MIND RONICS

April - June, 2023

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (A)

MIND RONICS

CHIEF PATRONS

Shri. L. Bali Reddy, Founder Chairman (Late).
Shri. L. R. N. K. Prasad Reddy, Chairman.
Shri. L. Jaya Prakash Reddy, Co-Chairman.

PATRONS

Shri. G. Srinivasa Reddy, President, LBCT.
Dr. K. Appa Rao, Principal.
Dr. K. Harinadha Reddy, Vice-Principal.

EDITOR-IN-CHIEF

Dr. Y. Amar Babu, Head & Professor,
Dept. of Electronics and Communication Engineering.

EDITORS

Dr. T. Satyanarayana, Professor, ECE.
Mr.P.James Vijay, Assistant Professor, ECE.

STUDENT COMMITTEES

EDITORIAL BOARD

A. Kamal Phaneendra, 20761A0468.
B. Snigdha, 20761A04D2.
Sk. Taufeeq Ahmad, 20761A04I2.
A. Jaswanth, 21761A0466.

SCREENING COMMITTEE

A. Rahamtunnisa, 20761A0401.
B. Radhika, 20761A0406.
Y. Harshitha, 21761A04J3.

DRAFTING COMMITTEE

Ch. Anand, 20761A0408.
Y.V. Shashi Rekha, 20761A04C8.
B. Devi Sri Priya, 21761A0472.

Focus & Scope:

A department magazine encourages the students to think, present and draft that help them in developing their talent, technical and writing skills. Also it helps them to improve their power of thinking and strengthen their imagination. Our department magazine MINDTRONICS consists of Articles on Emerging Developments in Electronics, Cartoons, Poetry, Drawings and Review Writings on Latest Happenings collected from department students.

Contact :
Dr. T. Satyanaryana - 9346429163
A. Kamal Phaneendra - 9030729999

Send your articles to mail ID
mindtronics.lbrce@gmail.com

DISCLAIMER

Foreword

Electronics and Communication Engineering (ECE) involves researching, designing, developing, and testing electronic equipment used in several engineering systems. It gave me great satisfaction to know that the Department of Electronics and Communication Engineering has come up with its own magazine, "Mindtronics". The way they presented it was unique, very creative and hope it will serve as a motivational and technological source for the students to exhibit their inherent talents and improve their skills. I'd like to express my appreciation to the whole team members of Mindtronics including Faculty Coordinators who really made it possible.

Dr. K. Appa Rao,
Principal

The branch ELECTRONICS stands for "Ever Learning, Ever Creative Through Research Onsetting New Inventions Comforting Society". The Department of ECE's magazine, "TechConnect," recently revised as "Mindtronics," that has been a source where members of the department are invoked to share their ideas, talents which includes technical, general aspects, and I strongly believe it is a wonderful platform to showcase their creative skills. I appreciate the entire students' team of Mindtronics for their efforts and hard work that they put in to bring out this edition. I extend my sincere thanks to Faculty Coordinators for their fabulous guidance. I hope this magazine gets strengthened further in all aspects to improve the overall skillset of students.

Dr. Y. Amar Babu,
Proffesor & Head, ECE

Table Of
Contents

Category -I

EMERGING DEVELOPMENTS IN ELECTRONICS

FLEXIBLE DISPLAYS

Displays represent information visually, so they have become the fundamental building block to visualize the data of current electronics including smartphones. Recently, electronics have been advanced toward flexible and wearable electronics that can be bent, folded, or stretched while maintaining their performance under various deformations. Here, recent advances in research to demonstrate flexible and wearable displays are reviewed. We introduce these results by dividing them into several categories according to the components of the display: active-matrix backplane, touch screen panel, light sources, integrated circuit for fingerprint touch screen panel, and characterization tests; and we also present mechanical tests in nano-meter scale and visual ergonomics research.
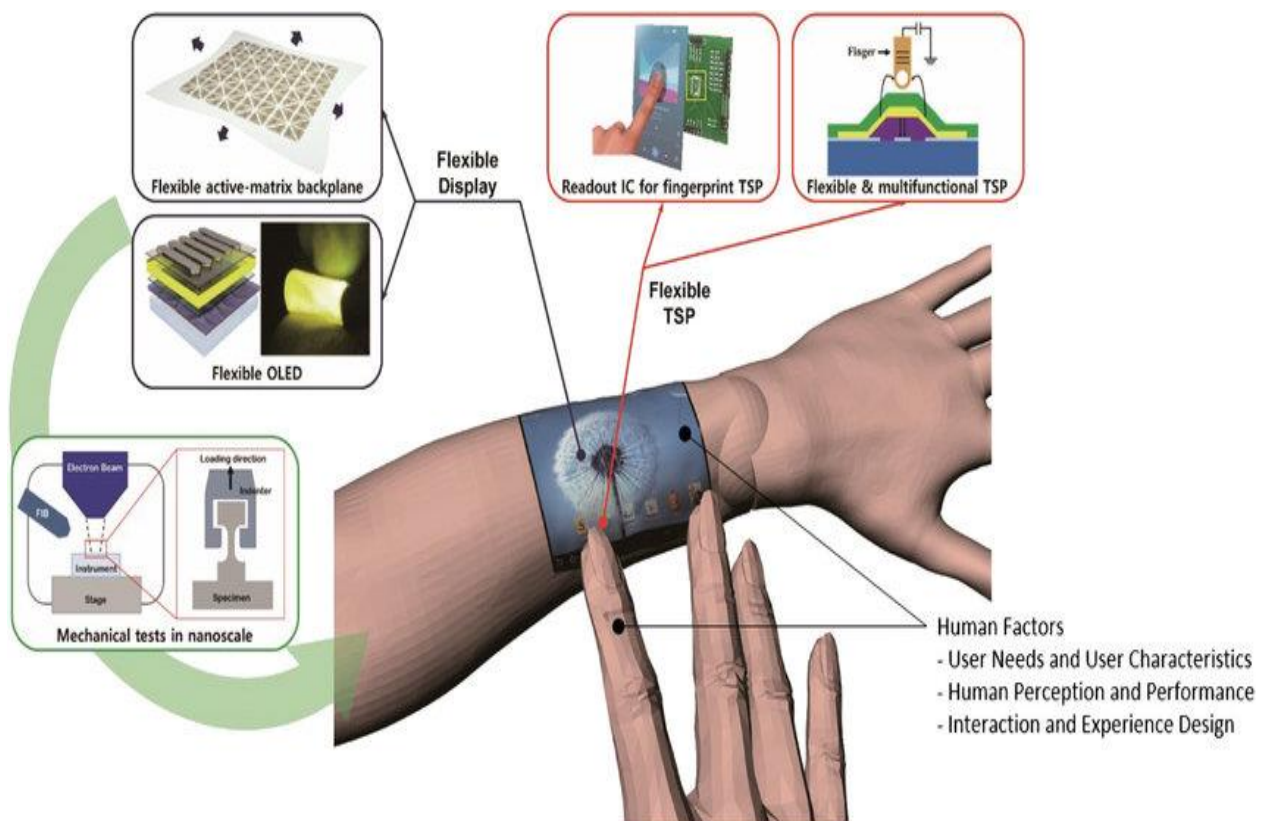

Displays represent information visually, so they have become the fundamental building block to visualize the data of current electronics including smart phones. Recently, electronics have been advanced toward flexible and wearable electronics that can be bent, folded, or stretched while maintaining their performance under various deformations.

The main types of flexible display are OLED (organic light-emitting diodes), LCD (liquid-crystal display), EPD (electronic paper display), and others. The OLED-based flexible displays are used in televisions, computer systems, laptops, and smart phones owing to their better image quality, high degree of flexibility, and consumption of less energy.

The global flexible display market is expected to grow from $10.58 billion in 2021 to $14.34 billion in 2022 at a compound annual growth rate (CAGR) of 35.6%. The flexible display market is expected to grow to $44.72 billion in 2026 at a CAGR of 32.9%.

The flexible display market consists of sales of flexible displays by entities (organizations, sole traders, and partnerships) that are used in virtual reality (VR) headsets, digital cameras, laptops, and televisions. A flexible display refers to an electronic display printed on a foldable plastic membrane that can easily be twisted.
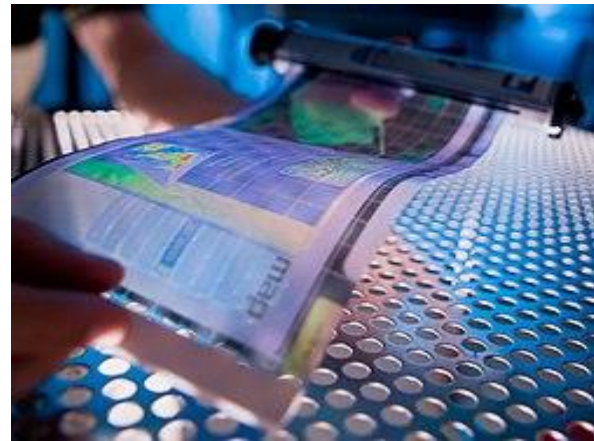
Most flexible displays are made of OLED displays because they give better picture quality even when the screen is bent and twisted. For instance, according to Display daily, a US-based technology news publisher, in 2019, there were 3.4 million OLED display TV units sold, and this number is expected to grow by 19% to $6.4 billion units by 2024. Also in 2019, 466 million units of OLED display phones were sold. Therefore, the rising use of OLED displays in devices such as smart phones and TV is driving the growth of the flexible display market.

All I can think is that it will give us more screen space like tablets do. But is it worth it? for example tablets were pretty big things a few years back and now i don't even know anyone who owns a tablet. Similar is the case with VR. It was a big thing last year or year before but only in news. It never took off like people said it will.

BY:

CH.JYOTHIRAM

20761A0409

ENGINEERING FOR CHANGE–APNE BOOT

APNEA

Sleep apnea is a common condition in which your breathing stops and restarts many times while you sleep. This can prevent your body from getting enough oxygen. You may want to talk to your healthcare provider about sleep apnea if someone tells you that you snore or gasp during sleep, or if you experience other symptoms of poor-quality sleep, such as excessive daytime sleepiness.

BEMPU Health has developed Apne Boot, a wearable device to alert for bradycardia and hypoxia, key symptoms of neonatal apnea. Further, Apnea Boot resolves episodes of apnea and prolonged hypoxia episodes in premature newborns through an instantaneous tactile stimulation to the foot sole. The device has a built-in pulse oximeter with an alarm and auto-stimulation mechanism that fits on the newborn foot in the convenient form factor of a baby boot. The device can be worn immediately upon birth and is designed to fit very small babies.

TECHNOLOGY FOR THE DISORDER –APNEA

The Apnea Boot is an apnea monitoring device for infants developed by Bempu Health. The device is in prototype stage and is currently undergoing clinical validation. Apnea Boot is a shoe that monitors an infant for episodes of central apnea. When one is detected, the shoe vibrates the infant's foot (stimulating the nervous system to restart breathing) to prevent apnea related damage. It sends out alarms (using both sound and light) to alert nurses and caretakers that an episode of central apnea is occurring. The Apnea Boot can be used in homes, wards, neonatal intensive care units, and during medical transport. Apnea Boot has a built-in algorithm which monitors for drops in oxygen saturation and/or heart rate. In the event of an episode, Apne Boot:

- Vibrates against the newborn's foot sole, which contains significant nerve endings. This stimulates the nervous system and restarts breathing.
- Emits an audiovisual alarm to get the nurse's attention in the case apnea is secondary and requires interventions more than stimulation like assisted ventilation for resolution.
- The device also has battery back-up to last for 12 hours without recharge, providing continuous monitoring even under conditions of unreliable power supply or transport.

- It is portable, robust, reusable, and affordable making it an appropriate innovation for low-resource settings.

Main Target Group-Hospitals and neonatologists caring for premature newborns in NICUs.

Main User-Premature newborns at risk of apneas.

Price of the device: Because the device is still in development, the retail price is unknown.

DRAWBACKS :

- The key draw back in this device is it shows us valuable information and also releases radiation which is very harmful for the premature baby.
- This factor should try to reduced or removed so that there will be no risk to brain disorders, which may occur to all time wearing of the apnea boot device.
- There is also another factor that is electric signals also needed to pass from the feet of the premature baby to head of the baby.

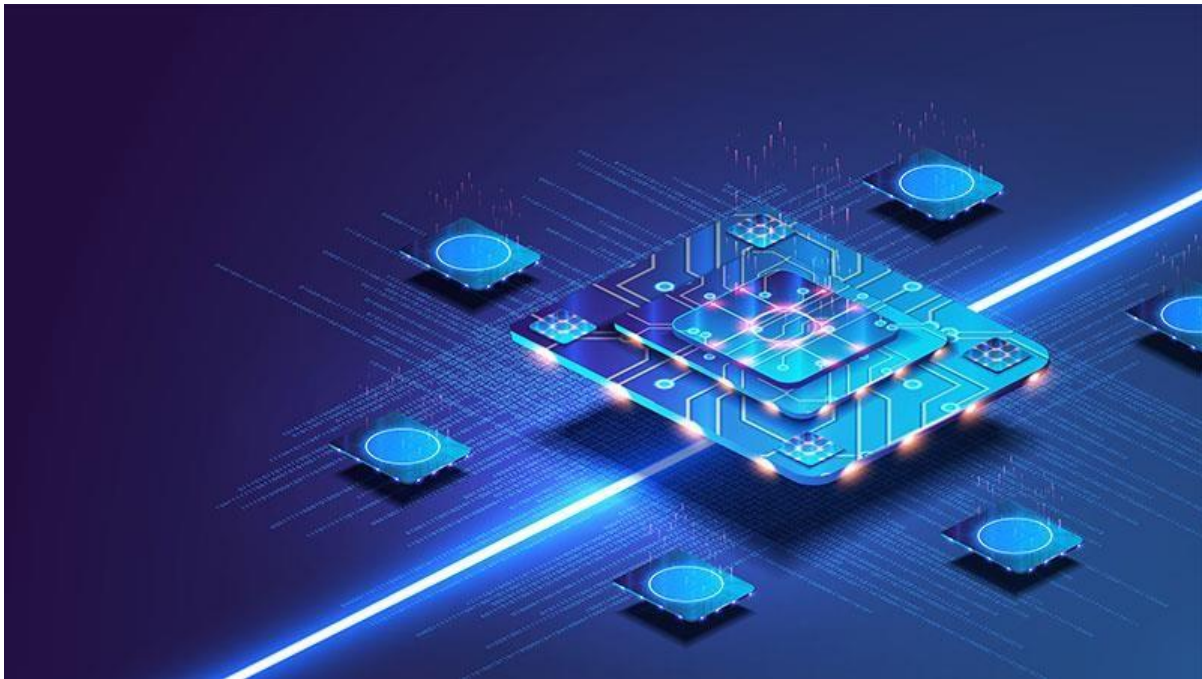**BY:**

N.Thejasri

21761A0436

QUANTUM COMPUTING

Quantum computing is an area of computer science that uses the principles of quantum theory. Quantum theory explains the behavior of energy and material on the atomic and subatomic levels. Quantum bits, or qubits, allow these particles to exist in more than one state (i.e., 1 and 0) at the same time. Classical computers today employ a stream of electrical impulses (1 and 0) in a binary manner to encode information in bits. The field of quantum computing emerged in the 1980s. It was discovered that certain computational problems could be tackled more efficiently with quantum algorithms than with their classical counter parts.

Building a quantum computer takes a long time and is vastly expensive. Google has beenworking on building a quantum computer for years and has spent billions of dollars. It expects to have its quantum computer ready by 2029. IBM hopes to have a 1,000-qubit quantum computer in place by 2023.
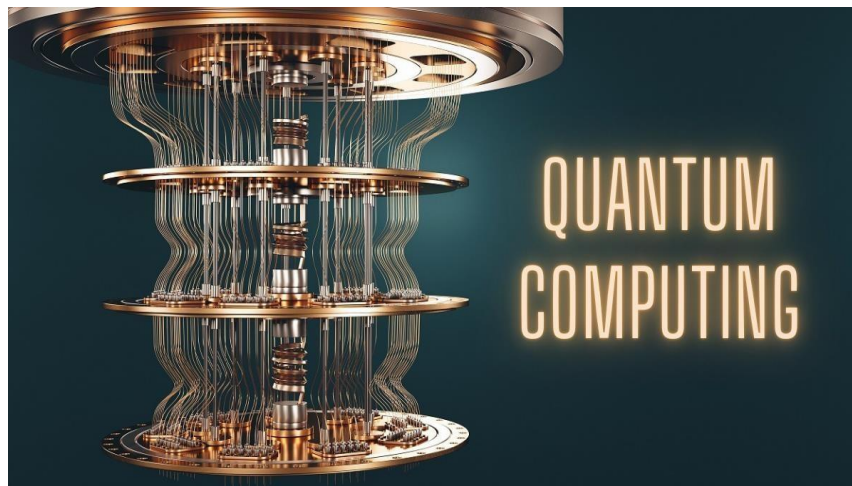
A quantum computer cost billions to build. However, China-based Shenzhen SpinQ Technology plans to sell a $5,000 desktop quantum computer to consumers for schools and colleges. Last year, it started selling a quantum computer for $50,000

A quantum computer is many times faster than a classical computer or a supercomputer. Google's quantum computer in development, Sycamore, is said to have performed a calculation in 200 seconds, compared to the 10,000 years that one of the world's fastest computers.

As you might have guessed, quantum computing is a complex field that's difficult for non-experts to understand. However, it is possible to grasp some of the fundamental concepts, giving you a basic understanding of how quantum computers work. To grasp how quantum computing works, there are a few key concepts to understand. Below, we've given some simple explanations of these:

Qubits: As we explore in our open step on qubits, traditional computers are built on bits. These bits(short for binary digits) are the basic units of information in computing, where two distinct configurations can be measured.

They can be thought of as on or off, up or down, or, as encoded in binary, as either 0s or 1s. These qubits can be made from quantum-mechanical systems that can have two states.

Superposition: Unlike traditional computing bits, which can be either 0s or 1s, qubits can exist as either 0s or1s, or a mix of both simultaneously. This phenomenon, known as a state of superposition, means that all combinations of information can exist at once.

Entanglement: Another key part of quantum computing is the quantum effect known as entanglement. Putsimply, this phenomenon creates a correlation between two qubits. As such, when two or more qubits are entangled, a change to one can impact the others.

Advantages of quantum computing

- **They're fast**. Ultimately, quantum computers have the potential to provide computational power on a scale that traditional computers cannot ever match.

- **They can solve complex problems**. The more complex a problem, the harder it is for even a supercomputer to solve. When a classical computer fails, it's usually because of a huge degree of complexity and many interacting variables.

- **They can run complex simulations**. The speed and complexity that quantum computing can achieve means that, in theory, a quantum computer could simulate many intricate systems, allowing us to better understand some of life's great mysteries

Disadvantages of quantum computing

- **They're difficult to build**. As we saw with IBM's Quantum System One, a functional quantum computer needs a very specific set of conditions to operate. They require unique components, massive cooling systems, and expensive technology to run at even a basic level.

- **They're prone to errors**. Due to the nature of quantum mechanics and qubits, environmental factors can soon produce errors and lose their quantum state. These errors multiply with levels of complexity, which means that to reach their potential, a solution for error correction is needed.

- **They're only suitable for specific tasks.** As we'll see, quantum computers have the potential to deliver revolutionary solutions in some specific areas. However, due to the nature of how they work, they're not expected to offer advantages in all areas of computing.

If you're eager to learn more about quantum computing or want to move in the industry, there are several skills that can be useful. Below, we've highlighted some of the areas you may want to develop your expertise in:

Mathematics. A detailed knowledge of advanced mathematics is incredibly useful in the field of quantum computing. Advanced algorithms are often at the heart of the field, as is a knowledge of areas such as data analytics.

Physics. As we've discussed, quantum physics forms the foundation ofquantum computing. Understanding the link between physics and technology can be hugely beneficial for those wishing to enter the field.

Programming. Another key area is the ability to write and understandcode. One of the key programming languages in quantum is Python, which forms the basis of the Qiskit software development kit oftenused in the industry.

By:
Medhini Maganti
20761A0491

# Category –II

REVIEW WRITINGS ON LATEST HAPPENINGS

ADVANCEMENT OF CMOS TECHNOLOGY BY IMPROVING CONTACT TO POLOGIES OF 2D MATERIALS

As the industry advances, it is important to improve the efficiency of active andpassive components. One of the ways to do that is to increase the knowledge ofdifferent contact types of 2D materials.

In the field of CMOS, there has been enormous growth mainly due to the adoptionof sub-10 nm node technology. Therefore, it is vital to understand the interfaces of such devices. To keep Moores's law strong, it is evident that both active and passive components are heavily dependent upon contact with 2D materials.

Despite having exotic properties like silicon-comparable mobility, high band gap,and pristine interfaces, 2D materials lack contact resistance. Moreover, due to a limited fundamental understanding of carrier transport over 2D materials, the analysis of functional circuits with
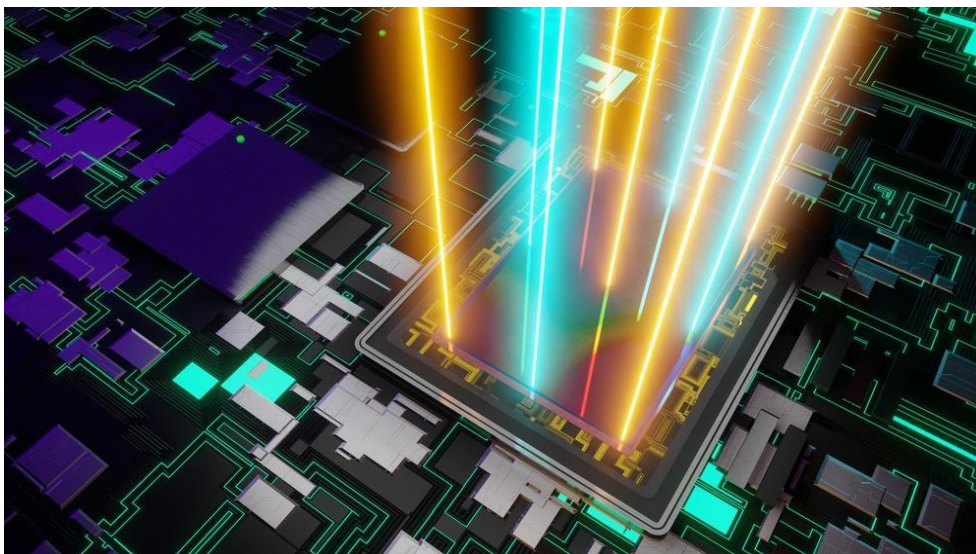
benchmarking of realistic 2D-FET device performance is greatly hampered.

To tackle these issues, a comprehensive theoretical framework and 2D-contact modeling can be developed by integrating DFT simulations with NEGF to formulate closed-form expressions of contact resistances. Using this analytical model, a better evaluation of 2D materials in designing circuits and **FETs**, such as **TMDs**, can be achieved but it can also procure more accurate values of R_C.

The framework of analysis consists of modeling contact geometries which include edge, top, and hybrid junctions with the help of fundamental DFT calculations. Moreover, with the help of NEGF, these contacts can be sorted to understand the mechanism of Fermi-level pinning and electrical current flow. These transfer coefficients can be effectively used to extract R_C, provided that allsimulations take place in Quantum ATK.

Using Perdew-Burke-Ernzerh alteration of the generalized gradient approximation exchange-correlation function, with Hartwigsen -Goedecker- Hitter (HGH) pseudo potentials and Tier 4 basis sets, DFT calculations are carriedout. Here, a maximum force of 0.05 eV/Å for geometry optimizations and a density mesh cutoff of 240 Rydberg were used. This helped in the realistic calculation of the MoS_2 band gap to 3% of its experimental value, which is critical for R_C and Schottky barrier height calculation.

The yield of overall current from Landauer formalism is obtained by setting the transmission spectrum using 21 x 21 x 1 k-point sampling via NEGF formalism.The I-V plots for reverse and forward bias junction are calculated at three different points which is varying in temperature and doping levels.
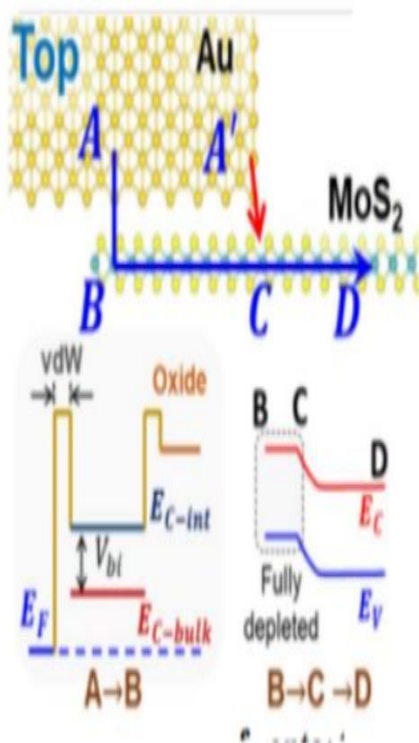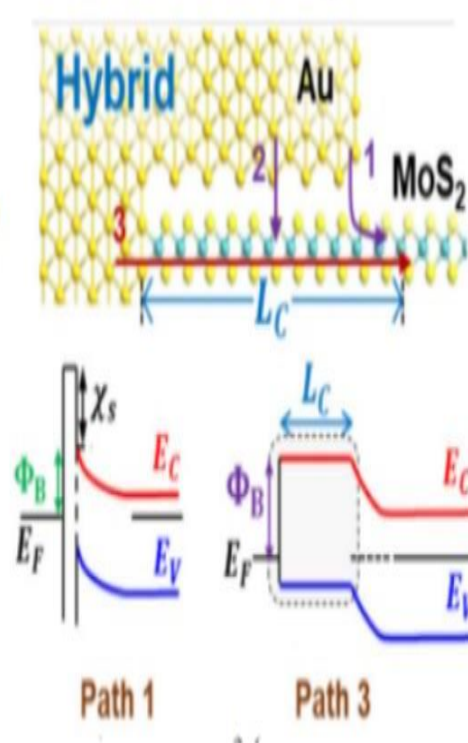

Fig 1 a
Fig 1b

To study the analytical R_C model, it is first crucial to formulate an I-V model for the extraction of SBH in different interfaces. The functional band diagrams for top and edge contact configuration can be studied via Figure 1(a) and 1(b), respectively.

Traditionally fabricated back-gated 2D FETs heavily depend upon back-gate bias for effective carrier injection, as well as modulating the channel potential as seen in Figure. Here, R_C is observed to reduce 8 times as the V_{BG} is increased to 0.6 V.
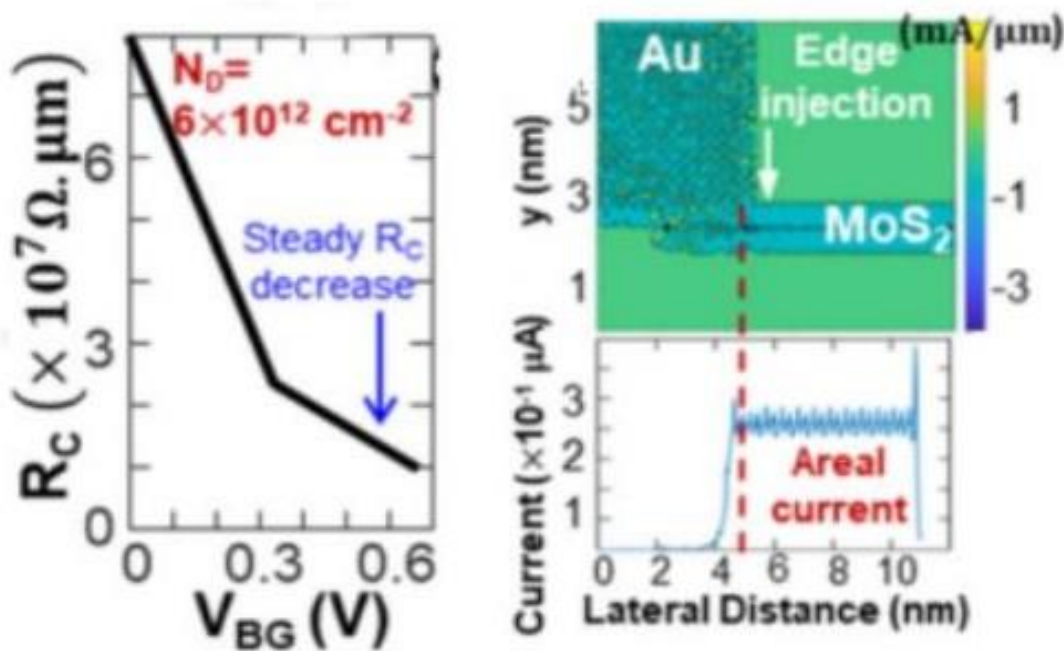

As the industry advances, it is important to improve the efficiency of active and passive components. One of the ways to do that is to increase the knowledge of different contact types of 2D materials. One of the ways to increase computational efficiency over traditional NEGF simulations was to develop a precise closed- form expression of R_C for different contact topologies.

The analysis of the effect of R_C over a huge range of temperatures and doping concentrations with FLP and SBH proved to be of immense use in this paper.

By

Ch.Jyothiram

20761A0409

MEMRISTOR

The concept of memristors was introduced by an American electrical engineer Leon Chua in 1971.He inferred the possibility of an additional nonlinear circuit element linking magnetic flux and charge. The concept of memristor was introduced by an American electrical engineer Leon Chua in 1971. He inferred the possibility of an additional nonlinear circuit element linking magnetic flux and charge.
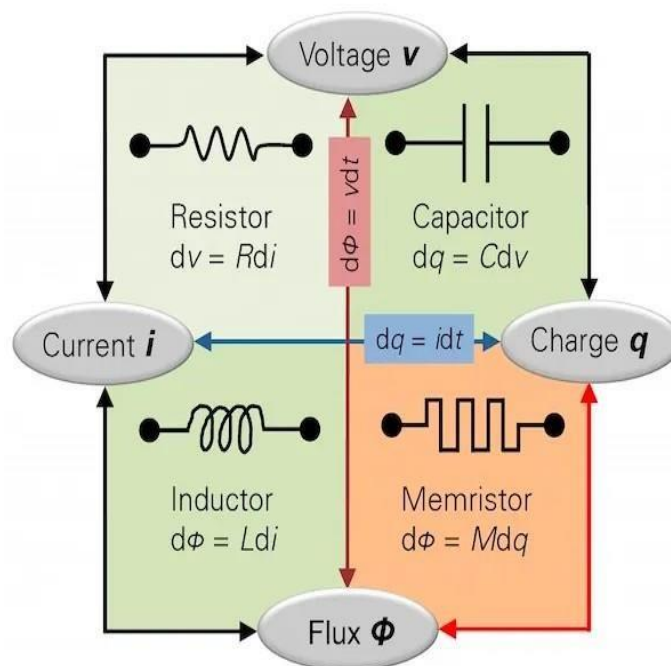
Every electronic circuit is made up of passive components such as inductors, capacitors, and resistors. There is a fourth component called memristor – these are semiconductors used to createlow power consuming storage devices. A memristor regulates the current flow in a circuit while remembering the amount of charge that has previously flowed through it. Memristors are non- volatile components that have very high storage as well as speed. Memristors patents include applications in signal processing, brain-computer interfaces, reconfigurable computing, programmable logic, and neural networks. In the future, these devices can be applied to carry out digital logic with the implication in its place of NAND gate.

By

P. DHANUNJAYA RAO

20761A04H1

NEW ENHANCEMENTS IN LIGHT- BASED WIRELESS CHARGING TECHNOLOGY

Wireless charging is a technology that is spreading in many electronic applications, such as consumer electronics, automotive and Internet of Things (IoT). Wireless charging is a technology that is spreading in many electronic applications, such as consumer electronics, automotive and Internet of Things (IoT). For low-power devices, wireless over-the-air (OTA) power transfer offers significant benefits, including the absence of cumbersome connecting cables and the reduction or elimination of batteries, which require maintenance to their replacement. Wi-Charge has made an important announcement about an improvement to their technology in an attempt to grow the industry and provide wireless charging for more devices and programs.

Wireless charging solution:

Among the companies that offer solutions of this type, Wi-Charge stands out. Based in Rehovot, Israel, the company has developed a wireless charging technology based on infrared rays, thus differentiating from the classic inductive power transfer and RF charging. Wi-Charge has developed Air Cord, a wireless power solution consisting of a transmitter and receiver that use a beam of light to charge different types of devices. According to Wi-Charge, unlike other technologies, where power decreases as the square of distance, with this technology the power is independent of distance.

Furthermore, power is supplied only to targeted devices, without spreading unwanted radiation into the surrounding environment. Connected to the electricity grid (alternating or direct current), the wireless power transmitter (Figure 1) converts electricity into safe infrared beams, which deliver energy to the client devices.

On the other side, the wireless power receiver, which can be plugged into or embedded in a client device, converts infrared energy back to electricity. The receiver can then use this energy to charge an internal rechargeable battery or a super-capacitor. The receiver sends back client device telemetry including battery status, usage stats, billing information and more.

A single transmitter can power multiple devices (which are automatically identified), while multiple transmitters can also be used in topologies for larger deployments, such as supermarkets, production floors, shopping centers, and restaurants.

The Gen2 receiver:

Recently, Wi-Charge announced a significant upgrade to its technology in an effort to advance the market and provide wireless charging to more gadgets and applications. Wi-Charge is advancing the realization of its goal of a wire-free world with the introduction of its Gen2 Receiver. The Wi-Charge Gen2 Receiver is a significant advancement for the sector that offers device manufacturers direct access and sets new norms in power, simplicity of integration, and form factor.

Figure 1: AirCord wireless power transmitter (Source: Wi- Charge)

According to Wi-Charge, the new improvements increase power while decreasing footprint to enhance the wireless charging capabilities and range of devices. With a footprint that is 30% smaller and delivers 40% more power than the previous version, the Wi-Charge receiver is now compatible with an even greater variety of devices and use cases.According to Wi-Charge, the receiver has been improved with the following:

- Charging solution: the Gen2 receiver now comes with a battery charger, a control interface, and an output voltage that can be customized. It can also send customer warnings and telemetry from the receiver to the transmitter, which can then send it to the Wi- Charge cloud

- Increase in Power: the Wi-Charge transmitter can now power more devices with a single transmitter, as well as devices that need more power to run their features or have more power-hungry features overall.

- A reduced total bill of materials (BOM) for the client device. This is the result of simpler electronic integration, improved aesthetics, and easier mechanical integration into the original system (using less R&D funds).

"With the first-generation receiver these new enhancements were not existing, and everything was done on the customer side. Our second-generation receiver includes all those capabilities inside one package which is highly appreciated by our customers as it makes integration trivial and at a lower cost", said Ori Mor, co- founder and chief business officer of Wi-Charge in an interview with EE Times.

The working parameters of the Gen2 receiver, such as, for instance, the voltage level used to recharge the battery, can now be configured via software. That means the customer can simplify the design of the solution, saving time and reducing cost. With the previous generation receiver, Wi-Charge had to design the battery pack, and then integrate it with the customer's PCBA which included the battery charger, the voltage converter, and the processor that would communicate over I2C how much battery was available inside the battery.

"With our second-generation technology, all those features are already inside the receiver. All you have to do is to wire it to the battery and configure it with the relevant parameters. That's it, you just have to do the wiring and the mechanical packaging", said Eli Zlatkin, vice president, R&D, Wi-Charge. The new receiver achieves a substantial improvement in power, size, and cost. As Zlatkin pointed out, it is not that the power has been increased, but the efficiency.

"The power our Gen2 receiver gets from the transmitter is the same as before, but the efficiency is significantly improved. Previously, our lower power devices were providing 60 mW, whereas now they're at 100 mW. And the higher power devices went from 250 to 330 mW, and all that was achieved using the same transmitted power level", said Zlatkin. These improvements have been achieved by using better and more efficient components, redefining the layout of the circuit, and better understanding how to use the controller. The module has not been designed for external integration, or as a plug-and-play device for consumer applications. It's only for internal integration inside the device, by means of a small cheap connector that was not available with the previous generation.
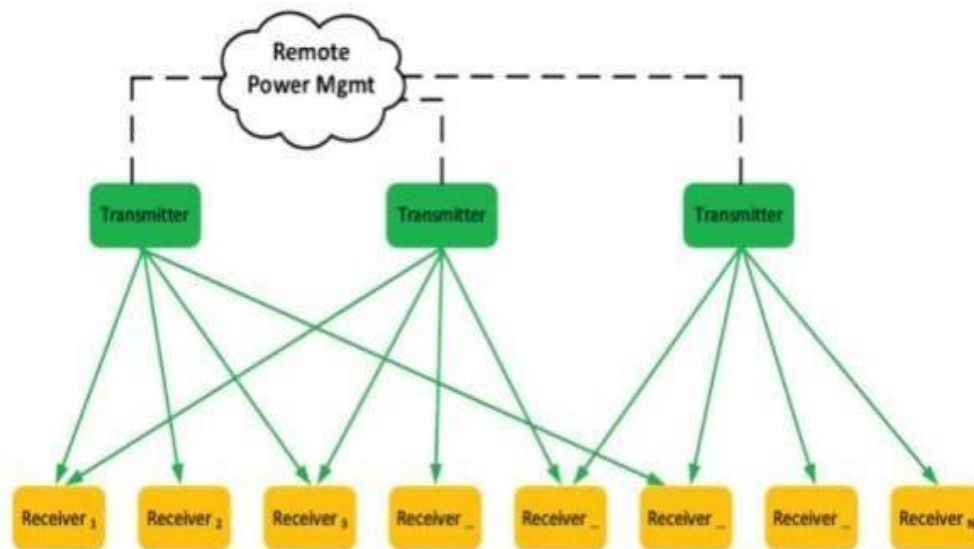
Figure 2: Wi-Charge network with multiple transmittersand receivers (Source: Wi-Charge)

Additionally, a network with multiple transmitters and receivers (see Figure 2) can be built, allowing the customer to prioritize a particular device over other types of devices. It can be thought of as a sort of quality of service (QoS) feature, where a certain customer might pay more for a higher priority in charging.

For instance, if in the same network there are a smart lock and a toothbrush, it might be more important for the lock to have a full battery. Therefore, according to Wi-Charge, For instance, if in the same network there are a smart lock and a toothbrush, it might be more imp we could define a policy where the lock gets higher priority in charging than the toothbrush.

"For the next year, our focus will be based on wireless power advertising displays, smart locks, and other smart devices for access control in small buildings. We are already working on a commercial charging pad that you can place in meeting rooms or restaurants and a toothbrush charger. Additionally, we might also enter the electric shades, electric blinds, and industrial markets, as well. What we do with OEMs on the consumer side unfortunately can't be disclosed. But it's exciting", concluded More.

By:

N.Harshitha

20761A04G8

Category –III

DRAWINGS

LOVELY KID

By

Alekhya Balina

CARE THE NATURE, SAVE YOUR FUTURE

By

Sri Pragna Uppalapati

22765A0413

Category -IV

POETRY

WOMEN

She gave life. She is a wife.

She is a mother and she is a friend.

She is a sister, a survivor 'til the end.

Appreciate her, we don't dare.

Ask her worries, we don't care.

Wipe away her tears,

they are invisible as air.

She works, cooks and cleans.

She laughs, helps soothe,

and hides her pain.

When you struggle,

she pulls you through.

All this is her, and what do we do?

Complain and create a mess,

Provide stress and leave her depressed,

Push her away and ignore her advice.

She was raped, tortured and abused.

Told she was nothing and

would always be used,

Just for pleasure, forget her pain.

She swallows her pride,

put her feelings aside.

She ignores your ignorance

and tolerates your flaws.

You call her names, but

She answers with pride, dignity,

and a complete loss of self.

You call her nothing.

I call her strong, smart,

Sensual, caring,

Giving, surviving, tolerant and powerful.

I call her WOMEN!!!

BY:
Sk.Ayeesha
20761A04H9

POEM ON COLLEGE LIFE

Stepping into a new life where One faces

oneself

Some consider everything a race and chase

after them all,

While others find it difficult to even tie

their shoelace.

Many here care for you, but you care

for a select few

Lots of leisure, lots of pressure

In the midst of which, some search for treasure.

The greatest invention being the headset without which

no one's heads are fit More sleep, less work, but still

feeling tired every other minute.

Sudden decisions rare output even don't

care for taking next More dance, more

wishes, Many an exam and test.

Suddenly, when you look back The poster says

'The End',

The 35040 hours of these four years Are just like the

three hours of a movie

Passing by in the snap of your fingers Leaving behind many

a memory that lingers.

BY:

SK.Rahamtunnisa

20761A0401

Category – V

PUZZLES

SUDOKU 1

Sudoku is a type of puzzle in which certain numbers must be arranged within a grid. The aim is to avoid repeating any number in the same row or column.

Basic rules:

- Sudoku grid consists of 9*9 spaces.
- Each row and column must contain 1-9 Numbers.
- Don't Repeat any Numbers.
- Use Process of elimination.
- The sum of single row, column must equal 45.
- The game is completed when the whole Sudoku grid is correctly fills with number.

By

S. Lahari Durga

20761A04B5

SUDOKU 2

Basic rules:

- Sudoku grid consists of 9*9 spaces.
- Each row and column must contain 1-9 Numbers.
- Don't Repeat any Numbers.
- Use Process of elimination.
- The sum of single row, column must equal 45.
- The game is completed when the whole Sudoku grid is correctly fills with number.

	7		5	8	3		2	
	5	9	2			3		
3	4				6	5		7
7	9	5				6	3	2
		3	6	9	7	1		
6	8				2	7		
9	1	4	8	3	5		7	6
	3		7		1	4	9	5
5	6	7	4	2	9		1	3

By

Y.Harshitha

21761A04J3

E – Resources

GRADE UP

Install this app for free mock tests, discussion and updates related to Gate & IES.

https://play.google.com/store/apps/details?id=co.gradeup.android

MIT OCW

MIT Open Course Ware is a web-based publication of virtually all MIT course content. Here you can access lectures of top most teachers across the globe and if you can identify what to study and what not to study then surely it will benefit you a lot.

https://ocw.mit.edu

SATISH KASHYAP SITE

Here you will find materials of different coaching institutes, Nptel links and video solutions of gate questions.

http://www.satishkashyap.com

NESO ACADEMY

In this channel you will find lectures of Gate related subjects and even IES & Gate solutions.

https://www.nesoacademy.org

GATEMATIC EDUCATION

This platform allows you to discuss your doubts related to Gate & even provide you free online lectures for subjects which are strictly related to Gate.

https://sohailansaari.wordpress.com/gate-preparation-tips/

TEAM MINDTRONICS

Dr. T. Satyanarayana,
Professor, ECE

Mr.P.James Vijay,
Asst. Professor,ECE

A. Kamal Phaneendra,
20761A0468

B. Snigdha,
20761A04D2.

Sk. Taufeeq Ahmad,
20761A0412

A. Jaswanth,
21761A0466

Y.V. Shashi Rekha,
20761A04C8

Ch. Anand,
20761A0408

B. Devi Sri Priya,
21761A0472

B. Radhika,
20761A0406

A. Rahamtunnisa,
20761A0401

Y. Harshitha.
21761A04J3