Arihant स्पर्श Newsletter

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A Touch of Excellence, Every Month

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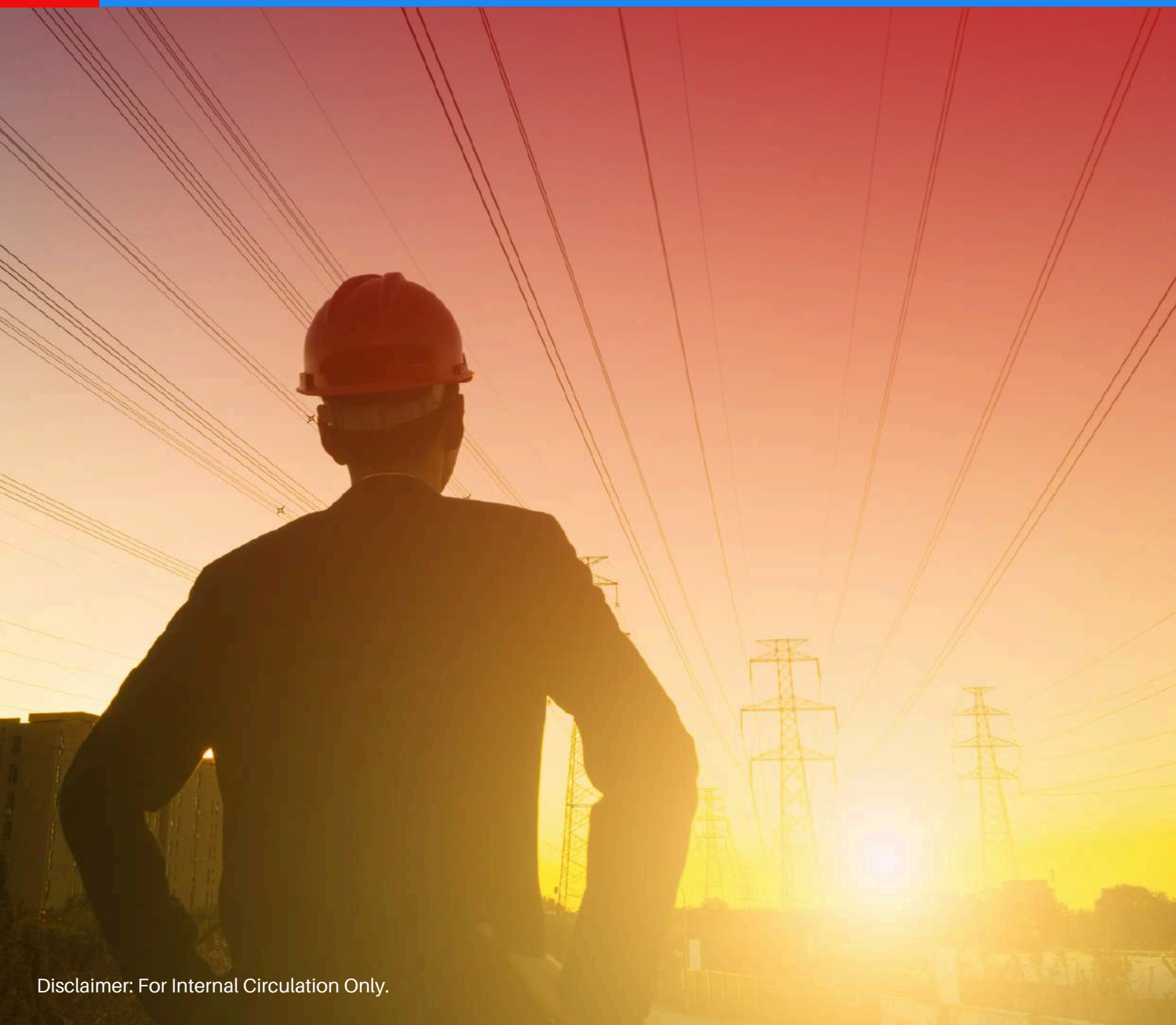

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Founder's Message

AI's Transformative Role in the Electrical Industry

Dear Team,

As we navigate an era of rapid technological advancements, the impact of Artificial Intelligence on the electrical industry is undeniable. AI is no longer a futuristic concept—it's here, actively reshaping how we design, manufacture, and maintain electrical systems. At Arihant Electricals, we see this as an opportunity to innovate and stay ahead.

AI-driven advancements like machine learning-based fault detection, predictive maintenance, and smart grids are optimizing energy distribution and enhancing efficiency.

In manufacturing, automation is refining quality control and boosting productivity. While change brings challenges, we believe AI empowers rather than replaces. It enables us to enhance our skills, drive innovation, and solve complex problems creatively.

We are committed to integrating AI to deliver reliable, efficient, and sustainable solutions. Our R&D team is exploring AI-driven approaches, and we are investing in upskilling our workforce to stay future-ready.

Let's embrace this transformation with confidence and a shared commitment to innovation.

Best Regards,
Mr. Amit Jain
Founder & Managing Director, Arihant Electricals

Spotlight of the Month

Featured Articles

Dive into this month's insightful articles, covering industry trends, innovations, and expert perspectives. Stay informed, stay inspired, and explore ideas that drive excellence at Arihant Electricals.

1 How Technology is Transforming Agriculture Sector

PRIYANKA PATIDAR
(R&D)

The most pressing issue in the world today is the food supply. The demand for food has increased at more than twice the rate of population growth in the last 35 years. In fact, according to a report by the Food and Agriculture Organization (FAO), about 10% of the global population, or 815 million people, are malnourished and do not have enough food to lead active and healthy lives. The use of modern technology in the agriculture sector is widespread. It has helped the farmers in many ways. Adoption of new and improved technologies has increased the production and productivity of crops. This has also helped in reducing the production cost. The use of technology has also made the process of farming easier and more efficient.

Some of the popular technologies used in the agriculture sector are:

1. Soil Sensor: Soil sensor is used to measure soil moisture level, temperature and other factors affecting crop growth. The data collected by the sensors is transmitted wirelessly to the farmer, who can adjust his farming practices accordingly.

2. GPS technology: GPS technology is widely used in precision farming. It helps to find out the boundaries of the field and apply fertilizers, pesticides and herbicides correctly. This reduces wastage and increases efficiency.

3. Weather monitoring: Farmers can now access real-time weather data that can help them decide when to sow, how to irrigate and what type of crop to grow. This information can be obtained through weather apps or websites, or through dedicated weather stations on the farm.

4. Automation: Automation has been widely adopted in agricultural processes like sowing, transplanting, harvesting etc. This has reduced the dependence on manual labour and increased efficiency.

5. Drones: Drones are being used extensively for mapping, surveying and crop monitoring. They help in collecting data that can be used for planning and execution of agricultural activities.

6. Agricultural Robots: Agricultural robots are being developed to perform various tasks on farms, such as milking cows, picking fruits and vegetables, and even cutting grass. These robots can work for long periods of time without getting tired and can often do a better job than human workers.

7. Satellite Imagery: Satellite imagery is used for weather forecasting, crop monitoring and yield analysis. It helps farmers to take timely decisions regarding irrigation, cropping pattern etc.

Drones in Indian farming: an overview

The drones have appeared to be a game -changer in Indian farming. It offers modern solutions to ancient techniques. Advanced sensors and cameras equip most unmanned aerial vehicles (UAVs). The unmanned aerial system allows farmers to observe and manage their crops with unmatched precision.

Types of Drones in Agriculture

The Indian agricultural sector today uses a variety of drones. It has become a game changer for the improvement of crops and crop health as well.

1. Fixed Wing Drones: This drone looks exactly like a traditional airplane. It works efficiently for covering large agricultural lands. It is equipped with high-resolution cameras and it can fly for long hours as well. It makes them ideal for surveying vast areas of farmland.

2. Rotary Drones: The Rotary drones are good, and they can fly in different places as well. It is suitable for smaller farms and it can capture detailed images of crop yields. People also call this drone a multi-rotor drone.

3. Hybrid Drones: Hybrid drones combine the features of both fixed-wing and rotary drones. The hybrid drone offers the benefits of extended flight time and uniqueness. It can cover large areas efficiently while providing details.

Use of Drones in Agriculture in India: A Case Study

The positive impact of drone technology in agriculture across different regions of India.

1. Maharashtra: The drones are actively used to monitor and manage crop health in the vineyards in Maharashtra. While identifying the areas of stress in early times.

2. Punjab: Punjab is popular for the extensive cultivation of rice. The drones are used to assess the effectiveness of paddy crop management. The data collected aids farmers in maintaining water usage. It reduces the environmental impact of rice cultivation.

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2 Importance of Documentation

(Because it's way more than a formality)

PRAGATI GUPTA
(QUALITY)

Let's suppose - Your team is starting a project that's new to all of you. You heard through the grapevine that your company successfully tackled something similar just a couple of years ago. The only problem? Nobody on your current team was actually around during that time. Those people have since moved on, and now you're left wondering how to bridge this knowledge gap. Now, imagine instead if you had resources that you could turn to. What if that previous team had kept detailed records like project plans, meeting summaries, step-by-step processes, sketches, roadmaps, and more?

Documentation feels like yet another thing to add to your team's to-do list. However, it offers a slew of advantages that make it well worth the time and effort. It helps teams stay organized and on track by providing a clear understanding of project requirements, progress, and any potential risks.
The four C's of documentation—Capture, Categorize, Control, and Convey—are fundamental principles guiding effective document management: Capture: This initial step involves collecting documents from various physical or digital sources.

Documentation should be your best friend because:

- **Documentation is essential to quality and process control**
- **It makes hiring and on boarding so much easier.**
- **Documentation cuts down duplicative work**
- **Keeps your teams on the same page**
- **Saves your teams time and energy**
- **Give Your Operations a More Professional Image**
- **The clients will feel secure knowing a system is in place to deliver timely, accurate reports.**

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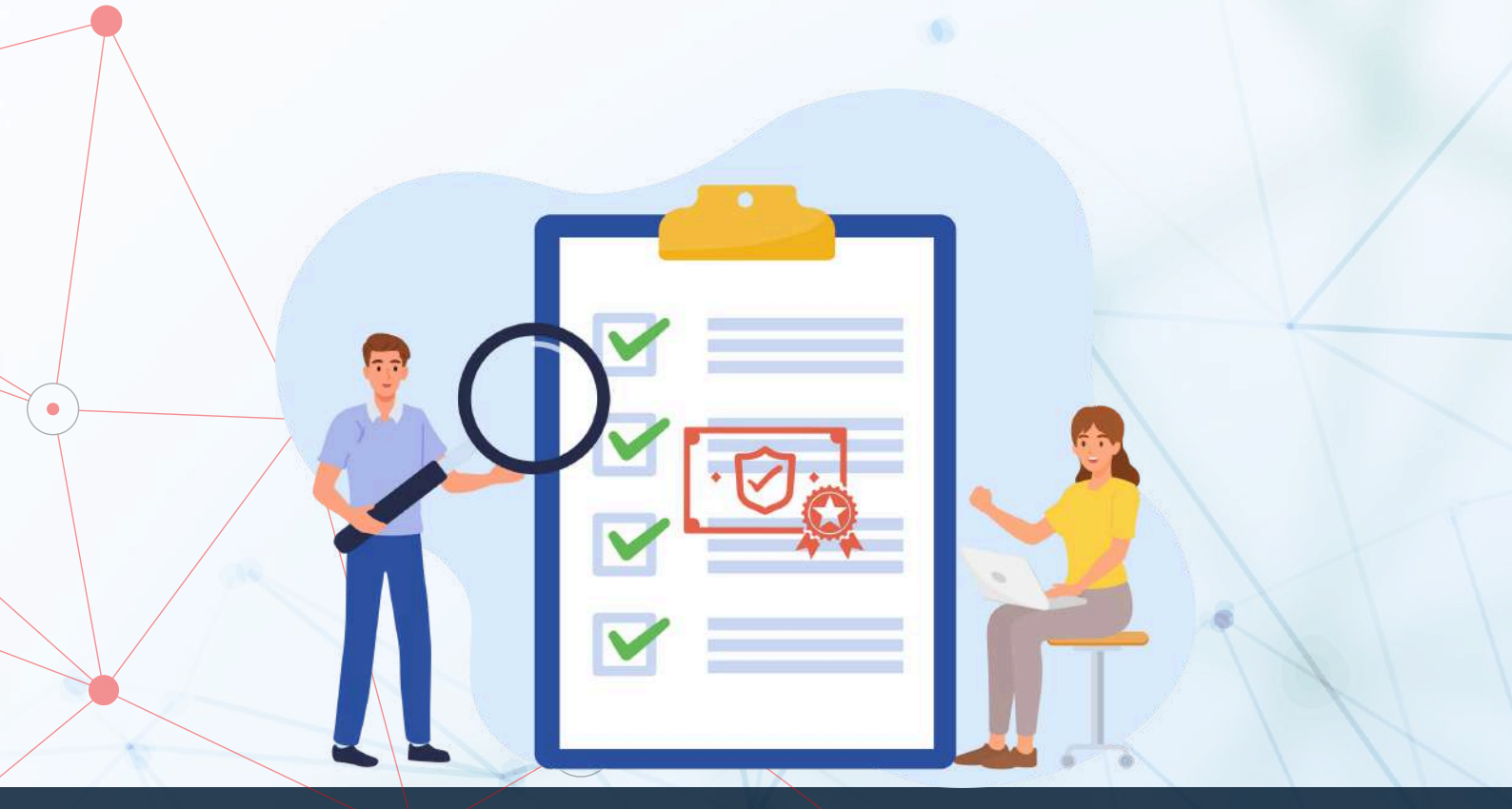
Famous Quotes:

- A special validates you as a stand-up by documenting your material- Kevin Nealon
- There's a whole load of stuff in life that is worth documenting. You see it every day but don't even notice- Jan Chipchase

Document Control

The process of managing documents within an organization in a systematic and organized manner. It involves creating, storing, organizing, tracking, and distributing documents to ensure that the right version of a document is available.



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3 Metal Oxide Varistor

ROHIT JHA
(SALES, LIGHTING DIV.)

The Metal Oxide Varistor or MOV for short, is a voltage dependant resistor in which the resistance material is a metallic oxide, primarily zinc oxide (ZnO) pressed into a ceramic like material. Metal oxide varistors consist of approximately 90% zinc oxide as a ceramic base material plus other filler materials for the formation of junctions between the zinc oxide grains.

Metal oxide varistors are now the most common type of voltage clamping device and are available for use at a wide range of voltages and currents. The use of a metallic oxide within their construction means that MOV's are extremely effective in absorbing short term voltage transients and have higher energy handling capabilities.

As with the normal varistor, the metal oxide varistor starts conduction at a specific voltage and stops conduction when the voltage falls below a threshold voltage. The main differences between a standard silicon carbide (SiC) varistor and a MOV type varistor is that the leakage current through the MOV's zinc oxide material is very small current at normal operating conditions and its speed of operation in clamping transients is much faster.

- **USES OF MOV:** Generally Metal Oxide Varistors are used to protect electronic devices against overvoltage surges. However, several events can cause a thermal runaway in a varistor and the circuit protection function of the component can no longer be guaranteed.

- **FUNCTION OF MOV:** Varistors are used to protect a circuit from high voltage surges. When a high voltage surge is applied to a circuit, the outcome is usually catastrophic to the circuit. A capacitor may be installed across the signal lines.

Thought of the week

- **Monday:** We realise the value of these three things unfortunately only when we lose them – time , people , relationships.

- **Tuesday:** Life is not easy , we have to make it easy .at times by the right outlook towards what we can change , and at others times by ignoring things.

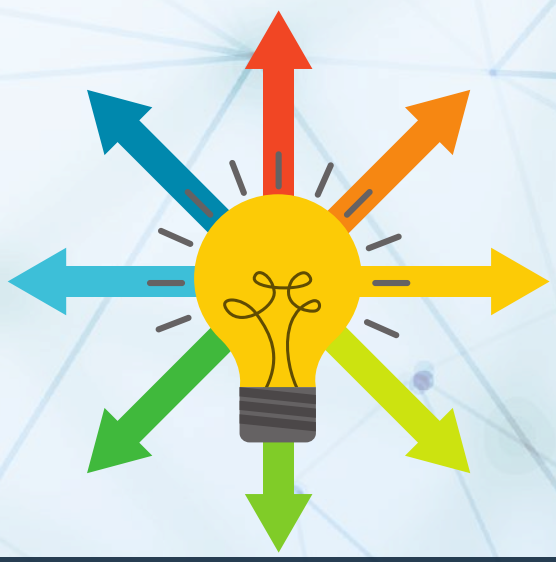
- **Wednesday:** The more I focus on myself , the more I focus on self-development . I am not going to be victim of the fear of missing out.

- **Thursday:** We are born with no name , just our breath. And we die with no breath left . what's left is just name . life is a journey between our breath and our name . make sure that the journey is great.

- **Friday:** Lets be humble enough to accept our mistakes, intelligent enough to learn from them and mature enough to not repeat them again

- **Saturday:** When passion pays you , that becomes your profession. When profession contributes and make a difference, that called your purpose .

- **Sunday:** The difficulties that we see in our life are the distractions we see when our eyes are off our goals.



4 Types and Functions of Sensors in Automotive Systems

- SHIVAM SRIVASTAVA
(MARKETING)

Automotive sensors are integral to the performance and safety of modern vehicles. These sensors convert physical measurements into electrical signals, allowing the Electronic Control Unit (ECU) to monitor and optimize vehicle functions. They are categorized by the physical properties they measure and the technology used to detect them.

Classification Based on Physical Properties

1. Pressure Sensors: These sensors monitor fluid pressures within the vehicle, including air, oil, and fuel. They ensure that the pressure stays within safe limits for smooth operation and are commonly used in fuel injection and braking systems.

2. Temperature Sensors: These sensors track the temperature of the engine's coolant, oil, and air. They help prevent overheating and ensure the engine operates within optimal temperature ranges.

3. Position Sensors: These sensors detect the position of various components, such as the camshaft and crankshaft, and are crucial for engine timing. The throttle position sensor also falls into this category.

4. Speed Sensors: Wheel speed sensors measure the rotation of wheels and axles, playing a key role in Anti-lock Braking Systems (ABS) and Transmission Control Units (TCU) by preventing wheel lockup.

5. Level Sensors: These sensors monitor fluid levels in various reservoirs, such as fuel tanks and oil sumps, to ensure adequate fluid levels for proper vehicle functioning.

Classification Based on Technology

1. Capacitive Sensors: These sensors detect changes in capacitance when a physical quantity varies, such as in fluid-level sensors.

2. Ultrasonic Sensors: Commonly used in parking assistance, ultrasonic sensors measure the distance to nearby objects by emitting sound waves and measuring the time it takes for the echo to return.

3. Infrared Sensors: These sensors use infrared light to detect obstacles and provide night vision, particularly in low-light conditions.

4. Piezoelectric Sensors: Engine knock sensors fall into this category. These sensors generate an electrical charge when subjected to mechanical stress, helping to detect engine knock.

5. Hall-Effect Sensors: These sensors detect magnetic fields and are used for position sensing, such as monitoring camshaft and crankshaft positions.

6. Resistive Sensors: These sensors, such as temperature sensors, change their electrical resistance in response to physical changes, like temperature variations.

Applications of Sensors in Automotive Systems

Sensors are pivotal in enhancing vehicle safety, performance, and efficiency. Here are some of their key applications:

1. Engine Management: Sensors help optimize fuel-air mixtures, ignition timing, and cooling. Oxygen sensors regulate the combustion process, while temperature sensors prevent engine overheating. Pressure sensors in turbocharged engines monitor boost pressure for safe operation.

2. Safety Systems: Sensors such as accelerometers trigger airbags upon detecting a collision, while wheel speed sensors in ABS systems help maintain steering control by preventing wheel lockup. Traction control systems also rely on wheel speed sensors to manage grip loss.

3. Driver Assistance Systems: Modern vehicles incorporate various sensors for enhanced driving experience. Ultrasonic sensors assist in parking, while radar and LIDAR sensors help with adaptive cruise control and blind-spot detection. Infrared and optical sensors enable lane-keeping assistance

Key Specifications and Performance Criteria

For automotive sensors to function effectively, they must meet certain performance standards:

1. Accuracy and Resolution: Accuracy ensures that sensor readings align closely with real values, while resolution indicates the smallest detectable change in a measured parameter.

2. Sensitivity and Range: Sensitivity determines how well a sensor reacts to small changes, and range defines the range of values the sensor can measure.

3. Environmental Considerations: Sensors must be resistant to temperature fluctuations, vibrations, and contaminants such as dust, oil, and moisture, ensuring reliable performance under various driving conditions.

4. Sensor Tolerances and Fault Diagnostics: Automotive systems are equipped with self-diagnostic features to detect and address sensor malfunctions. Redundancy and plausibility checks are used to identify inconsistencies in sensor data, ensuring that failures are quickly detected and managed.

Conclusion

The variety and complexity of automotive sensors underscore their importance in the modern vehicle. These sensors help vehicles operate efficiently and safely, enabling advanced features like adaptive cruise control, anti-lock braking, and collision detection. As technology progresses, the role of sensors in the automotive industry will continue to expand, leading to smarter, safer, and more efficient vehicles.

Union Budget 2025 Participation

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Arihant Electricals actively participated in two key discussions on the Union Budget 2025-26, gaining critical insights into policy directions and economic strategies shaping the industry.

At the 28th Analytical View on Union Budget 2025-26, hosted by Marwari Yuva Manch, South Delhi Branch, industry stalwarts shared expert perspectives on taxation and financial reforms. Esteemed speakers, including CA (Dr.) Girish Ahuja and CA Ved Jain, shed light on direct tax implications and economic growth strategies.

Additionally, at the Union Budget 2025-26 Interactive Session with the Ministry of Finance, organized by CII, we had the privilege of engaging with key policymakers such as Shri Ravi Agrawal (Chairman, CBDT) and Shri Sanjay Malhotra (Revenue Secretary). Discussions covered major economic drivers, including nuclear energy expansion, infrastructure growth, and taxation reforms.

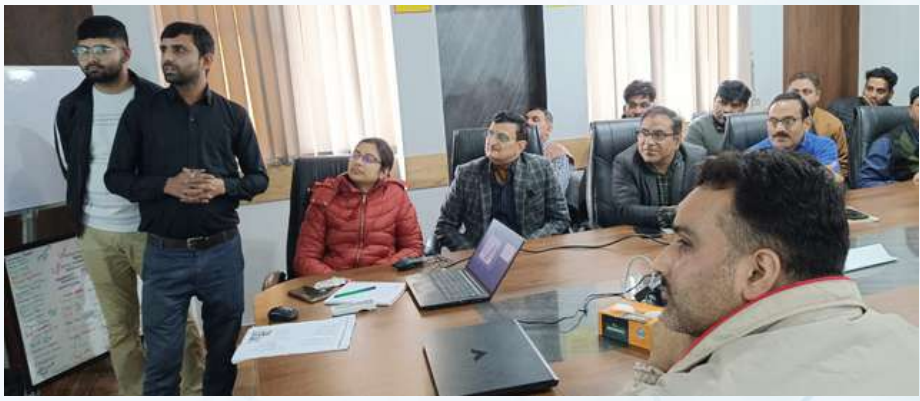
Such engagements reinforce Arihant Electricals' commitment to staying ahead in policy evolution, ensuring we adapt and innovate in a rapidly changing economic landscape.

Learning & Development

At Arihant Electricals, continuous learning is the key to growth. This month, we conducted insightful sessions on workplace efficiency and safety, equipping our team with essential skills to enhance productivity and ensure a secure work environment.

Knowledge Session on Compliance & 5S

To enhance workplace efficiency and organization, Arihant Electricals conducted an insightful session on the 5S methodology—Sort, Set in Order, Shine, Standardize, and Sustain. The session emphasized the importance of a clutter-free, well-structured work environment, leading to increased productivity, safety, and quality. By implementing 5S, we are fostering a culture of continuous improvement and operational excellence.



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Training Session on Safety

Safety is a priority at Arihant Electricals, and our latest Training Session on Safety reinforced essential workplace safety protocols. Covering hazard identification, emergency response, and best practices, the session equipped employees with the knowledge to prevent workplace accidents and ensure a secure and compliant work environment. A well-informed team is a safe team!

Honored Visit by UNIDO & Meerkats Team

On 31st January, Arihant Electricals had the privilege of hosting the UNIDO team along with Meerkats at our facility. They explored our advancements in power electronics and high-voltage electrical solutions. It was an honor to welcome Prof. Dr. Chakravarti and UNIDO experts for discussions on validating nanotechnology solutions for industrial applications. Such collaborations drive innovation and reinforce our commitment to cutting-edge technology in the industry.

People & Culture

January Birthday Celebrations

Celebrating our incredible team members and wishing them joy, success, and prosperity!

Dhirendra Srivatava of R&D deptt.

Navdeep Sharma R&D Dept.

February Birthdays

Wishing you joy, success, and a fantastic year ahead!

Virendra Kumar	15 February
Bittu Kumar Dubey	24 February
Kamal Ghorai	26 February

People & Culture

Welcome Aboard!

(New Joinees - January 2025)

Excited to have new talents join the Arihant family as we grow together!

Shailesh Singh	Engineer Quality Control
Jitendra Singh	Technician
Raman Kumar	Vendor Support Executive
Jugendra Singh	Sr. Manager Biz. Dev. (Automation)
Nilesh Vilas Gawali	Asst. Manager Sales - Pune
Manish Kumar	Engineer R&D
Mayank Kumar Saini	Technician

Moments of Laughter & Fun

The Power of Experience

A factory kept facing electrical failures, causing major delays. Frustrated, the owner called an experienced electrical engineer.

The engineer arrived, examined the panel, took a screwdriver, and tightened one screw. Instantly, everything worked perfectly!

Relieved, the owner was shocked to receive a bill for ₹50,000.
Owner: "₹50,000 for just tightening a screw? Break it down!"

The engineer smiled and handed the invoice:
Tightening one screw – ₹10
Knowing which screw to tighten – ₹49,990
Moral: Expertise matters more than effort!

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We solicit your valuable suggestions and feedback to enhance this newsletter for future editions.