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EXPLORE, DREAM, DISCOVER

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MONTHLY NEWSLETTER

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GENESIS

IGNITING THOUGHTS

CONTENTS

Department Activities /Acheivements

Placements

Tech Talks

Staff Participation/Achievements

Students Participation/Achievements



Vision:

To be recognized at national and international level for excellence in education and research in Electronics and Communication Engineering.

Mission:

- Inculcating leadership qualities, adaptability ethical values
- Imparting quality education in the field of electronics. communication, and related areas to meet the challenges in industry, academia and research
- · Nurture the growth of each individual by providing a dynamic and conducive learning environment.



NSS Best volunteer: Lakshmi Nandana

Congratulations to Lakshmi Nandana(S7 ECB) who won the State Level Award for Best NSS Volunteer, 2021. She was also the Best NSS Volunteer, 2021 under APJAKTU.She participated in University Level Pre-Selection, held at Adi Shankara Institute of Engineering and Technology, Kalady. Selected APJAKTU NSS Cell as the Female Volunteer from University Level to participate in the International Youth Exchange Program under the Ministry of Youth Affairs and Sports, MES College of Engineering, Kuttippuram, Malappuram. She donated 7 units of blood within the duration of 2018-2021. Attended 3 NSS camps, 1 Nature camp and 2 Special camps.

DEPARTMENT ACTIVITIES & ACHIEVEMENTS







KERALA STATE COUNCIL FOR SCIENCE, TECHNOLOGY AND ENVIRONMENT (KCSTE) STUDENT PROJECT FUNDING

We are happy to announce five projects from Department of Electronics and Communication got selected for student project funding under the scheme KCSTE. Projects are mentored by faculties of ECE department.

 Developing a Smart Intelligent System for Real Time Growth Assessment of Fish & Waste Water Treatment for a Fish Farm



Ms. Divya V Chandran

1. Project Titled "Developing a Smart Intelligent System for Real Time Growth Assessment of Fish & Waste Water Treatment for a Fish Farm", by Ms. V U Anagha,Mr. Abhishek Shine,Mr. Vijay Krishnan V U under the guidance of Mrs. DivyaV.Chandran, Assistant Professor



V U Anagha



Abhishek Shine



Vijay Krishnan V U

2. Development of a Remote Cardiac Health Monitoring system for Covid'19 Patients
Using Deep learning



2. Project Titled "DEVELOPMENT OF A REMOTE CARDIAC HEALTH MONITORING SYSTEM FOR COVID'19 PATIENTS USING DEEP LEARNING", by KRISHNARAJ R,MEGHA SUNIL,NIHALA SUMEN,ROSE MARY BENEDICT under the guidance of - Dr. BIPINP.R, Associate Professor

Dr. Bipin P R



Rose Mary



Nihala suman



Megha Sunil



Krishnaraj R

3. Design and Development of IoT assisted Wearable Device for Elderly care



Ahilasree



Anu Anna Judson t



Aleena Vargheset



Anita Shaji



Dr. Ragesh G K

3. Project Titled "Design and Development of IoT assisted Wearable Device for Elderly care ", by Ahilasree, Aleena Varghese, Anita Shaji, Anu Anna Judson under the guidance of Dr. RAGESH.G K, Professor and (Ex)Head of Department.

> 4. Project Titled "SMART MEDICINE BOX", by HASNA HAMEED, SANITHA A .K under the

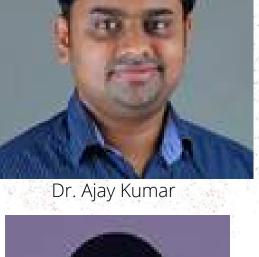
> > Mr. AJAY.KUMAR, ASSOCIATE

4. Smart Medicine Box

guidance of

PROFESSOR





Hasna



Sanitha

5. FLAME-OFF



5. Project Titled "FLAME-OFF", by -GAUTHAM M SANKAR, DHANUSH DAMODARAN,ANANTHAKRISHNA BHAT G,A V VINAYAK under the guidance of Mr. ANUROOP.KB, Assistant Professor

Mr. Anuroop K B







Gautham M Sankar Dahanush Damodaran

Ananthakrishna Bhat

Vinayak

ACCESS '21

2nd International Conference on Advances in Computing, Communication, Embedded and Secure Sytems (ACCESS' 21)

2021 2nd International Conference on Advances in Computing, Communication, Embedded and Secure Sytems (ACCESS' 21) Proceedings is made available online in IEEE Digital Explore



Papers Published in IEEE Explorer from the Department.

A review on RPL Objective Function Improvements for IoT applications

Arya Paul

Optimal Design of Dual band Microstrip Patch Antenna Array based on Greatest Common Devisor and Particle Swarm Optimization Albins Paul

> Dual band MIMO antenna with reduced mutual coupling Sreerag M

A NEW HARDWARE ARCHITECTURE FOR FPGA IMPLEMENTATION OF FEED FORWARD NEURAL NETWORK

Sumayyabeevi V A, Jaimy James Poovely, Aswathy N and Chinnu S

Predicting COVID-19 and other lung related diseases like Pneumonia and Tuberculosis using Deep Learning
Pranav K N, N Jithin, Nikhil George, R Ananthakrishna and Anju George

Comparison of image Compression analysis using Deep Autoencoder and Deep CNN approach
Hitha P S, Dr.Ragesh G K

Design and Implementation of Desired Interaction yielding Fractional-Order Controller with application to Wheeled Mobile Robot Dr. Suraj Damodaran

Future Nonvolatile Memory Technologies: Challenges and Applications
Aswathy N

Proposal for all Optical Memory Unit and Phase Key Recovery using Fabry-Perot Narrowband Filters

Dr. Gopakumar V T, Prasanth P Menon, Remya Ramesh, Neetha K

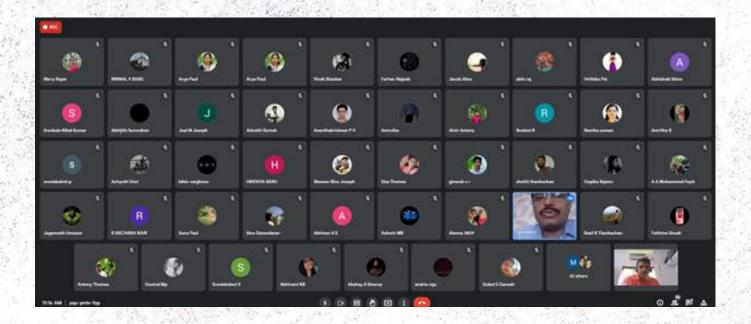
Early Detection of Lung Cancer through Breath Analysis using AdaBoost ensemble learning method

Dr. Ajay Kumar, Dr.Ragesh G K

Non-invasive diagnosis of COPD with e-nose using XGBoost Algorithm Dr. Ajay Kumar, Dr.Ragesh G K

CAREER OPPORTUNITIES OF ENGINEERS IN BUSINESS DEVELOPMENT

Department of Electronics and Communication organised a webinar "Career Opportunities of Engineers in Business Development" on 27/9/2021 by Mr.Vineeth R Nair, Director Sales, Byjusthrough google meet. Students from all semesters participated and interacted with the resource person.



APPRECIATION TO IEEE VOLUNTEERS

As a token of appreciation towards ACCESS'21 department has given certificates and pendrives to IEEE student volunteers.





Let's!

CONGRATULATE

Dr.Bobby Mathews and Dr.V T Gopakumar, Professors of Dept of ECE for being awarded PhD Guideship by APJ Abdul Kalam Technological University



Dr.Bobby Mathews



Dr.V T Gopakumar

The faculty members of department of ECE who got selected for Part time PhD Programme under Abdul Kalam Technological University.



Ms. Savitha Raghavan



Ms. Neetha K



Mr. Albins Paul



Ms. Anjana S



CONGRATULATE

KTU S3 EXAMINATION DECEMBER 2020 TOPPERS



SGPA 10



ABIRAMI MURALEEDHARANJ



HRITHIKA S PAI SGPA-9.27



SONA PAUL SGPA-9.27



KATHARIN P JOSE SGPA-8.95



ANDRIYA RAJU



MANIKANDAN A R SGPA-8.64



AKSHAY SUBRAMANIAN SGPA-8.55



GAYATRI M SGPA-8.41



BIBIN VARGHESE SGPA-8.36



MEHNAS LATHEEF SGPA-8.36



ABIRAMI K A SGPA-8.32



AMAL KRISHNA SGPA-8.14



ASHA M VARGHESE SGPA-8.14



SIDHARTH A J SGPA-8.05



AMRUTHA PP SGPA-8



CONGRATULATE

PLACEMENTS 2017-21 B-TECHBATCH

Sinergia Media lab LLP.





A V Vinayak



Aleena Varghese



Abhishek Anand

PLACEMENTS 2019-21 M-TECH-BATCH





Sumayyabeevi V A

Let's!

CONGRATULATE

Happy to inform that the following students of 2019-23 Batch got selected by **Suyati Technologies** for their project.



Sinu Damodaran (S4 ECB)



Devadath PG (S4 ECA)



Hrithika S Pai (S4 ECB)



Manikandan.A.R (S4 ECB)



Nikhil R Bhat (S4 ECB)



Libin Luvis (S4 ECB)

TECH TALKS

TEACHER'S ZONE



Author. Dr Ajay Kumar, Associate Professor, Dept of ECE

IMPACT OF NEXT GENERATION DISRUPTIVE TECHNOLOGIES

Disruptive technologies have the ability to affect growth, employment, and inequality by introducing new markets and business methods, as well as the need for new product infrastructure and labour skills. This can effect the labour market, worker earnings, and eventually the distribution of income, in addition to existing enterprises in established marketplaces. Email, the personal computer and laptop, and smart phones are examples of disruptive technologies that have transformed communication and the way we work and spend our leisure time, and have displaced many items such as typewriters, mainframes, pocket cameras, and GPS devices, among others. New business models, such as Uber's disruption of taxi cabs, Netflix's disruption of satellite and cable television, and Skype's disruption of telecoms, are disrupting entire industries. Disruptive technology can certainly help consumers by making goods and services more affordable and accessible. However, they may have a negative impact on businesses. As a result, companies' stock prices may fall and they may lose market share. Workers are typically less well equipped to retrain, retool, or relocate, and standard programmes of transition help have shown to be mainly unproductive.

For these reasons, a thorough examination of disruptive technologies is necessary, particularly during periods of fast technological development as well as shifts in income distribution that may harm labour owners rather than capital owners. These disruptive trends are ushering in a new era in which digital technologies meet or exceed human capabilities, even in tasks that do not follow a straight application of existing rules and were previously impossible to automate, such as communication or pattern recognition in uncertain or changing environments. Moore's law, which states that computer processing power doubles every two years, is frequently used as a way of comprehending improvements in computing capabilities. This indicates that both computing capability and the cost of computers with the same processing power are increasing exponentially

Affordable technologies with human-level performance are the result of becoming less expensive and more powerful computers.

Disruptive technologies have different implications for firms, employment, consumers, and nations. Consumers are arguably poised to benefit the most as new technologies allow cheaper, or free, and more sophisticated goods and services to emerge. The effects on employment include some positives, such as increased efficiency and workplace flexibility, but the negatives are possibly greater in magnitude. Large scale displacement of not only manual and routine, but cognitive and non-routine, labor will hollow out both middle and low income production and service jobs, and affect high skilled knowledge work as well

The year 2020 has been pretty tough on the global economy and industrial sectors. But it was more than just an unstable year; it witnessed several digital and technological advancements as a direct response to fight against the prevailing circumstances. Game-changing disruptive technologies have now become a solution to different complex problems. These disruptive technologies have become an integral part of our lives and are causing massive changes in traditional business models. On that account, here are some examples of the disruptive technologies that have recently made the headlines.

- Upgraded 5G Connection: Over the past few years, several mobile technology organizations and network companies are working towards providing their customers with reliable and fast connectivity Well, 5G has grabbed massive attention from tech enthusiasts and the general audience; this year. The fifth-generation connectivity will be implemented this year, providing a faster network and higher quality video streaming. The increased speed will make remote working easier since the users will have access to higher global connectivity, better security systems, more bandwidth, and so much more.
- Ethical AI: Creating trustworthy and reliable AI tools and applications has now become crucial. Implementing ethics into a developing technology will ensure precise and human-like decision-making. With the growing advancements of artificial intelligence and machine learning technologies, companies believe they should understand and determine the ethical impact of these tools. Therefore, AI will continue to grow; to ensure the ethical handling of data.
- Automation and Robots: In recent years, the world has witnessed technological developments like self-driving cars, trucks, automated drones, and robots. Automation technology is dominating all industrial sectors and is executing repetitive and laborious tasks to ensure the smooth functioning of the organizations.
- Edge Computing: Edge computing is the next big step after cloud computing. Edge computing focuses on the ability to perform in low-latency environments, enhancing security and greater bandwidth. It creates upgraded solutions for businesses to amplify their operational efficiency, automate core business processes and improve performance and customer relationship management.
- Enhanced Natural Language Processing— Natural language processing or NLP is crucial for businesses to produce more data. It helps machines communicate with customers in their natural language. BERT is an open-source training model that boosts the efficiency of NLP models. It analyzes the missing words or phrases in a text, understands its meaning, and produces better results than traditional NLP models.

STUDENT'S ZONE



Aushin Jose Manjooran(S7 ECA)

"NANO DIAMOND BATTERY" to Revolutionize Power Generation

Contemporary lifestyles are heavily depended upon mobile battery-powered devices which affect every day elements of human lives, ranging from telecommunication gadgets to automobiles. Our earth is in urgent need of green and cost-effective batteries for its current and future sustainability. Conventional batteries had been met with numerous concerns and in the modern era of increasing eco-friendly, global warming, waste accumulation, solutions - the manufacturing and production should be in line with sustainable green development ideas and procedures. NDB or Nano Diamond Battery is an innovative energy generator and storage that redefines and revolutionizes the battery as we realize it. Its longlasting properties and longevity are ensured by converting the radioactive decay power from nuclear waste into energy. NDB is tiny, modular, cost-effective and scalable from chipset to industrial applications. The Nano Diamond Battery (NDB) says that the radioactive battery is completely safe and secure for humans and it hopes to start selling the battery to commercial partners, including space agencies for long duration missions, within the next two years. The Nano

Diamond Battery (NDB) is a high-power, diamond-based alpha, beta, and neutron voltaic battery that can provide lifelong and green energy for numerous applications and overcome limitations of existing chemical batteries. The NDB acts like a tiny nuclear generator. The power source for the NDB is intermediate- and high-level radio isotopes that are shielded for safety via multiple tiers of synthetic diamond. The energy is absorbed in the diamond through a process called inelastic scattering, which is used to generate electricity. The self-charging process will provide a charge for the full lifetime of any device or machine, with up to 28,000 years of battery life. Since the battery is self-charging and requires only exposure to natural air, any excess charge can be stored in capacitors, supercapacitors and secondary cells to extend battery life for cell phones, aircraft, rockets, electric vehicles, sensors, and other different gadgets and equipment. The battery is powered by radioactive waste graphite--used in graphite-cooled nuclear reactors--which is encased in layers of nano-thin, single crystalline diamond, which act both as a semiconductor and heat sink. Each unit will comprise a single crystalline diamond that absorbs energy from the isotopes.

Now diamonds are rare and also have the highest energy-conductivity such that it quickly transfers heat from the radioactive graphite--and the transaction is so quick that it generates electricity. The diamond layers not only collect charge, but also prevent radiation leakage

NDB even ensures that the radiation levels emitted by the cells will be less than those emitted by the human body. The firm hasn't produced the batteries yet but has a proof-ofconcept design, called "Diamond Nuclear Voltaic," which was presented in 2016 by scientists from the University of Bristol using waste graphite blocks. System Technologies Diamond Nuclear Voltaic (DNV) technology is a combination of a semiconductor, metal and ceramic that has two contact surfaces to facilitate charge collection. Several single units are connected together via conductive channels that are fabricated by deposition of Ni on the side of the DNV to create a +ve and -ve contact of the battery system, which is called DNV stacks. In between these are radioisotopes that, upon decay, will release either an alpha, beta, or neutron radiation. This is then inelastically scattered in the single crystalline diamond (SCD) to generate charges that are collected by the charge collectors. Every layer of the DNV stack consists of a high-energy output source. This kind of arrangement improves the overall efficiency of the system and provides a multilayer safety shield for the product. o Rapid conversion from radiation to electricity — All radioisotopes are known to produce high amounts of heat. The strategic placement of the source between the DNV units facilitates inelastic scattering originated due to the presence of SCD in the DNV unit. This design prevents selfabsorption of heat by the radioisotope and allows speedy conversion to usable electricity. o Thin film structure — The thin-film profile exhibited by NDB allows radiation absorption in the SCD with minimal selfadsorption. Due to its flexible design structure, this technology can take any shape and form in accordance with the application. NDB can be made as big as the application requires, where the minimum size limit is

40 μm. O Nuclear recycle process — Radioactive waste is reprocessed and recycled to enable sustainability and promote a clean energy source in a safe and secure environment. APPLICATIONS Automotive —Key component of Electric vehicles are the battery that propels the vehicle has been heavily developed these days. As a battery solution, NDB powers the traditional aspects of the car as well as the motors. Innovations such as heads-up displays, augmented reality, self-driving and onboard AI could also be supported using the NDB. NDB could be used during the day to power the car and at night when the car is parked, the NDB-powered EV could be plugged into a house where the generated charge could then power the house and any excess could be sold to the grid. Aerospace —NDB's use in aviation market include securing essential power to areas such as the cockpit to improve airline safety and powering of the black box to aid in salvage of missing aircraft

Limitation in the battery charge of the black box restricts the search time since the location signal will become unavailable once the battery charge runs out. NDB will be able to increase the battery life of the black box, allowing the search party a greater chance of salvage. Satellites and space vehicles rely heavily on solar power, which can be disrupted by harsh space environments. NDB can be utilized to power drones, electric aircraft, satellites, space rovers, spacesuits and stations while allowing for longer activity. Medical Technology — In-situ medical devices and implantables such as hearing aids and pacemakers can benefit from long battery life in a smaller package with the added benefit of safety. With NDB, patients no longer have to worry about recharging a pacemaker due to its long half-life. Since NDB has a layer of native radiation absorber integrated into its structure, it prevents radiation leak from implantable devices. Industrial — NDB's safety, power output and universality provide power to many routine applications and to those that are difficult to implement. Data centres, remote locations and hostile environment applications of NDB make it an outstanding promise for productivity and futuristic applications.

NDB used in the IoT devices would be fully wireless and could be placed anywhere without the need to worry about the battery depleting. NDB is green as it has no emission, it is inert to the environment and does not require cobalt mining. NDB is a more energy-dense, longer-lasting, weather-independent alternative to traditional energy sources. The added values are lack of harmful by-products and recycling of nuclear waste. The technology has the potential to replace other energy sources such as gasoline and lithium-ion batteries, reducing their negative environmental impacts caused by emission and toxic metal waste products. To sum up, NDB, as the name suggests, is Durable, Deep, Dainty, Demanding and Deserving to be introduced as truly Green to fill up all the requirements of Power Generation and Solve the Present Battery Hazards

STAFF ACHIEVEMENT AND PARTICIPATION

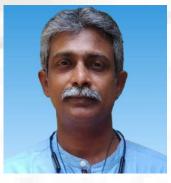
Name	Designation	Acheivement/ Participation Details			
Dr. Bobby Mathews C	Professor and Head	Recourse Person	Resource person in ATAL FDP		MES college of engineering
Dr. VT Gopakumar	Professor	Conference Participatio n	ETOP (2021 Education and Training in Optics and Photonics Conference Participation	08 to 10 September 2021	Optical Society of America
Prameela B	Associate professor	Any Others	Reviewer	12.10.2021	9th APACE, the 2021 IEEE Asia- Pacific Conference on Applied Electromagnetics (APACE2021)
Prajeesh P.A	Assistant Professor	Recourse Person	Workshop on Prevailing Technologies in VLSI,Embedded systems ,Photonics and Fiber optics and IOT	20/9/2021 to 24/9/2021	Dept of ECE ,ASIET
Dr Ajay Kumar	Assoc.Profess or	Faculty Developme nt Program(F DP)	"Internet on Things and its Application	04/10/2021- 8/10/2021	Gujarat Technological University - Graduate School of Engineering and Technology.
Aswathy N	Assistant Professor	Recourse Person	Online Workshop on Prevailing Technologies in VLSI, Embedded Systems, Photonics & Fiber Optics and IOT"	20/09/2021 to 24/09/2021.	Dept. of ECE, ASIET
		Funding	Developing A Smart Intelligent Rea Time System for Growth Assessment and Waste water treatment for a Fish Farm	2021	KSCSTE
		Paper publication	Published paper "Future Nonvolatile Memory Technologies: Challenges and Applications"	october 2021	2021 2nd International Conference on Advances in Computing, Communication, Embedded and Secure Systems (ACCESS)

Name	Designation	Acheivement/ Participation Details			
Aswathy N	Assistant Professor	Paper publication	Published Paper "A New Hardware Architecture for FPGA Implementation of Feed Forward Neural Networks"	october 2021	2021 2nd International Conference on Advances in Computing, Communication, Embedded and Secure Systems (ACCESS
		Member	Core Committee Member of 3rd International Conference on Multidisciplinary Innovation in Academic Research (ICMIAR-2021)	october 2021	Institute For Engineering Research and Publication
Anju George	Assistant Professor	Recourse Person	"Online Workshop on Prevailing Technologies in VLSI, Embedded Systems, Photonics & Fiber Optics and IOT"	20/09/2021 to 24/09/2021.	Adi Shankara Institute of Engineering and Technology, Kalady

STUDENT ACHIEVEMENT AND PARTICIPATION

STUDENT NAME	PARTICIPATON DETAILS			
ANJANA RAVEENDRAN	HADOOP AND BIG DATA	IEEE CS SBC MBCCET & IEEE CIS SBC MBCCET		
	MEMBERSHIP DEVELOPMENT	IEEE CS SBC MBCCET & IEEE CIS SBC MBCCET		
	EXORDIUM AMBASSADOR PROGRAM	IEEE COMPUTER SOCIETY SBC MBCCET & IEEE COMPUTATIONAL INTELLIGENCE SOCIETY SBC MBCCET		
ATHIRA B	Exordium Ambassador Program	IEEE		
	Membership development session	IEEE		
	Yp talk on "Hadoop and big data"	IEEE		
	Breast cancer awareness	Dr.Paul Augustine	10-10-2021	
ALEENA ANTONY	GIT AND GITHUB WORKSHOP	FOSS MEC	02-10-2021	
	HADOOP AND BIG DATA	IEEE CIS SBC MBCCET		
	IEEE XPLORE	ADISHANKARA INSTITUTE OF ENGINEERING AND TECHNOLOGY KALADY		
	Illc Impact Lecture Series Session 1	Institution Innovation Council(IIC)	13-10-2021	
ARJUN S KUMAR	AWS Machine Learning Udacity Foundations course		10-12-2021	
FARHAN NAJEEB	Impact lecture series	IIC ASIET,MIC AICTE	13-10-2021	

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