

EL.COM

A TECHNICAL MAGAZINE CUM NEWSLETTER

EDITOR IN CHIEF

Dr. S. A. PASUPATHY
Head of the Department

ASSOCIATE EDITORS

Dr. B. GOPINATH
Mr. S. BOOPATHY



SPECIAL ISSUE ON **BLOCKCHAIN TECHNOLOGY**

IN THIS ISSUE

**MYTH OF ENGINEERING
ACCREDITATION**

Dr. S. A. PASUPATHY

ROOFTOP SOLAR SECTOR IN INDIA
Ms. PRIYANKA MOHAN

BLOCKCHAIN TECHNOLOGY
Mr. RAMESH BALASUBRAMANIAM

POWERING THE FUTURE
Dr. C. A. RISHIKESHAN
Dr. SHASHIDHARA

BLOCKCHAIN FOR GREEN ENERGY
Dr.S. ALBERT ALEXANDER

BLOCKCHAIN IN FOOD SAFETY
Dr. M.S.K. MANIKANDAN

BLOCKCHAIN EFFECTS
Mr.G.GAUTHAM

**DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING**

KUMARAGURU COLLEGE OF TECHNOLOGY
Coimbatore, Tamilnadu, India

MYTH OF ENGINEERING ACCREDITATION



Dr.S.A.Pasupathy,
Professor and Head

Series #2

The consistent requirement for standardised engineering graduates for global needs made several changes in the accreditation process. These changes are necessary to overcome the mismatch between the skills and knowledge levels of engineering graduates and the industry needs. Subsequently, new standards were arrived to emphasize the articulation of educational objectives, industry connects, outcome based assessment and continuous improvement.

This paradigm shift arrived to the current form of outcome based accreditation in 1996 with a tagline of Engineering Criteria 2000 or popularly Engineering Change 2000 (EC2000). Now under Washington Accord (WA), over 20 countries are permanent signatories and 8 are having provisional signatories. Over the last 20 years post EC2000, it is necessary to analyse the impact on the quality of engineering education or the outcome.

As per J F Volkwein and team (2004) of Pennsilvenya State University demonstrated that the EC2000 has left some positive impact on few criteria and minor impact on few. For Instance, Applying engineering skills, societal and global issues, Ethics and professionalism and group skills showed significant improvement whereas lifelong learning, application of math and science showed marginal impact post EC2000. Although N. Rajae and team (2013) of University Malaysia Sarswak work reinforces the claim of J F Volkwein, it also suggests that the OBE has to be implemented in alignment with the need of a territory.

Although the research design to assess the impact of EC2000 (J F Volkwein, 2004) considered the pre university/college characteristics of students, the accountability of socio-economic status was not very clear. Moreover, to the best of my knowledge, the impact of internet era on OBE is yet to be explored. Further, the data on real outcome of OBE from developing countries such as India and the recent signatories in WA are insufficient to arrive for a conclusion. Nevertheless, the difficulties faced by the developing countries in the implementation of OBE are quite different from the west or developed countries. Therefore, it is highly necessary to customise the OBE to suit the socio-economic and cultural background of the territory. Similarly, the impact of post EC2000 assessment with same scale used in the developed nations may not reflect the true outcome of OBE.

References

- J.F.Volkwein et al., "Engineering Change: A Study of the Impact of EC2000," International Journal of Engineering Education, Vol. 20, No. 3, 2004, pp. 318–328.
- N.Rajae et al., "Towards Accreditation in Engineering Education: A Review on Learning Tools, Pedagogies and Assessment Procedures in Department of Electronic Engineering," UNIMAS, 2nd International Higher Education Teaching and Learning Conference (IHELT), 2013.

ROOFTOP SOLAR SECTOR IN INDIA

- CHALLENGES AND A WAY AHEAD



Ms. PRIYANKA MOHAN
 Director
 KOR Energy (India) Pvt. Ltd.
 Noida, Uttar Pradesh

Rooftop solar sector is going to be vital in achievement of government targets for Solar Electricity Production in India. Many initiatives have been taken by government for promotion in India in recent years. Some of them are:

- 1) Central Agency SECI and various state nodal agencies have come up with tenders for installation of rooftop solar plants at government buildings across country under CAPEX and RESCO model. Incentives are being provided to empanelled vendors under the schemes.
- 2) Central Agency SECI and various state nodal agencies have come up with tenders for empanelling vendors to provide subsidy under CAPEX and RESCO model for rooftop solar installations in residential sector and non profit organisations like schools, colleges, hospitals and religious trusts.
- 3) Many states have successfully implemented net metering scheme and some states are offering generation based incentives for rooftop solar segment.



Still this sector is showing progress at very small pace against what is desired. There is still lack of correct information regarding benefits of solar in residential and commercial segment. Despite having subsidy there is not great interest in private sector for rooftop solar installation.

This is very much evident from allotted verses installed capacity under any capital subsidy scheme for private sector. There is a need for proper information guidance to such interested customer from state or central agency. There is also heavy challenges in approvals related to net metering in most of the states. Even after net metering, there are challenges in availing benefits of net metering in many places due to knowledge or technical issues at DISCOM level.

Even after these challenges, the rooftop solar sector has picked up because of initiatives by state agency. Many rooftop solar installations are expected to come up in most central and state government buildings in coming years. It will help in promoting this in private sector at residences and commercial establishments. There is a need to reward for the people who are early adopters of rooftop solar so as to motivate people to look for solar. There is also need to promote rooftop solar through industry and trade associations at much larger level. We can expect in coming months and years there is much focused approach from state and central agencies and others involved in promotion of this sector leading to greater involvement of public at large in solar movement.

BASICS OF BLOCKCHAIN TECHNOLOGY



Mr. Ramesh Balasubramaniam,
Sr. Architect,
WIPRO Technologies

Blockchain Technology and its Attributes

The Blockchain technology has created a new information distribution which eliminates the need of an intermediary expert. Blockchain Technology is one of the most consistent technologies when it requires to keep track of financial properties. Blockchain technology has attracted many companies who want to add the discrete features to their security structures. Blockchain is simply a distributed ledger distributed across the network among all peers in the network and each peer can hold a copy of that complete ledger. Various attributes of blockchain are,

- **Peer-Peer**-All participant can talk to each other directly without a central mediator.
- **Distributed Nature**-The ledger is distributed across the network which makes altering of data not so easy.
- **Cryptography Security**-Cryptography security is used to make the ledger tamper-proof.
- **Only Addition**-Data can only be added into the blockchain with a time stamp.
- **Consensus**-Instead of having a central authority, any update in the blockchain is validated by the blockchain protocol and added to the blockchain only obtaining consensus among all participating peers.

Working of Blockchain Technology

A five step procedure is followed in blockchain technology as shown in Figure 1. They are of,

1. A transaction is initiated by a node with a secure key.
2. The transaction is propagated using a flooding protocol to all the peers on a network which is validated based on preset criteria.
3. After validation, it is included in a block, which is then propagated onto the network.
4. Now, the newly-created block becomes part of the ledger. At this stage, the transaction gets its second confirmation and the newly-created block gets its first confirmation.
5. Similarly, the transactions are reconfirmed every time whenever a new block is created.

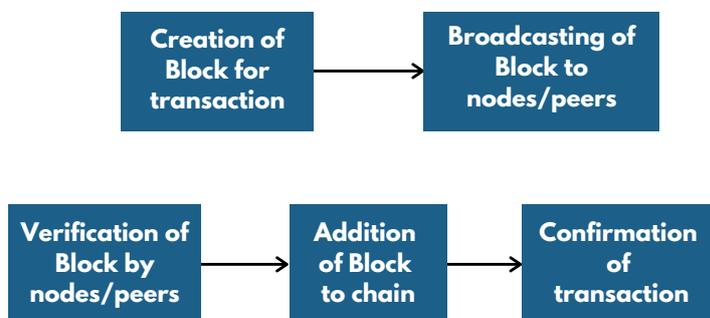


Fig. 1 Working of Blockchain Technology

Application domains of Blockchain Technology

The application of Blockchain technology is not limited only to the finance industry. It has a fantastic future in different sectors such as supply chain management, digital advertising, forecasting, cyber security, Internet of things, networking, etc. Blockchain technology also has a huge prospective to provide the new openings for occupation in the industry. It also enhances the professional's capability to upgrade themselves. With the help of Blockchain technology, it is possible to transform the whole world into a much smaller place. The transactional activities can be performed much faster and efficiently using Blockchain. Implementing Blockchain technology in government system can make their operations much more secure and efficient.

POWERING THE FUTURE THROUGH BLOCKCHAIN TECHNOLOGY

Dr. C. A. Rishikeshan,

Department of Computer
Science & Engineering,
Madanapalle Institute of
Technology & Science,
Andhra Pradesh



Blockchain's transformational potential has been recognized by enterprises and governments across the world. Over 50 countries have already embarked on initiatives to integrate blockchains in their economies and to develop a strong holistic blockchain ecosystem. 2018 can easily be considered a watershed year as far as investment in blockchain companies and start-ups concerned. Global blockchain investments through venture capitalist and initial coin offerings reached over USD 20B and covered a wide range of industries, technologies and use cases.



Blockchain 3.0 provides enhanced interoperability, scalability and security. This is opening up opportunities for blockchain to scale and create real business value. Globally, enterprises have established the potential of blockchain through proof-of-value engagements and by tracking bellwether implementations of peer firms. 70% of enterprise blockchain projects are now commissioned through stringent business case evaluations on cost savings and operational efficiency improvement potential.



Dr. Shashidhara,
School of Engineering and
Applied Sciences,
Computer Science Engineering,
Bennett University,
Uttar Pradesh

Blockchain talent and capabilities, for both foundational platform programming and blockchain application development, are extremely scarce across the globe due to technology nascency and low number of live engagements. Enterprises, governments and providers are investing in innovative ways to build in-house talent.

Nearly half the states in India have initiated blockchain projects to address different elements of citizen service delivery. While most projects are in the pilot stage, the state governments have taken a progressive approach to ensure start-ups and niche providers to have a conducive framework to participate in these initiatives. In addition to the public sector, private enterprises across all key industries in India are also identifying different applications of blockchain. The financial services and insurance (BFSI) sector has seen the highest adoption, but other industries, including healthcare, retail and logistics are also accelerating rapidly.

Indian start-ups have not been able to tap into the global investment surge in blockchain, cornering only about 0.2% of the investments. There is an urgent need for a conducive regulatory and government procurement policy environment to accelerate start-up growth and drive the sector forward. Service providers in India, with their deep enterprise client relationships, are uniquely positioned to address a large share of the global blockchain demand. They will need to invest rapidly in talent development, IP and asset creation and process framework advancement to maximize the opportunity.

POWERING THE FUTURE

CONTINUES...

Blockchain 1.0

The first-generation blockchain platforms were a demonstration in the potential of the technology but lacked key features that could be used to support use cases beyond financial services applications. Key Challenges are,

- Limited throughput
- Slow transaction confirmations
- Pseudonymous network participants
- Limited applicability
- Decentralized governance based on consensus
- No privacy
- Large energy consumption

Blockchain 2.0

The second generation of blockchain platforms were focused on building an adaptable ecosystem that could be used to support the deployment of decentralized applications. Key Challenges are,

- Interoperability between diverse platforms
- Limited privacy
- Limited throughput: The bitcoin network - 7 tps, Ethereum 15 tps, VISA 24,000 tps
- Interoperability
- Governance
- Sustainability

Blockchain 3.0

The third generation of Blockchain platform, which is based on the Directed Acyclic Graph (DAG) principle, presents enterprises with new opportunities to implement Blockchain technology at a large scale due to its ability to overcome the challenges posed by Blockchain 1.0 and 2.0 platforms. Key Benefits are,

- Higher throughput enabling faster transactions - approx. 10,000 transactions per second.
- Interoperability eliminating siloed implementation and enabling industry-wide implementations
- Better security
- More cost-effective
- Lower energy consumption due to miner-less operations
- Better sustainability

There is a shortage of skilled resources with expertise in Blockchain, i.e., there are only 45,000 to 60,000 skilled resources who are industry-ready globally. In India, service providers are finding it difficult to hire resources (especially at the mid or senior level) with expertise and experience in proofs-of-concept, pilots or implementations of Blockchain solutions.

BLOCKCHAIN FOR GREEN ENERGY



Dr.S.ALBERT ALEXANDER

Associate Professor,
Department of Electrical and
Electronics Engineering
Kongu Engineering College,
Erode, Tamilnadu.

What is Block Chain?

Blockchain can also termed as Distributed Ledger Technology (DLT), makes the history of any digital asset unalterable and transparent through the use of decentralization and cryptographic hashing. A simple analogy for understanding blockchain technology is a Google Doc. When we create a document and share it with a group of people, the document is distributed instead of copied or transferred. This creates a decentralized distribution chain that gives everyone access to the document at the same time. No one is locked out awaiting changes from another party, while all modifications to the doc are being recorded in real-time, making changes completely transparent.

Blockchain is more complicated than a Google Doc, but the analogy is apt because it illustrates three critical ideas of the technology:

1. Digital assets are distributed instead of copied or transferred
2. The asset is decentralized, allowing full real-time access
3. A transparent ledger of changes preserves integrity of the document, which creates trust in the asset

How Does Blockchain Work?

Blockchain consists of three important concepts namely, blocks, nodes and miners.

1. Blocks

Every chain consists of multiple blocks and each block has three basic elements:

- The data in the block
- A 32-bit whole number called a nonce. The nonce is randomly generated when a block is created, which then generates a block header hash
- The hash is a 256-bit number wedded to the nonce. It must start with a huge number of zeroes (i.e., be extremely small). When the first block of a chain is created, a nonce generates the cryptographic hash. The data in the block is considered signed and forever tied to the nonce and hash unless it is mined.

2. Miners

Miners create new blocks on the chain through a process called mining. In a blockchain every block has its own unique nonce and hash, but also references the hash of the previous block in the chain, so mining a block isn't easy, especially on large chains. Miners use special software to solve the incredibly complex math problem of finding a nonce that generates an accepted hash. Because the nonce is only 32 bits and the hash is 256, there are roughly four billion possible nonce-hash combinations that must be mined before the right one is found. When that happens, miners are said to have found the "golden nonce" and their block is added to the chain. Making a change to any block earlier in the chain requires re-mining not just the block with the change, but all of the blocks that come after. This is why it's extremely difficult to manipulate blockchain technology. Think of it as "safety in math" since finding golden nonces requires an enormous amount of time and computing power. When a block is successfully mined, the change is accepted by all of the nodes on the network and the miner is rewarded financially.

BLOCKCHAIN FOR GREEN ENERGY (CONTINUES...)

3. Nodes

One of the most important concepts in blockchain technology is decentralization. No one computer or organization can own the chain. Instead, it is a distributed ledger via the nodes connected to the chain. Nodes can be any kind of electronic device that maintains copies of the blockchain and keeps the network functioning. Every node has its own copy of the blockchain and the network must algorithmically approve any newly mined block for the chain to be updated, trusted and verified. Since blockchains are transparent, every action in the ledger can be easily checked and viewed. Each participant is given a unique alphanumeric identification number that shows their transactions. Combining public information with a system of checks-and-balances helps the blockchain maintain integrity and creates trust among users. Essentially, blockchains can be thought of as the scalability of trust via technology.

Role of Blockchain in Energy

P2P Energy Transaction

Traditional energy trading is managed through a centralized organization. With the access of a large number of consumers, the Energy Internet has become more complicated. If a centralized organization is established, there are problems such as high operating costs and poor information security. If there is no centralized management organization, there will be the problem of distrust of the trading entity. The introduction of blockchain technology into energy trading can overcome these problems. The blockchain-based P2P energy trading model can provide an efficient, inexpensive, open, and trustworthy trading platform for the Energy Internet.

Electric Vehicle

In the area of advocating green travel and energy conservation, the widespread use of electric vehicles will be one of the effective solutions to environmental problems. However, electric car users are facing the difficulty of charging. Compared to gas stations, the number of charging piles for electric vehicles is still small, which is the main bottleneck restricting the widespread use of electric vehicles. At present, there are a large number of electric vehicles charging pile operators and payment platforms; however, the charging standards are not uniform, which brings great inconvenience to users. The unified bottom payment platform built by the blockchain technology is more easily accepted by the public. In addition, the on-time lease of private charging piles based on smart contracts and distributed general ledger technology can also alleviate the status of a small number of charging piles.

In the field of interaction between electric vehicles and the electric grid, there is a lack of V2G (vehicle to grid) incentives, and the use of power battery cascades cannot guarantee the quality of batteries. For example, Energy Blockchain Labs proposed a blockchain-based solution based on the virtual currency incentive mechanism for the electric vehicle's V2G automatic response, battery cell life cycle data blockchain storage, and certification.

Virtual Power Plant

The virtual power plant (VPP) is an important branch of the Energy Internet. The Energy Internet contains a large number of distributed green power supplies. The green power supplies are characterized by randomness, volatility, and intermit entity. VPP can use a virtual control center to aggregate distributed power resources (DERs) and distributed energy storage systems for centralized management and unified scheduling, resulting in a combined structure similar to traditional power plants. It plays a vital role in the aggregation of distributed generation resources and the establishment of virtual power resource transactions.

BLOCKCHAIN FOR GREEN ENERGY (CONTINUES...)

Blockchain technology has the characteristics of decentralization and mutual complementarity, which is similar to the geographical dispersion and scheduling of virtual power plants. However, transaction costs are higher between virtual power plants and users. Moreover, the profit distribution mechanism of each VPP is not open. The two-way choice of information symmetry cannot be formed between distributed energy and VPP, which increases the credit cost in the transaction process. The blockchain technology has its advantages in transaction applications because of its own characteristics, and can provide a transparent, fair, reliable, and low-cost trading platform for virtual power plants. Therefore, blockchain technology is suitable for use in VPP.

Demand Side Response

In recent years, there have been some research results on the supply of auxiliary services on the demand side. The relevant literature shows that demand response services are one of the most economical technical means to meet the real-time backup of regional power grids, and can even provide rapid response services. More trading entities will emerge in the electricity market. However, during the actual operation and implementation of demand response services, the existing market mechanisms still have regulatory problems in terms of supervision, accounting, etc. In the large-scale implementation of demand response services, it will be difficult to achieve low-cost, large-scale participation in user interaction if centralized management and control methods are still used.

Blockchain technology adopts the method of accounting for distributed general ledgers. It can not only solve the problem of false accounting and wrong accounting in automatic demand response services, it can also establish a complete set of traceability systems and supervise the settlement of each participating transaction fund.

Conclusion

The reason why the blockchain technology is hot all over the world is that it can establish reliable trust between nodes in the network, making the value transfer process independent of the central node. The addition or update of network data is accomplished by a distributed node consensus algorithm, which is transparent and can protect privacy. At the same time, the use of encryption algorithms ensures the security of data. Blockchain technology is an operating mechanism that increases the efficiency of value exchange and reduces costs.

ANNOUNCEMENT

THE NEXT ISSUE FOCUSES ON
ROBOTICS TECHNOLOGY

BLOCKCHAIN IN FOOD SAFETY



Dr. M.S.K. Manikandan,
Department of Electronics and Communication
Engineering,
Thiagarajar College of Engineering,
Madurai, Tamilnadu

Blockchain

Technologies have changed the way we live, particularly in our data driven society. Recently, blockchain technology has attracted the attention of industries such as agriculture, cryptocurrency, supply chain, etc. This technology supports a robust information system that removes the risk of single point of failure due to its distributed nature and ensures the integrity of information. Every year, one-in-ten people fall ill and 4,00,000 die due to contaminated food. Many of the critical issues impacting food safety such as cross-contamination, the spread of food-borne illness, unnecessary waste and the economic burden of recalls are magnified by lack of access to information and traceability. It can take weeks to identify the precise point of contamination, causing further illness, lost revenue and wasted product. Therefore blockchain technology can be used to improve food traceability by providing trusted information on the origin and state of food. It ensures the integrity of information regarding food quality and provenance.

Supply Chain

Blockchains have capability of tracking ownership records and tamper-resistance can be used to solve urgent issues such as food fraud, safety recalls, supply chain inefficiency and food traceability in the current food system.

A group of the world's leading retailers and food companies are working with IBM to explore how blockchain technology can be used to make the food supply chain safer. The food chain worldwide is highly multi-actor based and distributed system with stake holders such as farmers, shipping companies, wholesalers and retailers, distributors and groceries. The metrics are stored on an un-editable ledger to ensure fidelity of the supply chain from producer to consumer. This ledger will serve as a transparent database, allowing food companies to leverage analytics to know their supply chain bottlenecks, efficiencies and areas for transformation.

Food Safety

In the case of the global food supply chain, all participants can gain authorised access to known and trusted information regarding the origin and state of food for their transactions. Blockchain stands to reduce these unfortunate and preventable incidents in three ways:

1. by providing consumers with transparency that the foods they are eating match the ingredients on the label
2. by capturing any event in which the food may be tampered with at any point in the supply chain, and
3. by enabling retailers to pull potentially hazardous foodstuffs from shelves given any incident.

This can enable food providers and other members of the ecosystem to use a blockchain network to trace and remove contaminated product the store shelves and stem the spread of illnesses.

Payments

Blockchain stands to transform payments in the food industry. Food producers, many of whom sell their items at commodity rates, would be able to demonstrate proof of sale instantly using blockchain technology. Similarly, food distributors would be able to make payments to producers with greater ease and trust. Blockchain technology also has the potential to cut out middlemen and lower transaction fees, another promising development for small- or medium-sized food producers.

BLOCKCHAIN EFFECTS



Mr. G. Gautham,
Third Year ECE,
Kumaraguru College of Technology

To an extent, all of us are aware of many mysteries happening around the world. However, with current pace of technological developments, we have no clue on predicting the future technologies. The word BLOCKCHAIN has been widely used and perhaps, people may consider us as illiterate if we do not pretend to show as if we know in-depth of it. So, this article aims to provide some fundamentals of Blockchain effect. Blockchain, is an ever growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data. Blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority.

A blockchain is a distributed, digital ledger which keeps the records of all transactions in a series of blocks. It exists in multiple copies spread over multiple computers, which are also called nodes. The ledger is secure because each new block of transactions is linked back to previous blocks in a way that makes tampering practically impossible. As it is decentralized, it does not depend on any single entity (like a bank) for safekeeping. The nodes connected to the blockchain network get updated versions of the ledger as new transactions are made. The multiple copies of the ledger are the “truth” about every transaction made so far in the blockchain. Trying to falsify the ledger would mean having to falsify the copies at precisely the same moment. The chances of being able to do this in blockchain networks of any useful size are negligible.

The Blockchain technology’s effect is reverberating from E-commerce, cloud computing to social networking and has strong dependency in satellite missions. Although many startups are aspiring to crack the internet industry, it is still controlled by large corporates such as Amazon, Facebook, Google,. Since internet is controlled by big players, startups are focusing on next technology, space chain to follow the path of Both Elon Musk’s Space X and One Web which are planning to launch their own constellation of low-orbit satellites to create a worldwide broadband network. Zheng thinks that space – the so-called final frontier – can play a role in the development of the blockchain industry. The purpose of controlling this mode of transportation is the way to drastic collection of data from the receiver in such a way that no one can access the data without submitting legal records to the committees and advisory.

Blockchain Vs Space chain

Space chain is considering a subscription-like model where developers pay for storage space on the satellite and certain functions of the operating system’s API. Creating a token economy with crypto-coins – tentatively dubbed SpaceCash – is another option, though that’s still a work in progress. Generating enough profit to cover satellite maintenance and operating costs will be daunting, but for now, it doesn’t seem to be a top concern. It is that when we are aware when blockchain resembles to an agreement signed off to encryption of data.

In a nutshell, this is the technology that has been made to establish the major effect on future fictions that has been a great gateway to agreements and the old culture of signing off Treaties....

FACULTY OF THE ISSUE



Prof. R.KARTHIKEYAN

Prof. R. KARTHIKEYAN, is working as an assistant professor and has 10 years of academic experience at KCT. He completed his M.E degree in 2009 from SSN College of Engineering, Chennai and is pursuing Ph.D. (Part-Time) from P.S.G College of Technology under Anna University, Chennai. His research area includes antenna design, communication engineering and autonomous mobile robot navigation.

As a Co-Investigator, he has received a grant of Rs.3.79 Crore from Ministry of Electronics and Information Technology (MeitY) in the academic year 2019-2020 for the project entitled “Development of Autonomous Multipurpose Agricultural Robotic Platform”. As a Principle Investigator, he received a grant of Rs.0.75 Lakhs from KCT under Phase II – Management Funded Research Project in the academic year 2016-2017 for the project entitled “Design, Fabrication and Testing of UWB Antenna array with multi-Band Notching characteristics for PAN Applications”. Various organizations invited him as a guest speaker to deliver technical lectures. He has published many research papers in International Journals, International and National conferences.

He is the recipient of KCT’s prestigious “ENGAL AASAN AWARD” consecutively for four years from 2016 to 2019. Also, he received “KCT Best Academician Award - ECE”, “Award of Merit – Teaching”, “Award of Merit - Student Development”, “Special recognition award for placement activities” during his tenure.

He is a HAM with callsign – VU3KEE and incharge for HAM Club of Kumaraguru institutions. He is live in HAM - VHF band. He consistently motivates students to become HAM License holders. He volunteered during GAJA Cyclone - 2018 disaster management (communication team) at Karaikal district and received an appreciation certificate from Karaikal District Collectorate, Government of Puducherry. He had taken 3 teams of Kumaraguru HAM Club to “LAMAKAAN Annual Radio Convention - 2019” held at Hyderabad and won the second and third Prizes for FOXHUNT Event.

He is the President of NATPU KARANGAL TRUST – A eleven year old NGO with motto “Learn and Earn to Live and Serve”. Its Primary objective is to support primary school education at backward areas. His spouse Mrs.T.Sowbarnika, M.A, B.Ed, M.Phil., is a Teacher. He is blessed with two children Master K.Bragadesh and Master K.Rajaraajan. His Father Mr.M.Ramanathan is a retired revenue inspector and Mother Mrs.M.Vaidheeswari Ramanathan is a retired Teacher. His elder sibling Dr.R.ArulPrakash is a professor at TNAU, Coimbatore.

STUDENT OF THE ISSUE



Mr. M. Praveen Babu

Praveen Babu is an enthusiastic person, who is passionate about engineering with interests in embedded systems and the internet of things. His immense interest in these domains drove him to pave his path even from his first year by developing his own “Bluetooth based home automation system”, which was again put into phase-II with an enhancement in feature and was titled “GSM based home automation system”. Extending his knowledge to automobile sector, he underwent an in-plant training at Ashok Leyland under the Automotive Electronics team which took his expertise to next level. Being a technology geek, he routinely explores new technologies and keeps his hobby as applying that knowledge on developing new projects which are useful to people of various sectors. Being an opportunist, he has proved himself in all the events he participated. One such mentionable achievement was his appreciable work of developing a system for Agricultural Soil Monitoring and mapping as a part of 6 days residential hackathon (iCamp) conducted by Forge Accelerator, Coimbatore. That bagged him the scholarship for 6 Months Graduate Diploma in Hardware/AIoT, Product design and engineering program offered by the forge accelerator. The program sculpted him into a polymath Innovation Engineer with reasonable knowledge in all fields of engineering and expert-level knowledge in electronics and embedded systems.



The product “Chimney Cleaning Bot” which was developed by his team during that program acquired the third prize from EO Global Student Entrepreneur Award (EO GSEA) at Coimbatore level and also a cash award of INR10,000. Being an expert in LabVIEW, he has completed over 10 projects. His programming proficiency is also extended to the infamous C, C++ and Python languages. Also, he won the second prize for his technical paper “Emergency Aided Technology” in a national level seminar organised by the Institution of Engineers, India (IEI).

His leadership skills are no lesser than his technical skills which he proved being the Electronics and Communication Engineering department association's executive member and the Technical Lead of HAM Club of KCT. Also, he has organized the “All India seminar on Artificial Intelligence - An application perspective” under the IEI Student Chapter of the ECE department. He sought knowledge in every possible way including various workshops and projects. He leads his career currently in the Research & Development team of Hoffensoft, a reputed megacorp located at Coimbatore, Tamilnadu, India.

DEPARTMENT EVENTS

HAM CLUB INAUGURATION

Inauguration of HAM CLUB of Kumaraguru College of Technology was held on 10.10.19 co-ordinated by Mr.R.Karthikeyan Assistant Professor of the department. The chief guest of the event was Dr.V.Ganesan, the Academic Advisor of Satchidananda Jothi Nikethan International School, Kallar, Mettupalayam, Coimbatore. Dr.J.Srinivasan, Principal and Dr.S.A.Pasupathy, Head of the department participated and graced the occasion.



WORKSHOP ON CYBER SAFE

A workshop on Cyber Safe was organised on 12.10.19 for II and III year students. The sessions were handled by Ms.R.Santhy and Mr.Ashok Kumar Mohan, EC Council Certified trainers from TIFAC CORE on Cyber Security, Amrita Viswa Vidhyapeetham, Coimbatore. The workshop was co-ordinated by Dr.A.Amsaveni, Professor and Ms.S.Krithika, Assistant Professor of the department. The training programme covered a brief introduction of cyber security and educated the users to protect the confidentiality, availability and integrity of their own personal information and information assets.



MACHINE LEARNING FOR BEGINNERS

A hands on workshop on Machine Learning for beginners was organised from 11.10.19 to 12.10.19. The event was co-ordinated by Dr.S.Sasikala, Associate Professor and Mr.D.Allin Joe, Assistant Professor of the department. The session was handled by Dr.S.N.Shivappriya, Associate Professor of the department.

CAREER AWARENESS PROGRAM

A career awareness program was organised on 30.10.19 by Dr.S.Sasikala, Associate Professor and Mr.D.Allin Joe, Assistant Professor of the department. The session was handled by Mr.Nambiraj Sekar, Software program manager, Robert Bosch Engineering and Business Solutions Pvt. Ltd., Coimbatore.

HANDS ON WORKSHOP ON MACHINE LEARNING USING PYTHON

A hands on workshop on Machine Learning using Python co-ordinated by Dr.S.Sasikala, Associate Professor and Mr.D.Allin Joe, Assistant Professor of the department from 17.10.19 to 18.10.19. The session was handled by Mr.T.Viswanathan, Assistant Professor, Department of EEE of Kumaraguru College of Technology.

DEPARTMENT EVENTS

COLLABORATION MEETING

A collaboration meeting with VVDN Technologies, Coimbatore was held on 18.10.19. A faculty team heading by Dr.S.A.Pasupathy, Head of the department had a discussion with the expert team of VVDN Technologies consisting of Mr.Murali Jayaraman, VP (Engineering), Mr.Muralidharan Nagarajan, VP (PQ Assurance and ITOPS), Mr.K.Sunder, Director (SW) and Mr.Selva Muthukumar. It has created a platform to undertake joint research projects and create internship opportunities for students.



FACULTY TRAINING PROGRAMME

A Faculty Training Programme on RF and Microwave equipments was organised from 22.10.19 to 23.10.19. The event was co-ordinated by Dr.K.Kavitha, Professor and Mr.R.Darwin, Assistant Professor of the department. The training was provided by Mr.Venugopal, RF Application Engineer, Keysight Technologies with an objective of introducing the advanced RF and Microwave facilities to the faculty members and PG students of the department.

RESEARCH PROPOSALS

- Under the mentorship of Dr.S.Sasikala, Associate Professor of the department, a Student Project on "Seed to Sale App" was applied to AICTE for Vishwakarma Award 2019 and short listed for the Regional Convention.
- Under the mentorship of Ms.K.Thilagavathi, Assistant Professor of the department a Student Project on "Detection of diseases in Sugarcane using Image Processing Techniques" was applied to TNSCST received research funding of Rs.7500 for their project.

PARENTS - TEACHERS MEETING

Parents – Teachers meeting for the academic year 2019-2020 was organised on 02.11.19. Various Academic processes and performance of students were discussed.

GLOBAL ALUMNI MEET

Global Alumni Meet was organised on 28.12.19 at Kumaragu College of Technology campus. Mr.Sujith Kumar - Professional Growth, Maatram Foundation and Head HR - Infosys and Mr. Shanmugasundaram Member of Parliament from Pollachi (Alumni of KCT) presented their inspiring speech to the alumni of KCT.

FACULTY PARTICIPATION

- Ms.K.Thilagavathi, Assistant Professor attended a Five-Day faculty development program on High Intense Course on Machine Learning with MATLAB at Coimbatore Institute of Technology, Coimbatore from 19.10.19 to 23.10.19.
- Dr.S.Umamaheswari, Associate Professor participated in Five-Day ATAL Training Program on 3D Printing & Design at Government College of Technology, Coimbatore from 29.10.19 to 02.11.19.
- Mr.D.Allin Joe, Assistant Professor attended Six-Day FDP on Advanced Antenna Pattern Synthesis and Beamforming with Computational Intelligence organized by NIT-Warangal from 12.11.19 to 17.11.19.
- Mr.D.Allin Joe, Assistant Professor attended Three-Day FDP on RF Communication System Design with CAD Tools organized by Mepco Schlenk Engineering College, Sivakasi from 20.11.19 to 22.11.19.
- Dr.R.Ranithottungal, Professor, Dr.M.Shanthi, Associate Professor and Mr.R.Navaneethakrishnan, Assistant Professor participated as members of technical committee in International Conference on Returning Mothers-Rediscovering the lost talent pool organized by IEEE Bangalore Section at Sri Venkateshwara College of Engineering, Bengaluru from 13.11.19 to 14.11.19.
- Dr.Ramalatha Marimuthu, Professor participated as a General Chair in International Conference on Returning Mothers-Rediscovering the lost talent pool - organized by IEEE Bangalore Section at Sri Venkateshwara College of Engineering, Bengaluru from 13.11.19 to 14.11.19.
- Dr.B.Gopinath, Associate Professor participated in Five-Day ATAL Training Program on AI at NPTI, Durgapur from 18.11.19 to 22.11.19.
- Mr.S.David, Mr.V.P.Ajay and Mr. Timothy Dhayakar Paul, Assistant Professors participated in Five-Day ATAL Training Program on IoT: Concepts and Implementation at IIITDM, Kancheepuram from 15.11.19 to 19.11.19.
- Ms.K.Jasmine and V.Uma Maheswari, Assistant Professors participated in Five-Day ATAL Training Program Cyber Security at NPTI, HLTC Bangalore from 02.12.19 to 06.12.19
- Dr.A.Amsaveni, Professor, Ms.Tamil Elakkiya and Mr.S.Boopathy, Assistant Professors participated in Five-Day ATAL Training Program on Internet of Things at NPTI, Kerala from 16.12.19 to 20.12.19.
- Ms.K.Anusha, Mr.K.Karthika and Mr.S.Arunkumar, Assistant Professors attended One-Week FDP on Implementation of Signal Processing Algorithms on DSP Processors at PSG College of Technology, Coimbatore from 16.12.19 to 21.12.19.
- Mr.R.Karthi Kumar, Assistant Professor attended Five-Day training program on VLSI Chip Design Hands on using Open Source EDA at PSG College of Technology, Coimbatore from 16.12.19 to 20.12.19.
- Mr.R.Karthikeyan, Assistant Professor participated in Lamakaan Annual Radio Convention at Hyderabad - Ham Club from 21.12.19 to 22.12.19.

FACULTY PARTICIPATION

- Dr.S.Sasikala and Dr.S.N.Shivappriya, Associate Professors delivered Guest Lectures in FDTP on Linear Integrated Circuits at Bannari Amman Institute of Technology, Sathyamangalam on 27.11.19 and 28.11.19.
- Mr.S.Karthik, Assistant Professor attended the International Conference (iNaCoMM 2019) at IIT Mandi from 11.12.19 to 12.12.19.
- Dr.S.A.Pasupathy, Professor and Head of the department delivered a Guest Lecture on Smart Factory, Digitalization and Industrial Automation on 16.12.19 as a resource person for AICTE sponsored Two week FDP on Cutting Edge Technologies in Programmable Controllers and Industrial Automation at Government College of Technology, Coimbatore.
- Dr.S.A.Pasupathy, Professor and Head and Mr.S.Karthik, Assistant Professor attended a FDP at Robert Bosch Engineering and Business Solutions Pvt. Ltd., Coimbatore from 17.12.19 to 18.12.19.

HAM CLUB - THE RF RIDE

The RF RIDE is a ten-day technical event conducted by the HAM CLUB OF KUMARAGURU during December. It was conducted exclusively for the members of the club. The RF RIDE commenced on the 08.12.19 in which around 30 members took part. The day started with a seminar on the basics of the Yagi-Uda antenna by Mr.L.Jey Ganesh, Vice President of the club. During the afternoon session, the members were divided into two groups and a FOX HUNT event was conducted inside the campus. There was a field trip to the "ALL INDIA RADIO OF COIMBATORE" (AIR). It was based on "WORKING OF TRANSMITTER AND RECEIVER IN FM AND AM". The visit was organized by Mr. K.Viveka Vikram, President and Mr.L.Jey Ganesh, Vice President of the club. The trip was accompanied by the faculty coordinators Dr.K.Kavitha, Professor and Mr.R.Karthikeyan, Assistant Professor of the department.



A session on SIMULATION ON SDR was handled by Mr.R.Karthikeyan (VU3KEE), Faculty coordinator of the club. A workshop on FABRICATION OF ANTENNA was conducted by two resource persons, Mr. Peter and Mr. Soundarajan. The final day of RF RIDE ended with the session handled by Mr. R. Karthikeyan based on antennae. The characteristics of several antennae were measured practically. The session was about the simulation of the Yagi-Uda antenna on CAD-FEKO software. It was an interesting session as students got an experience to fabricate the given antennas in the software.

CONGRATULATIONS

- Ms.R.Hemalatha, Associate Professor has been awarded doctoral degree by Anna University-Chennai for her research work “Certain investigations of performance of long haul optical DWDM transmission systems and networks”.
- Mr.R.Navaneethakrishnan, Assistant Professor received Honorable Mention for the 2019 IEEE SIGHT Volunteer of the Year Award from 2019 IEEE SIGHT Steering Committee.
- Ms. S.Krithika, Assistant Professor has successfully completed 12-Week NPTEL course on Introduction to Internet of Things.
- Mr.R.Karthikeyan, Assistant Professor had taken three teams of Kumaraguru HAM Club to “LAMA KAN Annual Radio Convention – 2019” held at Hyderabad and won the Second and Third Prizes for FOXHUNT Event.



CONFERENCE AND JOURNAL PUBLICATIONS

- Dr.Ramalatha Marimuthu, Professor, Dr.S.Sasikala, Associate Professor, Dr.M.Alagumeenaakshi, Associate Professor and Dr.S.N.Shivappriya, Associate Professor actively participated under various capacities and presented their research papers in the 10th IEEE International Conference on Awareness Science and Technology from 23.10.2019 to 25.10.2019 held at Morioka, Japan.
- Dr.S.N.Shivappriya, Associate Professor published a paper on Design of Dadda and Wallace Tree Multiplier Using Compressor Technique in International Journal of Engineering and Advanced Technology, Volume 8, Issue 6S3, 2019.
- Mr.V.P.Ajay, Assistant Professor published a paper on Analysis of Data falsification in Cognitive Radio Scenarios from Secondary User Viewpoints in International Journal of Advanced Science and Technology, Volume 28, Issue 8, 2019.
- Ms.K.Thilagavathi, Assistant Professor published a paper on A Novel Hyperspectral Image Classification Technique Using Deep Multi-Dimensional Recurrent Neural Network in Journal of Applied Mathematics & Information Sciences, Volume 13, Issue 6, 2019.

STUDENTS ACTIVITIES

VOICE OUT



A debate event "Voice Out" was conducted on 03.10.19 and coordinated by Mr.R.Darwin and Ms.Karthika, Assistant Professors of the department. Arise is an semester-long event initiated by the Department Association of ECE. Voice Out is the first of these events organised. It is a debating event which aims at improving the communication and critical thinking skills of students.

HIGH STREET TALK

High street talk was conducted on 15.10.19 by students of the department. This event was about "ROUTER", a networking device that forwards data packets between computer networks. A router is connected to two or more data lines from different IP networks in which it is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISPs network. They are located at gateways, the places where two or more network connect. Routers perform the traffic directing functions on the internet. An example of a router is computer hardware that transfers Internet messages to a laptop in another room; a wireless router. The most familiar type of IP routers are home and small office routers that simply forward IP packets between the home computers and the Internet.



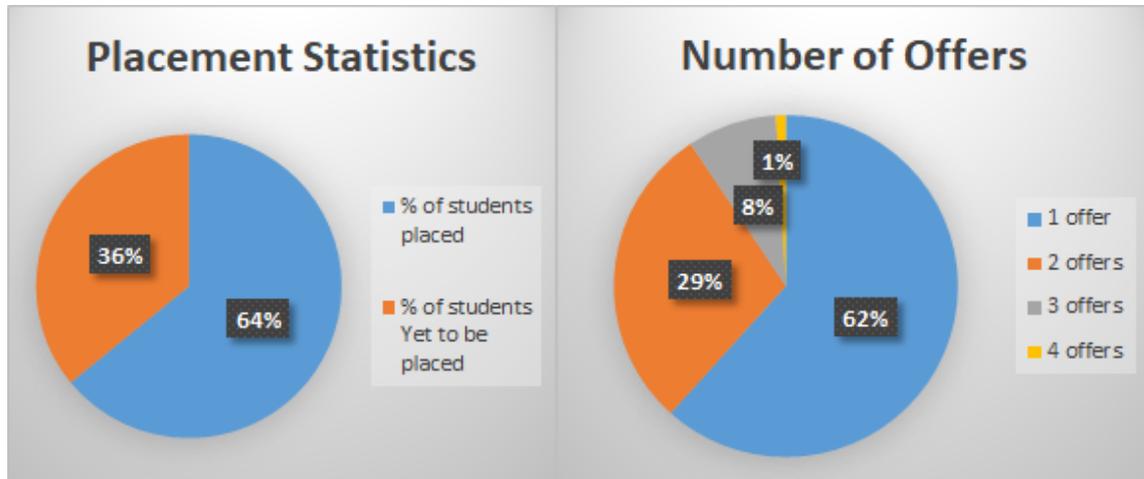
DESIGN THINKING HACKATHON



Fantastic forty [F-40] is an initiative program coordinated by final year students of Electronics and Communication engineering for helping the pre-final year students to achieve their goals. An event called 'Design thinking' was organized on 02.11.19 in which students of F-40 program participated and proposed their ideas for the problems statements given.

STUDENTS PLACEMENTS

PLACEMENT STATISTICS (AS ON NOV. 2019)



COMPANIES VISITED (AS ON NOV. 2019)

- Titan
 - Kaladi
 - Human Recosia
 - Zilker
 - Ganit
 - L&T Infotech
 - Altran
 - Pickyourtrail
 - Mitsogo
- Vuram
 - Valuelabs
 - Tismotech
 - TCS
 - Accenture
 - Infosys
 - Cognizant
 - WIPRO
 - Astrazeneca
- ITCInfotech
 - Robert Bosch
 - Soliton
 - Pickyourtrail
 - Mobiveil
 - FSS
 - Atlas Healthcare
 - Transunion
 - Mr.Cooper

CONGRATULATIONS



Ms. I. Hanupriya of Final Year ECE received “Best Student Award” from ISTE Tamilnadu Section for her excellence in academic, research, co-curricular and Extra-curricular activities.

VALUABLE FEEDBACKS

The Editorial Board of **EL.COM** appreciate the readers for spending time to share their experience on **VOL. 16, ISSUES 2 and 3** with us

It has come out with improved outlook. Guest articles were informative

Dr. X. Susan Christina,
Professor,
M.I.E.T. Engineering
College, Trichy

An informative and commendable effort

Dr. Uma Raghunathan,
Director (RIFD),
AICTE (HQ), New Delhi

Looks good and interesting

Prof. S.C. Sahasrabudhe,
Former Director,
DAICT, Gandhinagar

Congrats to the team for a nice and informative Magazine cum Newsletter

Dr. N.K. Karthikeyan,
Professor,
Coimbatore Institute of
Technology, Coimbatore

I am indeed delighted to read the newsletter

Dr. V. Santhi, Head,
Department of Humanities,
PSG College of
Technology, Coimbatore

Nicely produced News Letter

Dr. V. Jayaraman, Member,
INAE Governing Council,
Senior Consultant,
UN/ESCAP,
Bangkok, Thailand

Congratulations all of you for your effort in bringing such a wonderful publication

Mr. P.K. Mohamed,
Chief Advisor - R&D,
Apollo Tyres Ltd,
Sipcot Industrial Growth
Centre, Sriperumbudur,
Tamilnadu



KUMARAGURU
college of technology
character is life

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Department Vision

To be a centre of repute for learning and research with internationally accredited curriculum, state-of-the-art infrastructure and laboratories to enable the students to succeed in globally competitive environments in academics and industry.

Department Mission

- Motivate students to develop professional ethics, self-confidence and leadership quality.
- Facilitate the students to acquire knowledge and skills innovatively to meet evolving global challenges and societal needs.
- Achieve excellence in academics, core engineering and research.



சிவ்ஸா

வணங்குகிறோம் வழிநடப்போம்
உங்கள் வாழ்க்கை - எங்கள் பாதை



Editorial Board



Dr.S.A.Pasupathy



Dr.B.Gopinath



Mr.S.Boopathy

**FOR SHARING ARTICLES/SUGGESTIONS,
PLEASE CONTACT**

The Head,
Department of ECE,
Kumaraguru College of Technology,
Saravanampatti,
Coimbatore-641049.
Phone: 0422-2661221
Mail ID: hod.ece@kct.ac.in

kct.ac.in

fb.com/kct.edu

kumaraguruece.wordpress.com