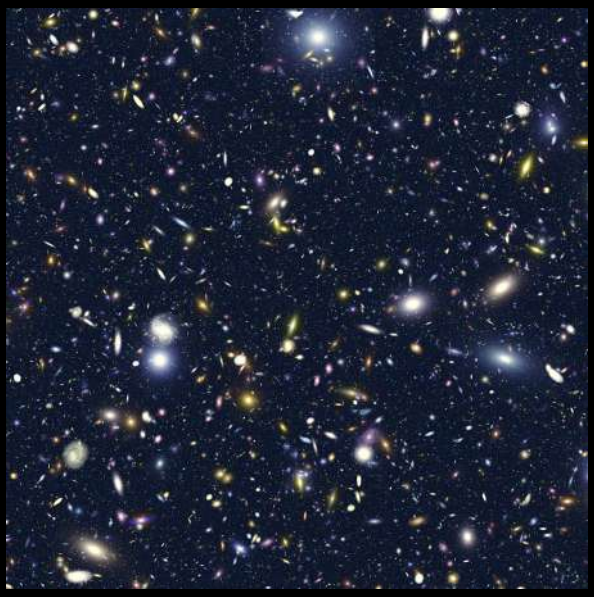
TEACHERS SECTION

AS LONG AS YOU LIVE,
KEEP LEARNING HOW TO LIVE
~ SENECA

AMPERE 2022 SEPTEMBER EDITION



WILL THERE BE A 'HAPPILY EVER AFTER'?



Isn't it strange and intriguing how we are a part of this vast, limitless universe? How we are just a tiny speck, yet a very important part of the intricate design of the universe! A part of the rhythm which extends to infinity.

Many of us have taken refuge in science, in religion, in philosophy or spirituality to unfold the mystery of our existence, of life and beyond. Even as we continue our quest of the unknown, we never cease to celebrate and enquire into our existence.

With time, we have realized that this priceless gift of life we have received without doing much to deserve it, entrusts us with a grave responsibility. The responsibility to meet the needs of the present, without compromising the ability of future generations to meet their own needs. Well, that's what sustainability is all about!

Back in 1983 the World Commission on Environment and Development (WCED) introduced the concept of sustainable development and described to the world, how it could be achieved. An international group of environmental experts, politicians, and civil servants came together to address the mounting concern surrounding ozone depletion, global warming, and other environmental problems associated with raising the standard of living of the world's population. The WCED (also called the Brundtland Commission) proposed long-term solutions for sustainable development for the very first time ever.

The 2030 UN Agenda for Sustainable Development and its framework of 17 Sustainable Development Goals (SDGs) takes this message forward and today our planet is on 'red alert'. The COVID-19 pandemic has made it imperative that we have to redouble the global efforts to reset our relationship with mother Earth in ways that recover a self-sustaining environment while ensuring that human equity, health and well-being remain unaffected. Well, this is no mean task. This would require an unprecedented level of international co-operation. The world has to come together as one.

The time has come to break out of our past patterns. New paths have to be forged, new efforts have to be made to maintain social and ecological stability. The time has come to question ourselves. Are we doing our bit to save mother Earth from our own atrocities? Are we trying a little every day, to leave behind a better world? If not, start today! Afterall we all want our 'happily ever after' to come true.... for us and our future generations.

DR. MOUSIKI KAR

BARI KOTHI – TRAVELLING BACK THREE CENTURIES

For a few months, my wife had been talking about Bari Kothi, the first Heritage Hotel of Murshidabad, which was opened to the public about four years back.

We planned to visit the hotel in Azimganj and spend a few nights there. The trip was door to door by car. The last mile had a touch of novelty. Our car along with us was ferried across the Ganga and it was a new experience indeed.

The welcome at Bari Kothi had a nice touch of royalty- an array of ladies and gentlemen were waiting for us when we reached the hotel entrance. The ladies wore similar sarees and they were waiting for our arrival with sandal paste, conch shells and garlands.

We were given a brief history of the erstwhile residence of the Dudhoria Raj family,built in 1774.The family had come all the way from far-off Bikaner to settle near the then power-centre of Bengal. The palatial building was in a highly dilapidated state when a Canadian restoration specialist was given the responsibility to bring it back to its old structure and glory. It took five years to do the job and it was extremely difficult for the restoration team since the pictures available were either mutilated or had been destroyed by termites.

After listening to these tales of tremendous effort, we were awe-struck by the present building and décor. Photos simply do not do justice to the grandeur of Bari Kothi.

The sprawling structure has a number of special places named like Bada Angan, Kahaani Ghar ,Gaddi Ghar, Darbar Hall etc, and each of these has a colourful history.

They have their own Ghat on the Ganga. We were treated to a magnificent ride on their luxury boat in the afternoon. The three of us were accompanied by an army of staff, who were preparing pakoras, serving tea and embarrassing us by serving us hand and foot.This was in the tradition of Bari Kothi, we were told. One of the staff had grown up in the old Bari Kothi since his parents had worked there. He had a detailed knowledge of history, Siraj-ud-dallah, Jagat Seth and all. We were enthralled by his stories of local intrigue and tales of Royalty.

We were treated to the local specialty, Sheherwali Cuisine, which is essentially a fusion of Bengali and Rajasthani Jain food—tasty, though strictly vegetarian!

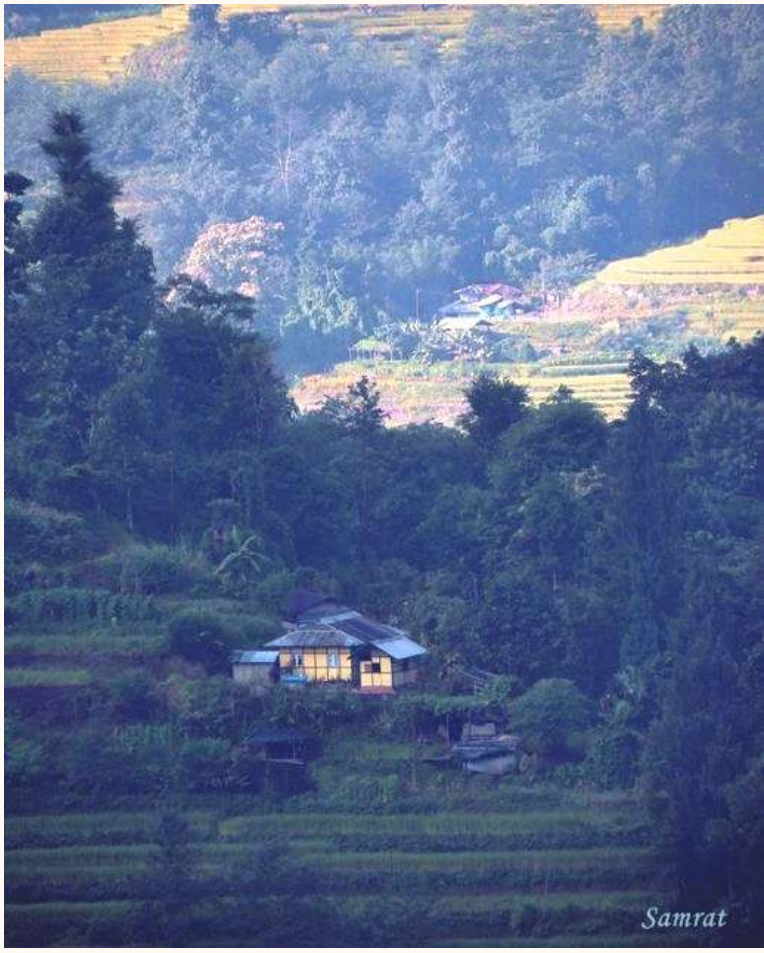
The beauty of Bari Kothi, the feeling of living among history and the warm hospitality of the staff —these have left us with pleasant memories and a desire to visit again. I am hoping we can go again soon.

The photographs will give an idea of the massive restoration that has taken place and is still going on,

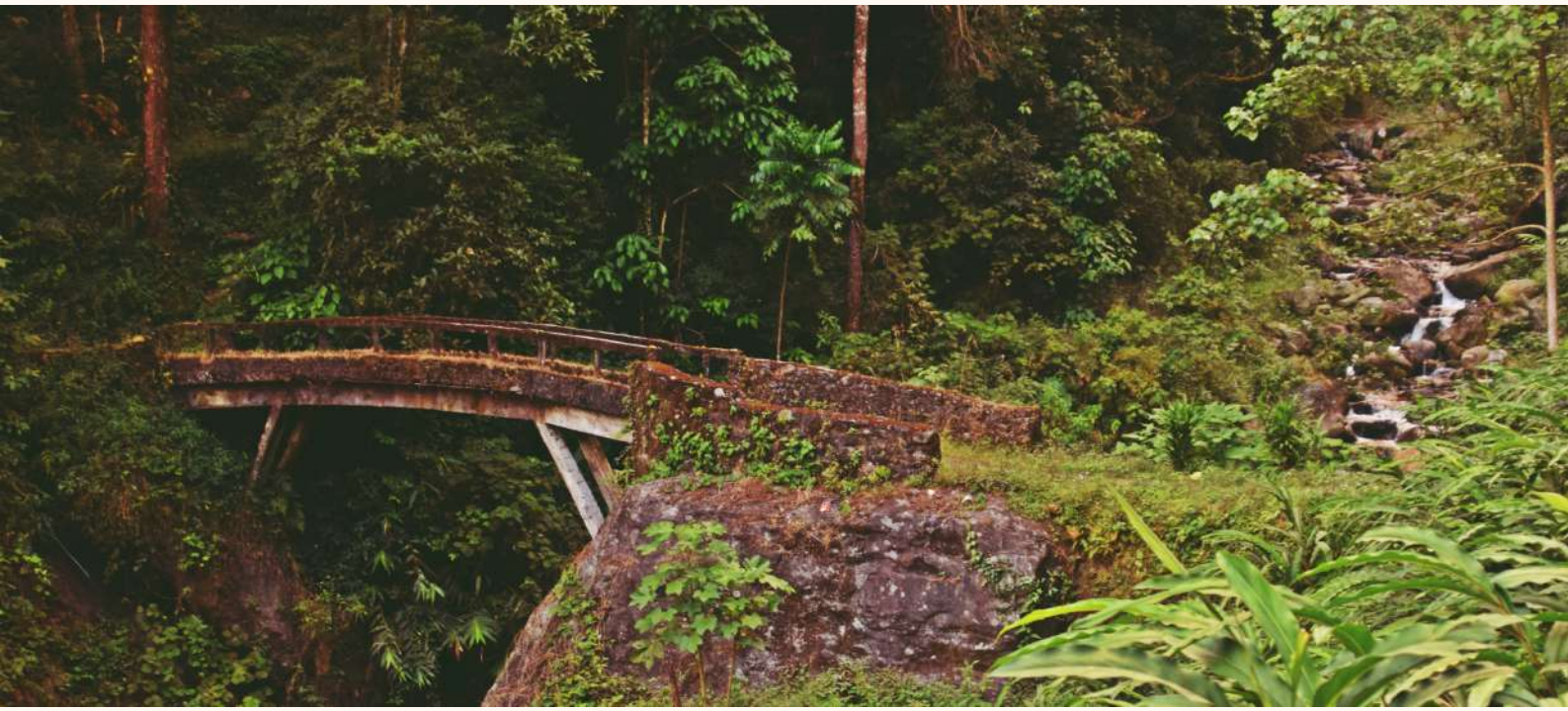
PROF. PRABIR BANERJEE

লা-জবাব লিংসে

যদি বলেন লিংসেতে কি আছে দেখার..ভুল করছেন, শুধু দেখার নয়..অনুভব করার আছে অনে..ক কিছু। প্রণোজ্বল প্রকৃতি ও তার নিস্তব্ধতা, সরলতা..তবে এই জায়গার USP হল, এখানকার Homestay এর মানুষদের আন্তরিকতা,আতিথেয়তা। আমরা ছিলাম ললিত রাই দাজুর (9609459676) Golshimal Homestay তে। হঠাৎ করে প্রকৃতি-টকৃতি ছেড়ে,

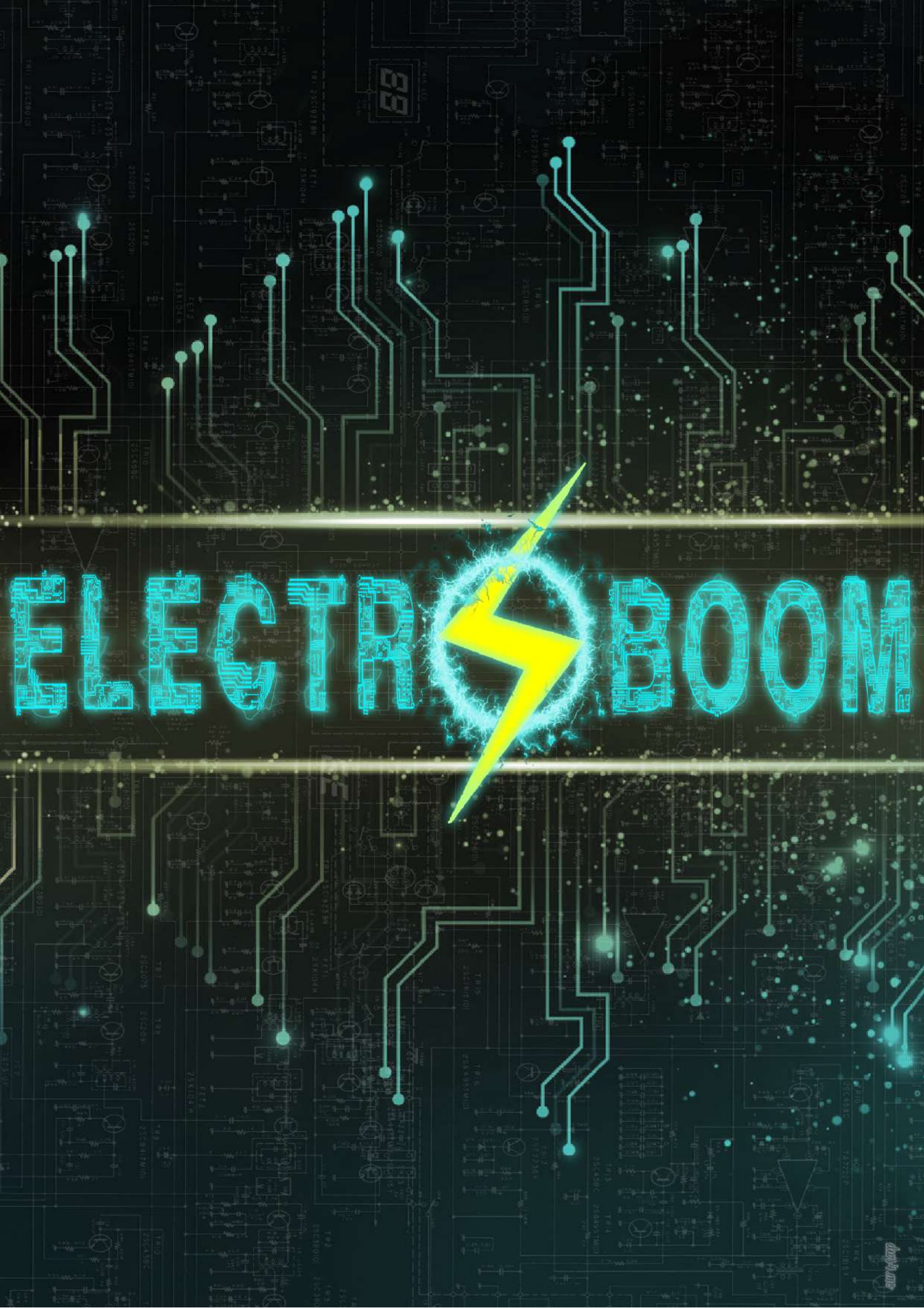


আন্তরিকতা,আতিথেয়তা কে USP মনে হল কেন.. Homestay টা কি Star category র...না, নিতান্তই সাদা-মাটা, basic সুবিধাযুক্ত পরিষ্কার পরিচ্ছন্ন ঘরোয়া Homestay..তাহলে কি speciality... সিল্করুটে তো একসে-বরকর-এক ঝা-চকচকে 'Homestay' আছে....হাঁ..এখানেই তফাৎ..সিল্করুটে আমরাও যে সব 'Homestay' তে ছিলাম, সেগুলিও দারুণ। তবে এই গুলো আর Homestay নেই, রীতিমতো Hotel হয়ে গেছে। Amenities বলুন, পরিবেশ বলুন..এমনকি ব্যবহারও commertial, polished।



তাই লিংসের নিজ তালে চলা পাহাড়ী ঝরণা, দুই পাহাড়ের সংযোগকারী এক রমান্টিক ব্রিজ, আরেকটি মনে রাখার মত সূর্যাস্তকে ছাপিয়ে মনে থেকে যায় রাই পরিবারের অকৃত্রিম আন্তরিকতা, গনেশ দাজুর অতুলনীয় বাঁশির সুর, কিংবা কলেজপড়ুয়া সুনিতার বিউটি টিপস্। তাই লিংসে অনন্য, সতন্ত্র, বাকিদের কাছে হিংসে করার মত।

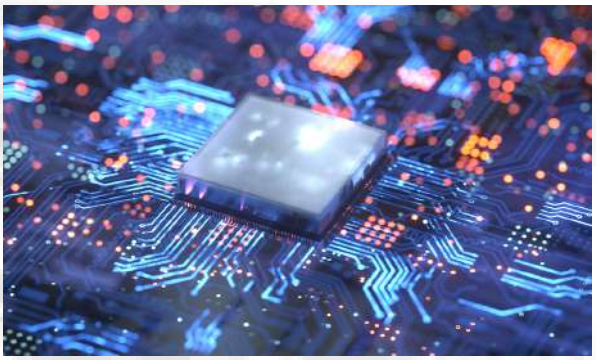
Prof. Sounak Dasgupta


ELECTRO BOOM

INDIA'S INDEPENDENCE IN SEMICONDUCTOR SECTOR

Semi-Conductor (SC) Ecosystem

We are seeing the digital revolution everywhere. SC-chips that help to process the digital information have become part of everything - computers, cars, home -appliances, medical equipment etc. The chipset production goes through an ecosystem; it starts with mineral mining, then goes through processing, diode production, and fabrication & then finally we get our chip sets.



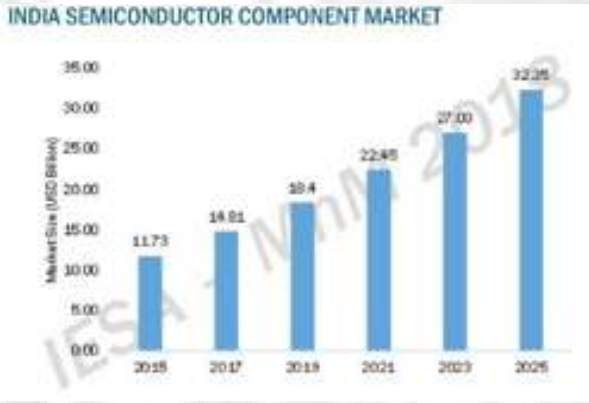
Global Supply Chain

One of the core reasons for success in any industry is supply chain. Until and unless we get the raw materials and all the required products unhindered an industry cannot go. Just like any other industry, in case of SC industry also the raw material is chip and nowadays all the appliances are heavily dependent on the chip. If we see the total supply chain of SC it is concentrated on only one country, that is Taiwan and if we take a broader view, it would be South Asia. Now here is the issue since out of the global demand of SC, 80-85% is fulfilled by only one region that's why in case of any unavoidable circumstances it can cause a huge disruption in the supply chain, which will increase the global demand and thus we can see the inflation. So, the common people would be the ultimate sufferer. Now what can be its solution? There could be many views on this topic but I think everyone would agree on one point - globalization of the supply chain. So, what do we mean by globalization? It means instead of centralization of the production of chip-set, we should diversify this production line.

India's Role to Play

Different policies, facilities by governments can help so that this chip making industry can diversify and set up new production line in different countries and I believe being a diverse country India can play a major role in this. To make a SC industry, it needs supply of electricity, skilled workers, latest technologies and clean water. So, I think it's not at all impossible rather India is one of those few countries which can make it possible and help this industry to diversify. India being rich in minerals and diverse country it can provide all those required

things. India should also bring new policies in favour of SC industry.

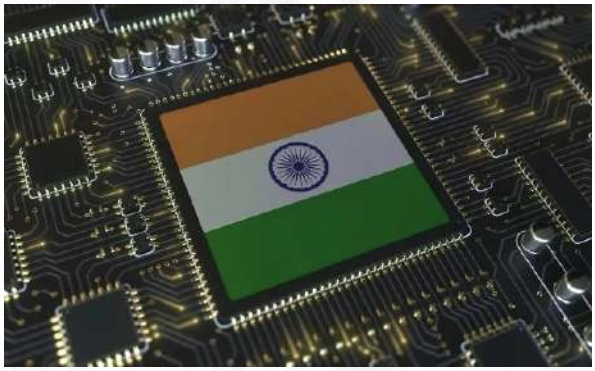


Self-Reliance

If India can prosper in this industry, then it will make India self-reliant. If India can produce the SC chip sets in large scale, it will help to compensate this country's huge demand. And since produced locally, the price will also reduce drastically. This will also help India to save its forex reserves, which can be spent for other purposes. The whole ecosystem is going to contribute in a way that will help India's economy to grow exponentially.

Journey Begins

India has already taken some steps & created new policies (e.g. PLI scheme) but we have to expedite the process. We have to make sure that India not only fulfils its own semiconductor demands rather the whole world's. So, in this Independence Day we wish India can progress in this semiconductor field with an enthusiastic spirit.



Amarsa Banerjee
ECE A 2nd Year

FACE RECOGNITION TECHNOLOGY

Face recognition is a biometric technology that uses distinctive features on the face to identify and distinguish an individual. This technology is widely used for security and law enforcement.

Algorithms of face recognition Technology

A face recognition algorithm is an underlying component of any facial detection and recognition system or software specialists divide these algorithms into two central approaches.

- The geometric approach focusses on distinguishing features
- The photo-metric statistical methods are used to extract values from an image.

Artificial neutral networks are the most popular and successful method on image recognition. Facial recognition algorithms are based on mathematical calculations, and neural networks perform large number of mathematical operations simultaneously.

Three main tasks performed by algorithms:-

- Detects faces in an image, video or real time stream.
- Calculate the mathematical model of a face.
- Compare models to training sets or databases to identify or verify a person.

Convolution Neural Networks-
It is one of the breakthroughs of artificial neural network(ANN) and AI development. It is one of the popular algorithms in deep learning, a form of machine learning. CNN is a normal neural network with new layer layers- convolutional and pooling. CNN can have hundreds of layers, each of them learns to detect different imaging features.

Eigen Faces-
It is a face recognition method that determines face variances in image data sets. It uses these variances to encode and decode faces with machine learning. Facial features are assigned mathematical values as the method doesn't use digital pictures but rather statistical databases.

Fisher Faces-
It is one of the most popular facial recognition algorithms. It is considered superior to many alternatives. The key advantage of this algorithm is its ability to interpolate and extrapolate over lightning and facial expression variation. There are reports of 93% accuracy of Fisher faces algorithm.

Kernel Methods-

a)PCA(Principal Component Analysis)- It is a universal statistical method. when used in the Face recognition process, PCA aims to reduce the source data size while preserving the most relevant information. PCA is used to receive eigenvectors from the covariance matrix of a training image set. For each image, its main components are calculated from(0 to 200)

b) Support Vector Machine- It is a machine learning algorithm that uses a two-group classification principle for distinguishing faces from "Not faces".

Researchers apply linear and non-linear SVM training models for the face recognition. The recent results show that non-linear training machine has a larger margin and better recognition.

Haar Cascades-

It is an object detection method used to locate objects on images. The algorithm learns from a large number of positive and negative samples- the former containing an object of interest, and the later contains anything other than the object looking for. The method is used in criminal identification in combination with local binary pattern algorithm.

3D Recognition

The underlying idea of 3D Recognition technology is the human skull's unique structure. Each person's skull is unique and can be described by several dozen parameters. Its greatest advantage – makeup, facial hair, glasses and similar factors don't affect the detection and recognition process. It allows the combination of 3D data's description with 2D data's computational efficiency. It shows the highest performance reported on FRGC (Face Recognition Grand Challenge) 3D facial database.

How AI Facial Recognition Technology identifies Criminals?

Identifying through surveillance-
AI Facial Recognition Technology is comprehensively applied for surveillance. It can identify criminals at the scene of an event or who roams free.
Many Law Enforcement agencies use AI Facial Recognition Technology to recognize suspects from various documents. It is important o install cameras equipped with AI at strategic points to verify or identify criminals.

Tracking Criminals by use of AI Facial Recognition Technology-
The police forces in order to track a criminal from a crowded area can use this technology to a greater effect.
First, they need to feed an image of the criminal into the AI powered surveillance system. The cameras that scan all the areas of the city are brought into play. The data includes faces of different skin textures at different angles.
Revealing Masked Identities – During recent times, most criminals while committing unlawful activity conceal their identity. In such cases, AI uses deep learning methods to identify the individual. The method involves mapping of face with facial points, distance and angles between the facial point are analyzed. It enables to identify the facial structure beneath the mask.

Cracking Down Identity Theft-
It is used to identify individual having more than one identity. The image affixed in a driving license is analyzed and compared to other images that are already in the database. This leads to identification of fraudsters.

Use of AI Facial Recognition Technology in India

Facial Recognition technology is used worldwide. Our country, India is not an exception.

'The Delhi Police was first authorized to use FRT for the purpose of tracing and identifying missing children in 2018.

'Delhi Police also used FRT for police investigation specifically during the 2020 northeast Delhi riots, 2021 Red Fort violence, 2022 Jahangirpuri riots.

'Recent RTI responses by Delhi Police have revealed that matches above 80% treated as positive result while matches below 80% are treated as false positive results which require additional 'corroborative action'.

This AI Facial Recognition Technology has been brought under the jurisdiction of Criminal Procedure (Identification Act) 2022.

Sremana Ghosh

ECE C 2nd Year

Conclusion

Facial Recognition powered by AI has been steadily gaining a good amount of attention all over the world as a worthy reliable solution to identify criminals and provide safety and security. The greatest advantage in this technology is this technology doesn't require individual's consent. This effective technology helps to collect relevant data that is required by LEAs to respond promptly and efficiently for crime prevention.

BACTERIA POWERING GREEN REVOLUTION TOWARDS E-SKIN

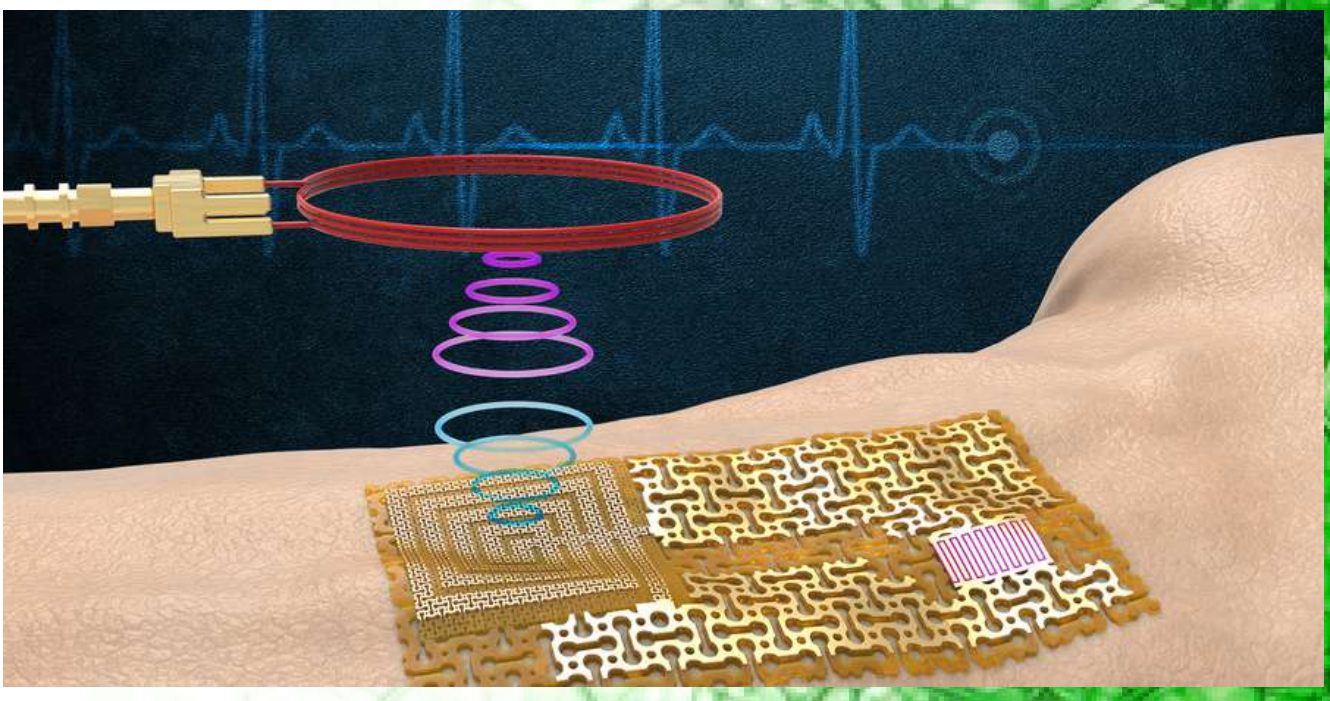
- What is e-skin?

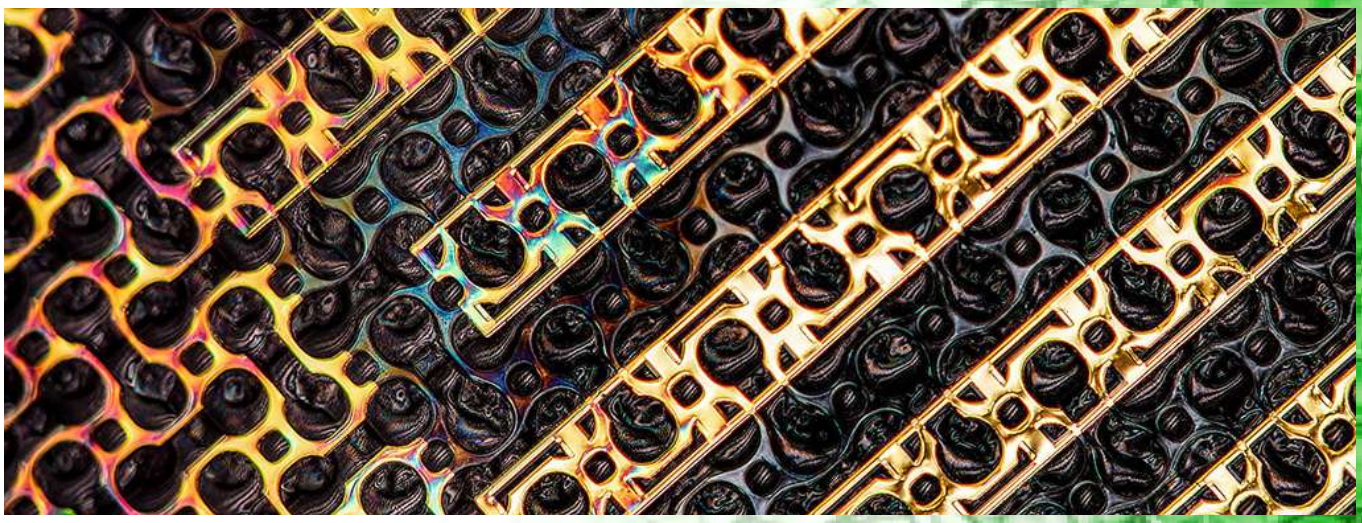
-> It is an artificial skin which mimics the sensing capabilities of human skin in robotics, AI, prosthetics and health monitoring technologies, known as Electronic skin.

Can we imagine a world where wearable devices never run out of charge? Though it sounds like a science fiction, researchers from University of Massachusetts Amherst had recently figured out how to engineer a bacterial biofilm which will be able to produce continuous and steady supply of electricity from perspiration which stands like a milestone in the domain of skin-wearable electronics.

Unlike other so called green revolution this is a real green revolution since its production is really green.

The aforesaid biofilm is produced naturally by an engineered version of the bacteria *Geobacter sulfurreducens.*





Being dead, this new biofilm doesn't need to be fed and hence, it is much more efficient. It makes energy from the moisture of our skin. Jun Yao, professor of Electrical and Computer engineering at UMass, and the paper's other senior author, said, "This is a huge, untapped source of energy." As previously told, this new biofilm makes energy from the moisture of our skin. Since our skin is constantly moist, the biofilm converts the energy locked in evaporation into enough energy to power small devices.

Using laser, small circuits can be etched into the e-skin. Once, the e-skins are etched, they are sandwiched between electrodes and finally sealed in a soft, sticky, breathable polymer which can be worn like band-aid, as a patch, applied directly to one's skin.

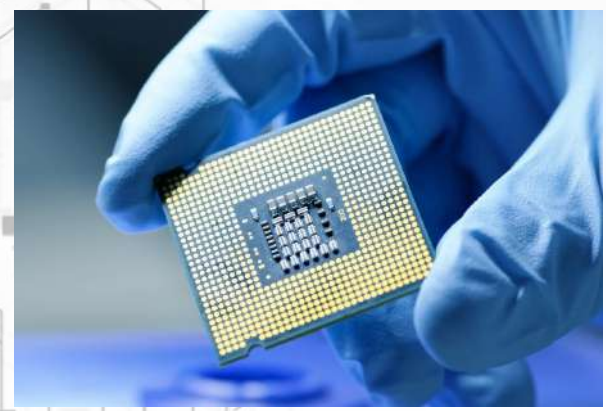
Derek Lovely, distinguished professor of Microbiology at UMass Amherst, told, "We've simplified the process of generating electricity by radically cutting back on the amount of processing needed. We sustainably grow the cells in a biofilm, and then use that agglomeration of cells. This cuts the energy inputs makes everything simpler and widens the potential applications."

The major limiting factor for personal electronics has always been the power supply as batteries run down and have to be changed or charged. But this thin, clear, flexible e-skin can produce a continuous and steady supply of electricity.

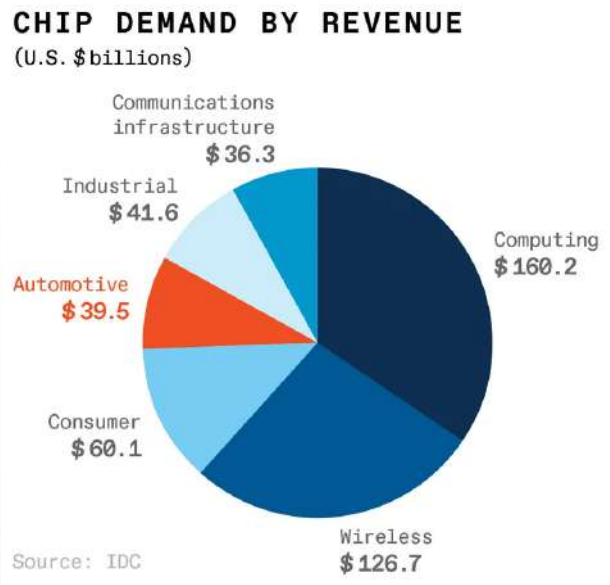
Intend to power entire electronic systems rather than single devices Yao and Liu proposed that their next step towards their research work would be to increase the size of the films to power more sophisticated skin-wearable electronics. Many more research works are coming in near future to enrich this field of improvisation.

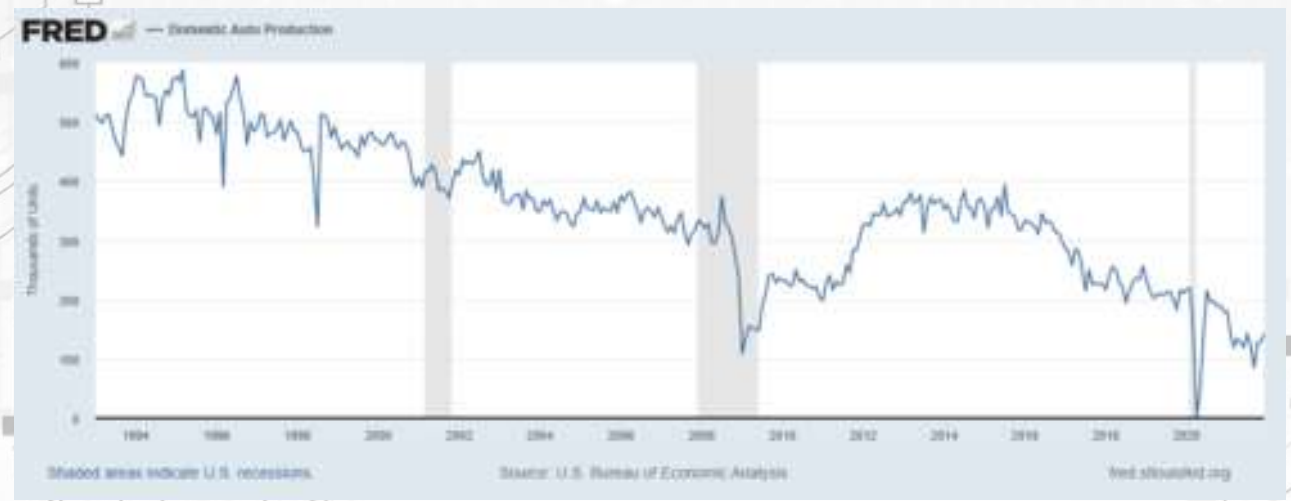
Mausiki Kala
ECE B 2nd Year

THE SEMICONDUCTOR CRISIS



Lately different parts of the world have been suffering from the semiconductor crisis . The crisis amplified due to effects of the pandemic in 2020, which resulted in Apple losing $6 billion dollars in revenue , due to chip shortages . Maruti and Mahindra had to cut down their production by 60% and 25% respectively due to microchip shortages . The auto industry in total lost $100 billion dollars in revenue. What are the reasons of these losses , just a mere small thing like a microchip? YES! A semiconductor chip is basically the brain of any electronic device. In a car, there are hundreds of semiconductors controlling wide range of operations in it. Semiconductors are extremely important starting from the smallest cellphones to the biggest servers in the world. What is the reason for this shortage? According to semiconductor industry association, today more than 100 billion integrated circuits are used everyday all around the world. The demands all over the world are so high that even with giant companies like Intel, Micron, Nvidia, AMD and Qualcomm , still there isn't enough supply to cater to the needs and sky rocketing demands of semiconductors . Also manufacturing a microchip takes more than 3 months and involves giant factories , dust free rooms and multi-million dollar machines, along with molten tin and lasers . According to Statista, the chip industry which was already worth $440 billion dollars which has raised to $600 billion dollars in 2022. The industries , that will be facing huge problems, are auto industry , the led lighting industry, and consumer electronics industry. In 2022 Maruti could not make 1.16 lakhs of vehicles due to microchip shortages . HP went on to increase the price of it's printers by 20%. Sony said that they would be producing even fewer PS5s due to shortage until 2022.





So what is the position of India in this crisis ? The export recorded in 2020 were of $4.25 million and the import was of $10.59 billion of semiconductors. Well that is dangerous stat , considering India's dependencies of the semiconductor market since 40 % of the imports are from CHINA and 26% are from Hong Kong, also considering the current geopolitical issues of India , this is indeed scary. So what are the steps that India is taking in order to address this problem? There was an International Quad Summit that was held in 24th of September headed by Joe Biden. It included India, Australia, USA and Japan. At the summit all the four nations collectively agreed to divide the various tasks among themselves , in order to be free from the dangerous dependency of the semiconductor market. The US basically excels in designs and licensed in intellectual property, Japan has a huge stock of raw semiconductor materials, silicon wafers and substrates . Australia has an advantage of supply chain and advanced mining facilities. Where India could basically throw in their hat with skilled youth consisting on top class Engineers and skilled Labour. The central government has decided to establish 20 semiconductor units in the country over two years . All the required schemes along with the INDIA SEMICONDUCTOR MISSION , can contribute to the $1trillion economy target that it wants to achieve. If all these measures are properly applied, India will become a leading hub in the semiconductor market by 2025.

Akash Goswami
ECE C 2nd Year

SCIENCE HUB

PHYSICS BEHIND THE TEMPERATURE OF UNIVERSE

Though sci-fi movies would have us believe that space is incredibly cold — even freezing. But, space itself isn't exactly cold. In fact, it doesn't actually have a temperature at all. Of course, space is full of particles and radiation to produce heat and a temperature.

So how cold is space, is there any region that is truly empty, and is there anywhere that the temperature drops to absolute zero?
The hottest regions of space are immediately around stars, which contain all the conditions to kick start nuclear fusion. That's why Earth is a lot warmer than the region between our planet and its star. The heat comes from particles in our atmosphere vibrating with solar energy and then bumping into each other distributing this energy. Mercury — closest to the sun — is blisteringly hot during the day and frigidly cold at night. Its temperatures drop to a low of 95 Kelvin (-178 °C). Temperatures dip to -371 °F (-224 °C) on Uranus making it even colder than on the furthest planet from the sun, Neptune, which has a still incredibly cold surface temperature of -353 °F (-214 °C).This is a result of a collision with an Earth-sized object early in its existence causing Uranus to orbit the sun on an extreme tilt, making it unable to hang on to its interior heat. Far away from stars particles are so spread out that heat transfer via anything but radiation is impossible, meaning temperatures radically drop. This region is called the interstellar medium. The coldest and densest molecular gas clouds in the interstellar medium can have temperatures of 10 K (-263 °C or) while less dense clouds can have temperatures as high as 100 K (-173 °C).

The universe is so vast and filled with such a multitude of objects, some blisteringly hot, others unimaginably frigid, that it should be impossible to give space a single temperature....!!!!!!

Yet, there is something that permeates the entirety of our universe with a temperature that is uniform to 1 part in 100,000. In fact, the difference is so insignificant that the change between a hot spot and a cold spot is just 0.000018 K.

This is known as the cosmic microwave background (CMB) and it has a uniform temperature of 2.7 K (-45°F/-270°C). As 0 K is absolute zero this is a temperature just 2.725 degrees above absolute zero.

What is CMB?

The CMB is a remnant leftover from an event that occurred just 400,000 after the Big Bang called the last scattering. This was the point when the universe ceased to be opaque after electrons bonded to protons forming hydrogen atoms, which stopped electrons from endlessly scattering light and enabling photons to freely travel.

What would happen if one was exposed to space?

If one is left to drift alone in space then exposure to the near-vacuum of space couldn't freeze an astronaut as often depicted in science fiction. As we all know, there are three modes of heat transfer-Conduction, Convection (Both cannot occur in space due to the absence of material medium) and Radiation. Thus, the heat transfer takes place very slowly by radiative proccess.

As freezing requires heat transfer, an exposed astronaut — losing heat via radiative processes alone — would die of decompression due to the lack of atmosphere much more rapidly than they freeze to death...!!!

- Anindya Chatterjee
3rd Year

DIVING DEEP DOWN INTO THE WONDROUS ELEMENT OF COSMOS: THE RED GIANT STAR

The universe is precisely fascinating and so are the components constituting the same. They never fail to mesmerise us in one way or the other. Undoubtedly, red giant star is one of the aforesaid amusing entities which is pretty interesting to explore.

What is a red giant star?

The red giant is a dying star which is in the final stages of evolution. The core of the same is composed of hydrogen gas. When all the hydrogen gets converted into helium, it becomes inert since the temperature there is not enough to convert the helium into carbon. After this, hydrogen fusion begins to happen in a shell next to the core and this process causes the star to puff off and become a red giant.

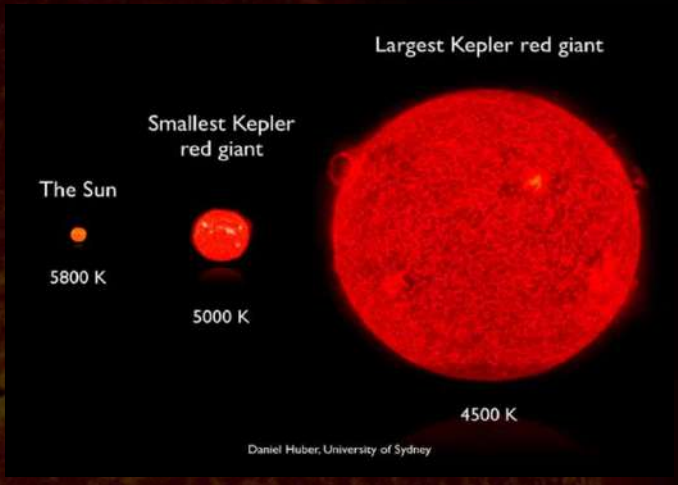
Features :

A red giant is a gigantic luminous star which has low to intermediate mass.

They have radii tens to hundreds of times larger than that of the Sun.

In spite of the lower energy density of their envelope, red giants are more luminous than the Sun due to their great size.

The outer envelope is lower in temperature which gives them a reddish-orange hue.



What if the Sun becomes a red giant!

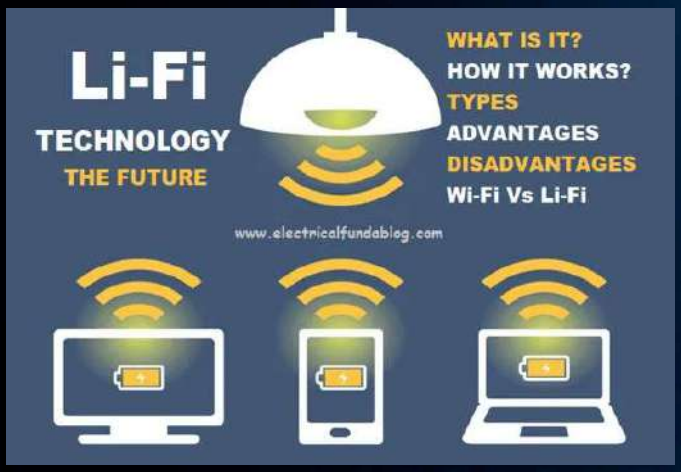
The Sun is expected to exit the main sequence in approximately five billion years and will start to become a red giant. It will expand to a greater extent as a red giant star and in this process, it will swallow Mercury, Venus, probably Earth, maybe Mars and also, there is a possibility that it may engulf some parts or all of the asteroid belt.

How will the red giant end its life?

A star might remain in the red giant stage for up to a billion years. Eventually, this will become totally cold and will radiate no energy at all. Sooner or later it will end its life as a purported black dwarf.

-Ankita Chakraborty
2nd Year

Li-Fi:
THE FUTURE OF Wi-Fi



The advancement of technology has made us witness innumerable marvels. Soon, India will witness the availability of 5G network, and that definitely leaves us in a conundrum as to what might be our future endeavours, especially when it comes to technology. Technology related to communication has become a more vital necessity in our lives and has set its roots deep in our daily chores. The thought: "What is the future of wireless communication?" intrigues me more often than not.

Light fidelity (Li-Fi), as it stands, can be seen as a potent technology that can replace wire-fidelity (Wi-Fi). Unlike Wi-Fi, which uses radio waves to transfer data, Li-Fi relies completely on the visible spectrum of the electromagnetic wave. It follows a simple paradigm which includes a light source, preferably a LED that transmits data and a receiver that can encode data. LED bulbs are nothing more than simple semiconductors that emit light in a narrow band of wavelengths, making them superior to other light sources.

Data is transmitted in streams of photons. Most LEDs operate on an alternating current source that changes rapidly, as a result the brightness also changes. This change is so fast that it remains unperceivable to our eyes. The subtle change in brightness contains the data that is being transmitted. The data that is received by the receiver is now decoded and converted to a continuous stream of binary data, which contains video, images, text, audio, or any application that can be consumed on any device with internet.

Though the use of Wi-Fi is widely accepted throughout the globe, a few intricacies may pave the way for the advent of Li-Fi. The most profound reason that might bring an end to the use of Wi-Fi is the very low efficiency in creating and transmitting radio waves. The production of radio waves is expensive, and data suggests that it is only 5% efficient in meeting consumer demand. What if we consider the existing infrastructure to fill this demand gap? We can rely on light bulbs, which are in use in every walk of life, be it in schools, offices, streets, etc. The only fact is, that it should have a microchip attached, which serves our purpose.

The biggest boon that Li-Fi can provide over Wi-Fi is data speed. At present, the maximum speed that Wi-Fi can produce is 100Mbps, as compared to the 100Gbps provided by Li-Fi. Thus, Li-Fi can transmit thousand times more data in a second. Moreover, the limited coverage of Li-Fi is also preferred since it increases network security. Li-Fi signals, or to be more specific visible electromagnetic waves, pass through walls, thus reducing interference from outside sources. This also makes it ideal for use in areas which are sensitive and where remote piracy and hacking are prevalent. As a result, it is suitable for use in areas involving research and development, finance, defense, and even mass transport.

Thus, Li-Fi could be considered as a remarkable treasure and can have its utility beyond bounds. Could you ever think of communicating online inside the cabin of Boeing-737 when in flight? Well, yes, Li-Fi could possibly come in handy, and soon you will get the opportunity to communicate while flying. So let us all look forward to a data transmitter which is "cleaner, greener, and brighter" and cherish the new era of “Wireless communication”

- Arghyadeep Ghosh
2nd Year

QR-CODE AND ITS ANATOMY

QR-CODE

A QR Code, or quick response Code, is a Code that is quickly readable by a cell phone. Using a combination of spacing as a type of Matrix Barcode (a 2-D Barcode), when a QR Code is scanned, it conveys a wide multitude of information.

QR Codes have a wide range of uses across all types of industries such as retail, marketing, and logistics.

The Anatomy of QR Code

It's the 90s and you have just ejected your video cassette, leaving the square TV screen in a state of static white noise. Visually, that is what comes to mind when some people look at the QR Code. A complex matrix of black and white squares. The modern-day QR Code consists of 7 parts. Though looking like a pixelated image, each one of those squares is actually a marker serving a greater function in the information-sharing capabilities of the Code.

Positioning Detection Markers

Located at three corners of each code, it allows a scanner to accurately recognize the Code and read it at high speed, while indicating the direction in which the Code is printed. They essentially help quickly identify the presence of a QR Code in an image and its orientation.

Alignment Markings

Smaller than the position detection markers, they help straighten out QR Codes drawn on a curved surface. And, the more information a Code stores, the larger it is and the more alignment patterns it requires.

Timing Pattern

Alternating black/white modules on the QR Code with the idea of accurately helping configure the data grid. Using these lines, the scanner determines how large the data matrix is.

Version Information

With currently 40 different QR Code versions, these markers specify the one that is being used. The most common ones are versions 1 to 7.

Format Information

The format patterns contain information about the error tolerance and the data mask pattern and make it easier to scan the Code.

Data and Error Correction Keys

The error correction mechanism inherent in the QR Code structure is where all our data is contained, also sharing the space with the error correction blocks that allow up to 30% of the Code to be damaged.

Hope that this article helps you with the basic anatomy of QR Code.

Quiet Zone

IThis is similar to the importance of white space in design, that is it offers structure and improves comprehension. For whom or what we may ask? For the scanning program. In order to distinguish the QR Code from its surroundings, the quiet zone is vital.

- Ayushi Nayan
2nd Year

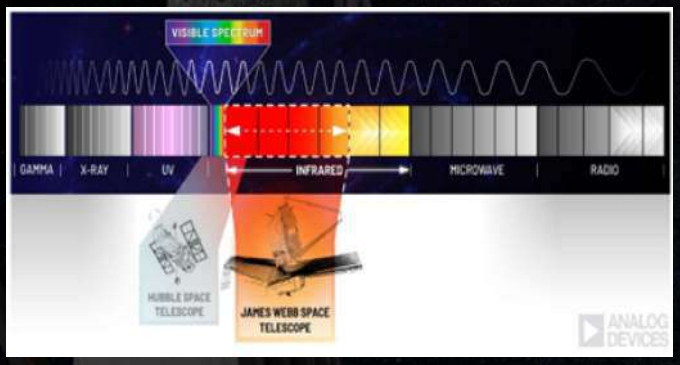
FIRST IMAGE FROM THE JAMES WEBB TELESCOPE

On July 11,2022, history was made as the very first science image from the James Webb space telescope was unveiled to the world. upon its release, it immediately brock the cosmic record for the deepest view ever taken of the universe, an incredible achievement. This record had previously been held by the Hubble Space Telescope, which first set the record back in the mid-90s with the original Hubble deep field, and which brock its own record numerous times over the years. When comparing Webb's first image to similar images taken by Hubble of the same patch of sky, however, you can see just how much more detail Webb's camera is capable of capturing.

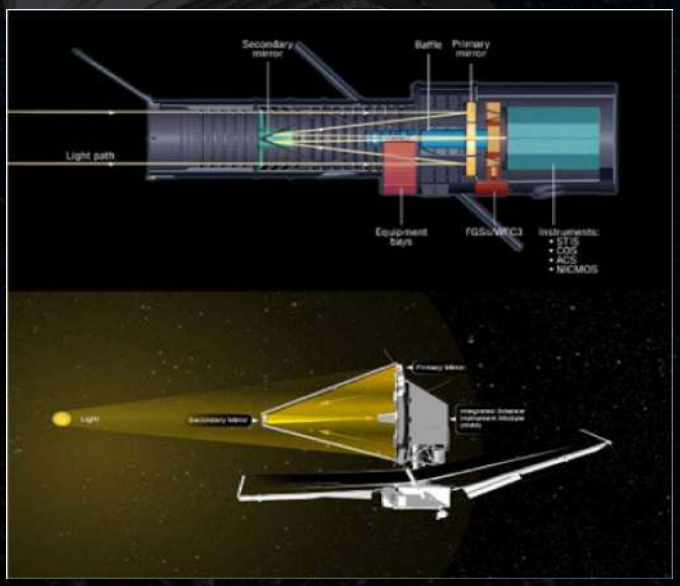
So, what are we actually seeing in this new Deep field image?

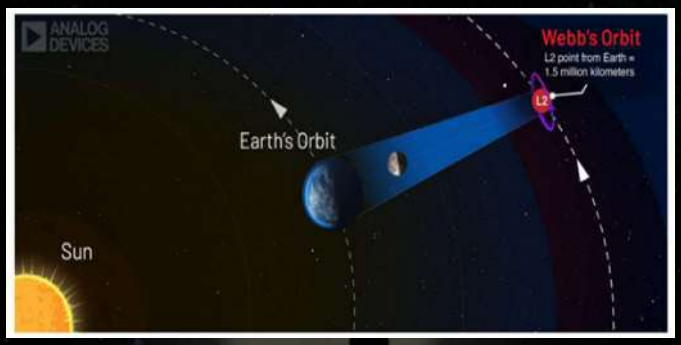
And how much more is it revealing of universe?

Before we get stuck in comparing the images, let's first get a basic overview of how each of the telescope differs. Because their capability is not identical. Webb often get called the replacement for Hubble, but NASA prefers to call it its successor. Webb will primarily look at the universe in the infrared, while Hubble studies it primarily at optical and ultraviolet wavelengths, though it also does have some infrared capability as well. Both Webb and Hubble are reflecting telescopes that conceptually work the same. Light reflects off a large primary mirror on to a secondary mirror, which sends it back through a hole in the primary mirror and into science instruments for analysis. Hubble's mirror is 2.4 meter wide, which is 7.9 feet wide, whereas Webb's segmented honeycomb-shaped mirror is an enormous 6.5meters across, Which is 21.3 feet across. Webb has the largest mirror ever flown in space. its 18 segments are made



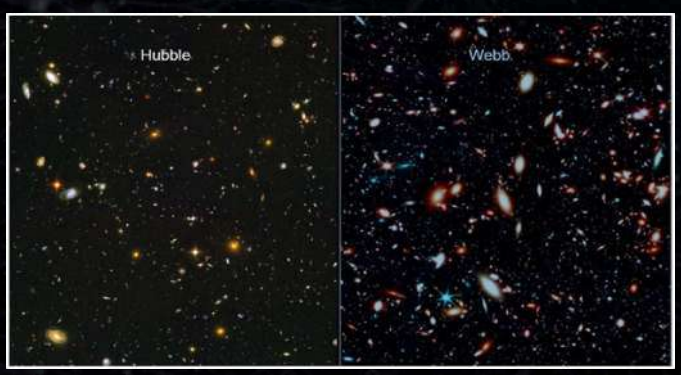
made from lightweight beryllium and coated with a thin layer of gold, making it much more sensitive to infrared light, allowing it to peer farther back into time than Hubble is ever capable of doing. The two telescope also have very different cooling requirement and are in very different positions. Hubble is in orbit around the Earth while Webb view the universe from 1.5 million kilometers away, which is about 1 million miles away. . A location called the second Lagrange point.





So now we know a little more about how each telescope differs; let's have a look at the image, and straight away, you can see how the greater capabilities of Webb have allowed for a much more detailed view of the universe. Each photo is of the galaxy cluster called SMACS 0723, which is located 4.6 billion light-years away. The area of space is particularly interesting for astronomers as the galaxies' gravitational pull distort the light of more distant galaxies behind them, phenomenon known as gravitational lensing. Thanks to gravitational lensing, Webb is eventually able to look much farther away. This is why some of the light from those distant object seem curved and warped.

NASA says that the light that Webb senses is more than 13 billion years old, which means the galaxies in the background were formed just a few hundred thousand years after the Big Bang. For the first time, we can see some of the faintest objects ever observed in the infrared and what is incredible is that this photo only covers a patch of sky approximately the size of a grain of sand held at arm's length by someone on the ground. Compared to Hubble's view of the same area, Webb has brought those distant galaxies into sharp focus. Many objects that appeared as faint smudges to Hubble now can be seen in crisp view. Because Webb peered so far into space to capture this magnificent image , it was able to observe distant light that's been travelling across the cosmos for billion of years. As a result, closer galaxies are seen in the cluster, SMACS 0723 appear as they would have 4.6 billion years ago.*This photo is just one of five that are being released, offering our tiny blue planet a glimpse into the distant past. In the coming years, Webb will no doubt build on the legacy of Hubble, allowing us to see deeper into space than ever before. Although the best is yet to come, each new observation, especially at this early stage, reveals a brand-new page in a 13.8-billion-year-old cosmic story. The universe will never be the same again.



- Syed Mahammad Riaz
3rd Year

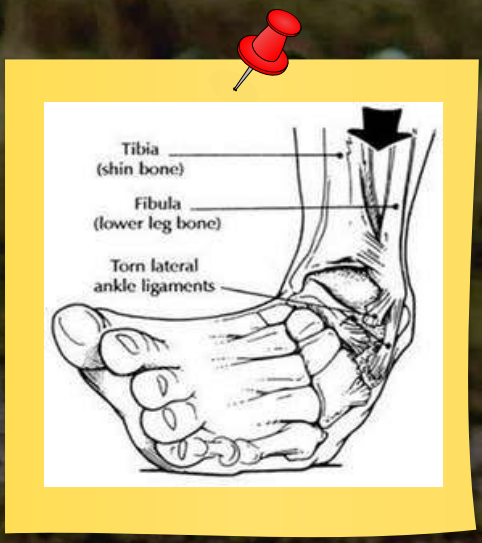
SPORTIFY

RISE ABOVE ALL

Football and dealing with its INJURIES

Football- this may seem to be a fun loving sport (which is true) but the more you get involved with this game and start loving this sport, you can feel the gravity of this game.
In this article we will analyze this sport from an injury point of view.

Why is it an injury prone sport?
Football being a field sport it involves a higher possibility of getting injured than many other sports.It involves use of every major body part such head, legs, chest ,hands,etc. Not only does it involve using ones of your presence of mind, vision, but also a high amount of physicality and workrate.
Most of the time injuries are accidental ; but after major analysis of this game, studies show that it's also the result of wrong anticipation between your brain and your body movements that result in certain injuries



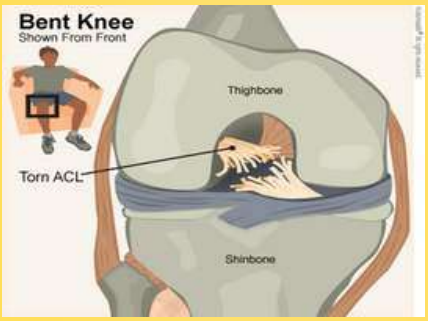
Now we will talk about two of such common injuries which I have faced and closely watched- its cause,effect and treatment:-

1.Ankle injuries:-
Commonly known as ankle sprain also , it is one of the most common injuries faced in football and probably one of the most annoying one.Mostly it is short term but it may lead to long term too. Ankle is very important while playing football, injury to the ankle may lead to body instability drop by 50%.

Causes:-
This injury occurs when our ankle gets twisted inwards. Both the ligaments and soft tissues around gets injured. This happens due to uneven surfaces,missteps and disbalance.

Effect:-
The duration of this type of injury depends on the degree of injury.

Mild (first-degree) - no tear in ligaments..
Moderate (second degree) - partial tear in ligaments
Severe(third-degree). - fully torn ligament.



Treatment:-

Immediate rest to the body should be given,ignoring which things will get worse.Cold-bath should be provided to the ankle in immediate action and an orthopedic doctor must be consulted.

Proper treatment and rest must be provided to the injured leg.

After the rest period ends proper rehab is required so that your leg gains its strength back.

Anklet to be used to provide support while playing football after rehab.

2. **ACL injury:-**

ACL stands for Anterior cruciate ligament - which connects thigh bone to shinbone.Since these are strong band tissues,injury to it is always a long term problem. One of the most crucial and complex types of injuries. Even professional football players fear this because 9-12 months of rest costs them a season or two.

Cause:-

In sports like football,rigorous adjustment of the body, sudden change in speed,jumping and landing is involved ; this is where ACL injury mostly takes place. Immediately after injury the body gets disbalanced and restrains itself from bearing its own weight.Most of the people facing this injury say they can sense a pop in their ACL while getting injured.

Effect:-

Loss in motion , even a small movement in their body results in massive pain. Rapid swelling followed by irresistible pain is one of the major after-effects of ACL injury.

Treatment:-

This injury is considered to be one of the most vital injuries. Proper medication and care must be taken. Do consult the doctor immediately after the incident.At many levels, the injury requires a surgery.

Rehab is very important in this case. Regain the strength, proper movements like jumping and running ,whose level increases slowly.One needs to be mentally strong to get back properly from this injury.

So what needs to be done ?

Precaution is better than cure- As a football player one should always remember these. The following points will make things more clear.

- Attitude

First and foremost players should have the correct attitude towards playing football. It's about playing your own game rather than hurting others.Remember playing the harsh way also exposes you towards getting injured.

Play Responsibly!

- Presence of mind is very important

Analyzing the game, adjusting your position, proper body orientation towards each action according to your position- These are some important points one should always keep in his/her mind.

- **God complex**

Psychologists have proven by their analysis that many people try to ignore their injuries,making it worse.

Please remember we are human beings and not gods. Do consult the orthopedic as soon as possible. Take every injury seriously.

- Warm up before the game

Before every game one should always do a full body warmup. Doing this the muscle gets properly stretched, the body gets heated up,making it less injury prone.

One should be mentally strong on having an injury because with the fear of not getting up strong delays recovery from injuries.

On a personal note I want to tell all the readers to stay alert and play any sports with proper responsibility. Don't fear this sport on account of getting injured.

Dhiman Datta
2nd Year

E-SPORTS

With mobile gaming becoming a part of eSports, there has been a sudden surge in the popularity of eSports in India. eSports describes the world of highly organized competitive video gaming in multiplayer setting. eSports is nothing new and has been in India for decades, but with its recent popularity, interest of the investors, YouTube promotion, eSports has successfully captured the Indian market. The most common genre in India today is Battle Royale, MOBA, MMORPG, and Real-Time Strategy. A decade ago, there was almost no existence of proper eSports in India, but today we have big names of the industry – Tencent, Activision Blizzard, EA, are all investors in India's gaming sector. India has also hosted many eSports tournaments in the recent years like PUBG Mobile series, Electronic Sports league, etc. Today India has one of the biggest eSports markets in the world.

DOTA 2 was the first game that captured the Indian market in the early 2010s. It is a MOBA game with 2 teams trying to destroy each other's base. Then came Counter Strike: Global Offence, which lead to a drastic increase in the popularity of eSports of India. With YouTube influencers streaming Counter Strike, eSports market growth was on the rise. Still eSports was limited to people to a powerful PC, and was not mainstream amongst the masses. But then came mobile games like Clash of Clans, Candy Crush, PUBG and it took eSports to its peak.

With ever-growing community on its back, eSports companies are aggressively bringing in partners and brands for better reach and engagement.The number of mobile gamers went up by 60% during the pandemic. According to business intelligence firm Statista, in 2021 there were around 17 million viewers of eSports in India, which is double of that of 2019. It is estimated by 2025 there would be 85 million viewers of eSports across 20 different platforms. Brands like Pepsi, Airtel, Flipkart, Red Bull, Mercedes-Benz are already collaborating with eSports platforms and tournaments to make the most of this growing pace.

Regarding carrier option in eSports in India, however there is hardly anything viable to professional gamers. The only direct source of income in eSports is through tournaments, which are scarce. So, a direct carrier as a pro-gamer is a matter of risk. However, with growing eSports audience, one, if put effort can create carriers through YouTube and Twitch channels. Elsewhere one can get into game development which is a growing industry in India, with very high demand. The eSports industry also encourages entrepreneurship and startups.

With all these being said, there has been several controversies regarding online gaming. Various acts of violence and aggression had been reported due eSports. Aside from that the toxicity, racism and sexism is regular in almost every game lobby. Students losing concentration and stepping back from their actual aim, men ignoring their duties to play games, all these have made the society see eSports with a bad eye. These acts need to be seriously checked. eSports can be a severe source of addiction for the children. So, while we should all welcome the growth of eSports in India, we must solemnly make sure that it's bad side doesn't reach us.

Shubha Ghosh
2nd Year

SPORTS AND ITS EFFECT

Sports is a billion - dollar industry. Sports is an extremely valuable sector for any country. Now a days the Government of India has started the fit India movement with an aim to make people fit and cultivate sporting culture by introducing "Khelo India School games "which takes place every year. When children play sports, they learn many lessons of life such as managing failures without any depression, cultivating sportsman spirit etc. Moreover, all these things play a crucial role for living a healthier and fruitful life.

In sports, the term “sportsman spirit” itself carries a lot of meaning. An ideal sportsman plays a game for the sake of the game. The ideal sportsperson does not take undue advantage of the weakness of the opponent. His only motto in his following on-going life-cycle is -

“Play up! play up! play up the game!”

2020’s T20 World cup’s tag-line #LIVETHEGAMELOVETHEGAME, just carries a simple meaning, clearly throughout the living and loving the game, what you are playing down there with complete sportsman spirit and team spirit. Team spirit also plays a vital and crucial role in the field of sports. Just one of the things that, sportsman-spirit clearly notifies about the thing “one for all” and the team-spirit notifies about “all for one”. In all walks of life, an ideal sportsman shows due regard for the feelings and respects the thoughts of others. The one who said just well said that –

“ A true sportsman is he who calmly neutralizes strength and weakness in the interest of peace and order “

-says M.S Dhoni

Thus, due to these above reasons , sports should be as important as education , and everyone must perform at least one sport activity on a regular basis.

Sayan Mukherjee
2nd Year

THE SCIENCE BEHIND SWING OF BALLS

We all love to see cricket, yes it is true that in the era of T20, we are fascinated to watch M S Dhoni, Virat Kohli sending the balls out of the park. Bowlers are always dominated by batsman, this myth is broken down when deadly swing bowls come out of hands of Kagiso Rabada, Jasprit bumrah, Mitchel Starc, Jimmy Anderson. The big hitters can't but bow down before such deadly swing bowls. We all know about swing bowling but do we know the actual science behind it...?

The explanation of swing bowling lies withinsome laws of Aerodynamics. Some familiar words regarding aerodynamics are Streamline flow, Turbulent flow, critical velocity, Bernoulli's theorem which actually explains the swing of a bowl.

There are more or less two kinds of swings in cricket:

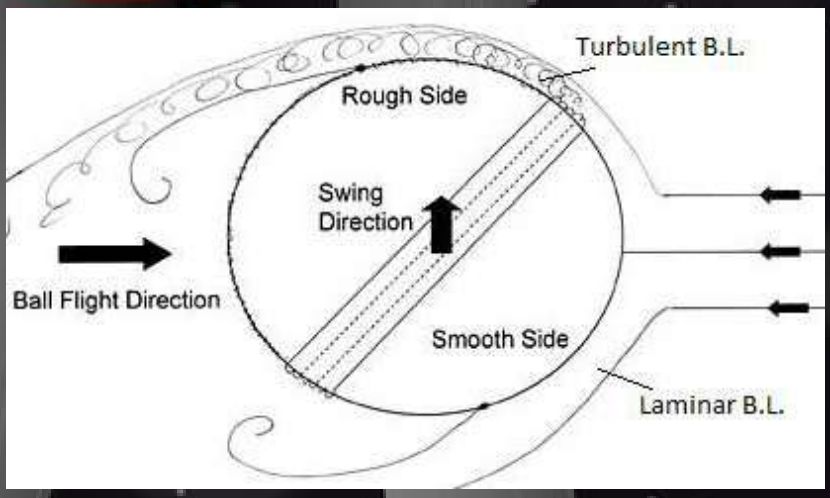
i)Conventional swing
ii)Reverse swing

Five factors that controls swing are: 1)Bowling Seam, 2)smoothness of halves of ball about the seam, 3) speed of ball, 4)bowling action of a bowler 5) velocity of air.

Conventional Swing

The plane of the ball at which the layer of air tears up, has low air pressure than other planes. Due to this variation of pressure on ball, it moves diagonally with respect to its original trajectory. The plane at which layer of air tears up fast, has increase in air pressure on it and it causes diagonal movement of ball.

To make this swing, a bowler grips a ball with its seam making an angle 20 degree (approximately) with the trajectory of ball. If the seam is kept in such a way that it points away from the batsman's body, then ball moves outward from the wicket, that we know as outswing and If the seam is kept in such a way that it points towards the batsman's body, then ball moves inward to the wicket, that we know as inswing.



For outswing bowling, the rough hemisphere of the ball is kept on the side along which ball have to be moved diagonally. Here the velocity of the ball remains slightly below than the critical velocity (the velocity at which any streamline flow turns to a turbulent flow) and the rough surface over the seam obstructs the layer of air and turns it in Turbulent. For that the layer of air adheres more with that surface in turbulent state. On the other hand, the layer of the air adhering with the plain surface remains in streamline state and tears up more frequently from that surface than than the rough surface. Thus velocity of air on rough surface becomes more than that of smooth surface. According to Bernouli's law, the air pressure on surface is high, if velocity of air on that surface is less. In that case, air pressure is high on the smooth surface and due to the pressure difference ball swings on the side along which rough surface is kept.

Reverse Swing

If the velocity of the ball becomes 90 mph, the air become turbulent before reaching the seam of the ball and seam obstructs this air and the layer of air becomes densed on that side and tears up more frequently. In that case, air pressure difference takes place on the reverse side of the seam and the rest mechanism is as same as conventional swing. Since pressure difference occurs in the reverse side of the ball, if a bowler delivers an inswinger, it turns out outswinger for a batsman.

Though swing of a ball is a result of aerodynamics, its knowledge is not enough to swing a ball, it costs sweats and bloods for years to make it perfect. So do we say still now that a job of bowling is easier than bating ?

Sagnik Ray
2nd Year

FIFA bans AIFF – Why? How it impacts Indian Football

On 16th August, Federation International de Football Association (FIFA) has decided to suspend the All India Football Federation (AIFF) citing “undue influence from third parties." This is a huge setback for Indian Football as India may no longer be able to participate in international games and the Asian Cup, nor host this year’s FIFA U-17 Women’s World Cup, till the ban is lifted.

The current state of troubles began when Supreme Court of India relieved former president Praful Patel and his executive committee from their responsibilities and appointed Committee of Administrators (CoA) to administer the functioning of the AIFF. FIFA dictates how football is governed in a country, and the rules state that the football association must be free of legal and political interference.

FIFA-AFC team visited India and was assured that a new constitution will be formed. On July 16th CoA framed the final draft of the constitution of the AIFF. The state associations wrote to FIFA calling several clauses of the final draft constitution discriminatory and illogical. . The Supreme court was to hear plea from the state associations on these matters but postponed the dates citing the U-17 Women’s World Cup as the top priority.

FIFA recommended AIFF to have 25 percent eminent player representation in its Executive Committee instead of the 50

percent as by the draft constitution by CoA, to ensure power of the state bodies. FIFA threatened to ban AIFF if these third-party influences persist. Ignoring FIFA’s recommendation, CoA the announcement

that 36 eminent footballers would be part of the Electoral College, which meant a 50-50 representation of players and state body assembly members. On 16th August FIFA officially suspended AIFF from all International games, citing all these third-party influences.

FIFA stated **"The suspension will be lifted once an order to set up a committee of administrators to assume the powers of the AIFF Executive Committee has been repealed and the AIFF administration regains full control of the AIFF's daily affairs."**

While the national leagues would still continue, Indian clubs and players can't participate in any kind international leagues or tournaments. ATK Mohun Bagan was set to be part of the AFC Cup but now may not be able to participate in the competition.India's hosting of the U-17 Women's World Cup is in jeopardy.

Following the ban, Sunil Chettri said, "People who are involved are doing their best to make sure that we are going to come out with the best results possible."

.Former player Mehtab Hossain blamed those running football in the country for the setback. Former national captain Baichung Bhutia also expressed his displeasure with the ongoing situations, calling FIFA's decision to ban AIFF 'very harsh' but feels it to be necessary and considers it to be a great opportunity to get the system right.

Shubha Ghosh
2nd Year


75
YEARS
OF
INDEPENDENCE
INDIVISIBLE
INSEPARABLE
INDESTRUCTIBLE

Promises of the Land

Draining of dreams
Each day on a field,
But edified with knowledge
Of promises to keep.

Vanquishing vandals in minds,
Standing behind to uplift.
Demolishing the pedestals
Who feed on the bones of weak.

Rising with the golden orb
And not setting with the day,
To fulfill the words
A child to a father might say.

The land of gold
Giving birth to brave
With hearts enough bold
And minds unfeasible to enslave.

Eepshita Pahari.
ECE,2nd year

Give me blood, and I shall give you freedom

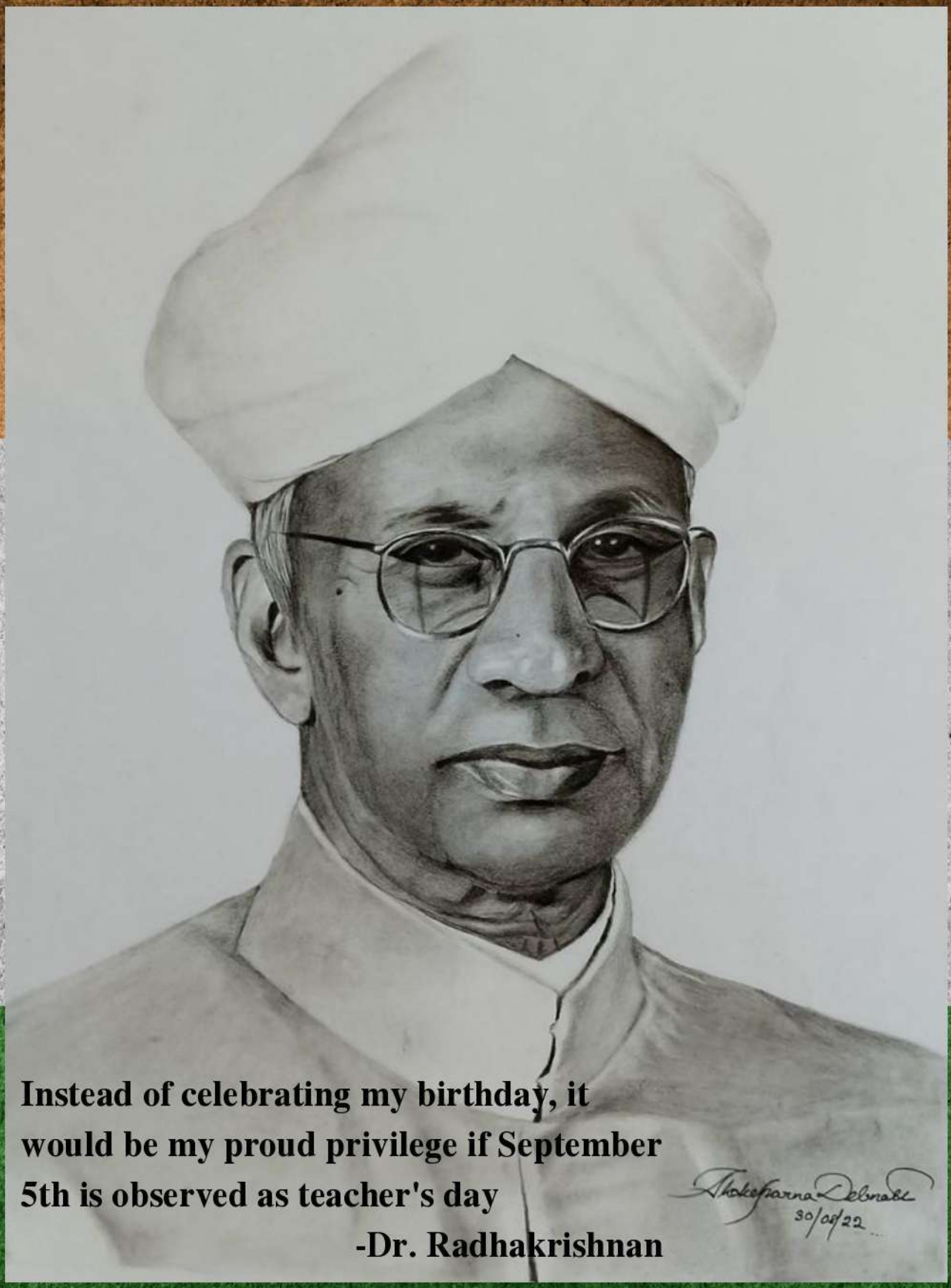
-Subhas Chandra Bose

Rohan Ghosh
ECE 2nd Year

UNFADING STRANGENESSS

To the great valiant martyr,
it's precisely arduous to find words to explicate you, I swear.
The way you sacrificed yourself, your every minute things,
is just an instance of your pious divinity, overcoming all the ordeals.
You shine, shine like age-old heavenly stars,
your victory, your efforts, your hardships, overruling all your scars.
The broken parents, unable to bear the infinite separation,
sweeping away from their lives, the days of elation.
Blind with tears, your betterhalf, holding you closely, not letting you go,
abandoning all the colourful dreams she did plan to sow,
left all alone in the dreary catecomb of harsh reality,
cursing the entire universe for allowing such a cruelty.
Your kith and kin, all gathered, to pay you the last tribute,
witnessing you wearing the fresh attire of solemn solitude.
Swathed with the inestimable tricolour your grace enriches,
every now and then you put a stake on your life defending all the hitches.
The deeds of yours will never get masted,
because of you, the august combatant, humanity will always be trusted.

-- Ankita Chakraborty



Alokeparna Debnath
ECE 4th year


Everything you can
Inked Thoughts
Imagine is real

Bliss of Success

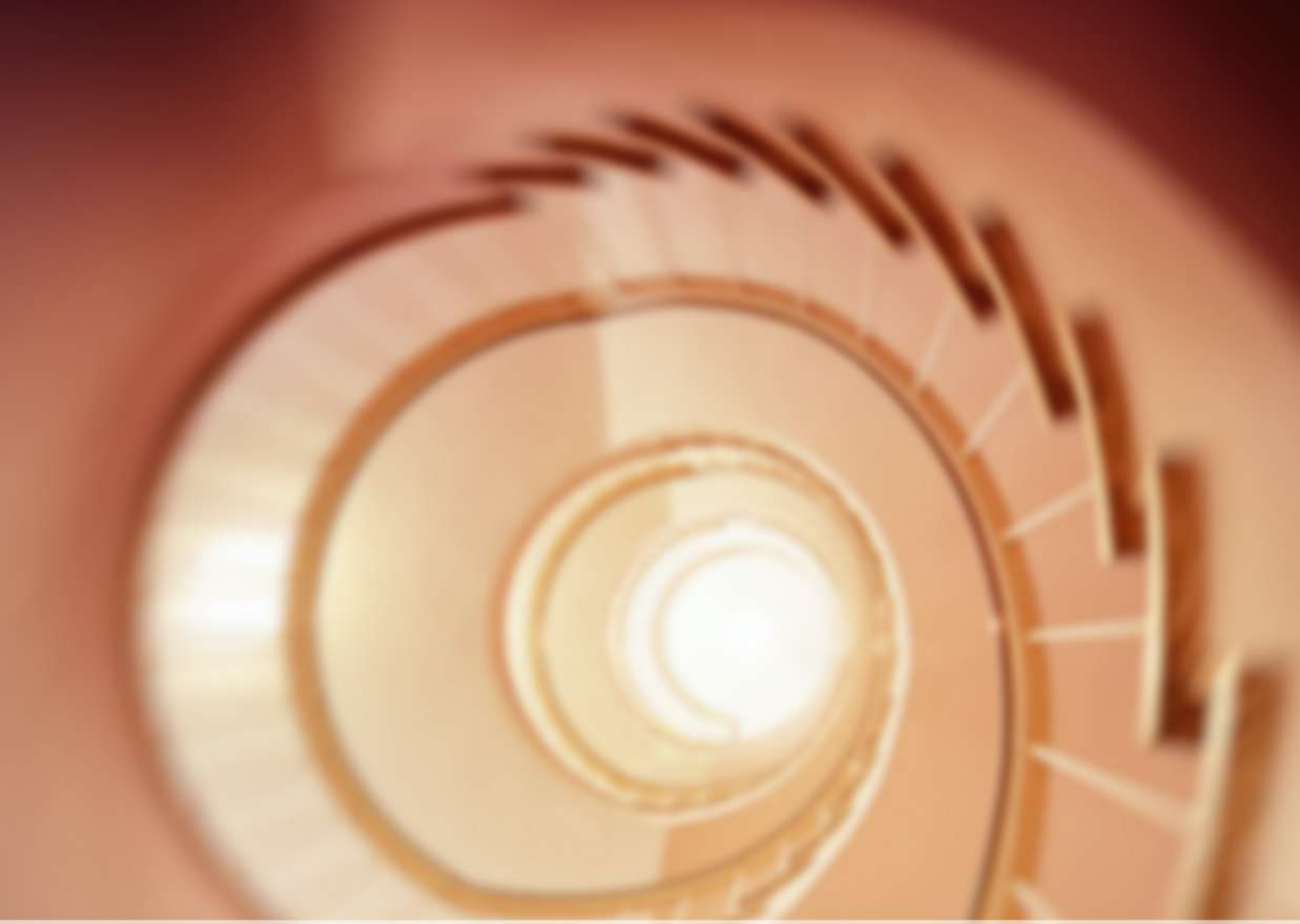
Have you ever stayed in your fantasy?
Where the world lightens up,
Where the feeling hastens up,
A brand new bond fastens up...
Have you ever been engrossed in your ecstasy?

People say life is too short,
So reach out to value its worth,
Remove the wind of pessimism,
Follow the hymn of optimism,
Shower the flowers of affection,
Discover the reason for your perception,
Go ahead and jump in the air,
Don't hesitate even when you scream out in despair,
Your life is a lyric, make it a melody,
Sing out loud and reach your destiny...

-Samit Bhattacharya
2nd Year

On late July evenings,
Laced in the fruity wines and longings,
Perhaps we gaze at the stars,
And whisper the stories of our scars.
When the night seeps into our eyes,
And stillness spreads across the skies,
I could swim out to discover your shadows,
And soak in the whistling songs of your woes.
In my endless storytelling, I might stutter,
But we will always get the butter.
I revel in your unearthly defiance,
And I know how to speak fluent silence,
So our tales won't be lost to the night ,
When time may show it's might.
Maybe my promises will start to look true,
Of course, it will happen only if you want it to.

-Anushka Bakuly
2nd Year



Rising Again

All those days were unfathomable, like a voyage in a chaotic sea.
Her heaven of dreams tumbled and fell.
She was falling, falling, falling into a black hole.
But she had to break that prison of suffering, she had to somehow rise.
Then one day, she decided to no longer fear the darkness.
The phoenix in her, rose from the ashes.
All her sufferings became a pale blue dot in the blue ether,
where she spread her wings to fly high forever.

-Taniya Banerjee
2nd Year

The Wish

Wrapped between his arms,
that night, her soul felt safe
She wished for something,
very rare to be the forthcoming.
The shooting stars saw her
the happiest that night!

He smelt like the first rain after summers,
like the inside of an old vintage book,
& like every comfort food
that she had ever cooked!

Whispering into her ears,
he spelled his wish... she blushed
for there was love in the air,
for they wished to stop the time there!

Never in her dreams she imagined
this kind of love come in her way!
Never in their thoughts they wished,
their broken pieces to mend this way!

- Ayushi Nayan
2nd Year

A Thing of Beauty

Is A Joy Forever

The trail varied in width and texture running from the gamut of moth grey white and rich black rocks with moss incrusted on them to brick and clay boulevards. In no time I could see the clouds beneath me! The skies of Pelling-the city that felt like my second home-sat on the horizon-featureless in the haze. Towering cedars and pines, and stretching into the distance is the serene *Pemayangste Monastery.*

The frigid weather and the fierce light of a refulgent sun- the monastery radiated the stark duality of the universe. The ubiquitous 'Bonsho' with Tibetan scriptures carved in, the mirific ambience, the varicoloured pillars at the entrance, the bravura of the painted walls and idols in the precincts-all of it made me subdued in its presence. *Dungzin Rimpoche* modelled this monastery after the *Zandog-pairi*, the Heavenly Palace. If heaven does exist, then nothing could be more fitting a replica of it than the monastery atmospherics! The hills had never looked that breath-taking in the pictures of the travelogues I worshipped so fervently as a child. I couldn't believe that I had actually climbed up a 2085m of rocky terrain! I felt like I was at the top of the world. Oh! The sight beggared description. Till this day, when I try to put it in words, I find myself befuddled. The Tibetan design motifs, the culture and the tradition ramify the stories of the birth of this monastery in 1650 AD. I met the '*Ta-Sangs*'(pure monks). I was intrigued by the fact that the monastery schools boys aged between 10 to 15 years too. They grow up steeped in Buddhist teachings and they are brought up to be monks.

From the patio of the monastery, I could see that mist had obfuscated the mountains. But the peaks were clearly visible-bare and pointed; time is making some depredations to and precipices have been falling off making the peaks appear more rounded.

A Thing of Beauty

Is A Joy Forever

The small houses carved out on bare and rocky undulations of the mountain looked like pearls encased in a seashell. The mountains too have stories to tell and people to protect. I have always longed and pined for such a sight which makes you feel like you are in a limbo-where space and time are not dimensions anymore! The small hamlet of Pelling which enwraps tranquil wonders like the monastery itself had my heart.

Before I visited Sikkim, I always wondered what is so special about this small hill-town state that India went as far as altering some portions of the Constitution to accommodate the international treaty. One needs to visit Sikkim to know why. On the paraphernalia of fantasy,

"I will fly to thee, not charioted by Bacchus and his pards,
but on the viewless wings of Poesy."

-Arjaita Aditya
2nd year

Letters From Moon

On a moonlit night,
their eyes met,
Their eyes spilt life's vignettes.
The roses around witnessed faith,
Swayed to show the love conveyed.

They wrote their minds
Into letters of thousand kind.
Honest hope grew everyday,
But fate had plans disarray.

The world turned around
To build a battleground,
And cast clouds of doom
Over the lover's loving moon.

He left with the letters from moon,
And united with the futile platoon.
His lady love waits for him till
date,
Hoping one day he will defy fate.

-Eepshita Pahari
2nd year

A Mere Sleepless Night

The starry night revealing the secrets of my tear
I scream, but no one can hear.
The latent fears witnessed by the wet pillow,
holding the dream of losing myself in the woods of willow.
Waiting for the warm glow to break open the darkened sky-

I keep staring at the infinite through the window pane alike a passer-by
and the window is a shady boon for me.
I keep gazing endlessly as a thirsty vagabond,
for the dawn to uphold
to quench the thirst of my soul,
to fill the expectations of mine which are not so foul.
Finally, witnessing the first ray of hope followed by chirping birds,
leaving me ecstatic, I can't find words.
It's wonderful to see the sun rising through the cloud
paving its way through all sort of odds which it was never allowed.

-Ankita Chakraborty
2nd Year

Draft Folder

I opened my old drafts today and discovered,
There were a lot of things I never said, which I should have.
I've built emotions in folders, which I never opened again.
Stories and phrases, which I never dared to edit.
Which mostly narrates about people in my life and the stories with them,
some just facts, or even numerical.

It just stays there,
As a memory.
Some good, some bad.
Painful and comforting at the same.
As a pile of phrases, stacked up in different folders.
Not having any meaning or purpose in another person's life anymore.
Once they meant so much to you,
that you took all the time in the universe to reminisce a day you've spent together,
To pen down the quality, you've admired the most, to treasure it for the future.
Two years later you go back to it, Just to see how the bond isn't the same anymore.

On the other hand,
It's a beautiful memoir, just like your last favorite song, it stays fresh beyond time, Which could send you across to the person again.
You could also share the folder with them, cherishing, re-read, and re-live the moment.
You talk about how you've grown together with time,
how you've adored every moment, even the silliest ones and.
It just feels yesterday because nothing has changed.
Except for your age and that extra pad of fat.

Bits of papers with bunches of lines about people and memories from past and present. Phrases and lines which are unedited.
I asked myself, "when I'm gonna use all of them in real-time?"
Probably during the next quarantine?
But NO,
I'm just leaving those stories there, just like people in it. You don't carry everyone with you throughout your life, even though you would love to.
It should be mutual; they should also be willing to walk along.
The right ones would just be traveling with you, far or near sometimes even in a parallel universe, which is just a call or text away.
But both the stories are equally beautiful at some point of time in life.
So this draft folder is a written series with happy and sad episodes with no scripted conclusion.

-Ayan Bhattacharjee
3rd Year

WORDS OF HUE

"The emotions are sometimes so strong that I work without knowing it. The strokes come like speech."

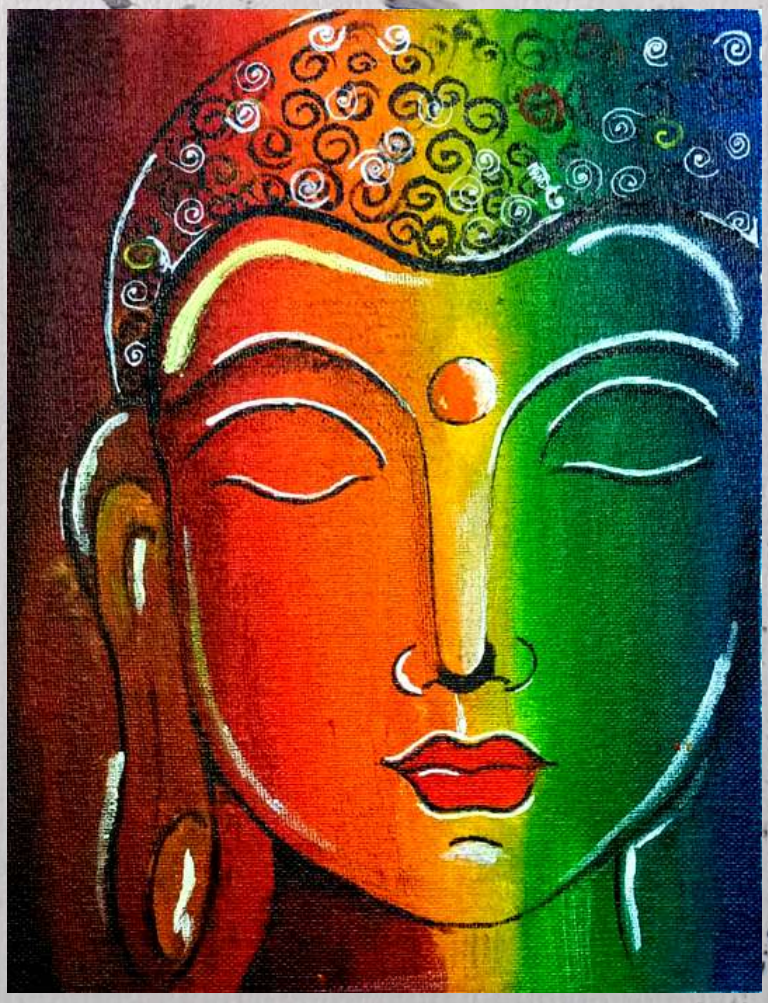
— Vincent van Gogh

Saswata Maitra
2nd Year

Aniket Sarkar
2nd Year

Sandipan Bairi

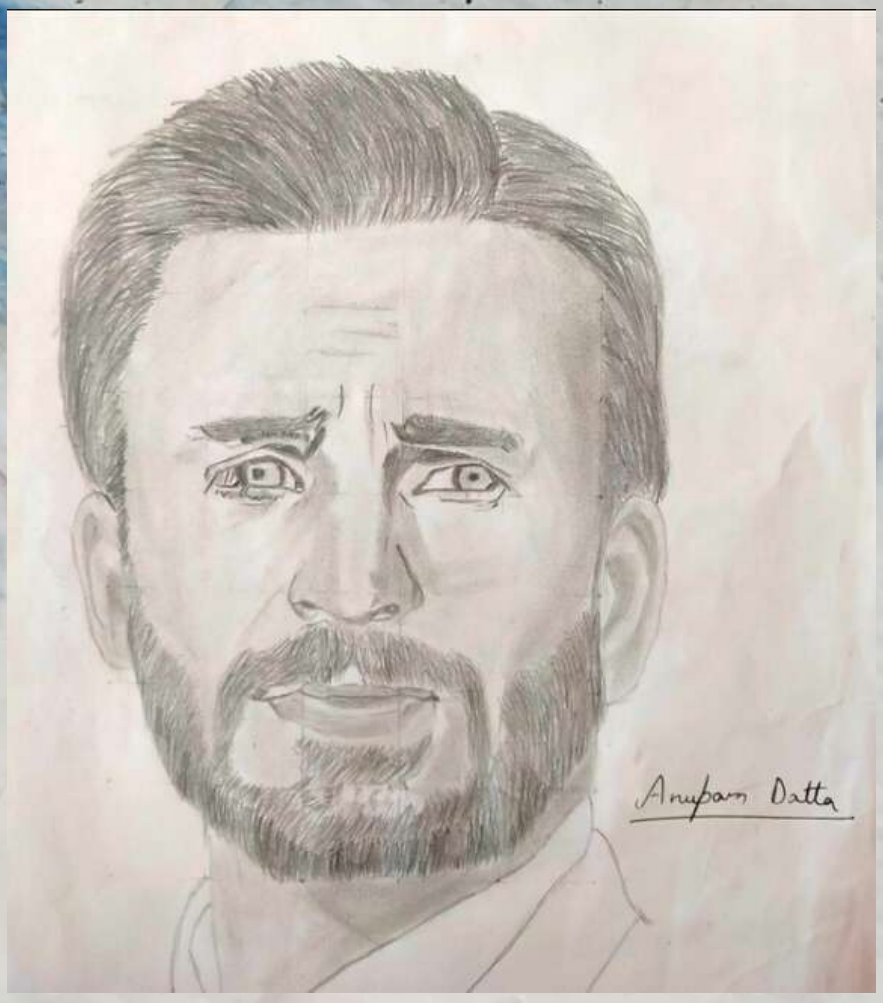
2nd Year



Megha Roy

3rd Year

Sutapa Trivedy
2nd Year



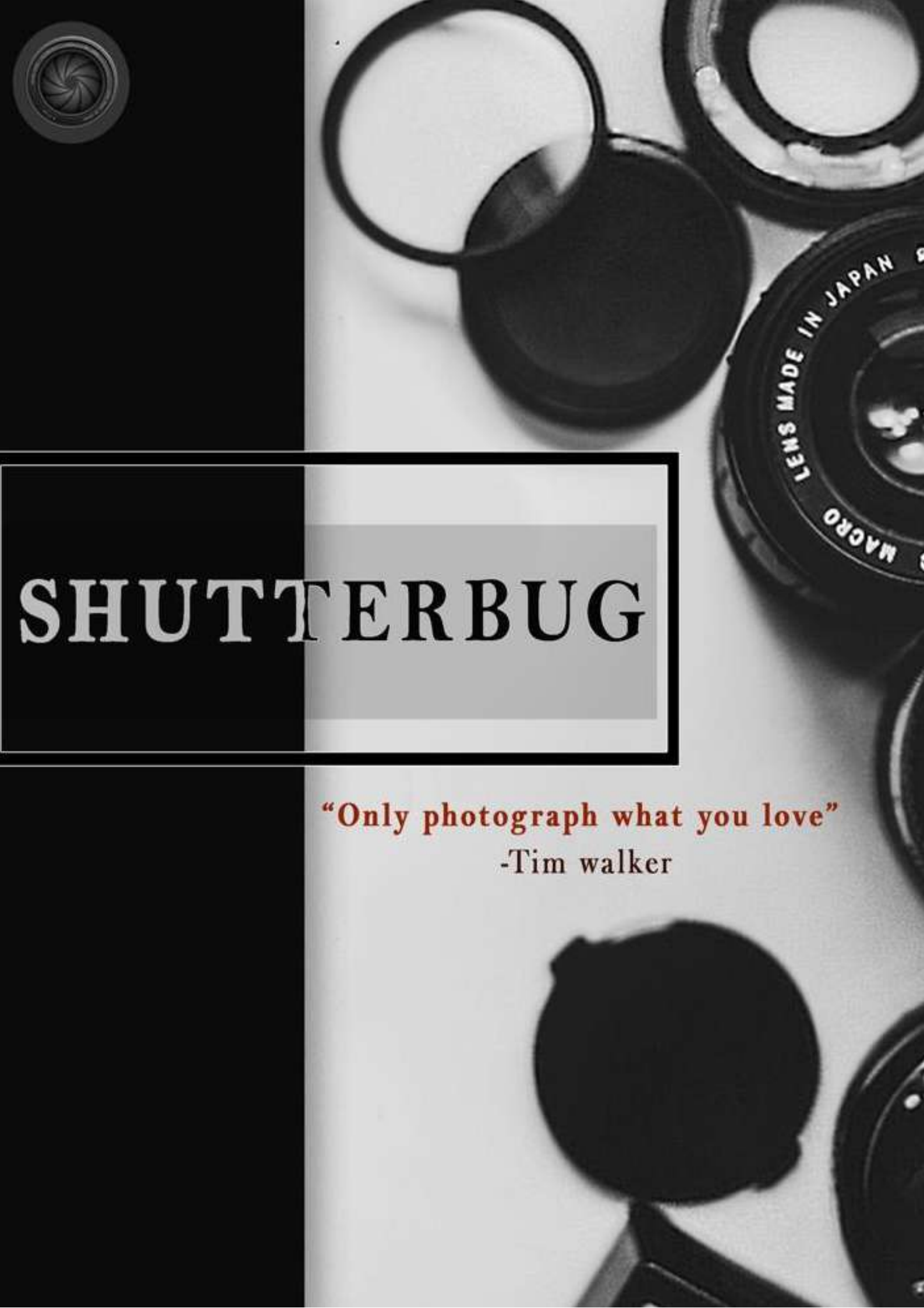
Anupam Datta
3rd Year

Ankush kumar
2nd Year

Ayush Singh
2nd Year

Sahana Yeasmeen

3rd Year



SHUTTERBUG

"Only photograph what you love"

-Tim walker

Definition of Unity

hornet: /ˈhɔːnɪt/

1.What humans are in way of becoming, beware! 2. A large wasp that is typically red and yellow or red and black and usually nests in hollow trees.

Arnab Dhara
2nd Year

Blossom Bellissima

Swapnil Sinha
2nd year

flower: /ˈflaʊə/

1.A little girl's favorite gift. 2. Is the reproductive structure found in flowering plants. 3. Can be a material of a wonderful poem.

© 1690, Calcutta

Kolkata

Calcutta

History

Heritage

Yellow taxi

The Ambassador Classic taxis have been a mainstay of Kolkata life since they first rolled onto the streets in 1958 . Built by Hindustan Motors until 20 14, they've been called "King of Indian Roads" due to their reliability and prevalence. While thousands still ply the city's streets, advancing age, stricter emissions rules and competition from Ola and Uber mean their future is in doubt. Yet whenever we hear Kolkata we think about that specific yellow taxi.

Yellow taxi

Suman Dey
2nd year

27, Jawaharlal Nehru Rd, Fire Brigade Head Quarter,

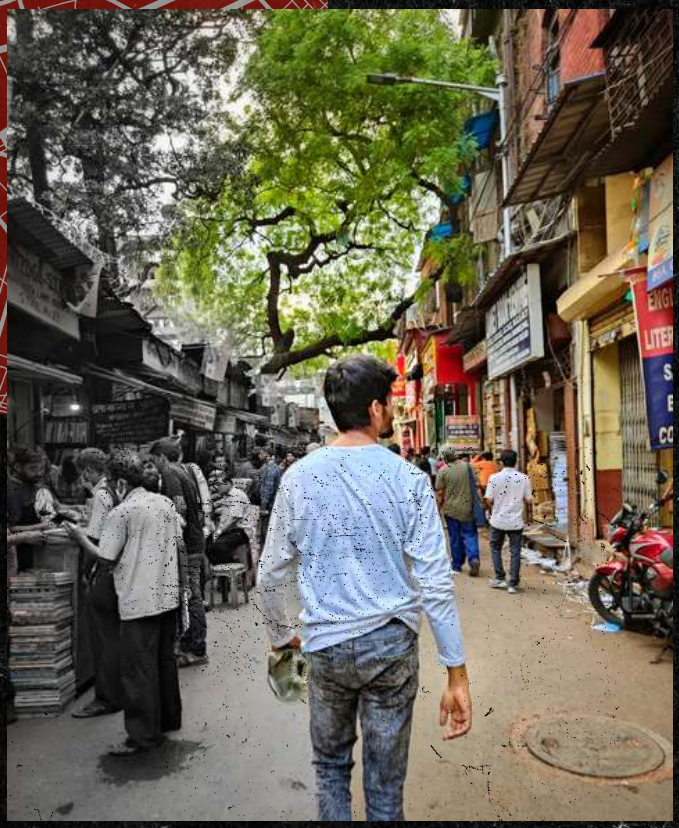
New Market Area, Dharmatala, Taltala, Kolkata, West Bengal 700016

Swarnendu Sil
2nd Year

The Indian Museum in Central Kolkata, West Bengal, India, also referred to as the Imperial Museum in Calcutta is the ninth oldest museum in the world, the oldest and largest museum in India. It has rare collections of antiques, armour and ornaments, fossils, skeletons, mummies and Mughal paintings. It was founded by the Asiatic Society of Bengal in Kolkata, India, in 1814. The founder curator was Nathaniel Wallich, a Danish botanist.

A City where anything is possible

How Can something so chaotic be so mesmerising at the same time?



Iconic Streets of Kokata

Swapnil Sinha
2nd year

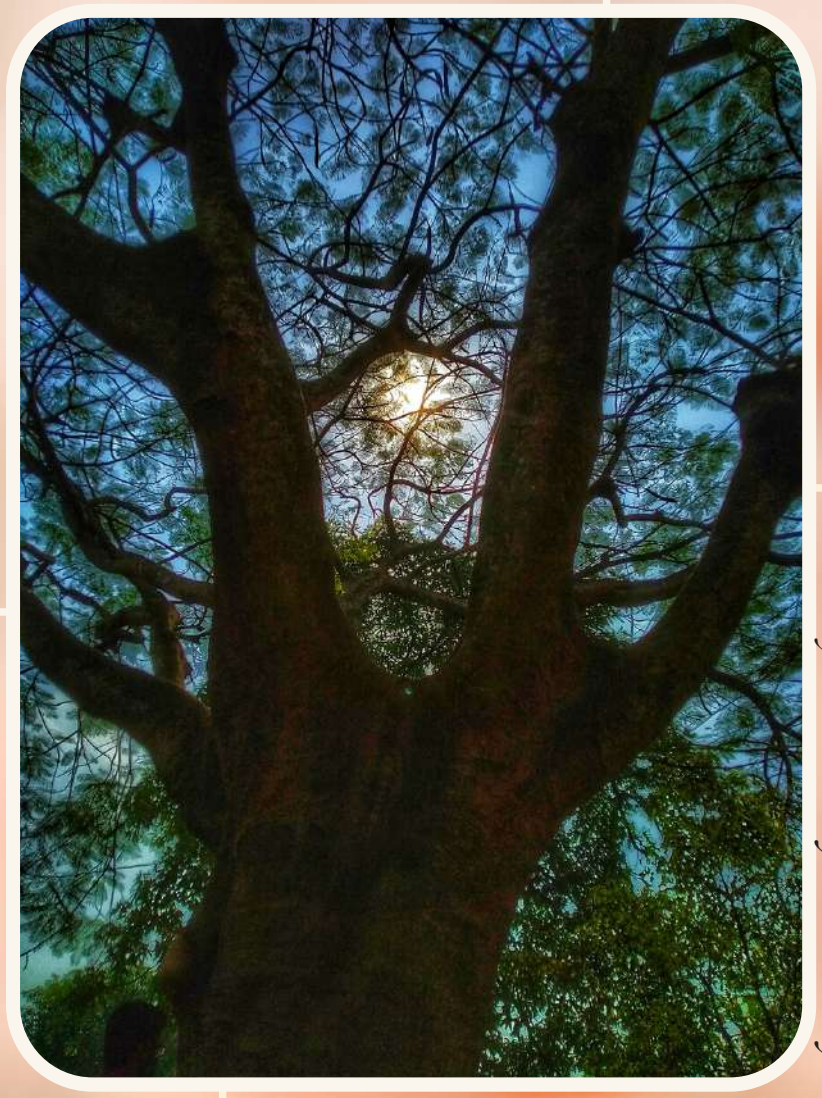
3546895018784

Victoria Memorial Hall,

1, Queens Way, Maidan, Taltala, Kolkata, West Bengal 700016

Mr. Icognito

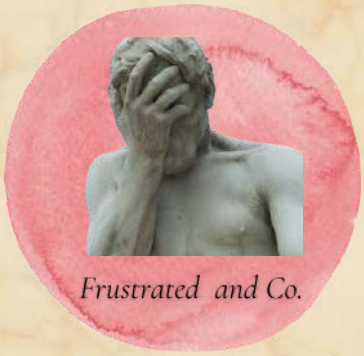
The Victoria Memorial in Kolkata is much more than an iconic landmark or a historical building in the city. This magnificent monument cum museum stands as a reminder of the city's colonial and architectural heritage. Nestled against lush green lawns, this opulent memorial made of marble is also one of the top tourist attractions in Kolkata. The Victoria Memorial features Indo-Saracenic revivalist architectural style which displays a blend of Mughal and British elements along with Egyptian, Islamic, Venetian, and Deccani elements.



Serenity Serenity Serenity

Sarbojit Saha
2nd Year

Sagnik Ray
2nd Year



nature: /ˈneɪtʃə/

1.the phenomena of the physical world collectively, including plants, animals. 2. Is not only the British magazine you get as a Google search result. 3. Is something Gen-Z kids have a hard time understanding.

mountain: /ˈmaʊntɪn/

1.a large natural elevation of the earth's surface 2. Where one can feel the actual cloud. 3. Comes from old French word Montaigne like 90% other English words.

At evening, something behind me.
I start for a second, I blench,
or staggeringly halt and burn.
I do not know my age.
In the morning it is different.
An open book confronts me,
too close to read in comfort.
Tell me how old I am.
And then the valleys stuff
impenetrable mists
like cotton in my ears.
I do not know my age.
I do not mean to complain.
They say it is my fault.
Nobody tells me anything.
Tell me how old I am.
The deepest demarcation
can slowly spread and sink
like any blurred tattoo.
I do not know my age.
Shadows fall down; lights climb.
Clambering lights, oh children!

Elizabeth Bishop

landscape: /lan(d)skeɪp/

1.Often considered in terms of their aesthetic appeal. 2. Every Photographer's comfort shot. 3. Can find yourself lost in mind if stared for a long time.

Soham Chakraborty
2nd Year

Samrit Bhowmik
3rd Year

The Rule of Third

Using the rule of thirds landscape photography creates visual interest and impact in your photos. It's a basic photography technique involves positioning important elements in your photo along imaginary grid lines that divide your scene into thirds, both horizontally and vertically. If you carefully look at the photos, all of them follows the Rule of Third, which makes them look so aesthetically pleasing.

3546895018784

Perspective

bokeh: /ˈbəʊkeɪ/

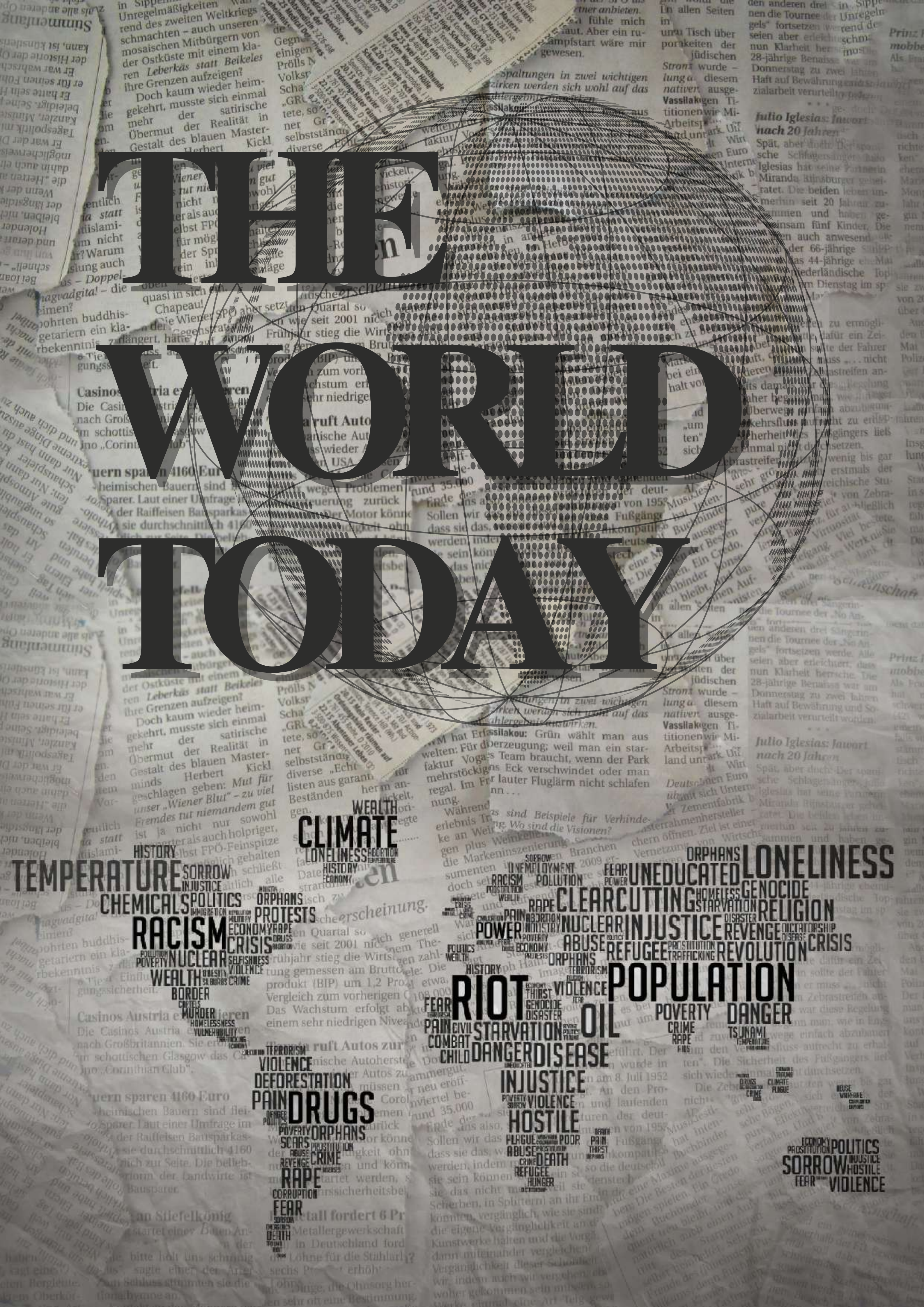
1.the visual quality of the out-of-focus areas of a photographic image 2. Can be considered as the most sought after quality for a photographer to have.

Biswaroop Jordar
3rd Year

Perspective Photography

Perspective in photography is defined as the sense of depth or spatial relationship between objects within an image. Effective perspective photography can take a two-dimensional picture and make it feel like a three-dimensional scene and add greater depth to your images.

Sarthok Debnath
2nd Year


THE
WORLD
TODAY
WEALTH
CLIMATE
LONELINESS
HISTORY
TEMPERATURE
SORROW
INJUSTICE
CHEMICALS
POLITICS
ORPHANS
PROTESTS
RACISM
ECONOMY
CRISIS
NUCLEAR
WEALTH
VIOLENCE
CRIME
BORDER
MURDER
TERRORISM
VIOLENCE
DEFORESTATION
PAIN
DRUGS
ORPHANS
SCARS
CRIME
RAPE
FEAR
DEATH
UNEMPLOYMENT
POLLUTION
RACISM
FEAR
UNEDUCATED
ORPHANS
LONELINESS
CLEARCUTTING
GENOCIDE
RAPE
STARVATION
RELIGION
POWER
NUCLEAR
INJUSTICE
REVENGE
CRISIS
ABUSE
REFUGEE
REVOLUTION
ORPHANS
HISTORY
POPULATION
RIOT
VIOLENCE
FEAR
GENOCIDE
DISASTER
OIL
POVERTY
DANGER
PAIN
STARVATION
CRIME
TSUNAMI
COMBAT
CHILD
DANGER
DISEASE
INJUSTICE
VIOLENCE
HOSTILE
PLAGUE
POOR
ABUSE
DEATH
REFUGEE
HUNGER
POLITICS
SORROW
HOSTILE
FEAR
VIOLENCE

PARTY-POLITICS OR POLITICS OF PARTIES??

Most nations in this century have transitioned into some sort of democracy where individual opinions are mandated and universal adult suffrage has been attained. This is a new society based on the principles of equality, and Parliamentary Democracy is the epitome of Good Governance that it promises. The prominent leaders play key role in running the world and managing its affairs. Their single actions decide the fate of millions, but that doesn't mean they are always true to their conduct.

Whether it is the ability to take up Finance decisions despite being from law background or theories highlighting how O2 is synthesised by Animalia, these executives have often amused us with their level of unmatched intellect. Despite their unmatched way of conduct, these elected leaders carry the weight of being "People's representatives"; but most often it is hard to determine who these 'people' are or whom they are 'representing'?

Parliamentary Politics largely revolves around political parties- the pompous institutions with its elegant flags, a legion of supporters, assembly of ideologies and the claims of being the real voice of the society. Parliamentary affairs require political parties for a wide variety of cases. Whether it is passing of bills, formation of the government, voting on certain issues or criticising any executive-decision, these assemblies of people serve a wide ranging purpose. Parties are, to a large extent, the only means of communication between the legislature-turned-executives and the common public. So it is safe to assume that PARTY-POLITICS go hand in hand in this long journey.

In the recent decades, Parties have once again established a greater esteem in this dynamic sphere but these are not the parties that involve 'netas' howling over the loudspeakers or the hastag campaigns, rather the parties we all seek every now and then. Whether be it birthdays, marriages or promotions, we all are charged up on the account of parties and treats. Recently Parties have occupied centre-stage in these diplomatic spheres. Often social get-togethers and personal lives of these politicians are dragged for political dividends. The UK PM Boris Johnson had to resign for claims of him violating social gathering norms and partying, during the lockdown. This (in)famous 'PartyGate' was widely used as a political tool to bring down the arguably second most powerful Conservative government post the Thatcher era. Congress MP Rahul Gandhi was once again victimised and shamed from incidents of his personal life. A ruckus was created out of his choice of partying in Nepal and his stature of being a representative was questioned. The Finnish PM is recently in news for her viral partying videos. These incidents, scattered across the world demographics, are a clear indication of the shifting ideologies within the political sphere. Today social media has blurred, if not erased, the thin line of distinction between the public and private life of leaders. Their private lives and choices are used as stepping stone in the political arena. The practice of putting extra emphasis on the party culture of leaders and the moral dilemma whether they should be really allowed to party has put us in an entangled situation. One hand we are demanding an all-time diplomatic public profile from them while we are missing out that this in turn is violating their personal space.

These incidents mark the new dawn of a dark era. Parliamentary Democracy is slowly heading from Party-Politics to Politics of Parties.....

Saumodip Das
ECE A 2nd Year

Indian Classical Music

The origin of Indian classical music can be traced back to the Vedas. Brahma is said to be the author of the four Vedas of which the Sama Veda was chanted in definite musical patterns. Gradually the scope for using further musical notes broadened, the accents and pauses in chanting were transformed into regular rhythmic patterns and subsequently evolved into an independent Tala, a time beat.

Hence Brahma was moved, as legend has it, to create for the enlightenment of the masses, a fifth Veda, beyond the four early Vedas from the essential features of the four. Vedic hymns were sung in plain melody, using only 3 notes, prominence being given to the accents and pauses in such recitations.

This gradual evolution of ragas or musical modes from the 22 srutis must have taken centuries to develop. But through time and development Indian Classical music to it's day of Ravi Shankar Supremacy went through every phase.

Between the 9th and 18th centuries, this was the most important era for the advancement of music in theory and practice. Also foreign (Muslim) invasions from the north influenced Hindusthani music but could not penetrate into the south. The twentieth century has contributed to the awakening of music with the help of musicians, vocalists and instrumentalists, musicologists, music akademies and traditional gurus and ustads.

Raga: The Soul of Classical Music

Several notes woven into a composition which, through aural perception softens the heart, may be called a "Raga". A raga is spoken of by learned men as that which is embellished with the color of musical notes, has its separate tune and import, touches the core of the heart and has a pleasing effect. Raga means a certain combination of musical notes, woven in a way which produces melody agreeable to the ears. A raga is a complete picture, like an artist's picture when it is completed with all the details in shade and color.

Based on western systemic taxonomy of melodic lines as tonic scales , Indian raagas can and are classified according to such systematics . The Pentatonic scale in Western classical music is similar to Raag Haansadhwani , the Hexatonic scale in which French composer Claude Debussy made so many masterpieces is actually Raag Marwa in Indian Classical Music. Heptatonic is Raag Bhairav, notably Ali Akbar Khan's Raga Bhairava. And Oxatonic, Nikhil Banerjee's Raga Gaud Sarang is a prime example of use of Oxatonic scale.

Ali Akbar Khan

Ustad Ali Akbar Khan's destiny in music was etched into his life's journey even before he could choose it. His father, Baba Allauddin Khan, famous for his musicianship as well as his disciplinarian ways had envisaged his son as a messenger of music. From the famed alleys of Maihar, to the busy bylanes of Kolkata and eventually to the obscure yet aspirational West, the sarod maestro is an ode to a legacy of dynamic artistry.

Ali Akbar Kha, to me, was Vincent Van Gough of Indian Classical Music. The reason I say it because the sense of randomness that can be found in his music was parallel of Van Gough. Ali Akbar kha had a sense of ideas, the ability to create nodes that nobody could even think of, which set him lightyears apart and I stress on randomness in a good way. And honestly, the only person who could be in the same sentence in terms of randomness, doing the unexpected is Vilayat Khan.

It should be noted that, Vilayat Kha was transience in his own way, which set Ali Akbar Khan apart was he did not try to be too technical. If there was a thing called just go with the flow, it would be Ali Akbar Khan himself. He used to misplace beats here and there and some believe it was down right intentional as one could not found him hesitated or as such for it. Ali Akbar Khan was a true worshipper of rhythm.

Once, Ali Akbar Khan was playing in Kolkata, in a mahfil along-with Kumar Prasad, V.G Jog etc. While Playing a raga others hear a unique distortion, not necessarily bad, but also not familiar with that specific raga. After finishing the raga everyone asked Ali Akbar if there was any missing tone from the raga he was playing. Ali Akbar simply smiled and replied, that tone was really cutting it for me today so I left it out, maybe some other day! Every raga has a set of defined number of tones. Pentatonic has five, heptatonic has seven and so on. For any normal musician skipping out on a whole tone is out of imagination, skipping one tone from any scale can hold the power to break the whole raga. Like everyone knew the raga he was playing, they could sense something was off, yet the raga sounded pleasant.

It was very usual in Ali Akbar's concerts that he would start playing a raga, only to play fifteen minutes and say, this raga is not coming out as I wanted it to be, let's just play something different. And he would continue to play that raga for two hours without any break. Comparing him with anyone would not do justice.

Nikhil Ranjan Banerjee

Born in Kolkata in an upper middle class Bengali family, Nikhil Banerjee did not have the pedigree like of Pandit Ravi Shankar, Ali Akbar Khan or even Ustaad Vilayat Khan. His father, Jitendranath Banerjee was an average Bengali who lived off his intellectual. Nikhil Banerjee's father was an amateur sitariya and adored music, he used to keep his Sitar in a specific room and it was forbidden of Nikhil and his siblings to even touch the Sitar. One day he saw young Nikhil fiddling around with Sitar Strings. Generally he used to very mad if anyone touched his Sitar, but for some reason young Nikhil's curiosity of Sitar did not bother him, rather he asked Nikhil if he wanted to learn Sitar. Well that is basically how Nikhil Banerjee got hooked on and started his Sitar journey.

Young Nikhil grew into a child prodigy, won an All-Bengal Sitar Competition at the age of Nine, what is interesting about this specific competition also had Vilayat Khan in which he placed right after Nikhil Banerjee. Now keeping in mind this was way before Vilayat Khan became Vilayat Khan and Nikhil Banerjee became Nikhil Banerjee. They were two similar young prodigies yet so dissimilar . Vilayat Khan was from a line of family who created Sitar, so were his fore-fathers who were also Sitar players. Whereas Nikhil Banerjee came from a family where you were supposed to study and get a job.

This difference in background came as a huge obstacle for Nikhil Banerjee, as back in the days one needed to belong in a gharana to get recognition, otherwise you will not treated as an skilled Sitariya. Nikhil Banerjee's first teacher a jamidar who himself learnt from one of the best Sitar Virtuoso at his time, and needless to say Nikhil Banerjee was a phenomenal Sitariya, what held him back was he had no pedigree. Like Pandit Ravi Shankar, Usstad Vilayat they belonged to a gharana which made it really easy for them, yet Nikhil Banerjee's skill and talent was only limited to non-important programs and small gatherings. Just to put it out there, Nikhil Banerjee was not the only one who experienced this lack of recognition, many other talented musicians has been forgotten by us unrecognised just because they lacked pedigree, it was not new at all to be unrecognised.

Nikhil Banerjee wrote Allauddin Khan some letters to accept him as his disciple, who was to become his main guru. Allauddin played the sarod; Banerjee went to his concerts and followed him around, and in the end even went so far as to threaten to kill himself if he was not accepted as a disciple. For Shastriya Sangeet, one had to worship his/her guru for years, had to pass the test of patience to be selected as a disciple; on top of that Nikhil Banerjee did not have a gharana. So, Allauddin rejected Nikhil as was expected by him in the back of his head, but later changed his mind after listening to one of Banerjee's radio broadcasts.

What Allauddin was passing on to most of his students was not playing technique but the musical knowledge and approach of the Maihar gharana, the techniques and stuff Nikhil Banerjee already knew. One day Allauddin was playing a raga named Chadni Kedar on his Sarod, while Nikhin banerjee was passing beside his kuthi. The pleasant raga caught Nikhil Banerjee's ear and he picked entire raga on his ear and later started playing it on his Sitar. Unlucky for Nikhil, Allauddin caught Nikhil playing Chadni Kedar, to put in a nutshell there were days where Nikhil saw Allauddin far less angrier. To paraphrase baba Allauddin there is a well constructed path to follow and why is Nikhil disrespecting the path by not obeying it, 'why are you trying to skip the hoops?' And advised Nikhil Banerjee to leave.

Nikhil Banerjee, without any clue went to Mumbai and met up with Ali Akbar Khan, the son of Allauddin Khan. Nikhil banerjee for a lot of his lifetime played with Ali Akbar Khan. And there is a saying Nikhil Banerjee learnt under every guru there was, but he was never accepted completely in any of them.

There is a interesting story about this, Nikhil Banerjee and Vilayat Khan used to study in the same school. Vilayat Khan would remain absent most of the days busy mastering Sitar, few of the days Vilayat Kha would come to school, there could be seen deep calluses in his mezrab finger. Nikhil Banerjee did not have that deep of callus in his finger, so he was also rejected in Vilayat Khan's family.

One of the best ragas played by Nikhil Banerjee is Sohini, Sohini is a raga which can be described like a chilly Autumn night. The raga Megh is probably the best Megh raga by anone. The interesting and astonishing factor of Nikhil Banerjee is all his ragas are self taught by his ear, as he had no one to teach him by hand, which is exceptionally hard for anyone. Nikhil Banerjee took inspiration from almost everyone and his style also reflected that yet it was oh so unique.

An Ancient Art Form in the Gen-Z world

Indian classical music exercises a certain rigidity which made it comparatively less accessible to the outer world until late 60's. Due to the uprising Hippie movement at the time Hindustani classical became a cult favorite to the American audience in no time. Ravishankar was one of the pioneering artists to modify the artform to the changing and progressively dynamic lifestyle and led to the worldwide discovery of Indian Classical Music.

Pandit Ravi Shankar

Pandit Ravi Shankar was certainly one of the most influential musicians of the 20th century - a true icon of our music and a man whose contribution lies beyond popularizing Indian music in the West. Ravi Shankar was introduced to Sitar much later in his life when he was 18 years old. It all began at a concert in Kolkata where he heard Amiya Kanti Bhattacharya play the classical instrument. Moved by the performance, Shankar decided that he too, must learn Sitar under Bhattacharya's guru, Ustad Inayat Khan. This is how Sitar came into his life and remained with him until he breathed his last.

But Ravi Shankar's life did not start with classical music rather as a dancer. Ravi Shankar's life with his elder brother Uday's dance troupe in pre-World War II Paris is well known. Here Shankar learnt French and also started absorbing music director Timir Baran's playing and imitating them on the Sitar and Esraj. By March 1931 he was on stage, wielding the sitar under Baran's baton and also dancing parts in Uday ballets. At eighteen, Ravi Shankar broke away from his brother's shadow, he decided he must study Hindustani music systematically with Allauddin Khan. He landed up in Maihar, the tiny hamlet in central India where Baba Allauddin Khan lived, seeking discipleship and systematic training. He had already been playing the sitar on stage for several years by then and must have picked up quite a bit by hearing and association with other professional musicians including Timir Baran, Vishnudas Shirali, Gokul Nag. Ravi Shankar's life couldn't have changed more dramatically. The transition from dandiya sophisticate to devoted disciple required a toil that was wholly new. There were days when Shankar's riyaz lasted sixteen hours.

Allauddin Khan was known for his quick temper, but in all his years at Maihar, Shankar was rebuked only once. "Go and buy some bangles to wear on your wrists. You are like a weak little girl," Baba scolded him. Shankar left with his bags, but was pacified by Baba's son, future sarod maestro Ali Akbar Khan. "The relationship had its difficult points, but Ravi was devoted to his guru.

Around that time there was another Sitar virtuoso on the rise, arguably on the best, Vilayat Khan. The rivalry between Pandit Ravi Shankar and Ustad Vilayat Khan is now Hindustani classical legend. In 1952, when the sitarists took the stage together, Khan played a particularly difficult taan that Shankar couldn't replicate. The papers claimed Shankar couldn't keep up. When Shankar began taking the West by storm, Khan said he had diluted Indian classic music. As news of Shankar's friendship with George Harrison started to spread, Khan prefaced his concerts with the jibe, "This is not [a] Beatle sitar, this is the real sitar."

In west Pandit Ravi Shankar collaborated with popular musicians like George Harrison of Beatles, virtuosos like Yehudi Menuhin, Mstislav Rostropovich, Jean-Pierre Rampalor jazz legend, John Coltrane, they all came under the magic spell of Pandit Ravishakar. In future, if one talks about Indian music history, his name will be taken in the same breath as Mian Tansen. He changed the face of Indian classical music and paved the path for generations of Indian musicians to travel around the world.

Yehudi Menuhin

Throughout his life Mr. Yehudi Menuhin was concerned with education and humanitarian causes. He always made a point of putting these concerns into practical action. In 1977 he founded Live Music Now, a charity which encourages young musicians to perform in hospitals, churches, schools and prisons.

During World War II Menuhin gave more than 500 concerts for the Armed Forces. In recognition of his musical and humanitarian achievements he was awarded many international honours including the Legion d'Honneur and the Croix de Lorraine from France; the Order of Merit from Germany; the Ordre Leopold and Ordre de la Couronne from Belgium.

Active right up to the very end of his life, Lord Menuhin died on 12 March 1999 in Berlin, where he was to have conducted a concert. Which just goes to show Menuhin's affection for Music, however his love is not limited to Western Classics, his collaboration with Pandit Ravishankar is one of the creation of a genre, Fusion Music.

West Meets East is a mix of Indian Classical music with Western influence and Western Classical music with Indian Classical hints. The main performers are accompanied at various points by tabla player Alla Rakha; Menuhin's sister, pianist Hephzibah Menuhin; and Prodyot Sen, on tambura. At the Bath Festival, Barham had translated Shankar's interpretation of Raga Tilang into Western annotation for Menuhin's benefit. When making West Meets East, Shankar rewrote this Tilang-based piece, recording it with it with Menuhin as "Swara Kakali". The album's opening selection is "Prabhati", a Shankar composition based on Raga Gunakali, and was played by Menuhin and Rakha. One of the most beautiful piece of this album is Swara-Kakali, which is based on Raga Tilang. A immersive blend of Sitar and tantalizing Violin can mesmerize anyone.

George Harrison

During the 1950s, Shankar was on the road trying to enlighten those he met with his soulful and smoky sounds of the sitar. He didn't just keep to his own comfortable surroundings either, Shankar was determined to open up India to the world through music. It meant he visited countries such as the Soviet - Union, Western Europe and even over to the US — one can only imagine the reception his traditional dress and sound could have received during the decade. In Nineteen Sixty six things would change.

Shankar would cross paths with one of the world's biggest rock stars and likely one of the most well-known faces on the planet during that time the late, great George Harrison. As a member of The Beatles, Harrison had reached the height of fame fame and fortune and it was at this height in 1966 that he turned his attention inwards and went to India in search of spiritual balancing.

Harrison travelled to India and spent weeks with Shankar both learning the sitar and engaging with his own spirituality. Harrison's penchant for classical Indian music can be heard across The Beatles back catalogue as Harrison brought Eastern philosophy to the heart of the Western world's pop. His association with Harrison and The Beatles made many westerners curious about Indian culture and music. Pandit Ravi Shankar has undoubted contribution in Indian Classical music that have shaped this genre for what it is now.

-Anurag Das
2nd Year

THE TECHNOLOGY VS ENVIRONMENT CONUNDRUM

In the modern era of fast-pacing technology, the challenges posed by electronic waste are casting a long shadow on our tomorrow. While on one hand, we are heading towards an ever-growing, smarter and ubiquitous technology, on the other hand, millions of tones of e-waste are disposed of worldwide every year. Out of this only 12.5% of e-waste is recycled scientifically.

What consists of e-waste?

E-waste is the term given to electronic appliances nearing the end of their useful life. It typically consists of plastics, cathode ray tubes, metals, circuit boards, cables, etc.

The challenges in e-waste management

The major challenges encountered in a e-waste are the lack of adequate infrastructure and research in this arena. There also exists a lack of awareness amongst the common masses regarding the disposition of old gadgets. Apprehensions regarding data safety is also one of the major factors that stop consumers from selling their old gadgets.

Impact on environment

Improper disposal of e-waste results in the release of toxic chemicals that degrade the air, soil and water. Scrap dealers dispose of it by unscientifically burning or dissolving it in acids. This results in air pollution. Its disposal in regular land fields causes contamination of crops and underlying groundwater.

The journey ahead

Raising awareness amongst the stakeholders is the first step to tackling the problem. The government and civil societies need to collaborate and carry out information campaigns to educate the masses. Upgradation of the informal sector and its integration with the formal sector needs to be done to check unscientific dismantling. Funding research in this area and building adequate infrastructure could be game changers.

The problem of electronic waste is affecting our lives more than ever before. We are living in a time when new upgraded models are launched in the market almost every day replacing older gadgets. While we move in this direction of technological advancement, we also need to take into account the millions of tonnes of e-waste generated through this. We are inching closer to ravaging the world if we do not rise now. Proper dismantling of e-waste would drive us towards a sustainable future where the environment and technological advancements can go hand in hand.

Manisha Bose
2nd Year

Miscellaneous

"If its not fun, you are not doing it right"

-Bob Basso

ESPORTS AND INDIA

With mobile gaming becoming a part of eSports, there has been a sudden surge in the popularity of eSports in India. eSports describes the world of highly organized competitive video gaming in multiplayer setting. eSports is nothing new has been in India for decades, but with its recent popularity, interest of the investors, YouTube promotion, eSports has successfully captured the Indian market. The most common genre in India today is Battle Royale, MOBA, MMORPG, and Real-Time Strategy. A decade ago, there was almost no existence of proper eSports in India, but today we have big names of the industry – Tencent, Activision Blizzard, EA, are all investors in India's gaming sector. India has also hosted many eSports tournaments in the recent years like PUBG Mobile series, Electronic Sports league, etc. Today India has one of the biggest eSports markets in the world.

DOTA 2 was the first game that captured the Indian market in the early 2010s. It is a MOBA game with 2 teams trying to destroy each other's base. Then came Counter Strike: Global Offence, which lead to a drastic increase in the popularity of eSports of India. With YouTube influencers streaming Counter Strike, eSports market growth was on the rise. Still eSports was limited to people to a powerful PC, and was not mainstream amongst the masses. But then came mobile games like Clash of Clans, Candy Crush, PUBG and it took eSports to its peak. Affordable smartphones and high speed 4G internet made eSports accessible to the general masses. Today from kids playing ludo, teens playing battle royales to moms playing Candy Crush, almost everyone in every age group plays mobile games.

With ever-growing community on its back, eSports companies are aggressively bringing in partners and brands for better reach and engagement. Online gaming is one of the reasons Indian economies didn't collapse in the global pandemic. The number of mobile gamers went up by 60% during the pandemic. According to business intelligence firm Statista, in 2021 there were around 17 million viewers of eSports in India, which is double of that of 2019. It is estimated by 2025 there would be 85 million viewers of eSports across 20 different platforms. Brands like Pepsi, Airtel, Flipkart, Red Bull, Mercedes-Benz are already collaborating with eSports platforms and tournaments to make the most of this growing pace.

Regarding carrier option in eSports in India, however there is hardly anything viable to professional gamers. The only direct source of income in eSports is through tournaments, which are scarce. So, a direct carrier as a pro gamer is a matter of risk. However, with growing eSports audience, one, if put effort can create carriers through YouTube and Twitch channels. Elsewhere one can get into game development which is a growing industry in India, with very high demand. The eSports industry also encourages entrepreneurship and startups.

With all these being said, there has been several controversies regarding online gaming. Various acts of violence and aggression had been reported due eSports. Aside from that the toxicity, racism and sexism is a regular in almost every game lobby. Students losing concentration and stepping back from their actual aim, men ignoring their duties to play games, all these have made the society see eSports with a bad eye. These acts need to be seriously checked. eSports can be a severe source of addiction for the children. So, while we should all welcome the growth of eSports in India, we must solemnly make sure that it's bad side doesn't reach us.

-Subha Ghosh
ECE

Top 6 Websites to Use When You Are Bored

Ever been in a scenario where you're totally bored and don't feel like doing anything? Feeling stressed and confused about life and just want to chill for a few minutes to make things light? Or are you waiting for someone and just want to spend a couple of minutes doing something amusing? With the development of this extravagant technology called 'Internet', it's impossible for you to get bored. You can do anything, talk to strangers, play games, watch videos, listen to music, everything and anything can be done. Well, here are 8 websites for you which might sway away your boredom and make things elated for you:

How stuff works: https://www.howstuffworks.com/

Here's a fun and knowledgeable website which might tickle your curious bone. A page filled with awesome, mind bending and shocking facts and questions which you must have pondered in your life at least once. Not only science and technology, it also has posts related to entertainment, finance and even short quizzes for you to participate in. Become a smarter version of yourself in the free time you have.

A soft murmur: https://asoftmurmur.com/

If you have a few moments before rushing into another class or a meeting, or came home after a long day, here's a website for you to relax. A soft murmur is a free to use website as well as an app where you can listen to sounds of nature, birds, weather and others to help you release all the stress you have been carrying around. Just close your eyes, hook up your earphones and just be mesmerized in the soothing voices of the nature.

Buzzfeed: https://www.buzzfeed.com/in

If you're one of those who likes taking quizzes about "Which Character are you from this iconic movie" then it's the best place for you to spend some quality enjoyable time. It has various articles for you to read and also fun activities you can participate in. Recently, they have added an even fun element to the website. They have an entire section just for foodies. You can look up new and mouth-watering recipes and try them out yourself!

Reddit: https://www.reddit.com/

Are you a meme buff? You want to have a little giggle and release some dopamine? Reddit is for you. In reddit you're going to get everything. It's Instagram but it's not going to throw you in the pitch of comparison but make you laugh. Having meme compilations of various creators, situations and wide variety of subjects. You may also take part in random discussion forums.
Do you want to play some short games in your free time? We have just the thing for you, here's a list of some popular games which you can play with your friends or even solo and can light up your mood in seconds.

Geoguessr: https://www.geoguessr.com/

This is an online geographical location identifying game. In this game, you're given a map of a small area and you can look around, move and see beautiful places and in the end, you have to identify which place can it be. It has free modes where you have all the time you can get, roam around and guess the place. You can also compete with other players online into quick country guessing games from a small area given in the map. It's a fun game just to roam around and visit new places just from sitting in your chair.

Scribble: https://skribbl.io/

We all have been scribbling and drawing doodles around our notebooks once in our lifetimes. It's time to bring that back in this online multiplayer game- Scribble. You can play with friends as well as strangers. You will be given a word and you have to draw the best you can to explain the word given to you. And here's the best part your opponents have to guess the word based on your drawing. How cool is that? Show up your Picasso skills in this game and blow up the leader board.

The above websites are given to have a fun time and to keep you away from boredom. But it's always good to read a book or talk to friends, the old fashion ways. It's amazing how stepping out of the internet is a good and enjoyable activity as well. Lastly, if you can find nothing you can do then the best option is grabbing your pillow and blanket and having a good long sleep. Always helps!

-Rahul Laha
ECE 3rd

MOVIE REVIEW

Title: Rocketry: The Nambi Effect
Release Date: July 01, 2022
Running time: 157 minutes

Cast: R Madhavan (Nambi Narayanan), Simran (Meena), Rajit Kapur (Vikram Sarabhai, Hindi & English versions), Ravi Raghavendra (Vikram Sarabhai, Tamil version), Karthik Kumar (P. M. Nair), Nambi Narayanan (Himself), Shah Rukh Khan (himself, Hindi & English versions; guest appearance), Suriya (himself, Tamil version; guest appearance) and others
Writer & Director: R Madhavan
Producer: R Madhavan, Sarita Madhavan, Vijay Moolan, Varghese Moolan
Music Director: Sam C.S.
Cinematography: Sirsha Ray
Editor: Bijith Bala
Story:
The Story of Rocketry follows the journey of Nambi Narayanan, India's most accomplished ISRO scientist, who works hard to make the country proud by developing science and technology, but ends up in trouble and arrested on charges of espionage despite his great contribution to the nation

On-Screen Performances:

Madhavan is the one-man army of the film One cannot take their eyes off the screen even for a second while watching his performance. Such an intense and involving performance by Madhavan. Appearance wise, Madhavan is similar to Nambi sir on screen. The transformation of his body with respect to different ages is simply amazing.

Not just Madhavan, Simran also delivers an effective performance as Nambi's wife Meena. When Meena is unable to accept what has happened to her family and her husband, she becomes upset. Although it was only a few scenes, his presence was alarming. The supporting cast leaves a huge mark in the film from Sam Mohan as Unni to Karthik Kumar as CBI officer PM Nair, both providing much-needed cameos in this dramatic film.

Off-Screen Highlights:

I can observe the depth of Maddy's research and writing in the film. The scenes where the family endures painful consequences due to the allegations made against Nambi Sir are well written and picturized. Nambi Sir's wife getting humiliated, his daughter being left in the middle of the road, and his son being attacked by the public some of the scenes that show us that Nambi Sir is not the only victim, his family also sheds all that shame.

Credits to Madhavan for showing the personal side of the great scientist in the most dramatic way. Madhavan's deep research is best marked by the Princeton, Russian, and French episodes. Also, he made sure that he never lost the authenticity of his writing throughout the film. This is the best quality a filmmaker needs to have when delivering the content he has without any compromises, and Maddy excelled at it.

The first half of the film totally deals with the technical and scientific side of the content. Maddy takes his own time to take the audience slowly into the world of Nambi Narayanan. Also, he makes sure that he never loses his audience at any point of time due to the heavy package of the subject of science and technology. The second half of the film becomes very intense and intriguing. The torture scene of Nambi sir and the damage it caused to his life personally stand out as highlights. The best highlight of the entire film is Nambi sir's patriotic feeling towards India both in his words and actions.

The visuals of the film are top notch. The cinematographer has captured the various locations superbly. The industrial sector also needs a special mention. VFX is at its best. Madhavan's final transformation into the original Nambi Sir is very impressive.

Endnote:

Rocketry is the best honest biopic made on a great man, Nambi Narayanan. The film is a one-man show of Madhavan on screen. There is honesty in the writing, making, and acting on Madhavan's side. The film is inspiring because of Nambi Sir's professional excellence and patriotic feeling. The film is heart-touching with the personal struggles of Nambi Sir's life. The film is a must-watch to know the true story of a true patriot.

-Nabendu Kundu
ECE 3rd

Recipe For Garlic Chicken Pasta

INGREDIENTS: -

v Pasta
v Chicken Breasts
v Garlic cloves
v Garlic powder
v Olive oil
v Chopped tomatoes and spinach
v Butter
v Cream
v Parmesan Cheese

RECIPE: -

I. Boil the pasta.
II. Meanwhile cut the chicken breasts in half lengthwise and sprinkle some garlic powder and some salt pepper.
III. Cook the chicken until golden and transfer it in a plate.
IV. Using the same pan, add in the garlic cloves and butter. Then add some diced tomato and fresh spinach. Cook for 4-5 minutes until the garlic is fragrant and tomatoes have softened.
V. Turn down the heat and add some cream along with the cheese. Use a whisk and stir it until creamy.
VI. Drain the pasta and transfer it along with the chicken breasts in the pan and toss well.

SERVE AND ENJOY!!!

COOKING TIME: 30 MINUTES.

-Sutapa Trivedi
ECE 2nd

OUR TEAM
SENIOR EDITORS

ANUROOP CHAKRABORTY
3rd YEAR

BISWAROOP JOARDAR
3rd YEAR

DEBANGSHU KANTHA
3rd YEAR

MEGHA ROY
3rd YEAR

RAJARSHI PAUL
3rd YEAR

SHIBAM BANERJEE
3rd YEAR

SHINY MUKHOPADHYAY
3rd YEAR

OUR TEAM
JUNIOR EDITORS

ANURAG DAS
2nd YEAR

ARGHYADEEP GHOSH
2nd YEAR

ESHIKA DAS
2nd YEAR

PRITHVISHA GUPTA
2nd YEAR

SHUBHA GHOSH
2nd YEAR

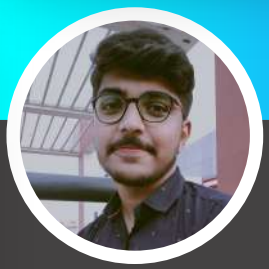
VIBEK ROY
2nd YEAR

OUR TEAM

SOCIAL MEDIA & OUTREACH TEAM

SANMANTRA CHATTERJEE
4th YEAR

AYAN BHATTACHARJEE
3rd YEAR



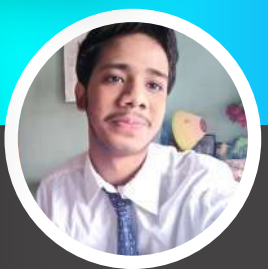
AYAN SAHA
3rd YEAR

RAJAT JANA
3rd YEAR

RISHAV DAS
3rd YEAR

SK RUMMAN
3rd YEAR

SAIKAT MITRA
3rd YEAR



SOUNAK ROYCHOUDHURY
3rd YEAR

OUR TEAM
JUNIOR OUTREACH TEAM

ARGHYADEEP GHATAK
2nd YEAR

KUSHAL NANDI
2nd YEAR

SANYAEE DAS
2nd YEAR

SARGAM PAL
2nd YEAR

SAUMODIP DAS
2nd YEAR

DON'T FORGET TO
FOLLOW
US ON
SOCIAL MEDIA

AmpereHITK

amperehitk

AmpereHitk

THANK YOU

SEND US YOUR FEEDBACK HERE:
https://bit.ly/3QSCqmt