THE NEXT
GENERATION
OF COMPUTERS

THE PSYCHOLOGY OF ONLINE ADVERTISEMENT AND ITS IMPACT ON CONSUMER BEHAVIOUR

PULSE FREQUENCY MODULATION

CONTENTS

ABOUT US

In 2008, we started our journey by launching the company's first office in Kochi with an operation team executing industrial automation projects and within one year we opened our first training centre in Kozhikode. By providing the finest service, in a short span we got students from various parts of India and Africa too. As a next step, we expanded our training centres to diverse locations in India, Nigeria, Qatar, UAE, Kenya, and the KSA and now in 2022, we have altogether 18+ branches. IPCS Global, one of the most renowned Core Technical Instruction Providers in the World, has been offering training on numerous programmes that are focused on the future.

The programmes that we choose for training segments are influenced by a variety of factors, including the stream's potential growth, the employability of our trainees, the accessibility of various employment markets, and many other aspects. Our current stream list includes Industrial Automation, Building Management and CCTV Systems, Embedded and Robotics, Internet of Things, Digital Marketing and IT and Software Development. 100% live and interactive classes, global certifications and placements are our major highlights.

Our next step is to expand IPCS to every single continent and to build a career oriented generation that stands with the future. We IPCS always focus on the upcoming trends and updates on every stream to make our students best and hold professional ethics and moral values tightly and never turns our clients un-satisfied. We firmly believe in the virtue of team spirit. All throughout, a culture of professionalism and mutual respect is upheld. Technology is the engine of business success and innovation. We believe that in the current digital world, it is important to understand how they affect our lives. As a part of our Corporate Social Responsibility, Team IPCS gave birth to "Iziar", a magazine that reflects technology trends and current trends in the market related to the same. The main goal is to raise awareness of available technologies and make them accessible wherever you are. It's about technology, inventions, startups, cyberpunk life & much more. Iziar was developed to give you insight into the latest innovations and keep you on top of the latest trends.

Technology is like air, You can't live without it. So we welcome you to the technological world of Iziar.

XAMPP

GOPIKA RAJI
IT Trainer
Chennai

XAMPP is a free and open-source cross-platform web server solution stack primarily used for web development and testing purposes. The name "XAMPP" is an acronym that stands for the components it includes:

X - Stands for "cross-platform"

XAMPP is available for Windows, macOS, Linux, and more. This cross-platform compatibility makes it a popular choice among developers who work on different operating systems.

A - Stands for "Apache"

Apache is widely used open-source web server software. XAMPP includes Apache as the web server component, allowing you to host and serve web content locally.

M - Stands for "MySQL" (or "MariaDB" in more recent versions)

MySQL is a popular open-source relational database management system (RDBMS). XAMPP includes MySQL (or MariaDB) as the database server, allowing you to create and manage databases for your web applications.

P - Stands for "PHP"

PHP is a server-side scripting language commonly used for web development. XAMPP includes PHP, allowing you to run PHP scripts on your local web server.

P - Stands for "Perl"

Perl is another programming language, though it's less commonly used for web development compared to PHP. XAMPP includes Perl as an additional scripting language option.

Other Tools: XAMPP also includes various other tools and components, including phpMyAdmin (a web-based interface for managing MySQL databases), FileZilla FTP server, and Mercury Mail Transport System for email-related functionality.

XAMPP is often used for creating a local development environment on a developer's computer. This allows developers to build, test, and debug web applications without the need for a live web server. It's especially useful for those working with PHP and MySQL-based applications like WordPress, Joomla, and Drupal.

Here are some key points to keep in mind about XAMPP :-

Easy Setup: XAMPP is known for its simplicity and ease of installation. Once installed, you can start and stop the Apache and MySQL servers with just a few clicks.

Development Environment: XAMPP is not intended for use in production environments. It's designed for local development and testing purposes. For a production server, you would typically use separate, more secure configurations.

Configurability: While XAMPP provides a quick setup, it can also be configured to meet specific development needs by modifying its configuration files.

Community Support: There is an active community of XAMPP users and developers who provide support and resources for troubleshooting and learning.
Remember that the specific components and versions included in XAMPP may vary depending on the version you download, as newer versions may include updated software and security patches. It's essential to keep your development environment up to date, especially if you plan to use it for web development projects.

ADVANTAGE: XAMPP serves several important purposes in the world of web development and testing. Here are some of the primary reasons why developers use XAMPP.

Local Development Environment: XAMPP provides a convenient way to set up a local web development environment on your computer. This environment allows developers to work on web applications without the need for an internet connection or a live web server. It's especially useful for developing and testing web applications offline.

Cross-Platform Compatibility: XAMPP is available for multiple operating systems, including Windows, macOS, and Linux. This cross-platform compatibility allows developers to work on the same development environment across different machines and operating systems, making collaboration easier.

Ease of Installation: XAMPP is known for its simplicity and ease of installation. It bundles together essential web development tools like Apache, MySQL (or MariaDB), PHP, and more into a single package. This eliminates the need for manual installation and configuration of each component, saving time and effort.

Versatility: XAMPP is versatile and supports various scripting languages, including PHP and Perl. This versatility allows developers to work on a wide range of web applications and projects, from simple static websites to complex dynamic web applications.

Database Testing: XAMPP includes a MySQL (or MariaDB) database server. Developers can use this server to create, manage, and test databases for their web applications. It's particularly useful for web applications that rely on database-driven content.

Debugging and Testing: XAMPP provides an environment for debugging and testing web applications before deploying them to a live server. Developers can identify and fix issues in their code, ensuring that their applications work correctly when hosted on a production server.

Open Source and Free : XAMPP is open-source software, meaning it's freely available for anyone to use and modify. This accessibility makes it an attractive option for developers and hobbyists who may have budget constraints.

Web Application Learning: XAMPP is an excellent tool for beginners learning web development. It allows them to experiment with web technologies, practice coding, and build and test websites and web applications in a controlled environment.

Web Development Frameworks: XAMPP is often used as the foundation for various web development frameworks and content management systems (CMS) like WordPress, Joomla, and Drupal. Developers can install these frameworks on their XAMPP setup for development and testing purposes.

Offline Work: XAMPP enables developers to work offline, which is especially valuable when internet access is limited or when working on confidential projects that should not be hosted on public servers during development.

While XAMPP is a valuable tool for web development and testing, it's important to note that it's not intended for use in production environments. For production hosting, you should set up and configure separate web servers and database servers with appropriate security measures. XAMPP is primarily meant for creating and testing web applications on your local machine.

DISADVANTAGES OF XAMPP:

Not Suitable for Production: XAMPP is not intended for use in production environments. It lacks the security features, performance optimizations, and scalability required for hosting websites with high traffic or sensitive data.

Limited Security: While XAMPP provides a basic level of security for local development, it's not as secure as a properly configured production environment. Developers need to be cautious when using XAMPP for testing, as it may not treflect real-world security conditions.

Resource Intensive: XAMPP can be resource-intensive, especially when running on older or less powerful computers. This might slow down your system when multiple components are active.

Limited Configuration Control: XAMPP aims to simplify setup, but this simplicity can be a disadvantage for advanced users who require fine-grained control over the configuration of individual components.

Updates and Maintenance: Regularly updating XAMPP to the latest versions of its components can be important for security and compatibility. However, updating XAMPP may require you to migrate your projects and databases, which can be time-consuming.

Potential Port Conflicts: XAMPP may encounter port conflicts with other software that uses similar ports (e.g., port 80 for web traffic). Resolving these conflicts can sometimes be challenging.

IN SUMMARY

XAMPP is a valuable tool for local web development and testing due to its ease of use and versatility. However, it should not be used in production environments due to its limitations in terms of security and scalability. Developers should consider these advantages and disadvantages when deciding whether XAMPP is the right choice for their specific needs.
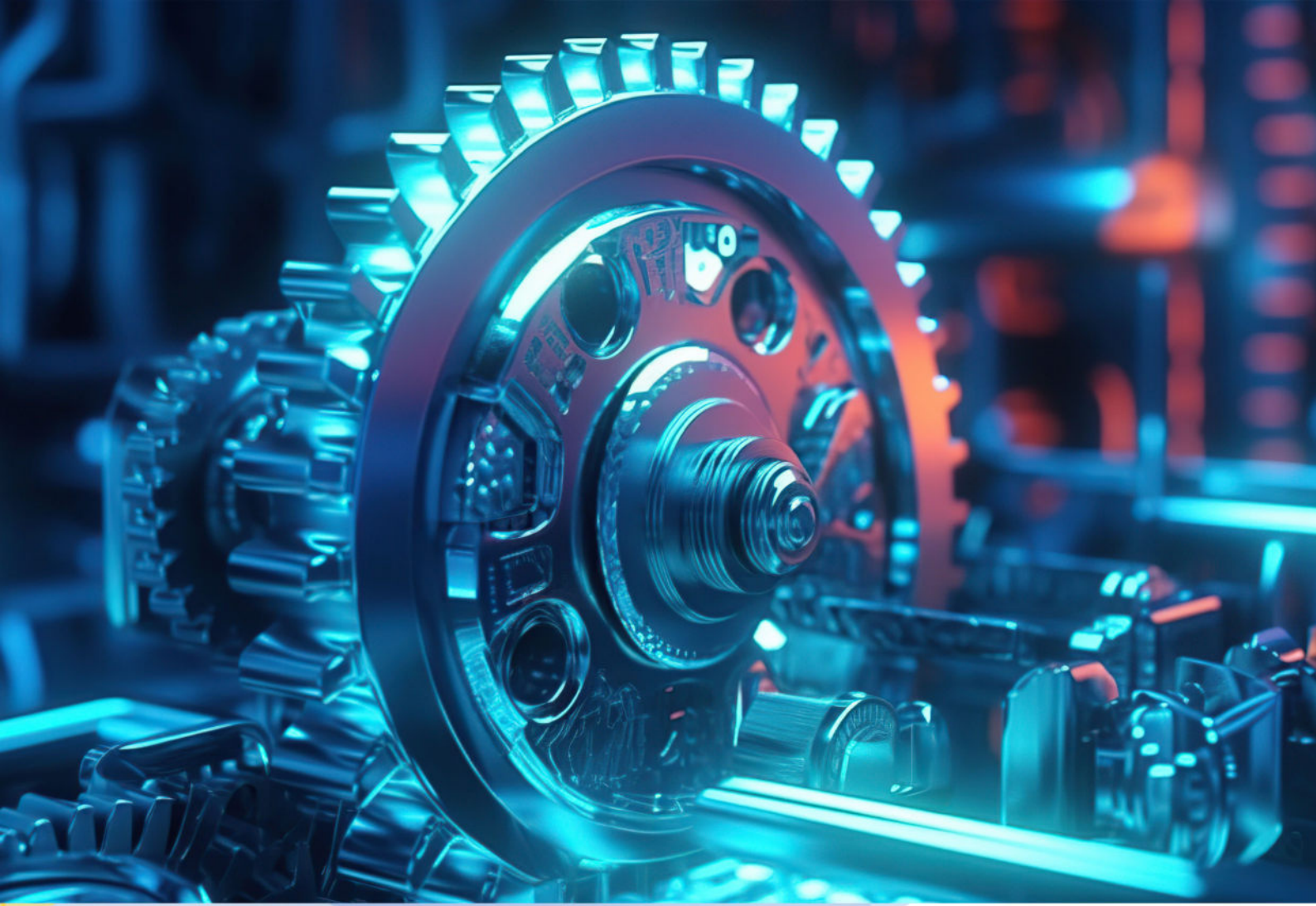
MOTOR-TO-MOTOR CHAT

In a room aglow with the soft hum of electrical currents, four friends gathered, each embodying a different type of electric motor. DC, AC, BLDC, and Stepper had known each other for centuries, and they had a lot to share about their experiences, functions, and contributions to various industries. As they settled in, the room crackled with the energy of anticipation.

ARAFAT ALI
Project Engg
Siliguri
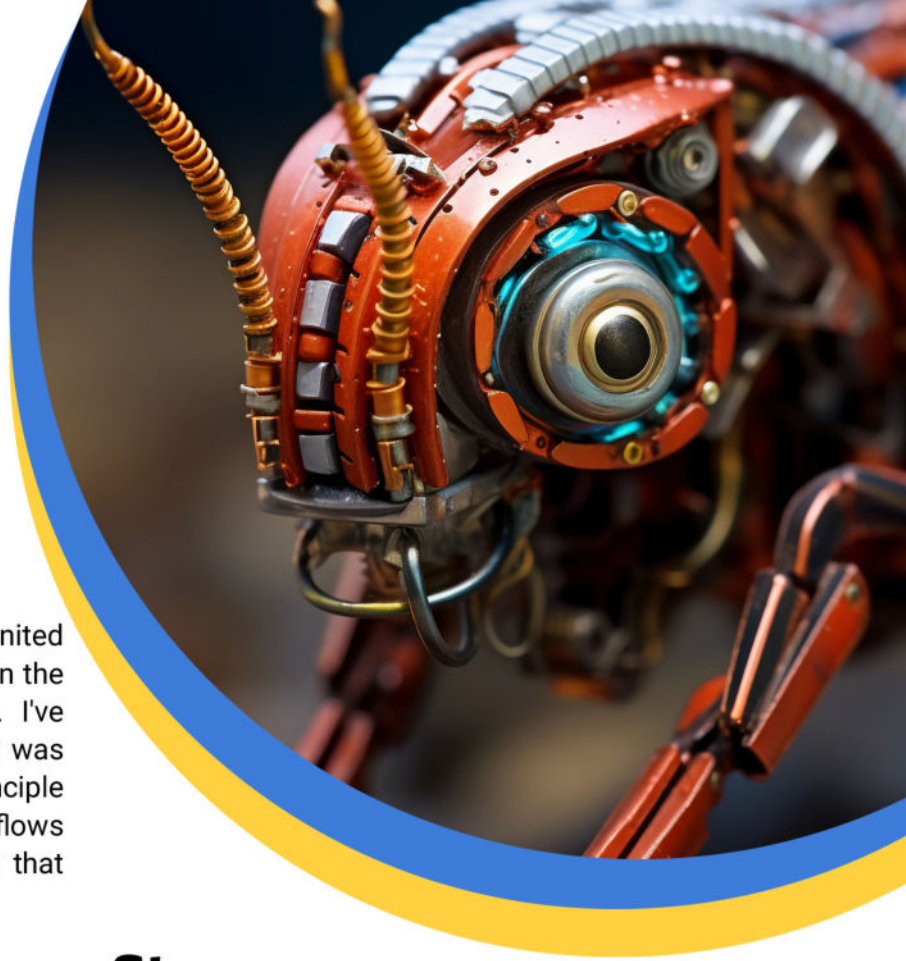
DC:

[Nods sagely] Well, here we are, friends, reunited once more. I must say it's an honor to be in the company of such distinguished motors. I've been around since the 1830s, back when I was just a simple contraption. My working principle is straightforward - a direct current flows through me, generating a magnetic field that causes me to spin.

AC:

[Grins] Ah, DC, you do have a certain timeless charm. But I, my dear friend, came into the picture during the late 19th century. My invention changed the game by utilizing alternating current. With that, I could transmit power over long distances, making electricity more accessible and efficient.

BLDC:

[Modern and sleek] Well, here I am, the baby of the group, introduced during the mid-20th century. I represent the Brushless DC Motor, and I'm known for my efficiency and precision. My principle is quite similar to yours, DC, but without the brushes and commutators, making me more reliable and low-maintenance.

Stepper:

[Adjusting his glasses] While I may have been around since the 19th century, my real fame came in the 20th century. My precise, incremental movement made me the darling of industries that required absolute control and accuracy. I'm the go-to choice for 3D printers, CNC machines, and a variety of robotic applications.

DC: [Nods approvingly] you've all made your mark, there's no doubt about it. It's incredible how far we've come from our humble beginnings. Let's talk about our respective functions and uses. AC, you've had a major role in electrifying the world.   .

AC: That's right, DC. I brought power to the people, literally. With alternating current, we could generate electricity efficiently and transmit it over long distances. This laid the foundation for electrification in homes, businesses, and factories. I'm the heart of every household appliance, air conditioner, and many industrial machines

BLDC: [Proudly] I may be the youngest, but I've carved out my own niche. With my brushless design and precise control, I'm the power behind electric vehicles, drones, computer hard drives, and countless other applications where efficiency and precision are paramount.

Stepper: [Modestly] Well, I may not have your speed, BLDC, but precision and control are my superpowers. I'm the linchpin in 3D printers, CNC machines, and some robots. My ability to move in distinct steps is what makes me the star in these applications.

DC: [Reflectively] As for me, I've powered telegraphs, early electric lighting systems, and even early electric cars. Simplicity was my forte, and I served industries well during my time.
AC: [Nods approvingly] you've played a crucial role, DC, especially during your time. And you, Stepper, precision is an art form in your world.

Stepper: [Nods] Indeed, AC. My precise movement in discreet steps allows for fine control and exact positioning. This quality is invaluable in applications where errors are not an option.

DC: [With a touch of nostalgia] my early days were filled with simple but important tasks. I remember powering telegraphs and early electric lighting systems. Back then, simplicity was key, and reliability was my hallmark. Those were exciting times.

AC: [Grinning] and let's not forget the electrification of the world, DC. With my introduction, we could generate electricity efficiently and transmit it over long distances. I was instrumental in lighting up cities, powering factories, and bringing comfort to homes.

BLDC: [Eagerly] Well, I might be the newest in the group, but I've been making waves. I'm at the forefront of the electric vehicle revolution. My brushless design, high efficiency, and precise control have become essential for industries working to reduce their carbon footprint.

Stepper: [Thoughtfully] while I've been around for quite some time, I didn't gain prominence until the 20th century. My incremental, step-by-step motion is what makes me special. I'm the silent performer behind 3D printers, CNC machines, and various robotics applications.

DC: [Musing] it's fascinating how our roles have evolved to suit the changing needs of society. I was the bedrock, and you all have built upon that foundation..

AC: [Agrees] Absolutely. I followed in your footsteps, DC, and expanded the reach of electricity. My adaptability made it possible to power diverse applications, from household devices to heavy machinery.

BLDC: [With a hint of pride] I must say, I've become a game-changer. Electric cars, drones, and even computer hard drives rely on my efficiency and precision. The world is waking up to the potential of clean energy, and I'm playing a significant role in that transformation.
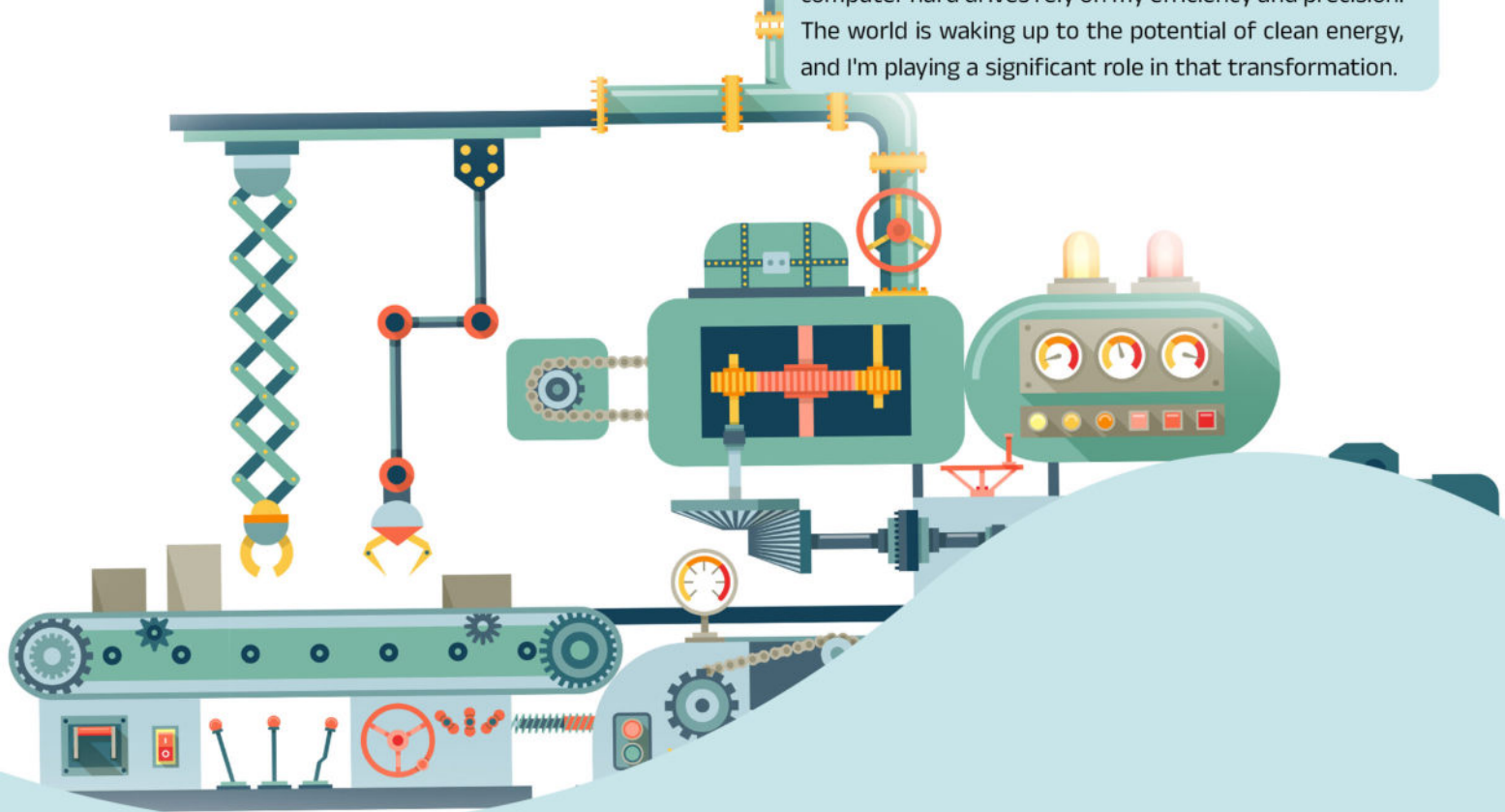
Stepper:
[Modestly] and I, well, I'm not as flashy as the rest of you, but precision and control are my forte. In a world where every
micrometer matters, I excel. Whether it's 3D printing intricate designs or guiding CNC machines, my reliability is unparalleled..

DC:
[Smiles] Yes, we've each carved our own path in the world. From the early days of telegraphy to the electrification of cities, to the current era of electric vehicles and precision engineering, we've seen it all.

AC: [Reflectively] and we'll continue to see more. The world keeps evolving, and so do we. I believe we'll remain indispensable in various sectors.

BLDC: [Eagerly] the future is full of promise. Electric vehicles are just the beginning. As technology advances, we'll see more applications for electric power, and I plan to be at the forefront of it all.

Stepper: [Nods] I agree, BLDC. As industries seek greater precision and automation, my role will only become more significant. 3D printing is just one example; there's so much untapped potential.

DC: [Wise] we may have different ages and principles, but together, we represent the progress of electrical engineering. The past, present, and the future, all in one room

AC: [Smiles] we've come a long way, and we'll keep adapting. It's an exciting journey.

BLDC: [With anticipation] I can't wait to see what lies ahead for us. I believe we'll be part of solving some of the world's most pressing challenges.

Stepper: [Optimistically] indeed, as long as precision and control matter, I'll have a role to play. I foresee exciting advancements in robotics and automation.

[The room was filled with the soft hum of the motors, a harmonious blend of past, present, and future. They continued their conversation, sharing their hopes and dreams for what lay ahead in the ever- evolving world of technology and industry.]

Understanding the Distinction Between **Embedded Systems** and **Industrial Automation**

K. KARTHI
Branch Head
Madurai

Introduction to **Industrial Automation:**

Industrial automation is a transformative technological advancement that has revolutionized the way manufacturing and production processes are carried out. It involves the use of various technologies, including hardware and software, to automate and control industrial tasks and processes. The primary goal of industrial automation is to enhance efficiency, reduce human intervention, and improve overall productivity. This technology has far-reaching implications in various industries, including manufacturing, energy, agriculture, and healthcare.

In an industrial automation system, sensors and actuators are employed to collect data and perform actions in response to the information gathered. Control systems and programmable logic controllers (PLCs) play a crucial role in managing these processes, ensuring that operations run smoothly and efficiently. The introduction of human-machine interfaces (HMIs) and Supervisory Control and Data Acquisition (SCADA) systems has further advanced the capabilities of industrial automation, enabling real-time monitoring and control of complex manufacturing processes.

Introduction to **Embedded Systems:**

Embedded systems, on the other hand, represent a different facet of technology with wide-ranging applications. An embedded system is a dedicated computing device that is designed to perform specific tasks or functions. These systems are integrated into various electronic devices and equipment to control, monitor, and manage operations seamlessly. Unlike personal computers or general-purpose devices, embedded systems are tailored for precise, often real-time, operations.

Embedded systems are found in a diverse range of products, from household appliances like washing machines and microwave ovens to automotive control units, medical devices, and even space exploration equipment. These systems consist of microcontrollers or microprocessors, memory, and input/output interfaces, all working together to execute predefined tasks. The software running on embedded systems is often referred to as firmware, and it is tailored to meet the specific requirements of the device or application.

Difference between
Embedded Systems
and Industrial Automation:

1. Scope and Purpose:

> Embedded Systems: Embedded systems are focused on providing dedicated functionality within a single device or equipment. They are designed to handle specific tasks efficiently

> Industrial Automation: Industrial automation encompasses a broader range of applications, primarily aimed at improving and automating complex industrial processes and manufacturing operations.

2. Hardware and Software

> Embedded Systems: These systems include both hardware and software tailored for a specific application. The software, or firmware, is tightly integrated with the hardware.

> Industrial Automation: Industrial automation systems use a combination of hardware and software, often comprising a variety of devices and technologies to automate and control industrial processes.

3. Integration:

> Embedded Systems: These systems are integrated into consumer electronics, industrial equipment, and various other devices where automation is needed.

> Industrial Automation: Industrial automation systems integrate a variety of components, such as sensors, PLCs, HMIs, and SCADA systems, to manage and control complex industrial processes.
4. Real-time Operation:

4. Real-time Operation:

> Embedded Systems: Many embedded systems require real-time operation, ensuring precise timing and response for tasks like controlling a car's airbags or regulating the temperature in a refrigerator

> Industrial Automation: While industrial automation often involves real-time monitoring and control, not all components require real-time operation. It depends on the specific application and its criticality.

5. Flexibility and Customization:

> Embedded Systems: These systems are typically less flexible and more challenging to modify after deployment due to their specialized nature.

> Industrial Automation: Industrial automation systems can be customized and reconfigured to adapt to changing production processes and requirements, making them more flexible.

Common elements in Embedded Systems and Industrial Automation:

Embedded systems and industrial automation, while distinct in their applications, share several commonalities due to their technological underpinnings and their roles in enhancing efficiency and control in various domains. Here are some common elements:Embedded systems and industrial automation, while distinct in their applications, share several commonalities due to their technological underpinnings and their roles in enhancing efficiency and control in various domains. Here are some common elements:

1 **Hardware Components:** Both embedded systems and industrial automation rely on a range of common hardware components, such as microcontrollers, microprocessors, sensors, and actuators. These components are integral to gathering data, making decisions, and executing actions in response to specific conditions.

2 **Real-time Operation:** Embedded systems and industrial automation often require real-time or near-real-time operation. This ensures that critical tasks are carried out promptly and with minimal delay, such as controlling a robotic arm in an industrial setting or managing the power distribution in an embedded system.

3 **Software Integration:** Both domains incorporate software to control and manage hardware components. Embedded systems use firmware tailored for specific devices, while industrial automation systems rely on control software, human-machine interfaces (HMIs), and Supervisory Control and Data Acquisition (SCADA) software.

4 **Interfacing and Communication:** Embedded systems and industrial automation systems often involve interfacing with external devices or networks. This includes communication protocols such as Modbus, Profibus, or Ethernet/IP, which enable data exchange and coordination between various components.

5 **Sensors and Actuators:** Sensors are used to collect data about the environment or system conditions in both embedded systems and industrial automation. Actuators, in turn, are employed to perform actions based on the data acquired. For example, temperature sensors in an embedded system can control the heating element, while in industrial automation, sensors monitor machine conditions and trigger maintenance actions.

6 **Control Logic:** Both domains employ control logic to make decisions based on the input from sensors. This control logic can be implemented using microcontrollers, programmable logic controllers (PLCs), or software algorithms. It plays a crucial role in managing the systems' behavior.

7 **Efficiency and Optimization:** Embedded systems and industrial automation systems aim to enhance efficiency and optimize processes. Embedded systems do this by ensuring the efficient operation of specific devices, while industrial automation achieves it by streamlining and automating entire production processes.

8 **Safety and Reliability:** Safety and reliability are paramount in both domains. Embedded systems are often integrated into safety-critical applications, such as automotive airbag systems, and must operate reliably. In industrial automation, ensuring the safety of workers and the reliability of machinery is of utmost importance.

9 **Monitoring and Control:** Both embedded systems and industrial automation include mechanisms for monitoring and control. In industrial automation, this may involve SCADA systems for overseeing entire production lines, while embedded systems may have built-in monitoring for diagnostics.

10 **Customization:** In both cases, there is potential for customization. Embedded systems can be tailored to meet the specific requirements of a device or application, and industrial automation systems can be configured to adapt to changing production processes.

Conclusion:

In conclusion, embedded systems and industrial automation are two distinct but interconnected aspects of modern technology. Embedded systems find their place in various devices we use daily, serving dedicated purposes efficiently. In contrast, industrial automation has a broader scope, optimizing manufacturing processes and industrial operations through the use of integrated hardware and software systems.

Understanding the differences between these two fields is essential for professionals working in the tech industry, as they play critical roles in different domains, each contributing to increased efficiency and innovation in their respective contexts. Whether it's the automation of your home appliances or the management of complex industrial processes, both embedded systems and industrial automation have become indispensable in our rapidly evolving technological landscape.

FOREST FIRE DETECTORS

WHAT IS FIRE, CHEMICAL REACTION PYROLYSIS AND WHY DETECTION SYSTEMS ARE IMPORTANT IN FIRE PREVENTION AND SAFETY

Fire is a chemical chain reaction which takes place with the evolution of heat and light in presence of O2, heat and fuel.

Forest fires are caused either by natural or man-made means. Human errors, extreme drought, high atmospheric temperatures, low humidity and primarily lightening are main causes. Forest fire occurs in remote zone away from population.

Forest fire comprises of compounds such as carbon dioxide, methane, carbon monoxide, hydrogen cyanide, nitrogen oxide, sulfur dioxide etc., the carbon dioxide and harmful gases released in the air causes hazard to humans and climate while, high temperatures contribute to generation of harmful compounds too.
Wildfire is global concern as many countries face significant loss of life and property. Forest fire accounts to as much as 25 percent of global carbon emissions. Pyrolysis is the thermal decomposition of materials at elevated temperatures. The rate of pyrolysis increases with temperature. It's the slowest rate of oxidation which can take place and cause fire. The reaction can be caused by heat, electricity, friction or chemical reaction. Fire safety focuses on fire detection, fire suppression and fire safety engineering that focuses maintaining an environment guarded from fire.

Yash Ravi
BMS Trainer
Hyderabad

How Forest Fire Detector would work ?

Forest Fire Detectors, kind of Ultra-Violet + Infra-red. The radiations produced from flames of fire hits the detectors which fall within certain range of wavelengths. IR detects presence of flame caused by fire which is sensitive to long wavelength allowing flame detection, while UV detects radiation at the point of ignition. UV also detects the lightening which is primarily cause of forest fires.

The fire emits hot gasses that contain infra-red radiations. Infra-red identifies this unique radiation signature. The infra-red technology uses an IR cam to look for visible signatures of the fire. IR monitors infrared spectral band given off by hot gases. During fire burning of wood heat and CO2 is released. The high temperature CO2 emits high amount of energy at its frequency. This causes a peak in the total radiation emission and can be well detected. UV+IR would be highly accurate fire signature detection. Almost entirely all types of fire emit UV radiations.

In case of fire, the sensor would produce a series of pulses that are converted into an alarm output. The sensors in the flame detector detects the radiations from the flame, the photoelectric converts the radiant intensity signal of the flame to a voltage signal and these will be processed in a single chip microcomputer and converted into an output. These detectors would be resistant to sunlight.

These detectors can be installed as initial fire warning. Once a fire has been detected, the detector immediately transmits signals to monitoring station and tracks on the fire progression by addition to temperature sensors. The monitoring station would then notify emergency response and fire department for necessary actions. The detectors would be operational under all weather conditions and fire fighting conditions. The Design of detectors would be such that its profile will be "Low Wind Load" meaning the wind pressure or force exerted on the detector will be low. The detector would also be tamperproof and will be self contained.

Preventing Disasters

Each year millions of animals perish in wildfire. Forest fire are unpredictable and if occurred then uncontrollable. They occur when all necessary elements of fire triangle come together at a place. Forest fires pose danger to humans, animals and environment. Consequences of forest fire effects flora and fauna.

The suppression of wild fires takes up huge amount of a country's GDP which directly affects the country's economy while costs vary from region to region and year to year, depending on the severity of each fire. In some countries expenditure of millions of dollars annually was recorded in order to suppress wildfire. Factors such as global warming, climate changes can be optimized by avoiding wildfire.

Implementation of such detectors would give great impact on environment. Trees contribute to environment by providing O2, improving air quality, climate amelioration, water conservation, preserving soil and supporting wildlife. During the process of photosynthesis, trees take in CO2 and produce O2 that we breathe.

Future Applications

Forest Fire Detectors would be used to prevent wildfire. By preventing wildfire we can protect the trees, animals, property and assets that are based on biodiversity. Preventions of wildfire could protect people from respiratory illness. The detectors would reduce the reaction time for tracking the fire thus helping to protect natural resources.

THE PSYCHOLOGY OF ONLINE ADVERTISEMENT AND ITS IMPACT ON CONSUMER BEHAVIOUR

HIMA SURESH
**DIGITAL MARKETING ANALYST
TRIVANDRUM**

The psychology of online advertising is a multifaceted field that significantly influences consumer behaviour in the digital age. In today's interconnected world, online advertising has evolved into an integral aspect of our daily lives. As consumers, we are constantly bombarded with an abundance of advertisements whenever we browse the internet, scroll through social media, or engage in online shopping. These advertisements are carefully designed to capture our attention, trigger our emotions, and ultimately persuade us to take specific actions, such as making a purchase. Have you ever wondered why certain online ads stand out and resonate with you, while others fade into the background? The answer to this question lies in the captivating realm of the psychology of online advertising and its profound impact on consumer behaviour.

To delve deeper into this fascinating subject, we will explore the key components and strategies that businesses employ to utilize the power of psychology in creating effective online advertising campaigns. We will also examine the expanding field of neuromarketing, which combines the principles of neuroscience with marketing to gain a deeper understanding of how our brains respond to advertising stimuli. Moreover, we will discuss the pivotal role of personalization in online advertising, and the ethical considerations that businesses must navigate in this ever-evolving landscape.

THE POWER OF PERSUASION IN ONLINE ADVERTISING:

AT THE CORE OF ONLINE ADVERTISING LIES THE ART OF PERSUASION. ADVERTISERS RELY ON A RANGE OF PSYCHOLOGICAL PRINCIPLES TO APPEAL TO CONSUMERS AND INFLUENCE THEIR DECISION-MAKING. THESE PRINCIPLES ARE CRITICAL IN CREATING ADVERTISEMENTS THAT RESONATE WITH THE TARGET AUDIENCE. LET'S EXPLORE SOME OF THE KEY PSYCHOLOGICAL TACTICS THAT ARE COMMONLY USED IN ONLINE ADVERTISING:

EMOTIONAL APPEAL: ONE OF THE MOST EFFECTIVE TACTICS IN ONLINE ADVERTISING IS THE USE OF EMOTIONAL APPEAL. EMOTIONAL ADVERTISEMENTS HAVE A DEEPER IMPACT ON CONSUMERS, AS THEY CREATE A CONNECTION AND EVOKE FEELINGS THAT MAKE THE ADVERTISED PRODUCT OR SERVICE MORE RELATABLE. FOR INSTANCE, AN AD THAT TELLS A HEART-WARMING STORY IS MORE LIKELY TO BE REMEMBERED AND POSITIVELY ASSOCIATED WITH THE BRAND.

SCARCITY AND URGENCY:

Messages that convey limited availability or time-sensitive deals tap into consumers' fear of missing out (FOMO). The concept of scarcity and urgency can drive individuals to take immediate action, such as making a purchase. Online retailers often use countdown timers and limited stock notifications to create a sense of urgency.

SOCIAL PROOF:

The principle of social proof suggests that people tend to follow the crowd. Advertisers utilize social proof by showcasing positive reviews, testimonials, and user-generated content. When consumers see that others have had positive experiences with a product or service, it builds trust and encourages them to take action.

COGNITIVE BIASES:

Understanding cognitive biases, such as confirmation bias and anchoring, is crucial for advertisers. Confirmation bias leads people to give more weight to information that confirms their existing beliefs, and anchoring influences how people perceive the value of a product based on the initial price presented. Advertisers can craft messages that align with consumers' preconceived notions and perceptions to influence their decision-making..

THE ROLE OF NEUROMARKETING IN ONLINE ADVERTISING:

Neuromarketing is an expanding field that explores the intersection of neuroscience and marketing. It delves into how our brains respond to advertising stimuli and how this knowledge can be utilized for more effective campaigns. Here are some key aspects of neuromarketing in online advertising:

NEURO IMAGING STUDIES:

Neuromarketing utilizes brain scans to reveal the areas of the brain that light up when exposed to specific types of advertising. This information helps advertisers understand which stimuli trigger emotional responses and engagement. By identifying the brain regions associated with positive responses, businesses can create more compelling advertisements.

EYE-TRACKING TECHNOLOGY:

Eye-tracking studies are essential in understanding where consumers' attention is drawn on a web page or within an advertisement. Advertisers use this data to optimize the placement of key content and calls to action. Knowing where users look and click the most allows for more effective ad placement and design.

A/B TESTING:

A/B testing is a practical application of neuromarketing principles. Advertisers conduct A/B tests to determine which ad variations are more effective based on consumer responses. By systematically comparing different ad elements, such as visuals, headlines, or calls to action, businesses can refine their campaigns to maximize engagement.

PERSONALIZATION AND ITS IMPACT ON CONSUMER BEHAVIOUR

Personalization is a key driver in online advertising. Understanding consumer behaviour and preferences allows businesses to deliver tailored advertisements, thereby improving the chances of conversion. Here are factors to consider in this context:

DATA ANALYTICS:

Advertisers rely on data analytics to understand consumer behaviour. This includes tracking online behaviour, demographics, and past interactions. By collecting and analyzing this data, businesses can craft personalized ads that cater to an individual's specific needs and interests. For example, if a consumer frequently searches for fitness-related content, they may be shown ads for fitness products or services.

DYNAMIC CONTENT:

Dynamic ads adapt in real-time to user behaviour and preferences. This dynamic content creates a more personalized and engaging user experience. If a user has recently searched for travel destinations, they may see ads showcasing travel deals to those destinations.

ETHICAL CONSIDERATIONS IN ONLINE ADVERTISING:

While understanding the psychology of online advertising is essential for business success, it also raises ethical questions. Advertisers must balance their objectives with the responsibility to protect consumer privacy and well-being. Striking this balance is crucial for building trust and maintaining a positive brand image. Ethical considerations include:

PRIVACY:

Advertisers must be transparent about data collection and use. Consumers should have control over their data and be informed about how it will be utilized for personalized advertising. Respecting privacy preferences and adhering to data protection regulations is essential.

TRUTHFULNESS AND HONESTY:

Advertisers must ensure that the information presented in their ads is truthful and not misleading. Misrepresentation or exaggeration can damage trust and credibility.
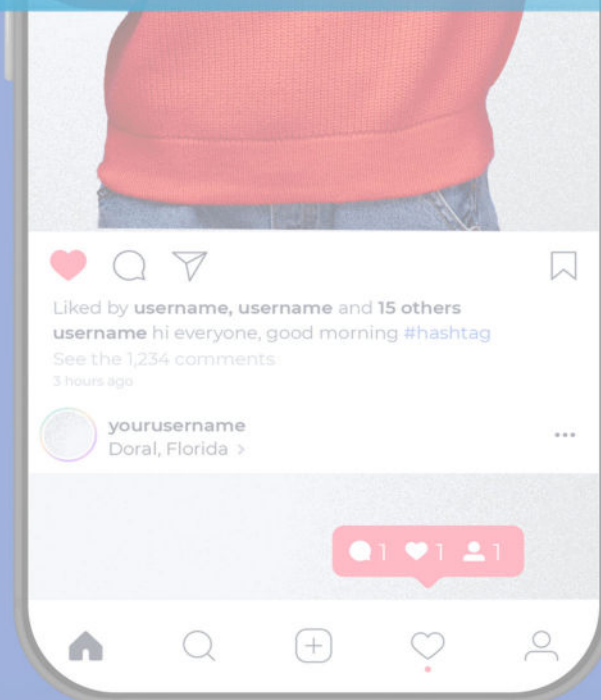
RESPONSIBLE TARGETING:

Advertisers should avoid targeting vulnerable populations or using manipulative tactics to exploit consumers. Targeting should be based on relevant factors, such as user interests and demographics

AD AVOIDANCE:

As consumers increasingly use ad blockers and other tools to avoid online ads, advertisers must consider creating content that is engaging and valuable, rather than intrusive or annoying.

CONCLUSION

IN CONCLUSION THE PSYCHOLOGY OF ONLINE ADVERTISING PLAYS A PIVOTAL ROLE IN SHAPING CONSUMER BEHAVIOUR. BY UTILIZING EMOTIONAL APPEALS, SOCIAL PROOF, AND COGNITIVE BIASES, BUSINESSES CAN CREATE COMPELLING ADVERTISEMENTS THAT RESONATE WITH THEIR TARGET AUDIENCE. NEUROMARKETING PROVIDES VALUABLE INSIGHTS INTO HOW OUR BRAINS RESPOND TO ADVERTISING STIMULI, WHILE PERSONALIZATION ENHANCES THE RELEVANCE OF ADS TO INDIVIDUAL CONSUMERS. IN THIS DYNAMIC LANDSCAPE, IT IS ESSENTIAL FOR COMPANIES TO TREAD THE LINE OF ETHICS, ENSURING THAT THEIR ADVERTISING PRACTICES ARE BOTH EFFECTIVE AND RESPONSIBLE.
AS OUR COMPANY CONTINUES TO ADAPT AND GROW IN THE DIGITAL AGE, UNDERSTANDING THE PSYCHOLOGY OF ONLINE ADVERTISING WILL REMAIN A VITAL COMPONENT OF OUR SUCCESS. STAY TUNED FOR MORE INSIGHTS INTO THIS EVER-EVOLVING FIELD AS WE STRIVE TO IMPROVE OUR ADVERTISING STRATEGIES AND, IN TURN, THE EXPERIENCES OF OUR CUSTOMERS. ONLINE ADVERTISING IS AN EVER-EVOLVING FIELD, AND STAYING AT THE FOREFRONT OF THESE DEVELOPMENTS IS ESSENTIAL FOR BUSINESSES AIMING TO SUCCEED IN THE DIGITAL MARKETPLACE. BY COMBINING THE POWER OF PSYCHOLOGY WITH ETHICAL CONSIDERATIONS, COMPANIES CAN BUILD TRUST, ENGAGE THEIR TARGET AUDIENCE, AND ULTIMATELY DRIVE CONVERSIONS IN AN INCREASINGLY COMPETITIVE ONLINE ADVERTISING LANDSCAPE.

Liked by **username, username** and **15 others**
username hi everyone, good morning #hashtag
See the 1,234 comments
3 hours ago

yourusername
Doral, Florida >

THE NEXT GENERATION
OF COMPUTER

APARNA
Admin Executive
Trivandrum.

The term "next-generation computing" describes the creation of hardware and Software that can handle the problems associated with energy consumption, transfer speeds and data processing in a variety of fields and sectors.

There are important hazards and concerns associated with next- generation computing that must be addressed. These include geopolitical ramifications like regulation, cooperation, and competition; ethical concerns like justice, accountability, and transparency; and technical challenges like scalability, dependability, and interoperability.

Governments, corporations, academic institutions, and civil society must thus collaborate in order to promote the responsible and inclusive development and deployment of next-generation computing. In order to ensure that next- generation computing has a beneficial impact, proper management and governance is necessary. This technology can present hitherto unheard-of prospects for addressing some of the most important issues confronting humanity today

The computer embodies modernity more than anything else. These days, computers are capable of more complex jobs than just basic computation. The hardware and software make up the two components of a computer. Software gives computers instructions on how to operate. The term "hardware" describes the actual parts, like the keyboard, monitor, and system unit. To operate the hardware and software, you must have the necessary knowledge. In light of this, the article addresses the evolution of computers, computer illiteracy, and the steps that must be taken to reduce it..

These days, the computer is the piece of technology that affects people the most. The 20th century had seen a significant transformation in our lives because to the computer. How the computer changed society. Our generation aspires to live in a fast-paced world where everything must be completed quickly. The fact that computers can perform numerous jobs in a short amount of time is a wonderful advantage of the computer technology we utilize on a daily basis to fulfil our desires. In historical comparison, modern society is the fastest that humans have ever experienced, and it will only get quicker over time. Prior to the general public's access to computers, the telephone was a widely used and powerful communication tool. When computers were widely used,

 Modern computers are so common and found in homes, workplaces, shops, hospitals, schools, and other places—that society has grown increasingly reliant on them. Many people experience temporary malfunctions or outright frustration when their computer system is down. Owing to our heavy reliance on computers, they have become in dispensable tools in today's world. The modern computer is cheaper, faster, and smaller than its predecessors. Future computers are expected to surpass present models in terms of cost, speed, size, and intelligence. People often wonder how computers could become smarter than they now are, given that machine learning and artificial intelligence are now possible.

Is having a smarter computer even required or possible?

will then get real time data on the air quality or the level of contamination of air in space as it changes overtime. The air detector will apply the Maillard reaction to measure the microbe in short time. The Maillard reaction is a reaction that creates substance Melanoidin by heating or reducing sugar and amino acid such as protein.Melanoidin becomes fluorescent when radiated with certain wavelength of light.

The formation of melanoidin is accelerated by adding thermal process to capture microbes to increase fluorescent strength. The air from space will be drawn by detector and particles <10 microns including micro organisms would be separated by cyclone method. The separated particles are then charged with static electricity and absorbed to the captured plate as test section.

PULSE-FREQUENCY MODULATION

D A ANAND
**TERRITORY TECHNICAL HEAD CHENNAI.**

Pulse frequency modulation (PFM) is a modulation method for representing an analogue signal using only two levels (1 and 0). This is similar to pulse width modulation (PWM), where the amplitude of the analogue signal is encoded according to the duty cycle of the square wave. Unlike PWM, in which the square pulse width changes at a constant frequency, PFM fixes the square pulse width while varying the frequency. In other words, the frequency of the pulse train varies according to the instantaneous amplitude of the modulating signal at the sampling intervals. The amplitude and width of the pulse remain constant.

Pulse frequency modulation (PFM) is a pulse modulation technique in which the frequency varies depending on the amplitude of the input signal.

The duty cycle of the modulating signal does not change. Because it is still a square wave that changes frequency, PFM is also called square wave FM.

WHAT IS PFM?

Like its conventional cousin PWM, PFM technology is primarily used to convert a series of signals, called analogue values, into variable digital measurements that can be recorded. by even the most basic discrete computers. In this way, it can be used by microcontrollers and industrial controllers (such as PLCs), while still being easily adapted to more advanced industrial computers.
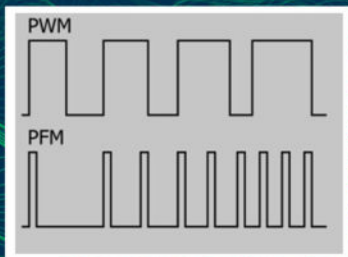
PWM VS. PFM

PFM vs.PWM for low and high band signals. Note that the top PFM is fixed frequency, variable width percentage, and the bottom PFM is fixed width percentage but variable frequency. Image used by Control Automation
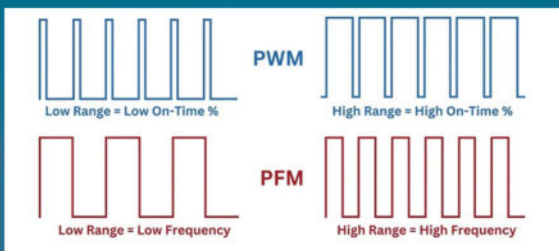
HOW IS PFM DIFFERENT FROM PWM?

The main difference between PWM and PFM is that PWM, because the pulse width varies at a fixed frequency, must have a timer set in advance to measure the duration of the pulse in time, thus creating a "duty cycle" Percent, equivalent to 0-100% of full voltage analog signal. Since the frequency of the signal does not change but only the on time period, we do not need to count the number of cycles in a second because it is fixed .
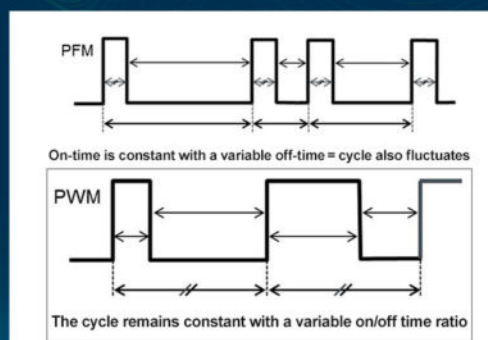
In contrast, the PFM concept changes the frequency of the signal, but each pulse maintains equal on and off times. This equal on/off pulse is called a square pulse, so we don't need to measure the duration of each pulse. There are two ways to measure PFM signals, providing variety for use cases and control theory.

APPLICATIONS

POWER SUPPLIES

First, switching power supplies rely on pulsed DC output, which varies the output power to the load depending on the load conditions. This allows heavy loads to receive a more continuous power supply when needed, but lighter loads can consume less power from the source, resulting in more efficient power delivery.

However, when powering a light load, the pulse off time is very long, so the power supply inductor may discharge completely and the Power supply capacitor may also discharge, reducing

BUCK CONVERTER

PFM mode is a popular technique to increase the conversion efficiency of step-down DC-DC converters (Buck Converters) when driving light loads.

At moderate to high loads, the DC resistance of the Buck converter's switching elements tends to dominate the overall performance of the Buck converter. However, when the load is light, the impact of DC resistance is reduced, and AC losses in inductors, capacitors, and switching elements play a larger role in overall performance. This is especially true in intermittent mode, where the induced current drops below zero, leading to discharge in the output capacitor and even higher switching losses.

Operation in PFM mode reduces the switching frequency, and the control method prevents the induced current from falling below zero at light loads. Instead of applying square pulses of varying widths to the inductor, trains of square pulses with a fixed duty cycle of 50% are used to charge the inductor to a predetermined current limit and then discharge the current. The frequency of these pulse trains is then varied to produce the desired output voltage using an output filter capacitor.

This provides some savings in loss conversion. The inductor receives a known peak current level which, if carefully selected based on saturation current, can reduce switching losses in its magnetic core. Since the induced current can never drop below zero, the output filter capacitor is not discharged and does not need to be recharged after each switching cycle to maintain the proper output voltage.

All of this takes a toll on the output voltage and current ripple, which increases due to reduced switching frequency and spacing between pulse trains.

Efficiency characteristics of PWM and PFM illustrated
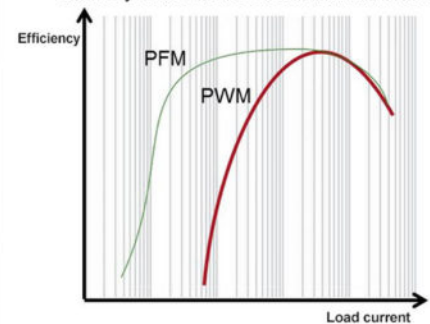
PFM SENSOR

Several companies have developed analogue equivalent measurement systems that still use digital quality. Using PFM and edge counting, relays can consume much less dedicated processing power than running timer tasks continuously, as is required for PWM.

In modern systems, with the variety of protocols both pure analogue and advanced protocols such as IO-Link, PFM is not considered a universal solution to the analogue signal problem, but some applications provides a method of conversion between a pure analogue signal and a discrete signal.

THANKS

Articles

iziar e-magazine   powered by IPCS GLOBAL