ELECTROBUZZ

ELECTRONICS ENGINEERING DEPARTMENTMAGAZINE

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DEPARTMENT VISION:

To be recognized for practicing the best teaching-learning methods to create highly competent, resourceful and self-motivated young electronics engineers for benefit of society.

DEPARTMENT MISSION:

➢ To nurture engineers who can serve needs of society using new and innovative techniques in electronics.

➢ To improve and apply knowledge of electronics subjects through participation in different technical events.

➢ To enhance carrier opportunities of electronic students through industry interactions and in plant training.

➢ To install the passion and spirit among students to pursue higher education in electronics and entrepreneurship.

JUNIOR TANTROTSAV 2020

For the very first time in Universal College of Engineering, the Department of Civil Engineering, EXTC and ETRX in collaboration with Association Of Civil Engineering Students (ACES), IETE and IEI organized an inter-college technical fest on 7th March, 2020 for the aspirants from various polytechnic colleges with a very high competitive spirit of participant and with the strong determination imbibing various achievements and accomplishments. Nowadays, there is a huge gap between theoretical knowledge as well as practical knowledge. So, Junior TANTROTSAV aims to shorten this gap and expose students to various concepts of perceptivity regarding the future degree course and bring together opportunities for the students to come forward and showcase their talents and maximize their visions in the practicality of education, something that is very important in today's dialect of the engineering community.

Students actively participated in the events and presented their work. The fest executed with a total of 15 technical events and 8 fun events planned and organized at its peak of quality. Focusing on the types of events to include in Junior Tantrotsav was decided by coordinators keeping the interests of diploma students into consideration, with little emphasis on the fun full events behind the scene. The events that were highlighted consisted of the following:

EXTC & ETRX EVENTS:	FUN EVENTS:
MYSTRY ROOM	EGGDROP
ROBO SOCCOR	BALLOON PYRAMID
ROBO CARROM	MINTUE CHALLENGE
ROBO RACE	FOOT VOLLEY
BLIND CODING	SHORT FILM
CIRCUIT DESIGNING	TECHNICAL STANDUP
QUIZ	SELFIE MANIA
	PUBG

Junior TANTROTSAV 2020 was concluded with the exciting prize distribution ceremony where the achievers were rewarded with certificates and trophies under the presence of Chief Guest. The "Mystery Room" event happened to be the dish of the day.

Some of the glimpses of Junior Tantrotsav Event

STUDENTS ACHIEVEMENT

1. One of the students from TE ETRX, Mr. Akshay Laddha, has been selected for IEEE Covid-19 Hackathon challenge. An Online Nation wise Hackathon which was organized by IEEE Bangalore Section in collaboration with Hyderabad Subsection. His Idea of an IoT based thermal Covid-19 Scanner was well received and he worked together on this idea with a team from Calcutta. His Team name was "*Thermo Covid-19*. They presented an abstract idea and a prototype to demonstrate its working. Basically the idea is based on, Interfacing Raspberry Pi Micro-controller with a far infrared thermal sensor array (MLX90640). A database was maintained using Google Spreadsheets to record the data of a Covid-19 suspect. Our idea also involved the concept of Social Distancing where an Ultrasonic Sensor will be used so that every individual maintains a sufficient distance from other. Although this project was innovative, Expense was the only drawback of this project.

2. MHRD Innovation cell & AICTE in partnership with Forge & InnovatioCuris have launched the national level 2 Day Fight Corona IDEAthon soliciting innovative solutions from student innovators, researchers and educators. Under this our students Vinit Salvi (BE EXTC) and Tejas Malkar (SE EXTC), presented their idea and got selected. The idea in brief is: The whole world is in the grip of deadly corona virus. To combat the deadly corona virus in public places, something has to be manufactured so an innovative sanitizer machine. The machine sanitizes whole body. To combat the deadly corona virus can be use this machine in public place to avoid the spread of corona virus through community spread. The size of machine can also be easily changed so vehicles can also be sanitized completely.

FACULTY ACHIEVEMENT

### MINOR RESEARCH GRANT PROJECT 2019-20

One of our department faculties, Mr. Sandeep Dubey has received a grant of Rs. 26000/-, from University of Mumbai under Minor research grant Project 2019-20 for the project, " Humanoid Robot-Ellie".

6TH NATIONAL LEVEL PROJECT EXHIBITION CUM POSTER PRESENTATION

Our college hosts National level project exhibition cum poster presentation event annually, for the budding and aspiring engineers, researchers of our country to help them understand the connection between science, technology and real life situations. The key purpose of hosting this event is to provide a platform to intellectuals for showcasing their brilliant ideas in the form of projects and posters.

XMOS AND PLUMERAI LINK FOR BINARISED NEURAL NETWORK DEVELOPMENT:
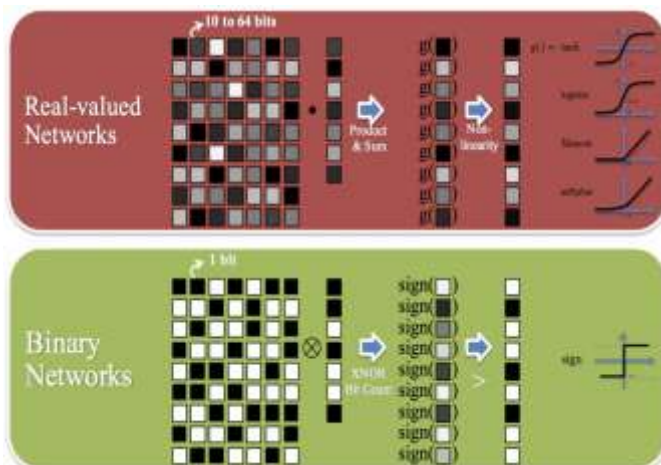
The partnership will combine Plumerai's Larqsoftware library for training BNNs and the xcore.ai crossover processor from XMOS which provides native support for inference of BNNs. The combination of the two technologies will deliver a BNN capability that's 2 to 4x more efficient than existing edge AI solutions.

*For internal circulation only

This solution will enable a new generation of devices to run tasks that make our lives simpler and safer. This could include everything from identifying that a shopping package has been delivered to a safe place to managing traffic flows more efficiently, supporting remote healthcare applications or keeping shelves in stores stocked more efficiently. While BNNs are an emerging technology, the future potential is enormous.
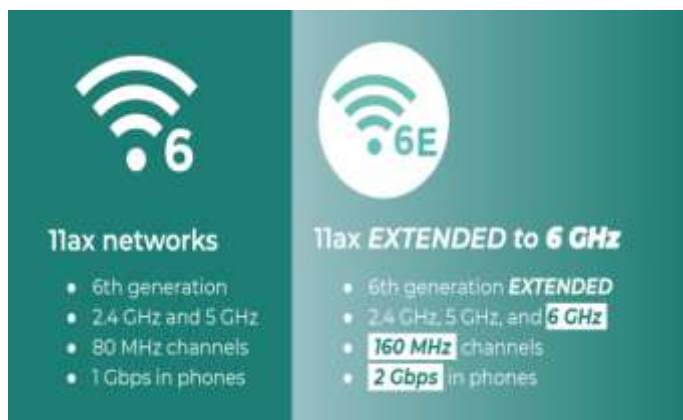
The deep learning revolution is all around us today. But a typical application uses deep learning models with tens of millions of parameters — and despite the move to 16-bit and 8-bit encoding there is still an insatiable demand to increase the speed and efficiency of deep learning and AI systems. That's where BNNs come in.

BNNs are the most efficient form of deep learning, offering to transform the economics and efficiency of edge intelligence by going all the way down to just a single bit. However, there are significant challenges involved in making BNNs commercially viable — for example, they demand specific attention in chip design for efficient inference and new software algorithms for training.

XMOS and Plumerai have combined their respective expertise in embedded chip design and deep learning algorithms to enable this breakthrough technology and bring AI to the devices all around us.

Source:https://www.electronicsweekly.com/news/business/xmos-plumerai-link-binarised-neural-network-development-2020-04/

FCC EXPECTED TO OPEN UP 6 GHZ BAND FOR WI-FI 6

With forecasts suggesting nearly 60 percent of mobile data traffic worldwide will be offloaded to Wi-Fi by 2022, the Federal Communications Commission (FCC) this week circulated proposed draft rules to make 6 GHz of spectrum available for Wi-Fi use. The proposal is set for a vote at the FCC's open meeting on 23 April. The wireless broadband industry contends that this move will unleash the potential of Wi-Fi 6 and boost Industry 4.0 uptake.

Wi-Fi 6 operates in the 2.4 and 5 GHz bands, while Wi-Fi 6E further extends Wi-Fi functionality to the 6 GHz spectrum band to further increasing throughput and lowering latency. (Image: Wireless Broadband Alliance)

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However, the FCC push to bestow 6 GHz on unlicensed devices such as Wi-Fi is alarming in some quarters. The proposal goes beyond just 1,200 MHz spectrum in the 6 GHz band that the FCC plans to give to Wi-Fi. The FCC has also mentioned stripping away much of the 75 MHz of the adjacent 5.9 GHz band, originally set aside for the automotive industry to enable vehicle safety communications (including Vehicle-to-Infrastructure and Vehicle-to-Vehicle).

Nonetheless, this is a great news to the Wi-Fi community. Tiago Rodrigues, CEO of the Wireless Broadband Alliance (WBA), said, "The proposed opening of the 6 GHz band to Wi-Fi 6 technology will be a game changer for global Wi-Fi. This new band would provide more capacity than all the other Wi-Fi bands put together. If approved, it would prove critical for overcrowding on many Wi-Fi networks, especially in light of the volumes of bandwidth hungry corporate traffic recently pushed onto home networks due to COVID-19. This is one of the reasons we have been working closely with members on initial trials of Wi-Fi 6E."

"The proposed release of the 6 GHz band would mean that we can generate multi-gigabit speeds and low-latency connections to deliver advanced mobile services to consumers, business and industry. Wi-Fi 6E is already proven in trials to achieve speeds to rival those of advanced 5G mobile networks." Rodrigues added that Wi-Fi 6E would improve connectivity in congested places like subway or tube stations or at event stadiums. It would also support the low-latency levels needed for applications like virtual and augmented reality (VR/AR) and mobile gaming. For this reason, he said the FCC's announcement has given a very significant boost to those businesses trying to make Industry 4.0 a reality.

**Supporting very low-power devices to operate across the 6 GHz band**
In his statement this week, FCC chairman Ajit Pai released draft rules permitting unlicensed devices to operate in the 6 GHz band. The proposal would make 1,200 MHz of spectrum available for unlicensed use. Unlicensed devices would share this spectrum with incumbent licensed services under rules that are crafted to protect those licensed services and to enable both unlicensed and licensed operations to thrive throughout the band.

First trials of Wi-Fi 6 by Broadcom and Intel
The first trials carried out earlier this year used Wi-Fi 6E-capable mobile platforms and laptop equipment enabled by Broadcom and Intel. During the enterprise trials, which took place in San Jose, California, speeds of 2Gbps were achieved, comparable to 5G cellular service speeds, as well as a consistent two-millisecond low-latency connection. The trials showed that Wi-Fi 6E meets the needs of both consumer and industrial VR/AR applications.

Broadcom and Intel are leading the charge to enable Wi-Fi 6E devices. Broadcom recently announced a broad portfolio of Wi-Fi 6E chips targeted for production later in the year and predict that as many as 500 million Wi-Fi 6E compatible laptops and mobile devices will be in use in the next three years.

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CROSSWORD: ANSWERS
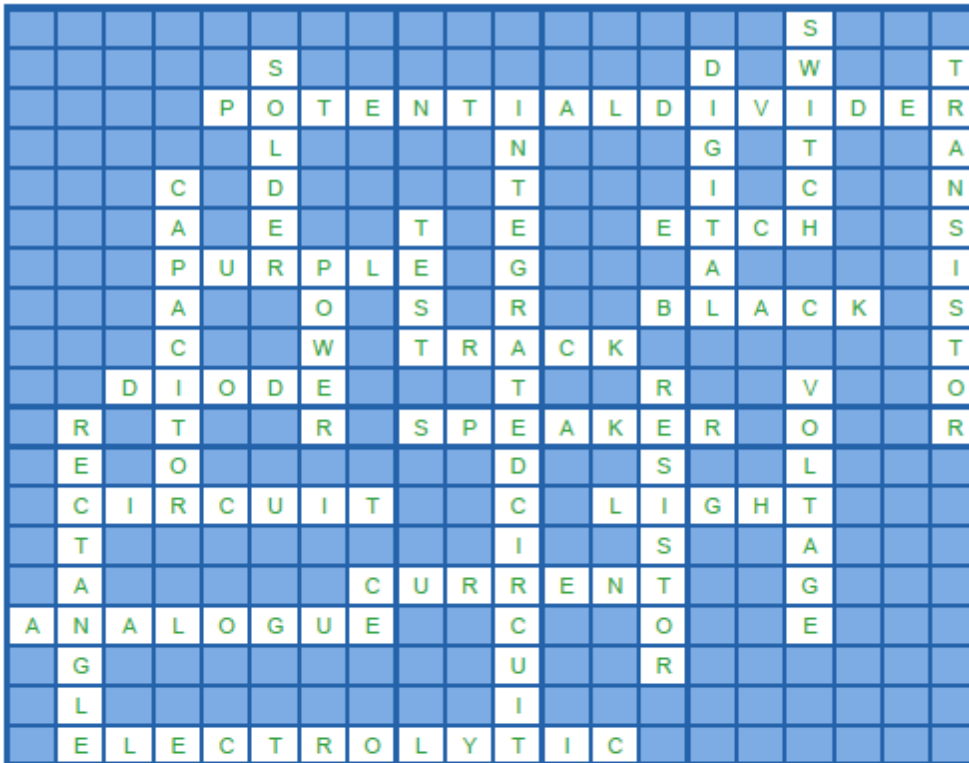
Across
1. Two resistors connected together, across a power supply (9, 7)
2. Process used to remove unwanted copper from a PCB (4)
3. Colour band used to indicate the number 7 (6)
4. Colour band used to indicate the number 0 (5)
5. Connects the components together on a PCB (5)
6. A component which allows current to flow only in one direction (5)
7. Makes a sound (7)
8. A collection of components, connected together (7)
9. The L in LED (5)
10. Flows through a circuit (7)
11. Electronics that works with real voltages (9)
12. Type of capacitor, which is polarised (12)

Down
1. Shape of the schematic symbol for a resistor (9)
2. Stores charge (9)
3. Electrically joints components to a PCB (6)
4. Energy that allows the electronics to work (5)
5. Check the board works, after construction (4)
6. A chip / part with two row of pins (10, 7)
7. Component with coloured bands to determine it's value (8)
8. Something that can only be true / false, 0 or 1 (7)
9. Used to turn things on and off (6)
10. Letters used to mark commercial electronics sold in Europe (2)
11. Measured across components such as batteries (7)
12. A component that acts like an electronic switch (10)

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INTERNET EMERGES AS BIGGEST INFOTAINMENT SOURCE FOR CONSUMERS AMID NATIONWIDE LOCKDOWN

Online has become the new highway for Indians as growing concerns over corona virus and the subsequent lockdown order restricted people at home, making smartphones, laptops and televisions only ways to access the outside world, including office.

According to data collated by various agencies and i-exchanges, internet has emerged as the biggest source for information and entertainment and also the medium to stay connected with extended family and the workplace.

Days into the 21-day lockdown, consumption through mobile phones shot up 30%, though this somewhat tempered down after content streaming companies were asked to downgrade their feed to standard definition (SD) from high definition (HD). Also, with shopping for electronics, clothes and other non-essential items coming to a standstill online, internet got a breather as surfing patterns changed. Even before the lockdown, usage went through the roof for apps around communication and social media, entertainment streaming, video-on-demand, news, gaming and healthcare. The sudden surge has been unprecedented and something never seen before, says Ivo Ivanov, CEO of De-Cix International, one of the world's biggest internet-exchange.

The De-Cix platform, whose clients in India include Amazon, Google, Microsoft, Alibaba, Facebook and Netflix, recorded its highest ever internet traffic on March 22 (Janata Curfew day), when numbers crossed one tera-bit per second (TBPS). The average traffic over the past weeks has been hovering at around 600-700 giga-bit per second (GBPS).

According to numbers collated by InMobi for the trends between March 19-22, social media, gaming and entertainment have become the biggest stress-busters for people who also work from home. There has been a 46% surge in usage of OTT (over-the-top) applications and also in TV consumption, while 35% subscribers have upped their browsing of news and other information, possibly to track developments around corona virus.

Also, four in 10 smart phone users are spending more time on communication and social media apps, while equal numbers are sharing funny posts, memes and other such content with family and friends.

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