

Arihant

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Newsletter

A Touch of Excellence, Every Month

NOVEMBER 2025

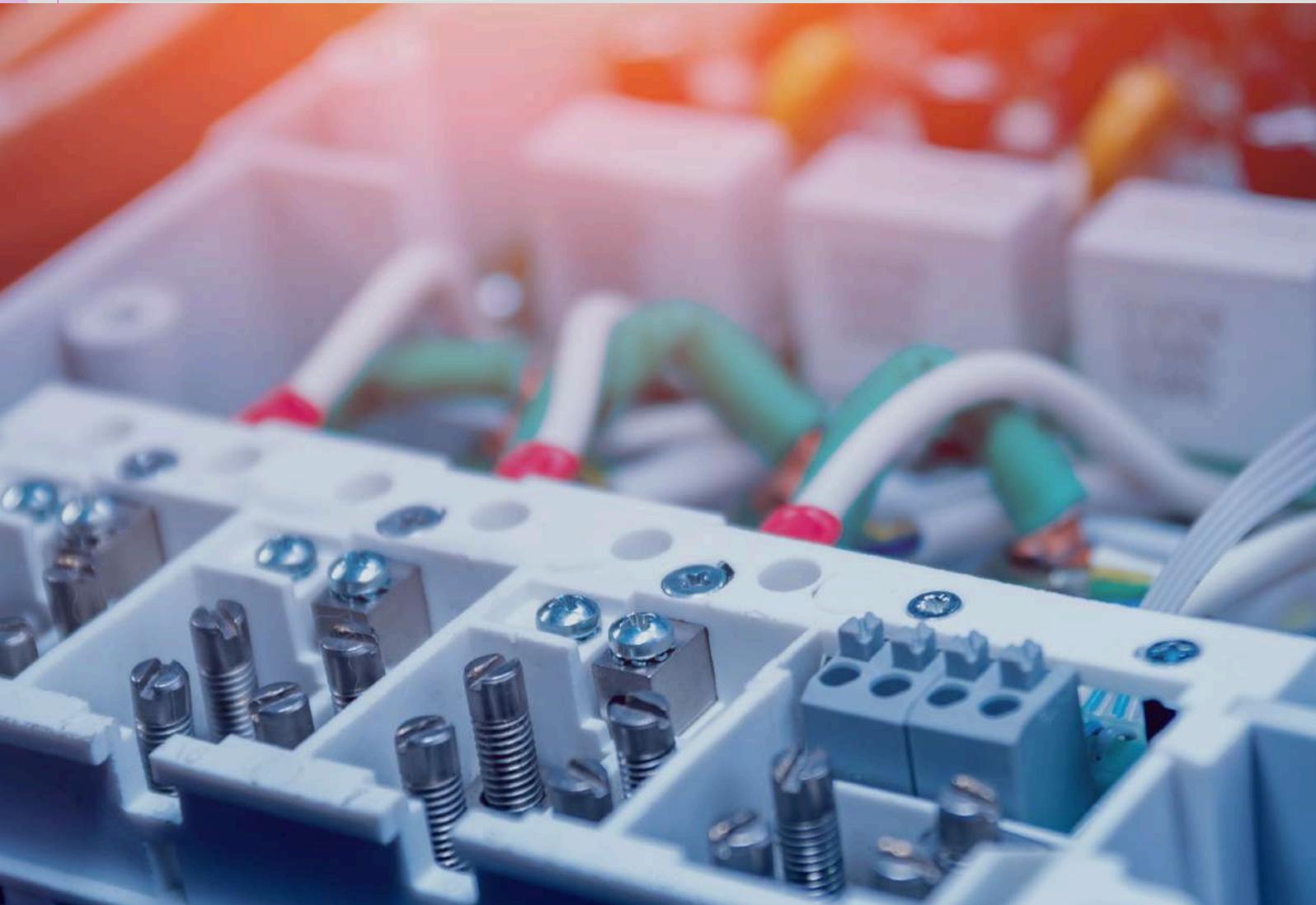


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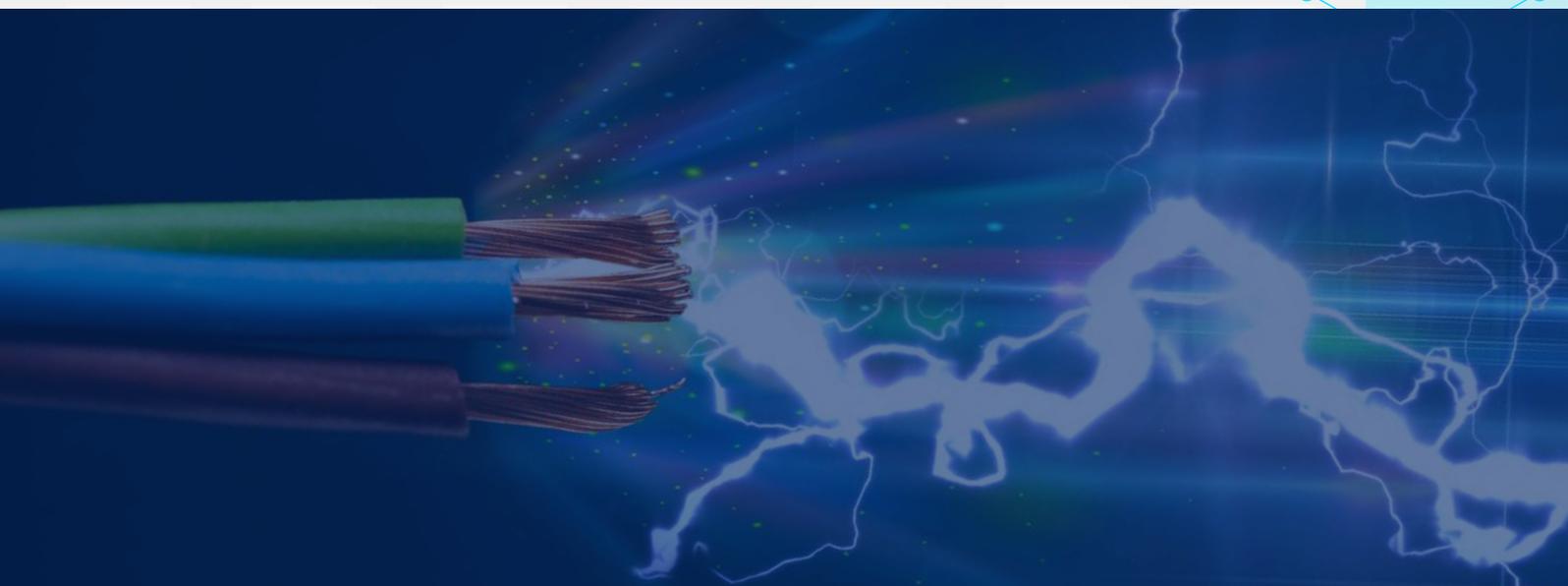
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The Growing Importance of AI & Machine Learning in Modern Systems



Mr. Niraj Kumar Pandey (HR Desk)

Artificial Intelligence (AI) and Machine Learning (ML) are rapidly transforming how industries operate today. What was once considered a future technology has now become a practical tool used across manufacturing, transportation, healthcare, retail, and even our homes. AI helps systems analyze large data sets, recognize patterns, and make decisions much faster than humans can.

This shift is not about replacing human effort, but about enhancing efficiency, accuracy, and performance.

One of the most impactful applications of AI and ML is in predictive analysis. Instead of reacting to problems after they occur, businesses can now forecast issues in advance. In industrial and electrical systems, ML models track data from sensors and equipment to identify early signs of wear, overheating, power fluctuations, or component failure. This allows maintenance teams to take timely action, reducing downtime and maintaining continuity in operations.

AI is also improving automation and workflow optimization. Routine, repetitive, and time-consuming processes can now be performed automatically, helping companies save time and reduce errors. This enables engineers and professionals to focus more on innovation, system design, and critical decision-making rather than manual monitoring tasks.

Another key contribution of AI is in quality and safety. Machine learning algorithms can detect even small deviations or abnormalities in performance data that are difficult for human eyes to notice. This ensures higher product reliability, consistent output standards, and safer operation environments particularly in sectors like transportation networks, power systems, and manufacturing plants.

Overall, AI and Machine Learning are becoming core enablers of smarter systems. They help organizations learn from data, adapt to changing conditions, and continuously improve performance. As industries continue to adopt digital technologies, the role of AI will only grow stronger shaping the future of efficiency, reliability, and intelligent decision-making across every sector.

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. When Life Feels Heavy: Stories That Remind Us to Keep Going

When life puts you in a slump, turn to these short inspirational stories.

Reading them is like giving your soul a warm, gentle hug — and they might just spark a new thought, a shift, or a change within you. Read on, and get ready to smile.

1. Everyone Has a Story

A 24-year-old man, watching the world through a train window, suddenly shouted:

"Dad, look, the trees are going behind us!"

His father smiled. A young couple sitting nearby looked at the man's childlike excitement with pity. A moment later, he exclaimed again:

"Dad, look, the clouds are running with us!"

Unable to hold back, the couple said to the old man:

"Why don't you take your son to a good doctor?"

The father smiled and replied:

"We just came from the hospital. My son was blind from birth. Today... he got his eyes."

Every person has a story you know nothing about.

Don't judge. The truth might surprise you.



Mr. Vivek Tripathi



2. Shake Off Your Problems

A man's donkey once fell into a deep pit. No matter how hard he tried, he couldn't pull it out. So he decided to bury it, to end its suffering.

He began shoveling soil into the pit.

But every time the soil fell on the donkey's back, the donkey shook it off and stepped up.

More soil.

Shake it off. Step up.

By noon, the donkey had reached the top and walked away.

Life will throw dirt at you. Shake it off. Step up.

Your challenges can lift you if you let them.

3. The Elephant and the Rope

A man once saw elephants tied only by a small rope around their front legs.

No cages, no chains.

He asked the trainer why such strong animals didn't break free.

"When they are young," the trainer said, "we use the same rope. At that age, it's enough to hold them. They grow up believing the rope still controls them so they never try to break free."

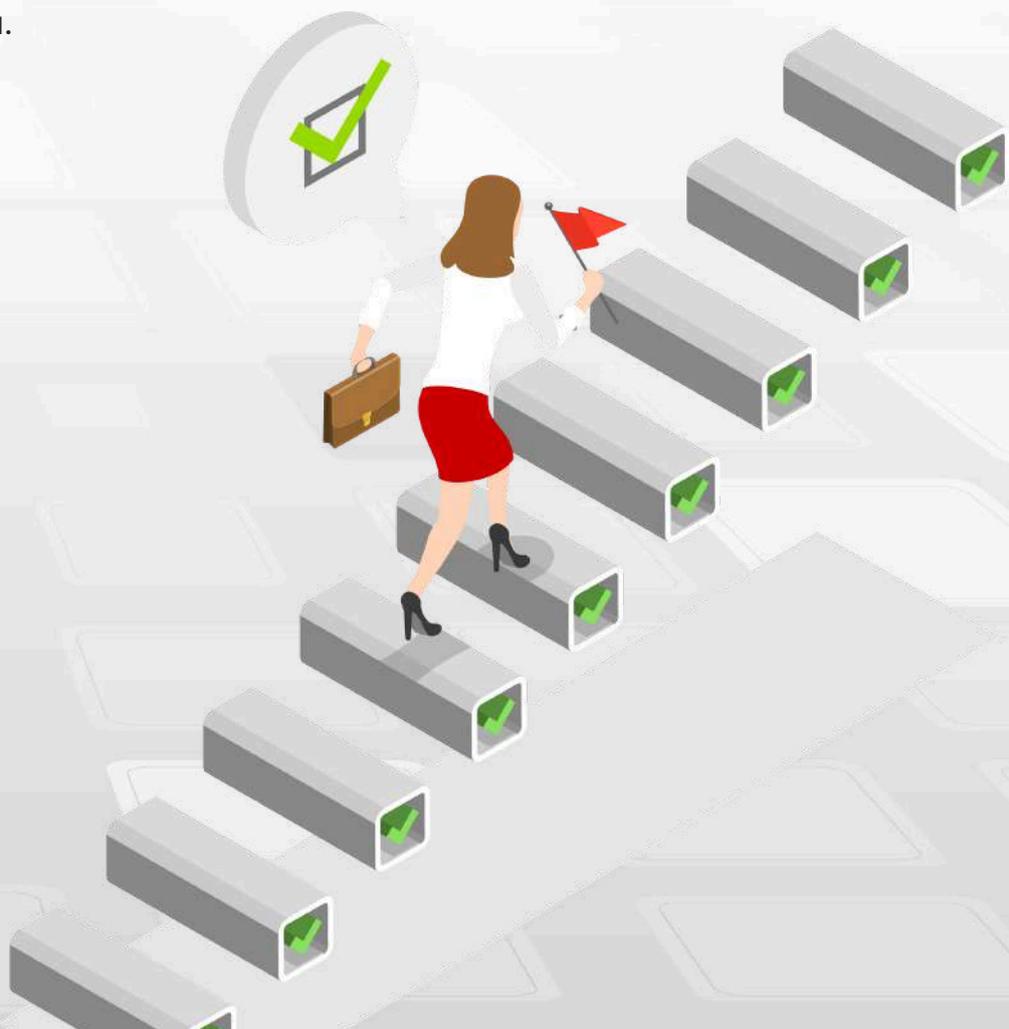
These elephants *could* be free but they don't believe they can.

How many of us are held back by old beliefs?

Just because you failed once doesn't mean you can't succeed now.

Failure is part of learning. Keep trying.

Your strength is already within you.



2. Understanding Hall-Effect Integrated Circuits (ICs)

Introduction

A Hall-effect IC (Hall IC) is a semiconductor device that uses the Hall effect, where a voltage is generated across a conductor when a magnetic field is applied perpendicular to a current.

These devices integrate a Hall sensing element with amplification and processing circuits, and provide either analog or digital outputs.

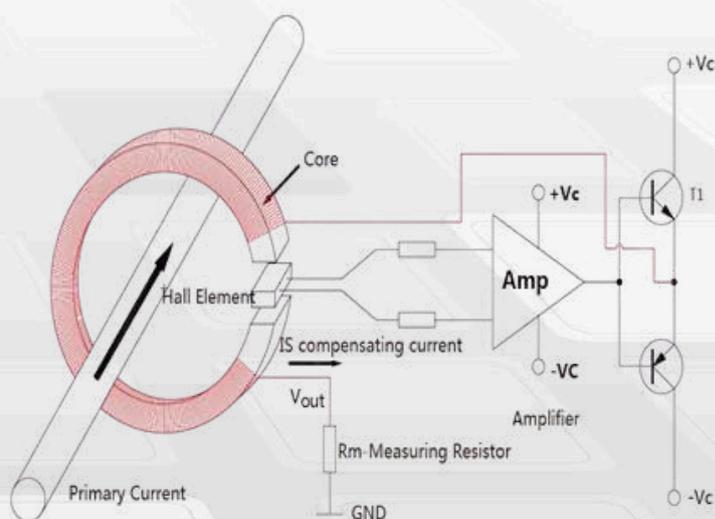
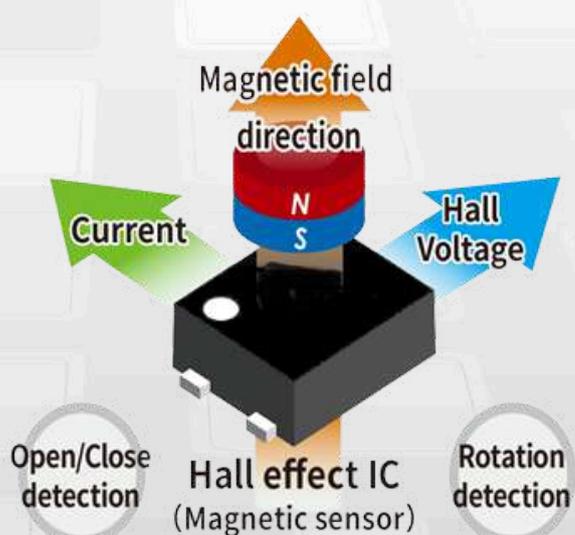
Because they offer contactless sensing and excellent electrical isolation, Hall ICs are widely used for detecting magnetic fields, measuring position or rotation, and sensing current.

How It Works

When current flows through the Hall element and a perpendicular magnetic field is present, a small Hall voltage is produced. The IC amplifies this voltage and outputs a signal.



Mr. Shivam Srivastava



Key behaviors

- **Linear (analog) Hall ICs:** Output voltage changes with magnetic field strength.
- **Switch/Latch Hall ICs:** Output changes when the magnetic field crosses specific thresholds.
- **Magnet placement and field orientation are critical**, meaning mechanical design directly affects performance.

Current Sensing Methods

Hall ICs are commonly used for both AC and DC current sensing via magnetic coupling. Two typical configurations:

Comparison

Feature	Open-loop	Closed-loop
Simplicity	Higher	Lower
Accuracy / drift	Moderate	High
Core flux density	Higher (closer to saturation)	Lower (nulled)
Response speed	Potentially faster	May trade bandwidth for stability
Cost / size	Lower	Higher

Current sensing Hall ICs are becoming increasingly advanced, offering isolation voltages up

- **Open-loop:** Current generates a magnetic field in a core; Hall sensor detects it. Simple but less accurate.
- **Closed-loop:** A secondary winding cancels magnetic flux, improving accuracy and stability.

Modern designs offer high isolation (>1 kV) and low drift, making Hall current sensors suitable for power electronics, EV chargers, and drives.

Types of Hall ICs

Based on Output

- Switch: On/Off response to magnetic threshold.
- Latch: Holds state until opposite magnetic pole appears.
- Linear: Proportional output for precise field measurement.

Based on Magnetic Detection

- Unipolar: Detects one pole.
- Bipolar: Detects both poles with separate thresholds.
- Omnipolar: Responds to either pole.
- Zero-Cross Latch: Detects and holds polarity transitions.

Selection Factors

- Supply voltage, temperature range, and current consumption.
- Package size (e.g., SOT-23, SNT-4A).
- Sensitivity (operate/release fields).
- For current sensing: isolation rating, drift, bandwidth.

Applications

- **Position and rotation sensing** in motors, joysticks, doors.
- **BLDC motor commutation** for rotor position detection.
- **AC/DC current measurement** in chargers, drives, and power supplies.
- **Automotive:** speed, torque, steering, pedal sensing.
- **Consumer devices:** laptop lids, brushless fans.

Benefits

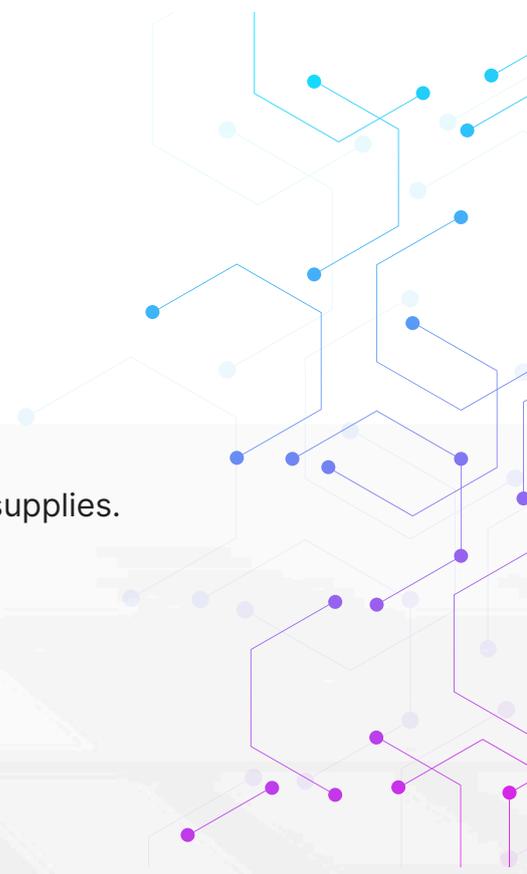
- Contactless sensing → **no mechanical wear**.
- **Electrical isolation** improves safety.
- **Compact and reliable** in harsh environments.
- Works with **fast dynamics** and wide field range.

Practical Design Considerations

1. Correct magnet orientation and distance.
2. Core and air-gap design for current sensing.
3. Use temperature-compensated parts to reduce drift.
4. Select bandwidth appropriate to signal characteristics.
5. Ensure proper isolation for high-voltage applications.
6. Choose output type (digital vs analog) based on system needs.

Summary

Hall-effect ICs convert magnetic fields into usable electrical signals, enabling non-contact, reliable sensing for position, motion, and current measurements. Choosing the right Hall IC involves understanding output type, magnetic behavior, sensing configuration, and mechanical design. With proper selection and integration, Hall ICs deliver accurate, stable, and durable sensing across industrial, automotive, and consumer systems.



3. Another Victory – Over Oneself (Giving up Gutkha and Tobacco)

A true incident

Sometimes in life, there come moments when the real impact doesn't come from words but from intent. Today was one such day - a day of freeing yet another person from the chains of addiction.

I had booked a cab from ISBT Bhopal to return home. In a short while, Mr. Ravi arrived with his sparkling clean car. The moment I stepped in, I felt delighted - such an impressive blend of cleanliness and order!

But the next instant, it was as if something inside me jolted. Mr. Ravi leaned out of the window and decorated the road with a stream of gutkha spit.



Pramod Jain

My smile disappeared instantly. Out of habit, I asked him to stop the car and shifted to the front seat.

I said, "Mr. Ravi, you've kept your car so clean... now try keeping your mind just as clean." He smiled and replied, "It's a habit... hard to quit."

Well, I'm persistent - I don't miss such opportunities. I took it as a challenge. We talked for a while; I explained as best I could. And eventually, this project too succeeded.

Mr. Ravi already knew gutkha was harmful to the body, but no one had ever touched his heart by telling him that it harms his family as well.

Gradually, seriousness filled his eyes. In a calm voice, he said, "You're right... I'll quit from today."

I smiled and said, "Wonderful! That's the real victory - over oneself." Then I paid him a little extra fare and added, "Add a bit from your side too, and take some fruits home for your children this evening. You'll see - today's high will feel far better than any gutkha."



He smiled gratefully and said thank you.

I gave him my phone number and said,

“If you ever feel the need, call me - I’ll be with you.”

A strange peace filled my heart, as if I had freed a soul from bondage.

I pray that Mr. Ravi’s inner strength remains firm and that his decision becomes an inspiration for others.

Just think -

If all of us take the time to guide such people, one day our society can become addiction-free.

Come, let’s take a pledge today -

Say “No” to gutkha, tobacco, and every form of addiction.

Keep your mind as clean as you keep your home and your car.



At Arihant Electricals, our people are our greatest strength. This month, we celebrated birthdays, welcomed new team members, and fostered a positive workplace culture. Through these moments, we continue to build a collaborative and engaging work environment where everyone thrives!

October Birthday Celebrations

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



Birthday celebration of Ms.Preeti



Upcoming November Birthdays

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

Nishu Arya	November 1
KS Narayana	November 2
Amit Jain	November 5
Tinku Kumar	November 12
Niwas Niranjana	November 13
Roopesh Sadana	November 15
Mayank Kapoor	November 15
Manoj Kumar	November 16
Shashank Shukla	November 17
Prashant Awasthi	November 18
Mohit Kumar	November 19
Shiv Singh Negi	November 20
Tanya seth	November 24
Santosh Kumar Yadav	November 25
Nilesh Gawali	November 27

Welcome Aboard! (New Joinees - October 2025)

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



Rajiv Singhal
Procurement Manager



Shubham Kumar Seth
Engineer Sales - Elsys



Diwali Celebration

This Diwali, the Arihant family came together to celebrate the festival of lights with joy, laughter, and togetherness. From diyas and decorations to sweets and smiles, the day was a perfect reflection of our shared spirit and unity.



Celebrating Diwali with Cleanliness & Care, Swachhata Abhiyan Edition

This Diwali, we celebrated cleanliness with our Swachhata Abhiyan initiative, encouraging everyone to maintain a clean and positive workspace. Best Workstation Awards were given in appreciation of the effort.



Winner of Best Workstation
Mr. Ashutosh



2nd Runner of Best workstation
Mr. Nishant Kumar



Appreciative efforts for Best workstation
Mr. Javid Ahmad Ganaie



1st Runner of Best Workstation
Mr. Prashant Awasthi

MOMENTS OF LAUGHTER & FUN

THE GREAT CONNECTOR MYSTERY

*One Monday morning, production was halted.
The team gathered around the test bench,
staring at a lifeless setup.*

The supervisor asked, “Is the power supply on?”

“Yes.”

“Cables connected?”

“Checked.”

“Components fine?”

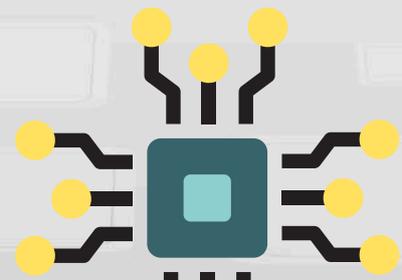
“All good.”

*After 30 minutes of analysis, circuit tracing,
and intense discussion, the intern quietly asked,*

*“Should I plug the other end of the connector
too?”*

*The room went silent — and then burst into
laughter.*

*Since that day, the team’s inside joke remains:
“Never underestimate the power of one missing
connection — in circuits or teamwork!”*

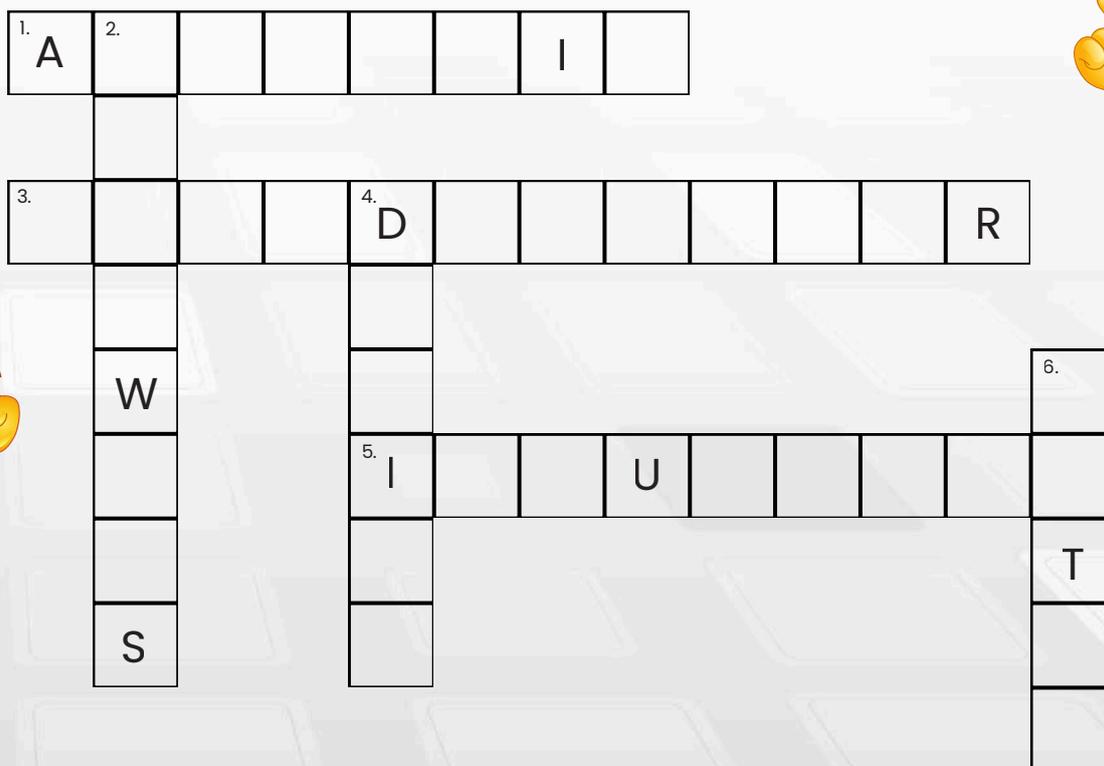


Arihant Electricals – Crossword Puzzle

Get ready to tickle your brain and spark some fun! This month, we bring you engaging activities, including a **Crossword Puzzle** and **Spot the Difference**, to test your wit and knowledge about **Arihant Electricals**. Participate and share your answers with the HR head at the earliest; the **first three winners** will be **featured** in our **November edition** of the magazine. **Don't miss this chance** to showcase your skills and have some fun

Across Clues

- (8 Letters) Operator's control seat for cranes and hoists.
- (13 Letters) Essential in trains for preventing hazards before they spark.
- (9 Letters) A device that senses metal objects using electromagnetic fields.



Down Clues

- (8 Letters) Lifeline of transport where Arihant's systems ensure detection, control, and dependability.
- (6 Letters) The process through which engineers convert functional requirements into precise system layouts and schematics.
- (5 Letters) An instrument that measures voltage, current, or energy consumption.

October Crossword Puzzle Winner Announcement



Anubhav Pandey

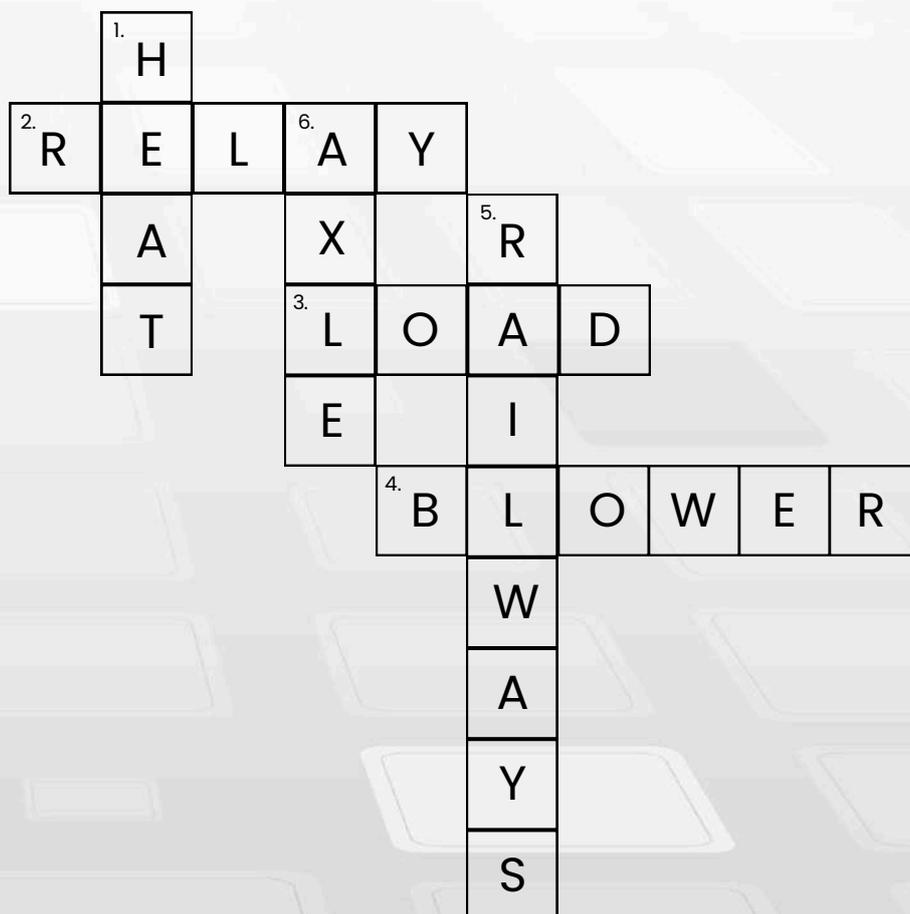


Imran Khan



Rajdeep

Puzzle Answers from Our Last Edition



Note: The winners were selected according to the quickest response time.

CONTACT US

E-mail

info@arihantelectricals.com

Phone

+91 – 120 – 6256192

Social Media

 [arihantelectr](#)

 [arihantelectr](#)

 [arihantelectricals](#)

Website

www.arihantelectricals.com

www.arisysel.com

HQ Address

Plot No. 60, Ecotech 12, Greater Noida,
Gautam Buddha Nagar – 201 318, UP, India



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