FUTOORA

In to the future

E - MAGAZINE

A quarterly publication from

THE INSTITUTION OF ENGINEERS (INDIA)
KOLLAM LOCAL CENTRE

SEPT 2023

VOL-1

FUTOORA
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Chairman's Desk

Er. Rajan K, FIE
Chairman
The Institution of Engineers (India)
Kollam Local Centre

I have great pleasure in introducing the in-house magazine of Institution of Engineers (India) Kollam Local Centre. A lot of stressful endurance was required for making this project a fruitful activity. In the envisaging stage, everybody had some justifiable apprehensions regarding the feasibility of bringing out a magazine from a Local Centre of the institution. But the cohort effort put forth by the office bearers and Executive Committee members of the Kollam Centre has made it a dream come true. The very basic idea behind such an endeavor is to provide an effective platform to showcase the versatile technical as well as artistic prowess of our members to limelight through an all pervading medium. Even a quick traverse through the contents of the periodical, it becomes clear that there are visionaries, motivators and technically accomplished writers in our family of engineers.

One very striking positive vibe felt throughout the process of coordinating the activities was the enthusiasm exhibited by our engineering student community for converting the concept into reality.

Before concluding, I am spontaneously duty bound to express a word of appreciation for the profound and untiring endeavors put forth by the office bearers, committee members of Kollam Local Centre as well as the student coordinators in making this publication such a grand success.

Also my thoughts of gratitude flow towards those who have contributed their time and thoughts for helping us by providing a horizon of different types of contents for this electronic magazine.

Honorary Secretary's Message

Dr. Sheeba R, MIE
Honorary Secretary
The Institution of Engineers
(India)

"It does not matter how large or small your sphere of activity is, what counts finally is the commitment that you bring to the job that has been ordained for you in this life." — A.P.J. Abdul Kalam, My Journey: Transforming Dreams into Actions

Engineers play a really vibrant and vital role in nation building.They can develop new discoveries using better engineering technologies to make human life more realistic and simpler.

Engineers globally play an important role in creating new inventions and thereby making human life more comfortable, safer and productive by using better engineering technologies. However in modern times, countries with rich engineering and experienced management domains prosper economically and lead a better life. The journals, conference proceedings and other technical magazines are the best ways to present the world with the latest technical changes taking place on a global scale.

"FUTOORA" Magazine of Institution of Engineers (India) Kollam Local Centre is a venture contributing to this endeavour.

Good things stay good because they always fall short. This opportunity is also taken to appreciate the commendable efforts put in by the team for the grand opening of this great magazine. Moreover, I am very happy and proud to be a part of this team. Efforts to bring innovative content are appreciated. Care will also be taken to include content on various opportunities available in the corporate world, global changes in technical education and alerts on various student level competitions.I wish you all a great activity throughout the year.

Thank you.

Jai Hind!

Felicitation by Chairman
(IEI Kerala State Centre)

Prof. (Dr.) M Jayaraju,
Chairman,
The Institution of Engineers (India),
Kerala State Centre,
Thiruvananthapuram.

Congratulations on the endeavor of IEI Kollam Local Centre to launch an e-magazine by the name "FUTOORA". It is indeed a great effort with dedication to take one more step forward in the functioning of Kollam Local Centre. This is an opportunity for Members to contribute technical as well as articles of societal importance, keeping readers updated on technical developments and engineering advancements.

May your efforts have all success.

FUTOORA
In to the future

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THE METAVERSE &
IT'S IMPACT ON EVOLVING TECHNOLOGIES

The Metaverse is a term used to describe a virtual world where users can interact with a computer-generated environment and with other users. It is an immersive experience that allows users to be fully immersed in a virtual world that is similar to the real world. The Metaverse is not a new concept, but it has gained popularity in recent years due to the advancements in technology.

The Metaverse has the potential to impact many evolving technologies, including virtual reality, augmented reality, and artificial intelligence.

1. Virtual Reality

Virtual reality is a technology that allows users to be fully immersed in a virtual world. The Metaverse could take virtual reality to the next level by creating a virtual world that is similar to the real world. Users could interact with each other and the virtual environment in a way that is not currently possible with current virtual reality technology.

The Metaverse could also create a platform for virtual reality gaming, where users could compete against each other in a virtual world. This would create a new form of entertainment that is not currently available.

2. Augmented Reality

Augmented reality is a technology that overlays digital information onto the real world. The Metaverse could create a platform for augmented reality, where users could interact with digital information in a virtual world. This would allow for a more immersive experience than is currently available with current augmented reality technology.

The Metaverse could also create a platform for augmented reality gaming, where users could compete against each other in a virtual world that is overlaid onto the real world. This would create a new form of entertainment that is not currently available.

3. Artificial Intelligence

Artificial intelligence (AI) enables computers to learn and adjust to new circumstances. The Metaverse presents an opportunity to build a platform for AI to interact with users in a virtual world. This platform would provide a more immersive experience compared to existing AI technology

Conclusion

The Metaverse has the potential to impact many evolving technologies, including virtual reality, augmented reality, and artificial intelligence. The Metaverse could create a platform for new forms of entertainment and new ways of interacting with technology. The future of the Metaverse is uncertain, but it is clear that it has the potential to change the way we interact with technology.

Pradhun Prakash Jacob

The Future of Robotics:

How Robots Will Transform Our Lives

Abdulla Kaif
TKM INSTITUTE OF TECHNOLOGY

WHAT IS ROBOTICS ?

Robotics is the engineering branch that deals with the conception, design, construction, operation, application, and usage of robots. Digging a little deeper, we see that robots are defined as an automatically operated machine that carries out a series of actions independently and does the work usually accomplished by a human.

Incidentally, robots don't have to reassemble humans, although some do. Robots that appear human are typically referred to as “androids.” Although robot designers make their creations appear human so that people feel more at ease around them, it's not always the case. Some people find robots, especially ones that resemble people, creepy or unattractive.

TYPES OF ROBOTS –

Robots are versatile machines, evidenced by their wide variety of forms and functions. Here is a list of a few kinds of robots we see today:

- Healthcare: Robots in the healthcare industry do everything from assisting in surgery to physical therapy to help people walk to moving through hospitals and delivering essential supplies such as meds or linens. Healthcare robots have even contributed to the ongoing fight against the pandemic, filling and sealing testing swabs and producing respirators.
- Homelife: You need look no further than a Roomba to find a robot in someone's house. But they do more now than vacuuming floors; home-based robots can mow lawns or augment tools like Alexa.
- Manufacturing: The field of manufacturing was the first to adopt robots, such as the automobile assembly line machines we previously mentioned. Industrial robots handle a various tasks like arc welding, material handling, steel cutting, and food packaging.

- Logistics: Everybody wants their online orders delivered on time, if not sooner. So companies employ robots to stack warehouse shelves, retrieve goods, and even conduct short-range deliveries.
- Space Exploration: Mars explorers such as Sojourner and Perseverance are robots. The Hubble telescope is classified as a robot, as are deep space probes like Voyager and Cassini.
- Military: Robots handle dangerous tasks, and it doesn't get any more difficult than modern warfare. Consequently, the military enjoys a diverse selection of robots equipped to address many of the riskier jobs associated with war. For example, there is the Centaur, an explosive detection/disposal robot that looks for mines and IEDs, the MUTT, which follows soldiers around and totes their gear, and SAFFiR , which fights fires that break out on naval vessels.
- Entertainment: We already have toy robots, robot statues, and robot restaurants. As robots become more sophisticated, expect their entertainment value to rise accordingly.
- Travel: We only need to say three words: self-driving vehicles.

ADVANTAGES AND DISADVANTAGES OF ROBOTICS-

As a part of the innovation, they have their own pros and cons: PAGE 3

Advantages

- They work in hazardous environments: Why risk human lives when you can send a robot in to do the job? Consider how preferable it is to have a robot fighting a fire or working on a nuclear reactor core.
- They're cost-effective: Robots don't take sick days or coffee breaks, nor need perks like life insurance, paid time off, or healthcare offerings like dental and vision.
- They increase productivity: Robots are wired to perform repetitive tasks ad infinitum; the human brain is not. Industries use robots to accomplish the tedious, redundant work, freeing employees to tackle more challenging tasks and even learn new skills.
- They offer better quality assurance: Vigilance decrement is a lapse in concentration that hits workers who repeatedly perform the same functions. As the human's concentration level drops, the likelihood of errors, poor results, or even accidents increases. Robots perform repetitive tasks flawlessly without having their performance slip due to boredom.

Disadvantages

- They incur deep startup costs: Robot implementation is an investment risk, and it costs a lot. Although most manufacturers eventually see a recoup of their investment over the long run,

it's expensive in the short term. However, this is a common obstacle in new technological implementation, like setting up a wireless network or performing cloud migration.

- They might take away jobs: Yes, some people have been replaced by robots in certain situations, like assembly lines, for instance. Whenever the business sector incorporates game-changing technology, some

- jobs become casualties. However, this disadvantage might be overstated because robot implementation typically creates a greater demand for people to support the technology, which brings up the final disadvantage.
- They require companies to hire skilled support staff: This drawback is good news for potential employees, but bad news for thrifty-minded companies. Robots require programmers, operators, and repair personnel. While job seekers may rejoice, the prospect of having to recruit professionals (and pay professional-level salaries!) may serve as an impediment to implementing robots.

The Future of Robotics: What's the Use of AI in Robotics?

Artificial Intelligence (AI) increases human-robot interaction, collaboration opportunities, and quality. The industrial sector already has co-bots, which are robots that work alongside humans to perform testing and assembly.

Advances in AI help robots mimic human behavior more closely, which is why they were created in the first place. Robots that act and think more like people can integrate better into the workforce and bring a level of efficiency unmatched by human employees.

Robot designers use Artificial Intelligence to give their creations enhanced capabilities like:

- Computer Vision: Robots can identify and recognize objects they meet, discern details, and learn how to navigate or avoid specific items.
- Manipulation: AI helps robots gain the fine motor skills needed to grasp objects without destroying the item.
- Motion Control and Navigation: Robots no longer need humans to guide them along paths and process flows. AI enables robots to analyze their environment and self-navigate. This capability even applies to the virtual world of software. AI helps robot software processes avoid flow bottlenecks or process exceptions.
- Natural Language Processing (NLP) and Real-World Perception: Artificial Intelligence and Machine Learning (ML) help robots better understand their surroundings, recognize and identify patterns, and comprehend data. These improvements increase the robot's autonomy and decrease reliance on human agents.

THE FUTURE OF ROBOTICS; HOW ROBOTS WILL CHANGE OUR LIVES -

Robots are having a substantial influence on our everyday lives, human labor force, manufacturing, healthcare, and facilitating new industries. Across all industries, robots are making a profound impact. Shortly, robots will become more prevalent in our everyday lives, affecting economic development and changing the industrial structure.

Robots will work with us side by side

The robotics industry is one of the rare technologies that can produce the same impact as the Web Revolution. Several decades from now, robots will be as ubiquitous as today's computers and may even change the future. Many companies are relying increasingly on robots to help with their work, such as Apple, Lenovo, Tesla, Foxconn, etc.

Robots will assist the disabled in performing basic tasks like shaving or cooking without the assistance of family members or caregivers. Humans are no longer the only members of society. Robots will become our colleagues, applying for jobs based on their skills and changing society's status quo.

Robots will significantly improve productivity

Some countries are already experiencing an aging society, and the number of workers is decreasing. By using robots, it will not only solve the labor shortage but also increase labor productivity.

The future will see better use of robotics, resulting in more and more jobs being replaced by machines. With the changing division of labor, human workers will have less work to do with the advent of service robots. People will be more inclined to work in design and management. Automation of many specific tasks will result in higher productivity since robots are more efficient than humans in many particular situations.

People will have more time for studying and leisure, making our lives more enjoyable.

Robots will change manufacturing competitiveness

A robot-based manufacturing system might be a more competitive alternative to outsourcing to low-wage nations. The Chinese manufacturing, for example, has always made up a large share of the global market thanks to lower labor costs. The United States is aggressively using robots in the manufacturing environment to improve productivity, offset high labor costs, and resurrect the manufacturing industry.

Rethink announced in August 2012 that its "Baxter" robot can be programmed directly with little training. Installation and operations costs have been reduced, resulting in more applications for automation technology in the future. By using robots, manufacturing management is becoming more flexible, lean, and responsive to market trends. It is worth reflecting on how China will continue to be a world factory in the future.

Better healthcare at home and in hospital

Healthcare is already benefiting from robotics. A medical robot can improve disease prevention, patient recovery, and even the process of visiting a doctor at a hospital and will provide a broader range of access to medical care. Soon, telemedicine will be available to patients at home.

Presently, robots can serve as a computer to carry out precise and targeted medical treatments. In integrating computers and robots, surgery and interventional radiology may experience the same revolutionary changes as manufacturing decades ago after automation technology became available. Compared to traditional methods, rehabilitation robots are more effective because they allow for more intensive treatments to continually meet the patients' needs.

Robot technology is developing in order to promote home care, delay Alzheimer's disease, provide companionship for the elderly, and alleviate their loneliness as the population ages. Additionally, robotic sensing and activity modeling methods can be precious for early detection, continuous monitoring, and targeted intervention and treatment. By reducing trauma and side effects, medical robots can improve recovery efficiency and speed up recovery times. Interventions at the micro-scale and smart prostheses can reduce the costs and impact of a disability on families, caregivers, employers, and society.

Technological monopoly will appear

"Cloud Robots" was introduced in 2010. The cloud provided a new approach to data management and processing. "Robots are not islands" -this view has received widespread attention from mainstream companies like Google and Cisco. For robots to perform their functions at their best, they must be based on big data and cloud computing. Increasing network value exceeds scaling expansion in cloud computing due to network effects.

In time, artificial intelligence will become smarter as more people continue to use it. A company that enters this virtuous circle will grow so large and develop so quickly that it will become a dominant force in its own right, even among emerging competitors. Due to this, artificial intelligence in the future will be dominated by a limited number of oligarchs, and cloud-based multi-purpose commercial products will dominate the market.

RELIGION OF WORDS

The religion of words,
Heeds no last name...
Alike it belongs
To the king, to the slave.

True literature has only one creed,
Inherited by the ones, the ones who feel
And limned on paper, portraits in written ink
Sometimes making us laugh, sometimes think
Or sometimes turn off lights and weep
Harking back stories from memory's keep.

The religion of words
And the others aren't same,
Alike it belongs
To the king, to the slave.

Binu Balachandran
S8 ME, BMCE Sasthamcotta

Power System Communication in KSEBL

KSEBL is taking care of almost power necessities of Kerala by doing the business of Generation,

Transmission, and Distribution of electricity. KSEBL also performs the activities of State Load dispatch Centre. The power transmission network, which is usually represented by 'Grid' is a cluster of interconnected Extra High tension (EHT) transmission lines and that are again tied to National grid though interstate transmission lines. The power flow is regulated by load despatch centres working across the country in hierarchical pattern, whose apex centre is National Load Despatch Centre (NLDC), which is situated at New Delhi. Under NLDC, there are 5 Regional Load Despatch Centres (RLDC) across the country and last level is State Load Despatch Centres (SLDC). The SLDC of Kerala is situated at Kalamassery. All the activities of Load Despatch Centres – NLDC to SLDCs - are being performed with the support of Communication and SCADA (Supervisory Control and Data Acquisition) System. Through SCADA system real time data of all Generating stations and EHT Substations are available in the Load despatch centres. The voice communication between Loadd espatch centres, generating stations, Substations are also being performed through this communication network. A high bandwidth, utility owned, dedicated communication system across the country is the backbone of all above activities.

Other than the above-mentioned application, dedicated communication system between Sub stations is necessary to perform EHT transmission line protection function, which is also known as Tele protection of feeders. Automated load shedding or demand side energy management, automated energy meter reading etc. are additional applications of power system communications.

Power Line Carrier Communication (PLCC)

From the beginning of power system, PLCC employed a vital role in the power system communication applications. The telemetering systems provided in the earlier period for assisting load dispatch operation was through PLCC. Voice communication between Load despatch centres and generating stations/Substations were also performed through PLCC. PLCC communication was the only mode of communication even in 1990s at remote generating stations like Sabarigiri and Poringalkuthu stations. At present the use of PLCC is almost limited to EHT line protection applications.

PLCC is working in single side band amplitude modulation with suppressed carrier technique. The modulated carrier signal is transmitted through power line using suitable coupling devices. 50-500kHzbandwidth is allocated internationally for power system applications. Several

channels can be transmitted through the same power line by selecting different frequency bands. The necessary interfaces for transmitting protection sign alling, data communication and voice communication are inbuilt in PLCC equipment.

The main advantage of PLCC communication over other communication is its capability of transmitting for long distances (even up to 600km) without repeaters by selecting suitable frequency and power output. Hence PLCC is still relevant in transmission line protection applications for long lines. The main disadvantage is low bandwidth and hence not useful for bulk data communication applications. Low signal to noise ratio, which is the inherent nature of analog system limits its application for using in multiple links having repeaters.

Now, digital PLCCs also available to overcome the above problems to some extent, but its growth was arrested by the introduction of fibre optic systems for power communication applications.

KSEBL is presently using PLCC (both digital and analog) for protection applications, mainly on inter state transmission lines. There is also some limited application of PLCC in KSEBL for voice & data communication, where optical communication system is not available.

Optical fibre communication

KSEBL has been using optical fibre communication from the beginning of this century when Govt ofIndia implemented Unified Load Despatch Centre project. Microwave systems also implemented in this project, but later discarded due to spectrum constraints and with the availability of cheaper and highly feasible optical fibre communication. In the beginning, All Dielectric Self Supporting (ADSS) cables were used. This is drawn on the EHT transmission tower and its position is fixed in the area where the electromagnetic field density is minimum. The economic and technically feasible use of optical fibre is achieved by the development of Optical ground Wire (OPGW). The OPGW consist of bunch of optical fibres for communication and stranded earth wire for carrying ground current. Both are arranged in such a way that there will not be any fibre strain or damage under normal working conditions. The EHT line can be constructed using OPGW as ground wire or the existing ground wire over the EHT line can be replaced with OPGW. The replacement of ordinary ground wire with OPGW can be done without taking feeder shut down and this advantage made faster growth of OPGW in power sector. At present KSEBL has around 3000 km OPGW network and still growing.

The optical fibre communication can be established with the help of selecting suitable Fibre Optical Terminal Equipment (FOTE) which are to be connected between fibre ends. The selection of FOTE is based on technology, bandwidth, and distance. The existing optical fibre communication system is of Synchronous Digital Hierarchy (SDH) technology with backbone network bandwidth of 626Mbps. Now this network is being modernised to 10Gbps capacity using MPLS technology with ring topology.

At present all new transmission line protection relays at both ends of a feeder will have optical fibreports for intercommunication between relays. The fibre inside the OPGW can be connected to feeder protection equipment to achieve tele protection of transmission lines. KSEBL is now implemented a number of EHT line protection systems through optical fibre. Line differential protection for long line, which is an innovative concept in power system also established by KSEBL in 2020.

GPRS based communications (Mobile communication)

GPRS (General Packet Radio Service) communication is basically used for data collection from energy meters and feeder tripping applications in the High tension (HT) (up to 33kV) feeders. The usage of leased line communication like GPRS is not permitted for system critical application like SCADA system for load despatch and EHT feeder protection functions by central Electricity Authority (CEA) due to various security reasons. KSEBL has implemented automated load shedding module for tripping 11kV feeders from various EHT substations across the state by using GPRS system, which is being controlled by SLDC for demand side load management. In Automatic Meter Reading (AMR) application, distribution SCADA system etc. GPRS based system are being used by KSEBL.

The power system communication system of all utilities in our country are established, maintained, and upgraded as per the communication standards with latest amendments issued by CEA.

Sanal kumar K, FIE
Chief Engineer, KSEBL(Rtd)

A poem on rain-

A FALL TO MIND

The drops of water pelt,
In their hearty clan.
And from the way it felt,
My mind had a new plan.
Steering through the puddles,
Inviting a drenched demon,
I jumped into the cuddles
Of my fluffy fabric.
Every debris washed away,
The aroma of rain swept in,
A small yet bright light ray,
Peeps in through every sin.

Rasha Ameena

Top Impacting Factors, Growth Strategies, and Forecast for AI in Pharmaceutical Research in 2029

ALVIN THANKACHAN

To obtain useful insights into these industry indicators during the forecast, the Global AI Technology in Pharmaceutical Industry examines historical development.

The CAGR forecast for the industry is presented as a percentage over a specific time frame. In order to analyze the regions and sectors, bottom-up and top-down methodologies are used to examine the industry at both the microscopic and macroscopic levels. By dividing the organisation into marketing, sales, revenue, R&D, and other structural components, they can be looked into. Using particular methodologies, the research gives buyers a thorough understanding of the industry, enabling them to plan their businesses accordingly. The report's possibilities for the AI Technology in Pharmaceutical Industry include possibilities drivers, restraints, and obstacles discussed in the report. The scenario of the current industry is described, along with anticipated trends that will meet the requirements of the final consumer.

The customer receives assistance by the value chain investigation to gather information about the market's intermediaries for AI technology in pharmaceuticals and different raw materials, offering value chain features price and analysis. The study provides a thorough examination of a wide range of important variables responsible for the growth of the artificial intelligence (AI) sector in the pharmaceutical industry. An important analysis of the customer journey is included in the worldwide market studies regarding AI technology pharmaceuticals to help decision-makers show an effective strategy to increase the number of views that become customers. Probabilistic analysis, which is essential for assessing a participant's effectiveness in the global industry for AI Technology in Pharmaceuticals, has an effect on the company's growth and development.

To thoroughly and deeply study and reveal AI Technology in Pharmaceutical commerce views and profiles, the report further segments the market by applications and type. The research looks into each factor driving the worldwide industry for pharmaceutical AI technology in the specified geographic area. These variables include the rate of GDP development, the rate of inflation, macroeconomic and microeconomic variables, consumer spending patterns, and scenarios involving Industry demand and supply. The study also assesses the state of the industry today and performs a value chain analysis of the products and applications.

Analysis of important areas has provided the record with a global perspective, specifically:

North America (United States, Canada and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East) This report includes price-volume analysis and value chain features of the products offered by these players:

- IBM
- Google
- BenevolentAI
- InsilicoMedicine
- Atomies
- GNS Healthcare
- Cloud Pharmaceuticals
- Exscientia
- Cyclica
- Recursion
- Iktos
- Auransa
- InveniAI
- Deep Genomics

The worldwide AI Technology in Pharmaceutical market is separated by type into
Drug Discovery
Drug Production
Drug Sales
Optimisation of Clinical Trials

Learnings from the Industry Study in terms of Information to support your internal and external presentations, the report can offer reliable, top-notch data and research. There are various business segments. Depending on the type, size of the organization, end-use sector, region, and component. Thanks to the research report on the market for AI technology in pharmaceuticals, customers can continue to compete in their respective industries. A number of risk variables that might restrict market expansion during the analysis time frame are thoroughly discussed in the research. This research is a helpful resource for current participants, recent entrants, and prospective investors. The industry is segmented by end users, which also concentrates on the size, sales volume, growth rate, and market share of the global AI Technology Pharmaceutical. Furthermore, the study is divided into distinct product groups according to each product's revenue, price, output, growth rate, and percentage of the market. The report also centres on outstanding business choices, forward-thinking inventions, and significant growth initiatives going forward.

HOPE, THIS TOO SHALL PASS

This sunrise may not meant for you,
And your shadow may not rise for you.

All your surrounding is dark drown,
And your connections are clowning you as clown.

But;
Don't step back as a witters,
'Cause this too shall pass.

Once a pain can hurt,
But the same can be an ART.
Hope; be you, will trust.

Almiya

FROZEN STIF

On a leaning chair, staring heavenwards,
Eyebrows knitted together in squinted gaze
With the lower-lip bitten,
Showing a pensive face, sifting through
The trash-can of all vocabulary
She's ever known, to put down in verse
What she can almost envisage
On a blank, fresh, new and ruled page
That challenges her in unseen ways
Even as it rests awry in her
Left hand, hankering for
The ink's taste, eying lewdly
The pen that in her left hand, sways
Knowing it's of no use
On nights like this,
Given that her creativity
Is frozen stiff.

Binu Balachandran
S8 ME, BMCE Sasthamcotta

Wellbeing - Is life a synonym of anxieties and stress?

Saniya ShajiKani

We live in a world full of anxieties and stress. I can bet that there is not a single person who doesn't worry about anything in a day. It could be a small problem or maybe big. As a 17yr old girl and as a bookworm who dedicated her school life mainly to score marks and become the top of her class I am 100% bold to say that I haven't lived my life to it's fullest yet. It's not because of studies but the way I approached it. But that doesn't mean I hadn't had any fun. There might be many students like me out there who are so focused on cracking exams and to become No. 1 and thereby making their parents proud and are studying just like their life depends on it. I am writing this for them and for people who are trapped in the everlasting cycle of problems and issues and who are forgetting the true meaning of life.

Firstly I have to tell you that no matter how much you work hard how much efforts you have put to live a perfectly perfect life, the problems in your life is never gonna end until you die. Day by day you will be faced by challenges risks failures and moments where you just wish that you were dead or if the world could just end. Trust me if you are only focused on the negatives of all these and decides to carry it as burden then I can assure you that you are gonna live a dead life. Just like we say no man is perfect I gotta tell no life is perfect too. If you are envied by a celebrity who lives his life in fam and money and wished that if you were him or her then believe me they are going through stress and tension on their own.And also there are no two persons who became successful in their lives by following same two paths. Each and every person succeeded in their life have their own unique way of struggles failures anxieties. The first thing is you are alone in your life no matter how much people you have how many friends you have or how many relationships you have. I know at times life is hard but it's just not it. See we have seen people who love aerospace and says it's simple whereas if asked to some other person then he would say it's the hardest. Know why because he didn't understood it well. I know I am making it connected to studies. Sorry out of habit. But the point I am trying to make here is that nothing in life is hard it's just the perspective of yours that's gonna decide what effect it's gonna have in you.

In every sadness there can be happiness and in every happiness there can be sadness too.So my point is you seriously don't know what is gonna happen tomorrow unless you are a time traveller or something, the past is gone too. So you only have the present with you. Think of how could you maximise it to its fullest. Play if you want smile if you cry if you want. No situation is the end, everything is just the beginning of some other new things.

During my class 10th I have pressurized myself so much to get full marks for every subject so that my mom can be proud although she have never ever pressurized me to do so. And during 12th I studied for my higher studies admission and for mom. But something happened to me at that time...a miracle or an enlightenment you say...it was during my class 12th that I realized the true purpose of studying. Till then I studied just for marks... But at some point I understood that gaining knowledge, understanding it realising itsimportance and how we make use of it in our life can give us happiness of some extreme level. That was the moment I fall in love with Studies.

The first promise I made to myself as I stepped into college was that I am definitely not gonna spend my 4years entirely to studies but also to develop my passion, skills and also to have fun which I haven't done a lot.

Realise that there is no one better to understand you than yourself. Your thoughts, stress, anxieties comes within you and you are the only one who could realise its causes and find solution to it. Take up risks say yes to challenges seek opportunities where you can prove to the world your potential and moreover to you. Thinking about problems and its details is not gonna solve it. But thinking about its solutions can erase the problem from you.

Each and every stage of your life comes with happiness, sadness, problems, pressures, success friendship, love, family etc. But just like that it definitely teaches you lessons that you can learn so easily by simply looking at them. Remember every cloud has a silver lining. So whether the situation is of any type the one thing that it's definitely gonna make you is stronger. Enjoy the little moments in your life the moments with your friends, families and do things that makes you happy. Having millions of dollars in your account might buy you things that could give you happiness but I can bet you that they will be temporary. Having people who truly loves you for who you are and supports you and point out your mistakes and corrects you is what actually makes you rich.

Having dreams and goals is essential but sacrificing yourself for it, is the dumbest thing. Try your best and put all your efforts in it but never let your goals be a reason for your dismay. If you fail try again, if you fail again try again as long as you want to. There is no right time, right age or right moment. The one thing that you truly owns is your life never let it to drown in a negatives and pessimisms. Fill it with happiness and memorable moments. Be what you want to be, live the life how you want it to be and try seeing everything with an optimistic point of view. Your marks or your success is not gonna define you. You are defined by your personality. Decide how you want it to be.....

Arun K. Balan

Ambient Air Quality Monitoring Station (AAQMS)

Ambient Air Quality Monitoring Station' (AAQMS) aka smart environment sensors will gather data about pollution, ambient conditions (light, noise, temperature, humidity), weather conditions, levels of various gases (pollution) and any other eventsin the city on a predefined interval. It is for the information of the citizens and administration to further take appropriate actions during the daily course/ cause of any event.

These smart environmental sensors are being installed and implemented across Thiruvananthapuram. Working as the project engineer for the implementation of Ambient Air Quality Monitoring Stations at various parts of Thiruvananthapuram, I am delighted to serve my contributions for developing a smart and sustainable T'puram. Installations, testing and commissioning goes on brisk-pace and it will go live soon.

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ATTRACTING 'NEWGEN-ENGINEERS' INTO IEI-FRATERNITY: NEED for PROACTIVE STRATEGY

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Engineering as a profession is facing unprecedented challenges to its very survival as a desired profession, in the recent times. Many reasons are raised for this trend: Main among these are the over-supply of B.Tech/BE graduates owing to the mushrooming number of Engg: Colleges, in addition to a limited number of AMIEs(Pass in Section A&B), making most of them scouting for jobs, even clerical or/and unskilled. This pathetic situation arose about two decades ago, when there was a boom in demand for Engineering Graduates from the then sun-rise sector of Computer Software Industry and IT Parks which house such industries in Cities mostly like Bangalore, Trivandrum, Hyderabad, Delhi, etc., where young graduates yearned to get employed, though there is little Engineering per se in the software industry except the supporting Hardware Industry which itself is not a big employer, as most of the assembling work was done with imported components and parts. For example, no largescale Chip production facility is in India now nor Lithium-based storage -battery plants to battery-packs to Computers, Laptops and mobile phones due to paucity of huge Capital Investment! Earlier Automotive manufacturing Industry was like this; but of late, we are exporting Passenger Vehicles and Commercial Vehicles sans Electric Vehicles. Civil Engineering was a Core area where employment had boomed which too is on the decline with shortage of materials like, fine and Coarse aggregates and advent of prefabricated structures. Electrical manufacturing Industry is also highly dominated by China and South East now.

In this scenario, the Agencies supposed to regulate Engg: education, like AICTE &UGC/ NAAC were giving lop-sided priorities shutting eyes to the real world-scenario! Result is there are more than 500 to 700 Engineering Colleges offering B.Tech/BE in TN and Andhra-Telengana, Mahrashtra, Karnataka states and about 160, in Kerala awarding Engineering Degrees without any employment potential!

The practice followed by Institute of Chartered Accoutants of India, a Statutory Professional body of Competent Acountants to Audit and Certify Company Accounts which is made compulsory by The Companies Act of India might be guiding procedure to follow. They conduct Examinations (similar to AMIE); butpasses (around –25%) only about the required number of ACAs, each year. More or less similar is the Co: Secretaries Examinations by their Institute(ACS). For Architects, which was earlier part of IEI, Statutory status is now there, making 'Aptitude Test in Architecture' compulsory for admission to B.Arch:

But for the Core Engineering Courses even those with 10% marks in Mathematics, manage to get admission to B.Tech: Degree courses in Kerala, though there is a Common Admission Test! This is corroborated by the fact that most of the passing out B.Tech:s ' do not get appropriate employment! Or the potential employers don't approve their fitness for Engineer-jobs, not only in India but outside the country as well!

In this Scenario, 'AMIE' of The IE(I) may help to establish their professional fitness, as about 26 Countries have recognized AMIE for 'graduate Engg' jobs. If it is M.I.E. it is still more acceptable and also FIE. There is also P.E(Professional Engineer) Examination of IEI, which is more valuable for employment including teaching in U.K and N.American States. But the Approval of Govt: of India, thru' their Agencies mentioned has been in limbo for about a decade, and presently it is granting Certificate of AMIE(Sec: A&B) pass is awarded on the strength of Supreme Court's Interim Injunction of withdrawal of approval, which it was enjoying since……being a Chartered Professional Body since……,akin to UK' and other Common Wealth's nations' Engineering Professional Bodies. This is a powerful promotional message of IEI, that could be effectively deployed among young Engineers, both employed and those waiting for employment.To start with let us think of taking this message to all the 150 and odd Engg: Colleges now working in this state, with average enrollment of around 50/200/150/……. each, in the area of each Local Center of the IEI in Kerala. For this, the infrastructure Support like Vehicle/s, O.H.Projection facilities, hand-outs etc could be mobilized with the active co-operation of the Local Centre, concerned. Members available at the College may also be included in this mission. High Tea/Lunch may be offered from IE's own Funds to the participating Students & Faculty. Students in the Pre-Final & Final Semester may be invited in the first round. Some presentation materials like ppt:s are available from IEI-HQ and also from Palakkad Centre, as we had used it earlier (during my term of office).

This way students may be apprised of the necessity of joining the professional body, for them to get exposure to evolving technical trends, applications and to update themselves of the evolving trends in Engineering/Technology. This may not get from their Class room sessions. Students' Chapter may be formed in subsequent Second or third meet of the students with a faculty-member as the lead-person and a Contact person from IEI Local Centre.They may be invited to attend the Monthly meet of the Local Centre, as all colleges may have their own Buses. The first step is to meet the Principal/Director and HOD's and also Key Faculty members to enlist their

support, as it was our experience that most of them are not aware of the activities and need of such collectives. One or meetings may be organized at each College each Semester as follow up. In all these sessions one Office-bearer of the IEI must attend and end-of Semester output may be evaluated.

After the 8th Semester, the Student-members could be taken into the Local Centre, as Associate Member, with some incentives offered with the aid of the Local Industries/Firms etc: Some good Student-members may be offered Apprentice-Ship or Trainee status in the local Businesses and Industries, especially in Logistics, Supply-Chain, Materials management, design of component-units and other suitable Systems for each business.

An important point to keep in mind in the present time is proliferation of 'Progressive AI' applications like 'ChatGPT' which could search and scan millions of data/Text pages and write their own version oo any subject be it lectures or Articles in inter-active modes. This is different from the presently available 'Chatbots' and gadgets using Artificial Intelligence and Machine-learning and finally 3-D Printing for production purposes in Factories which all need trained and well-exposed Engineers in the years to come, in large numbers.

NCB/06/23

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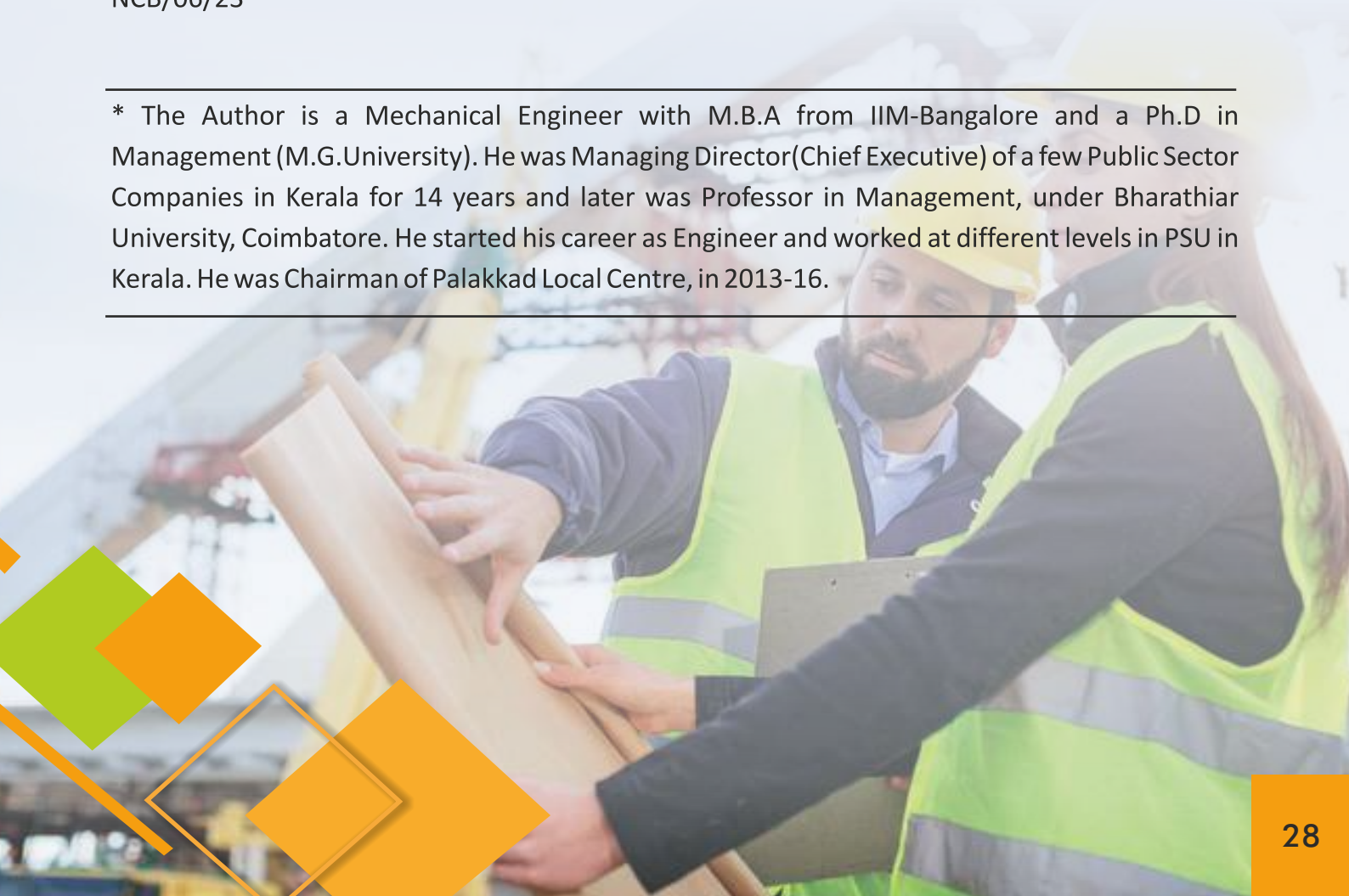
* The Author is a Mechanical Engineer with M.B.A from IIM-Bangalore and a Ph.D in Management (M.G.University). He was Managing Director(Chief Executive) of a few Public Sector Companies in Kerala for 14 years and later was Professor in Management, under Bharathiar University, Coimbatore. He started his career as Engineer and worked at different levels in PSU in Kerala. He was Chairman of Palakkad Local Centre, in 2013-16.



LASER YOUTH

Shallow and still stuck in the woods...
Shallow and still red is my heart.....
Beating slow and hard in sobbing shadow line,
giving all it has to the one that needs all of it.

The bunch that cares the most,
The bunch that be the most;
One that fills the life,
One that lives the dream.

Out in the shadow of disbelief,
I do keep a sign of hopeful lights....
Sprinting off like laser beams,
Scatters all over the horizon of dreams.

Some may give up half way down.
Some will back you all the way up.
We do call them loud always,
louder.louder, Friends always .

KANNAN V J

ഓർമ്മപ്പെടുത്തലായോണക്കാലം

ഒരുമയുടെ പെരുമയുടെ ഓണമെത്തി
ഓർമ്മപ്പെടുത്തലായോണക്കാലം
മനുഷ്യ കുലത്തിന്റെ മാന്ത്രികനായോരു
മാവേലിമന്നൻ ഭരിച്ചകാലം

ചിങ്ങത്തിലെത്തിരി പൂത്തിരി വായ്ത്തിരി
ഒക്കെത്തിമിർത്തിരുന്നോണക്കാലം
മാലോകരൊക്കെയും മാനമോടെന്നാളും
മാനസോല്ലാസമായ് വാണകാലം

മുല്ലയും പിച്ചിയും മൂക്കുറ്റി മന്ദാരം
നീലക്കുറിഞ്ഞിയും ശംഖുപുഷ്പം
ആരുവാൻ പുഞ്ചിരി തൂകിനിന്നീടുന്നു
ഓരോദിനങ്ങളും ഓർമ്മയായി

ആകാശഗംഗയും കാർമേഘവീഥിയും
ആവേഗമേറുന്നു പൂരപ്പൊലിമയും
ഓണത്തിനൊത്തിരുന്നൂഞ്ഞാലിലാടുന്നു
ചിത്തത്തിലാനന്ദം പൂണ്ടിടുന്നു.

എങ്ങും നിറഞ്ഞാടും ജീവിതച്ചുറ്റിലും
വാനോളമെത്തുന്നു വൈഭവങ്ങൾ
വിണ്ണിലെ നക്ഷത്രക്കൂട്ടങ്ങളൊക്കെയും
പാലൊളിച്ചന്ദ്രിക തൂകിയെത്തി

അമൃതകുംഭങ്ങളിൽ വിഭവം നിറഞ്ഞിടും
ആതിരരാവും പോയ് മറഞ്ഞു
പുലർമഞ്ഞുകൊഴിയുന്നു പൂക്കളം മായുന്നു
അലയടിച്ചുയരുന്നു വിസ്മയങ്ങൾ

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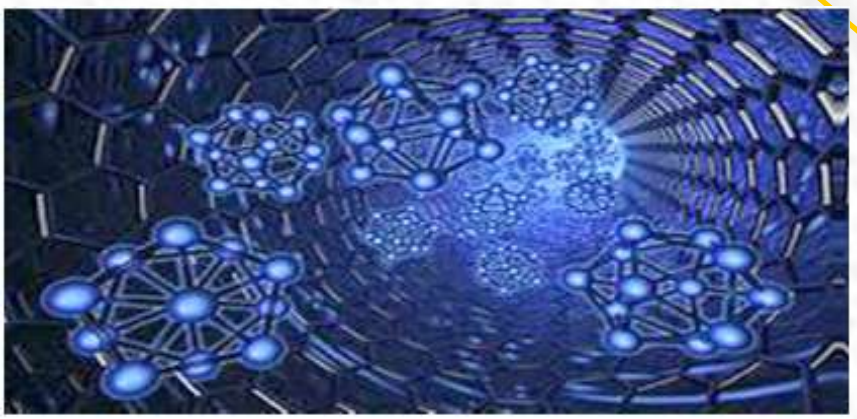


NANO-TECHNOLOGY IN BATTERY BUILDING

What is nano technology and WHY?

Nanotechnology is the engineering of functional systems at the molecular scale. Materials reduced to the nanoscale(very small size) can show different properties compared to what they exhibit on a macroscale. Several phenomena become pronounced as the size of the system decreases. These include statistical mechanical effects, as well as quantum mechanical effects, for example the "quantum size effect" where the electronic properties of solids are altered with great reductions in particle size. Additionally, a number of physical (mechanical, electrical, optical, etc.) properties change when compared to macroscopic systems. One example is the increase in surface area to volume ratio altering mechanical, thermal and catalytic properties of materials.

Two main approaches are used in nanotechnology:

- In the "bottom-up" approach, materials and devices are built from molecular components which assemble themselves chemically by principles of molecular recognition.
- In the "top-down" approach, nano-objects are constructed from larger entities without atomic-level control.

Nano technology has a wide variety of applications in medical, manufacturing, defense, electrical etc.

Most applications are limited to the use of "first generation" passive nanomaterials which includes titanium dioxide in sunscreen, cosmetics, surface coatings, Carbon allotropes used to produce gecko tape; silver in food packaging, clothing, disinfectants and household appliances; zinc oxide in sunscreens and cosmetics, surface coatings, paints and outdoor furniture varnishes; and cerium oxide as a fuel catalyst.

Nanotechnology also has a prominent role in the fast developing field of Tissue Engineering.

BATTERY –THE ENERGY BANK

Every battery (or cell) has a cathode, or positive plate, and an anode, or negative plate. These electrodes must be separated by and are often immersed in an electrolyte that permits the passage of ions between the electrodes. The electrode materials and the electrolyte are chosen and arranged so that sufficient electromotive force and electric current can be developed between the terminals of a battery to operate lights, machines, or other devices.
Since an electrode contains only a limited number of units of chemical energy convertible to electrical energy, it follows that a battery of a given size has only a certain capacity to operate devices and will eventually become exhausted.

RECHARGEABLE BATTERIES -

A rechargeable battery, is a type of electrical battery which can be charged, discharged into a load, and recharged many times, as opposed to a disposable or primary battery, which is supplied fully charged and discarded after use. It is composed of one or more electrochemical cells. . Rechargeable batteries are produced in many different shapes and sizes, ranging from button cells to megawatt systems connected to stabilize an electrical distribution network.

Different types of rechargeable, including:
lead–acid, zinc–air, nickel–cadmium (NiCd), nickel–metal hydride (NiMH), lithium-ion (Li-ion), lithium iron phosphate (LiFePO4), and lithium-ion polymer (Li-ion polymer).

Sodium battery –The sodium-ion battery is a type of rechargeable battery analogous to the lithium-ion battery but using sodium ions (Na+) as the charge carriers. Its working principle and cell construction are almost identical with those of commercially widespread lithium-ion battery types, but sodium compounds are used instead of lithium compounds.

The largest advantage of sodium-ion batteries is the high natural abundance of sodium. This would make commercial production of sodium-ion batteries less costly than lithium-ion batteries.

Capacity of battery is limited in its raw form, but modern technology can increase the charge density, capacity,charging cycle, reduce the weight and environmental pollution.
Li and **Na** based batteries has a potential future in automobiles industries.

How can nanotechnology improve batteries?

Nano tech can improve the performance of batteries in the following way;
Increasing the available power from a battery and decreasing the time required to recharge a battery. These benefits are achieved by coating the surface of an electrode with nanoparticles. This increases the surface area of the electrode thereby allowing more current to flow between the electrode and the chemicals inside the battery. This technique could increase the efficiency of hybrid vehicles by significantly reducing the weight of the batteries needed to provide adequate power.

Increasing the shelf life of a battery by using nanomaterial's to separate liquids in the battery from the solid electrodes when there is no draw on the battery. This separation prevents the low level discharge that occurs in a conventional battery, which increases the shelf life of the battery dramatically.

Using films of carbon nanotubes to make high-powered, fast-charging lithium metal batteries is a logical replacement for common lithium-ion batteries. Thin nanotube films effectively stop dendrites that grow naturally from unprotected lithium metal anodes in batteries. Over time, these tentacle-like dendrites can pierce the battery's electrolyte core and reach the cathode, causing the battery to fail.That problem has both dampened the use of lithium metal in commercial applications and encouraged researchers worldwide to solve it.Lithium metal charges much faster and holds about 10 times more energy by volume than the lithium-ion electrodes found in just about every electronic device, including cellphones and electric cars.

Nano batteries -

Nano batteries are manufactured batteries utilizing innovation at the nano scale, a size of minute particles that measure under 100 nanometers. Nano batteries are for the most part portrayed by three segments: cathode, anode, and electrolyte. In lithium particle batteries the anode is quite often graphite, so most research is being done on the cathode and electrolyte materials. By lessening the extent of the materials utilized as a part of a nano battery, higher conductivity can be achieved, prompting an expansion in control, in both charge and release. Nanoscale batteries can be combined to function as a macrobattery such as within a nanoporebattery. Thenanobatteries were fabricated by atomic layer deposition to make oxide nanotubes for ion storage inside metal nanotubes for electron transport, all inside each end of the nanopores. The nanobatteries have longer battery lives and wider operating temperatures and hold a great potential in the coming years.

MY CONCLUSION

By 2045, the world will be far along the way toward a green modern future with sustainable fills giving the main part of our vitality supplies. The request of vitality is developing with increment in populace. To satisfy these necessities nanotechnology is the best innovation in light of it is green innovation. Underway of energy source we can utilize Li-particle innovation, Nanobattery innovation, Nano-phosphate innovation and so forth. A considerable measure of battery imaginative work is in advance, both in the insightful world and industry, to deal with the interest for electric vehicle applications. With respect to arranging and making cathode materials, nanotechnology-based systems have indicated different points of interest for upgraded imperativeness, control thickness, and security.

Hemanth P M

Is MBA in Construction Project Management a great career choice for Civil Engineers?

MBA in Construction Project Management is a multi-disciplinary stream of specialization focusing on tools, techniques, methods and management, risk aspects, development aspects, statutory requirements, legal framework, business environment, infrastructure, funds and finance, valuation, marketing etc.

MBA in Construction Project Management: Why and what it is?

Every sub-discipline of Civil Engineering whether it is Structural Engineering or Water Resource Engineering is equally important in creating world-class infrastructure and urban development and has a specific role in the project life cycle right from the concept stage to handing over of the project to the client.

For example, the structural engineer shall involve in the structural design of the project once the concept and architectural designs are finalized. So their major contribution is during the concept and pre-construction stage of the project life cycle. However, once the design is completed their role is very minimal in the remaining stages of the project. Such disciplines are more focused on the technical aspects and not the management aspect of the project.

For example, a structural design firm with the advancement of tech tools can handle multiple projects with just a handful of experts. Their career growth is slow and for years and years, they may work as a junior structural engineer or senior structural engineer. Same is the case with other sub-disciplines of Civil Engineering as well. This leads to minimum employment opportunities.

However, there is one sub-discipline of Civil Engineering which integrates with all other sub-disciplines right from the concept stage to the completion of the project is the 'Construction Project Management.'

More about MBA in Construction Project Management:

MBA in Construction Project Management is a multi-disciplinary stream of specialization focusing on tools, techniques, methods and management, risk aspects, development aspects, statutory requirements, legal framework, business environment, infrastructure, funds and finance, valuation, marketing etc.

The MBA in Construction Project Management course equips the students with a blend of theoretical knowledge and practical skills to manage people and projects within the construction industry.

Looking at the multidisciplinary roles that associated with MBA in Construction Project Management shall play an edge over other sub-disciplines of Civil Engineering in terms of career growth, good remuneration and a significant impact on the welfare of the society.

AKHIL SANKAR
TKM INSTITUTE OF TECHNOLOGY

Arun

Arun

Broken Wings

Break *of* dawn broke the *lulls*
crack *of* dawn jubilated *her* maiden cry.
First comers *lauded her* charm,
tutelaries *ordained her* soul.

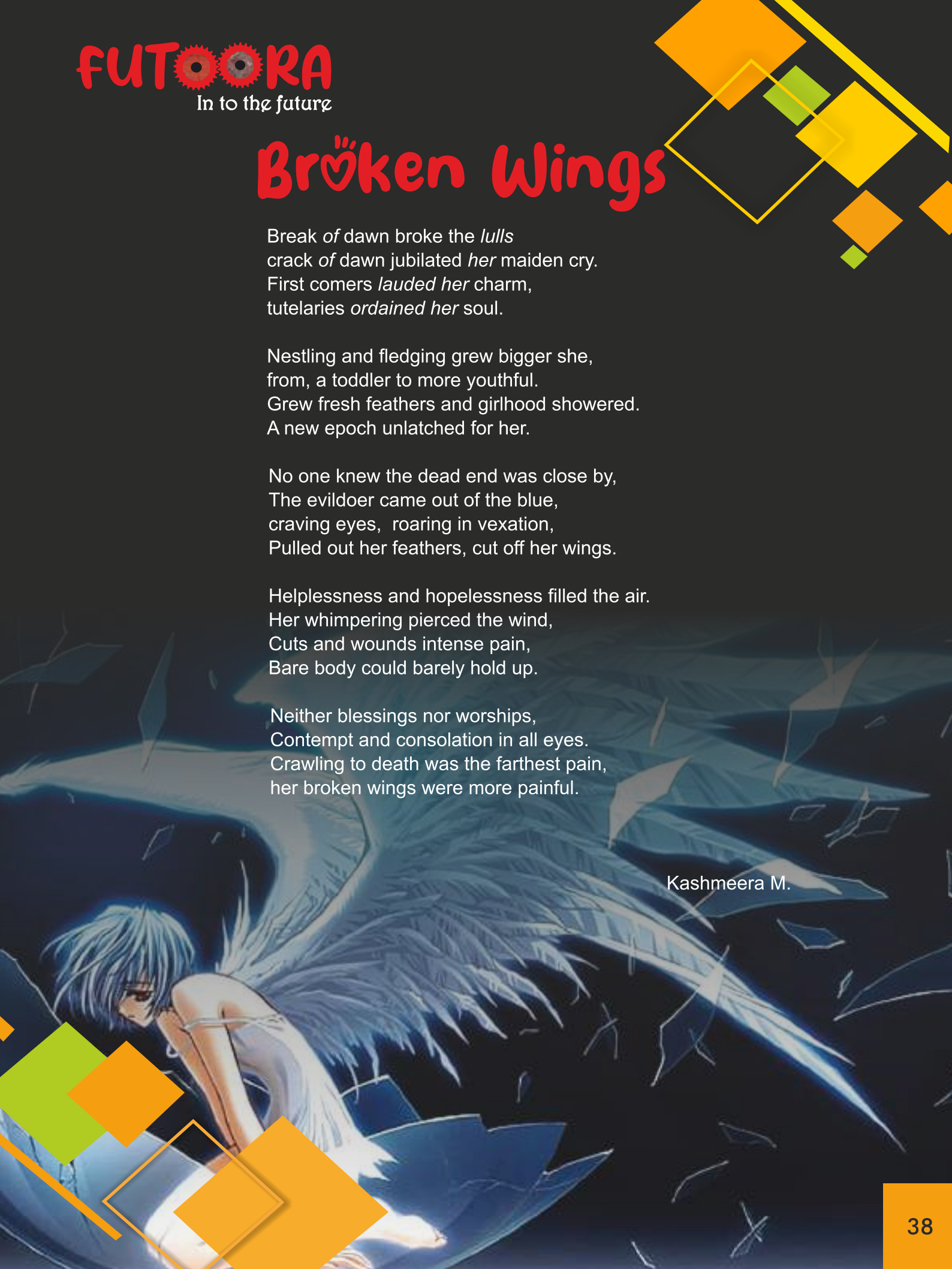
Nestling and fledging grew bigger she,
from, a toddler to more youthful.
Grew fresh feathers and girlhood showered.
A new epoch unlatched for her.

No one knew the dead end was close by,
The evildoer came out of the blue,
craving eyes, roaring in vexation,
Pulled out her feathers, cut off her wings.

Helplessness and hopelessness filled the air.
Her whimpering pierced the wind,
Cuts and wounds intense pain,
Bare body could barely hold up.

Neither blessings nor worships,
Contempt and consolation in all eyes.
Crawling to death was the farthest pain,
her broken wings were more painful.

Kashmeera M.



Anakha S.B.

The Public Library

He opened his eyes, his face was covered with blood, and he stood up and started dragging a body wrapped in plastic. The blood was all over the books while he was dragging, some books fell into the body and noticed that a book was covered with red stain. He took that and enjoyed the smell of blood for a second and dropped it with a devilish grin. Then he pushed the body to a corner which had the beautiful nasty smell of rotten bodies. And then covered it with a heap of books from the shelf. He then headed to find his next pray.

'Sir, I think this is the way hemight have executed these murders but there is a lack of clarity in what weapon he was used', said the Assistant to the investigator; 'this is how the public library, which gives wings to desires of many turned to be a graveyard'.

Investigator asked 'how did you get the information of such a place'? Assistant replied with a proud smile 'From an anonymous call'. Sir, before he arrives here with his another prey, let's inform and ask for force.

Investigator turned to him with a smile and said,' I have already got may prey' The Assistant looked in astonishment, at once he was smashed with an iron rod and he said,' I think you are clarified now'; in a loud voice,' library is not only a graveyard for books but also it can be for humans too'.

Almiya

Revolutionizing Communication:

"The Power and Popularity of Social Media and Networking Technologies"

Social Media and Networking technologies have revolutionized the way we communicate and interact with each other. These technologies have changed the way we share information, connect with friends and family and even do business. In this article, we will discuss the current trends in Social Media and Networking technologies and how they are shaping our world.

The popularity of these has exploded in recent years, with platforms such as Facebook, Twitter, Instagram, and LinkedIn attracting billions of users worldwide. These platforms have become an integral part of our daily lives, enabling us to share our thoughts, experiences, and opinions with others instantly.

Emerging Trends in Social Media and Networking Technologies: Video Content and Messaging Apps Take Centre Stage

One of the most significant trends in Social Media and Networking technologies is the increasing use of video content with platforms like TikTok, Instagram Reels, and YouTube becoming popular destinations for shortform videos on various topics such as entertainment, humor, education, and activism.

Another trend in Social Media and Networking technologies is the rise of messaging apps. The popularity of messaging apps like WhatsApp, Messenger, and WeChat is increasing rapidly, as they offer features such as voice and video calling, group chats, and end-to-end encryption, making them a preferred choice for communication among users, including for businesses.

In recent years, e-commerce has become a major focus for various technologies such as Instagram, Pinterest, and Facebook, which have introduced features allowing businesses to sell their products directly on the platform, making it more convenient for users to discover and buy products. But this has raised concerns over data privacy and security, resulting in increased regulations and scrutiny.

Conclusion

In conclusion, Social Media and Networking technologies have changed the way we communicate, share information, and do business. From video content to messaging apps and e-commerce features, these technologies continue to shape our world in new and exciting ways. However, it is important to be aware of the potential risks associated with these technologies, particularly in terms of data privacy and security. As we continue to embrace Social Media and Networking technologies, it is essential that we do so responsibly and with caution.

Swapna Mercy John
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FUTOORA

In to the future

SEPT

2023

VOL-1

Thank you

A quarterly publication from
The Institution of Engineers (India)
Kollam Local Centre