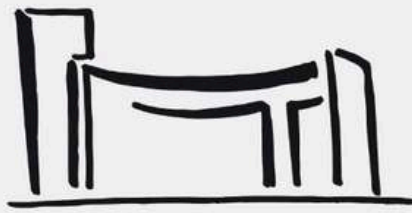


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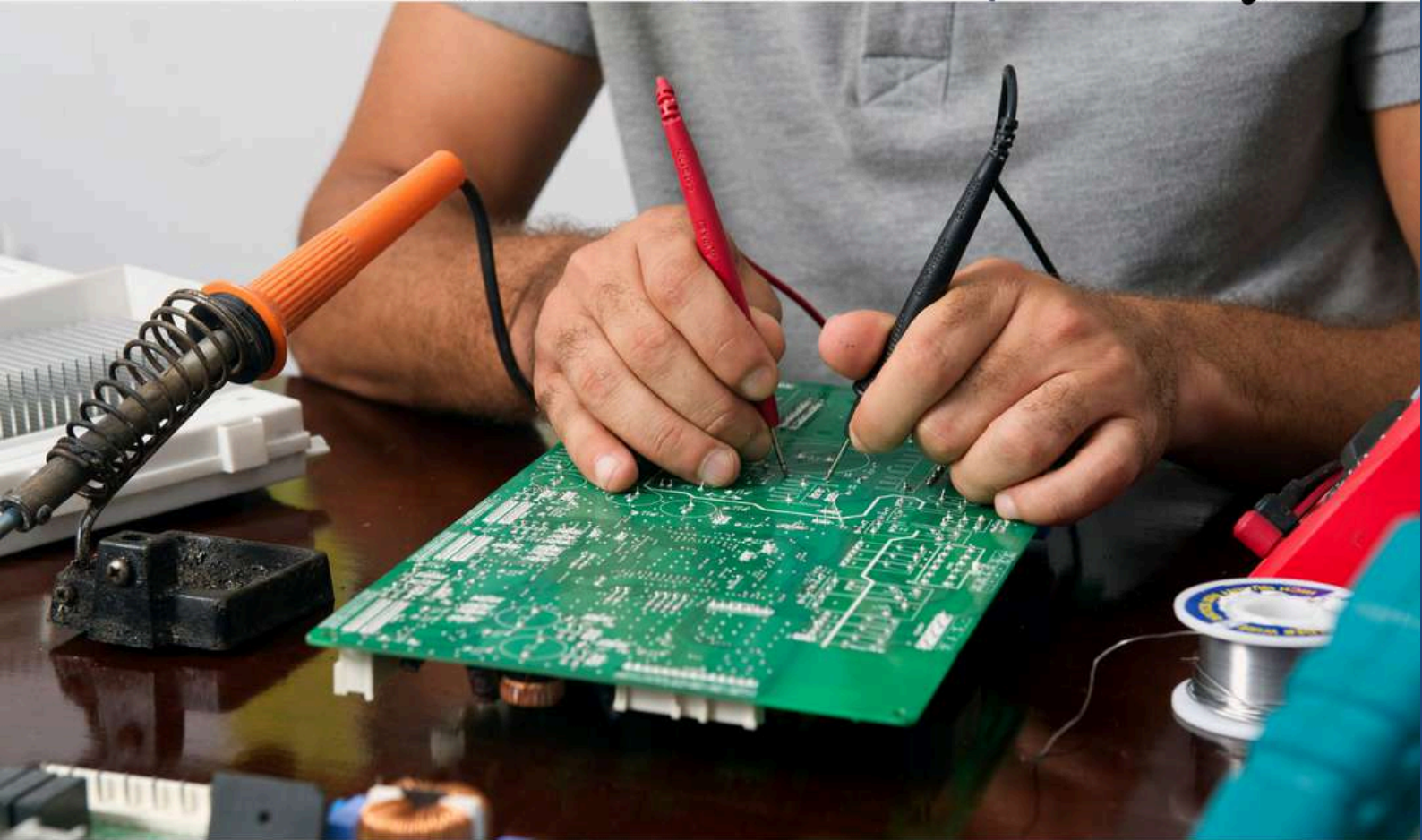
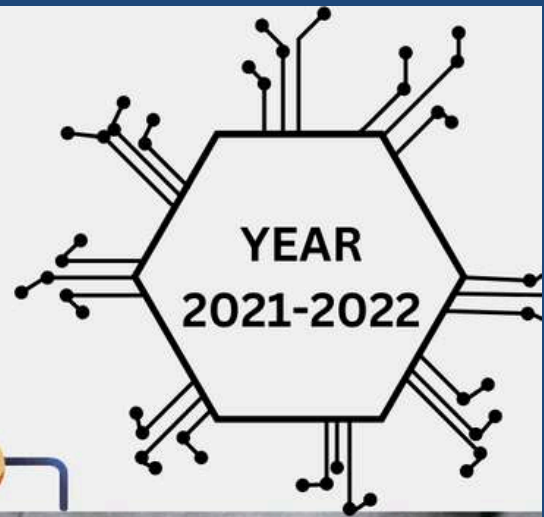


COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai

Accredited by NAAC with 'A' Grade

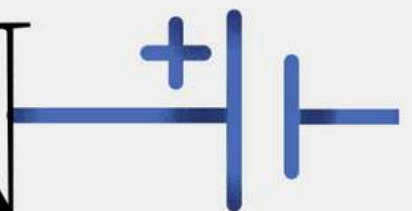
#27, Thayanur, Tiruchirappalli - 620009



THE ELEKTRON



EDITOR
SURIYA S (IV ECE)
MEMBER OF EDITORIAL BOARD
SHIFANA BEGUM (IV ECE)



VISION AND MISSION

VISION OF THE INSTITUTION

Transform lives through Education and Research

MISSION OF THE INSTITUTION

To impart quality education to students through critical thinking, creativity, leadership and the spirit of entrepreneurship

VALUES OF THE INSTITUTION

We develop in each member the ability and passion to work effectively for the betterment of humanity with cultural awareness, high ethical and moral values and a sense of social responsibility

DEPARTMENT VISION

To produce globally competent Electronics and Communication Engineers.

DEPARTMENT MISSION

M1 : To Impart Value-based Technical Education with a state of art technologies to meet industry standards.

M2 : To foster critical thinking and creativity through research and experimentation.

M3 : To prepare our students to be a lifetime professional with Creativity and Leadership.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1 - Shall pursue higher education and research, or have a successful career in industries or as entrepreneurs.

PEO 2 - Shall have the ability and attitude to adapt to emerging technological changes.

PEO 3 - Shall exhibit leadership abilities, professional ethics, communication skills, interpersonal skills and life-long learning.

PROGRAM OUTCOMES (POs)

PO1 – Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 – Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 – Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 – Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 – Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 – The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 – Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 – Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 – Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 – Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 – Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 – Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVE (PSOs)

Students of the Electronics and Communication Engineering Program

PSO 1 – Shall have Potential to analyze, design, synthesize and provide technical solutions in the field of VLSI, Embedded Systems, Communication, Networking and Real Time Processing.

PSO 2 – Shall exhibit leadership skills and pursue entrepreneurship and contribute in the field of Electronics and Communication Engineering.

CEO'S ADDRESS



SHRI.B.PRATIVE CHEND

I am Delighted that ECE Department has started this initiative to publish a Magazine. I am looking forward to seeing this run fully by the ECSA student body. This will be a great platform for students to showcase their skills.

Hope the Magazine will include Alumni Voices and their journey through the corporate world. To the students, believe in yourself, you can achieve your dreams.

Best Wishes

PRINCIPAL 'S ADDRESS



DR.S.SHANTHI

The Magazine is a way of connecting students and other stakeholders. I am excited to give a note for the Magazine of Electronics and Communication Engineering department. This Magazine exhibits the talents and research interests of our students and faculty. This newsletter brings out the achievements of students and faculty in all spheres of their learning and upgradation.

And also becomes a knowledge repository and act as a platform form for sharing information. I congratulate the ECE team for their achievements and bringing out this Magazine. And I wish all the success to the department of ECE all their future endeavors.

Best Wishes

HOD'S ADDRESS



Dr. J. JEYARANI

The Department of Electronics and Communication Engineering, established in 2010, is one of the most dynamic departments of CARE College of Engineering. I am really elated to tell that the department stands on the strength of experienced and well qualified faculty who are very dedicated to teaching and also involved in up-gradation of knowledge. Their research experience will help to cultivate the future of our students.

It is with immense pride and anticipation that I address you today in light of our exciting initiative – the creation of our department's magazine. As the Head of Department, I am thrilled to witness the dynamic ideas and creative energies that will undoubtedly converge to make this magazine a showcase of our collective brilliance.

Thank you for your dedication, passion, and commitment to excellence. Together, let's make this magazine a resounding success and a source of inspiration for generations to come. Best wishes for a fulfilling and transformative journey ahead!

Best Wishes

SILICON SYMPHONY:

EXPLORING THE FUTURE OF CHIP DESIGN



Welcome to the realm of innovation, where the pulse of technology beats in the intricate circuits of chip design. In "Beyond Silicon: Exploring the Future of Chip Design," we embark on a journey through the cutting-edge landscape of semiconductor advancements and delve into the very heart of electronic evolution.

As the demand for more powerful, efficient, and compact devices continues to surge, chip designers are at the forefront of shaping the technological landscape of tomorrow. This magazine brings you an in-depth exploration of the latest trends, breakthroughs, and paradigm shifts in the world of chip architecture, unraveling the mysteries that lie beneath the surface of our electronic companions.



Fundamentals of Chip Design:

- Introduction to semiconductor materials and their properties.
- Overview of basic electronic components and their functions in chip design.
- Explanation of key concepts such as transistors, gates, and circuits.

Architecture and Design Process:

- Exploration of chip architecture and its various components.
- Overview of the chip design process, from concept to fabrication.
- Introduction to different design methodologies (e.g., VLSI, ASIC).



Trends in Chip Design:

- Discussion on current trends shaping the industry.
- Emphasis on innovations in power efficiency, miniaturization, and performance.
- Exploration of emerging technologies such as neuromorphic computing and quantum computing.

ELECKTRON

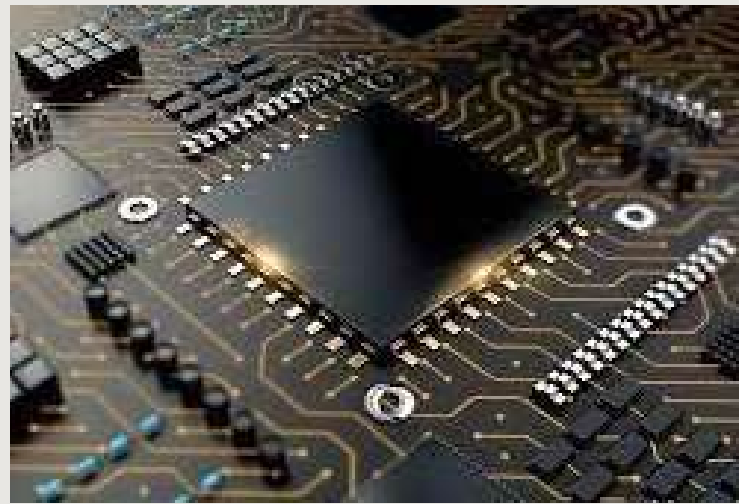
- **Materials Revolution:**
Examination of novel materials impacting chip design (e.g., graphene, 2D materials).
- **Advances in manufacturing processes and their implications.**
- **Challenges in Chip Design:**
• Discussion on current challenges faced by chip designers.
• Addressing issues like heat dissipation, power consumption, and security.
- **The Future of Chip Design:**
• Exploration of upcoming technologies and their potential impact.
• Insights into research areas pushing the boundaries of chip design.
• Consideration of ethical implications and societal impacts.
- **Industry Spotlight:**
• Profiles of leading chip designers, companies, and their contributions.
• Interviews with experts sharing insights the industry's direction.

Case Studies:

- Real-world examples of successful chip design implementations.
- Lessons learned from notable projects and their impact.

Tools and Resources:

- Overview of design tools and software used in chip development.
- Recommended resources for individuals interested in learning chip design.



CONCLUSION

In conclusion, "Beyond Silicon: Exploring the Future of Chip Design" has taken us on a fascinating journey through the intricate world of semiconductor technology. We've navigated the fundamentals of chip design, delved into current trends, and glimpsed the challenges and breakthroughs shaping the industry.

As we reflect on the content presented, it's evident that chip design is not just a field of science; it's an art form that continuously evolves, pushing the boundaries of what's possible in the realm of technology. From the early days of silicon to the latest advancements in materials and design methodologies, each step has brought us closer to achieving more powerful, efficient, and compact electronic devices.

**By ,
DHINAKARAN S
(III - Year)**

WILLIAMSON

STEADY-THE-SHIP |



When life puts you down again & again
just smile back and stand up

Stadium's waiting for you

**KANE
WILLIAMSON**

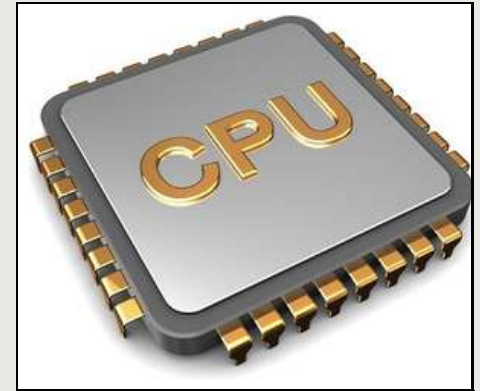
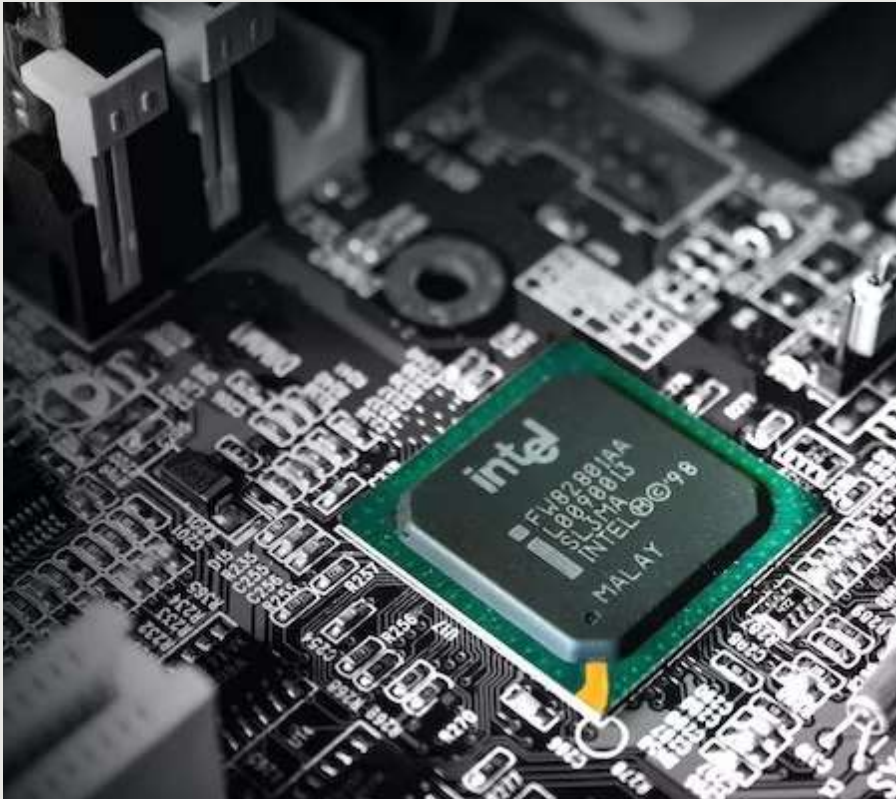


Kane Williamson is a prominent New Zealand cricketer known for his exceptional batting skills, leadership, and calm demeanor on the field. Born on August 8, 1990, in Tauranga, New Zealand, Williamson made his international debut for the New Zealand cricket team in 2010 and quickly established himself as a key player. His elegant and technically sound batting style has earned him praise from cricket enthusiasts around the world.

Kane Williamson has served as the captain of the New Zealand national cricket team, showcasing his leadership qualities during various tournaments, including the ICC Cricket World Cup. Under his captaincy, New Zealand reached the final of the 2019 World Cup, narrowly losing to England in a thrilling match. Beyond his cricketing achievements, Williamson is known for his sportsmanship and fair play, making him a respected figure in the cricketing community.

Off the field, Kane Williamson is involved in charitable activities and has contributed to initiatives aimed at promoting cricket in New Zealand. His humility, combined with his cricketing prowess, has endeared him to fans, and he remains a key figure in New Zealand cricket. Please note that developments in his career or personal life may have occurred since my last update in January 2022.

By ,
KRISHNAMOORTHY S
(II Year)



Processing Tomorrow:

Navigating the Diverse Landscape of Modern CPUs and GPUs

A processor, often referred to as the "brain" of a device, is the central unit responsible for executing instructions, performing calculations, and managing data flow. It's a silent force driving the advancements that continually redefine the landscape of computing.

The evolution of processors has been nothing short of extraordinary. From the early days of single-core processors to the multi-core powerhouses of today, the journey has been marked by relentless innovation and an unyielding pursuit of performance excellence. This evolution has paved the way for faster, more efficient, and capable computing devices that empower users to accomplish tasks that were once deemed impossible.

Processors, also known as central processing units (CPUs), come in various types, each tailored to specific computing needs. Here are some of the key types of processors:

Desktop Processors:

Consumer CPUs: These processors are designed for personal computers, catering to a broad range of tasks from basic computing to gaming and content creation. Brands like Intel Core and AMD Ryzen dominate this segment.

Laptop Processors:

Mobile Processors: Optimized for power efficiency and performance in portable devices, mobile processors are commonly found in laptops and ultrabooks. Intel's Core i series and AMD's Ryzen Mobile processors are popular examples.



Server Processors:

- **Enterprise CPUs:** Designed for handling heavy workloads and multiple simultaneous tasks, enterprise processors are used in servers. Intel Xeon and AMD EPYC are notable examples, providing scalability and reliability for data centers.

Embedded Processors:

- **System-on-a-Chip (SoC):** Embedded processors are integrated into devices for specific functions. SoCs combine multiple components (CPU, GPU, memory, etc.) on a single chip, making them suitable for applications like IoT devices, smart appliances, and automotive systems.

- **Mobile Processors:**

Smartphone Processors: These processors are designed for mobile devices, providing a balance between performance and power efficiency. Examples include Qualcomm Snapdragon, Apple A-series, and Samsung Exynos processors.

Graphics Processing Units (GPUs):

Dedicated Graphics Processors: GPUs are specialized processors designed for rendering graphics and accelerating parallel processing tasks. They are commonly used in gaming PCs, workstations, and increasingly in artificial intelligence applications. NVIDIA GeForce and AMD Radeon are popular GPU brands.

Conclusion :

In conclusion, the world of processors is a dynamic and diverse landscape, with each type serving specific computing needs across various devices and applications. From the ubiquitous desktop and laptop processors powering our daily computing tasks to the specialized server processors managing large-scale data centers, the evolution of technology has given rise to a multitude of processor types.

- **Accelerated Processing Units (APUs):**

Integrated Graphics Processors: APUs combine CPU and GPU components on a single chip. These processors are found in systems where discrete graphics cards may not be necessary, offering a cost-effective solution for basic graphics needs. AMD's Ryzen APUs are an example.

- **Quantum Processors:**

Quantum Processing Units: Quantum processors leverage the principles of quantum mechanics to perform complex calculations. Quantum computers are still in the early stages of development but hold immense promise for solving problems that are currently infeasible for classical computers.

- **Microcontrollers:**

Low-Power Processors: Used in embedded systems, microcontrollers are designed for low-power and specific-purpose applications. They are commonly found in appliances, IoT devices, and automotive systems.

- **Mainframe Processors:**

Mainframe CPUs: Mainframes are powerful computers used for critical business applications. They typically employ specialized processors capable of handling massive amounts of data and supporting multiple users concurrently.

BY ,
MOHAMED RIYAZ
(IV Year)



My Favorite FOOD

MY FAVORITE-
BIRIYANI

THE ORIGIN OF
BIRIYANI

BIRIYANI
COOKING TIPS



BIRYANI CHRONICLES: A CULINARY SYMPHONY OF FLAVORS

Biryani, a symphony of flavors woven into fragrant layers of basmati rice and succulent meats or vegetables, is not just a dish; it is an emotion. Originating from the royal kitchens of India, this culinary masterpiece has journeyed through time, adapting, evolving, and captivating taste buds across continents.

- 1. Marinate chicken with yogurt, ginger-garlic paste, and biryani spices for at least 2 hours.**
- 2. Parboil basmati rice with whole spices until 70% cooked, then drain.**
- 3. In a deep pan, sauté onions until golden brown, adding tomatoes, green chilies, and mint leaves.**
- 4. Layer the marinated chicken at the bottom of a heavy-bottomed pot.**
- 5. Add a layer of partially cooked rice on top of the chicken, then repeat for a second layer.**
- 6. Drizzle saffron-infused milk and sprinkle fried onions on the final rice layer.**
- 7. Seal the pot with a tight-fitting lid or aluminum foil, and cook on low heat for 25-30 minutes.**
- 8. Allow the biryani to rest, letting the flavors meld, for an additional 10 minutes.**
- 9. Gently fluff the biryani with a fork, mixing the layers.**
- 10. Serve the aromatic chicken biryani hot, garnished with fresh coriander and fried onions.**

FREE TIPS

1. Ensure a good meat-to-rice ratio for balanced flavors.
2. Use fresh, high-quality spices for authentic taste.
3. Let the biryani rest to let the flavors meld before serving.

BY,
BALA KRISHNAN V
(IV - Year)

Market Insights: Navigating the Waves of Financial Evolution



Riding the Bulls and Navigating the Bears: Unveiling the World of Stocks

The four most dangerous words in investing are: 'This time it's different,' By Sir John Templeton

Welcome to the inaugural issue of our Stock Market Magazine, where we embark on a journey through the dynamic landscape of financial markets. In the ever-changing world of stocks, investments, and economic trends, our magazine aims to be your compass, providing insightful analysis, expert perspectives, and a comprehensive look at the forces shaping the global financial stage. As we delve into the intricate workings of the stock market, we invite both seasoned investors and those new to the game to explore the exciting realms of trading, investment strategies, and the myriad factors influencing market movements. From the bustling trading floors to the digital hubs of financial innovation, "Market Insights" is your go-to source for staying informed and making confident decisions in the ever-evolving world of finance.

Let's take a journey to look at The Stock **A Beginner's Blueprint to Financial Mastery**

Embark on your stock market journey with "StockStart," a magazine tailor-made for beginners seeking financial empowerment. Through engaging content, expert insights, and practical advice, we guide you from the starting line, demystifying stock market intricacies, decoding market trends, and unveiling the tools for success. Join us in this comprehensive exploration, where every page is a step forward in your journey towards financial acumen. Let "StockStart" be your compass as you navigate the fascinating landscapes of the stock market, turning novices into confident participants.



It flourished when cars appeared

1. Research and Education:

Conduct thorough research on companies before investing. Stay informed about market trends, economic indicators, and financial news.

Continuously educate yourself about different investment strategies and financial instruments.

2. Diversification:

Diversify your portfolio across different sectors and industries to spread risk.

Avoid putting all your funds into one stock; diversification helps manage volatility.

3. Risk Tolerance:

Assess your risk tolerance before making investment decisions. Understand that the stock market can be volatile, and prices can fluctuate.

4. Long-Term Perspective:

- Consider adopting a long-term investment horizon.
- Historically, the stock market has shown the potential for growth over extended periods.

5. Brokerage Fees and Costs:

- Be aware of brokerage fees and transaction costs associated with buying and selling stocks. Compare different brokerage platforms to find the most cost-effective option.

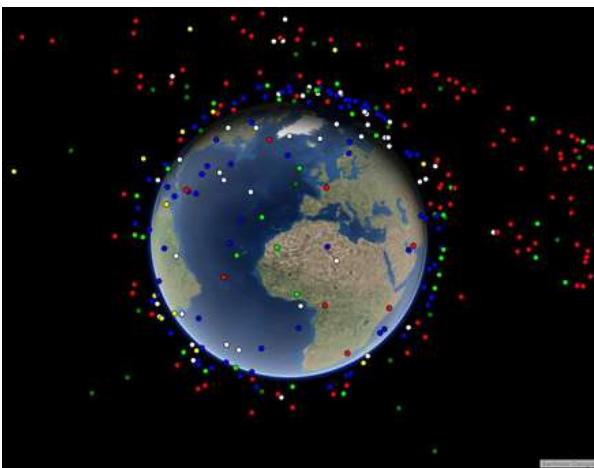
6. Monitor and Evaluate:

- Regularly monitor your portfolio's performance.
- Reassess your investments periodically and make adjustments as needed.

**By ,
VIGNESHWARAN G
(II - Year)**



SATELLITE



Satellite communication involves the use of artificial satellites in Earth's orbit to facilitate communication between two or more locations on the planet. This technology is widely utilized for various purposes, including television broadcasting, internet services, weather monitoring, global positioning systems (GPS), and military applications. The key components of satellite communication include ground stations, satellites, and user terminals.



Ground stations are equipped with antennas that transmit and receive signals to and from satellites. These stations are responsible for uplinking data (sending information to the satellite) and downlinking data (receiving information from the satellite). Satellites act as relay stations in space, receiving signals from ground stations, amplifying them, and then retransmitting the signals back to Earth, making it possible to cover large geographic areas. User terminals, such as satellite dishes or communication devices, receive signals from satellites for various applications.

Artificial satellites, human-made objects deliberately placed in orbit around celestial bodies, have become integral to numerous aspects of modern life. These satellites serve diverse purposes, from communication and Earth observation to scientific research and navigation. Positioned in different orbits, such as geostationary orbit (GEO) or low Earth orbit (LEO), they facilitate global telecommunications, monitor and collect data about Earth's surface, enable precise navigation through constellations like GPS, and contribute to scientific endeavors by studying celestial bodies and cosmic phenomena. Satellites are launched into space atop dedicated vehicles, often housed within protective payload fairings. Comprising a payload for the primary mission and a bus providing necessary support subsystems, satellites represent a collaborative effort on a global scale, with countries and international organizations cooperating on various space projects. However, the increasing number of satellites has led to concerns about space debris, prompting efforts to address responsible satellite design and disposal practices. Despite challenges, ongoing advancements in satellite technology continue to expand their capabilities and applications.

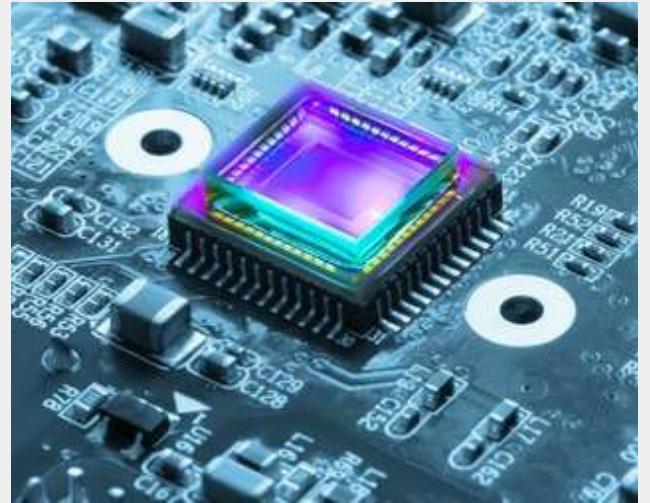
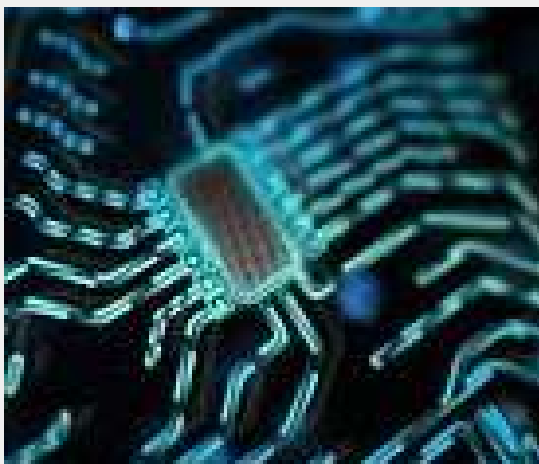
**By ,
ADITHYA P
(III - Year)**

SENSING TOMORROW: A DEEP DIVE INTO CUTTING-EDGE SENSOR TECHNOLOGY

"Sensing Tomorrow: A Deep Dive into Cutting-Edge Sensor Technology" sounds like a compelling and informative title for an article. This title suggests a comprehensive exploration of the latest advancements in sensor technology, promising the readers an in-depth analysis. Here are a few suggestions to complement this title

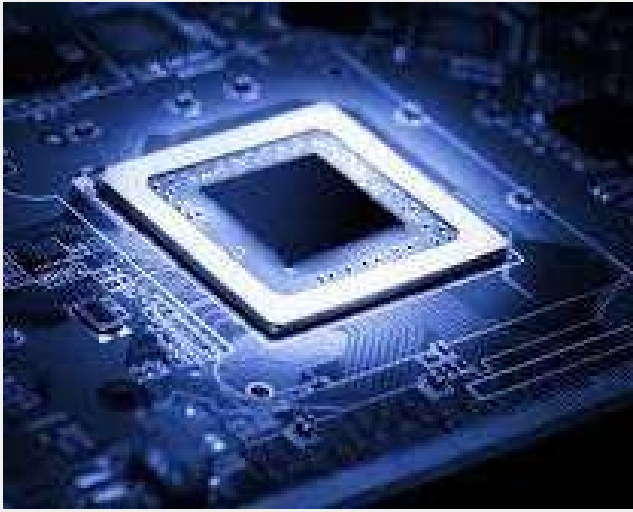
1. The Sensor Revolution: A Primer Delve into the fundamentals of sensor technology – from the basic principles to the diverse types of sensors. Uncover how these devices translate the physical world into digital data and serve as the backbone of modern innovation.

2. Smart Cities: How Sensors Are Reshaping Urban Living Discover the role of sensors in creating smart, connected cities. From intelligent traffic management to efficient waste disposal, explore how sensor networks are enhancing urban infrastructure and improving the quality of life for residents.



3. Beyond the Fitbit: The Evolution of Wearable Sensors Move beyond fitness tracking as we explore the latest advancements in wearable sensor technology. From health monitoring to augmented reality experiences, these tiny devices are reshaping the way we interact with both our bodies and the digital world.

4. Quantum Sensors: Unleashing the Power of Quantum Technology Embark on a journey into the quantum realm and witness the emergence of quantum sensors. Explore how quantum technology is revolutionizing sensing capabilities, from ultra-precise measurements to advancements in navigation and imaging.



5. Environmental Guardians: Sensors in the Fight Against Climate Change Learn how sensors are playing a crucial role in environmental monitoring and sustainability. From air and water quality sensors to satellites tracking deforestation, discover how technology is contributing to the preservation of our planet.

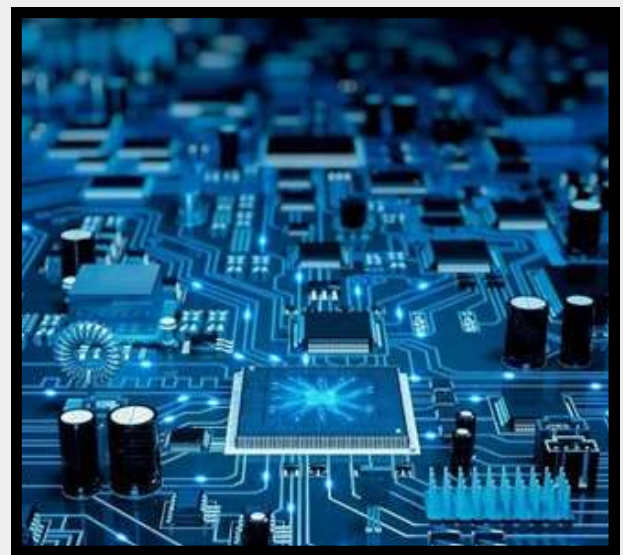
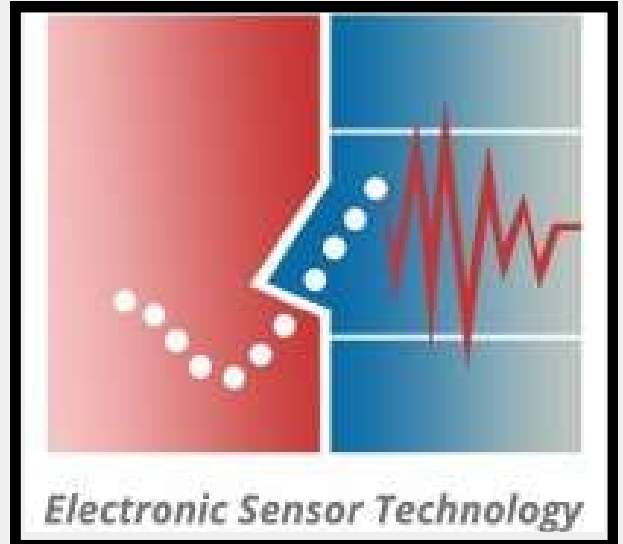
6. Sensor Fusion: The Synergy of Technologies Explore the concept of sensor fusion, where multiple sensors collaborate to provide richer and more accurate data. From autonomous vehicles to advanced robotics, witness how combining different sensor technologies leads to groundbreaking innovations.

Conclusion:

As we conclude our exploration of sensor technology, one thing becomes clear – sensors are the silent architects of our future. Their impact reaches far and wide, from the personal devices we wear to the infrastructure that supports our communities. Join us as we continue to navigate the exciting frontier where innovation meets possibility, all driven by the remarkable capabilities of sensor technology.

7. Interview with a Sensor novator:

Pioneering the Future Engage with a leading figure in the sensor industry as they share insights into the latest trends, challenges, and the potential impact of sensors on our world.



By ,
SURIYA S
(IV - Year)



Neymar Unleashed: A Spectacular Symphony of Skill and Style

BIO - graphy of the Wizard

*Help to improve
your skills and
performance*

*The truth behind his
success*

BIO - GRAPHY

Neymar's Playbook of Skill and Grace

In the dazzling world of football, few names shine as brightly as Neymar Jr. With his extraordinary skills, flamboyant style, and magnetic personality, the Brazilian maestro has carved a unique niche for himself in the realm of sports and beyond.

Born on February 5, 1992, in Mogi das Cruzes, Brazil, Neymar da Silva Santos Júnior, or simply Neymar Jr., embarked on his football journey at a young age. His prodigious talent quickly caught the eye of scouts and fans alike, propelling him from the streets of São Paulo to the grand stages of European football.

Neymar's rise to stardom reached new heights when he joined the renowned FC Barcelona in 2013, forming a formidable trio alongside Lionel Messi and Luis Suárez. Together, they mesmerized the footballing world with their breathtaking attacking prowess, securing numerous titles, including the coveted UEFA Champions League. However, Neymar's journey extends beyond the pitch. Off-field, he is a style icon and philanthropist, using his influence to make a positive impact on society. From endorsing global brands to establishing the Neymar Jr. Institute, dedicated to providing education and support for underprivileged children, he demonstrates a commitment to creating a lasting legacy beyond his sporting achievements.





Neymar's Homecoming: A Barcelona Reunion Unfolds

In a dramatic twist of fate, the prodigious Brazilian talent Neymar Jr. is set to make a triumphant return to the iconic Camp Nou, rekindling the electrifying partnership that once shook the footballing world. As Barcelona welcomes back its beloved son, anticipation and excitement ripple through the hearts of Culés worldwide.



Neymar's initial stint with FC Barcelona, from 2013 to 2017, left an indelible mark on the club's storied history. Forming the formidable "MSN" trio alongside Lionel Messi and Luis Suárez, Neymar played a pivotal role in the Blaugrana's historic treble-winning season in 2014-2015. With his mesmerizing skills, audacious flair, and innate goal-scoring ability, the Brazilian maestro became a fan favorite, embodying the spirit of Barcelona's attacking philosophy.

After a brief sojourn in Paris, Neymar's return to the Catalan giants promises to ignite the Camp Nou with renewed passion and energy. The footballing world awaits the rekindling of the magical connection between Neymar and Messi, two players whose chemistry transcends the boundaries of the beautiful game.



THE NATION'S PRIDE

A key figure in the Brazilian national team, Neymar clinched the gold medal at the 2013 FIFA Confederations Cup. Additionally, he played a crucial role in Brazil's triumph at the 2019 Copa America, securing his status as a national hero.

By,
GOKUL R
(II - Year)