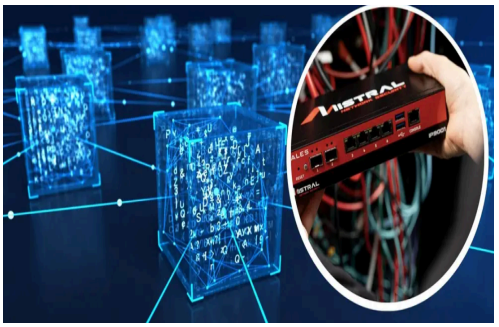
ATHARVA ROBOTICS CENTER

Daily News on Innovation & Technology

20th November, 2025

High-grade encryption solution protects classified communications, resists quantum attacks

By Prabhat Ranjan Mishra, November 19, 2025



A new encryption solution has been launched to protect classified communications against emerging threats. Thales' MISTRAL post-quantum encryptor offers a certified and qualified level of security for restricted-level communications. The cutting-edge security solution is claimed to be capable of resisting quantum attacks.

GSCAI Launches Next-Generation Clean-Energy-Powered Cloud Computing Platform

By GSCAI, November 19, 2025

London, UK, Nov. 19, 2025 (GLOBE NEWSWIRE) -- GSCAI proudly announces the official launch of its groundbreaking clean-energy cloud computing platform—an innovation designed to accelerate the future of sustainable artificial intelligence. Leveraging advanced cloud architecture and high-performance computing, GSCAI redefines how renewable energy can power the next era of digital transformation.

New tactile patch turns flat screens into lifelike textures with human-level accuracy

By Aamir Khollam November 19, 2025

Northwestern University engineers have built the first haptic device that reaches human resolution in touch. The ultra-thin wearable, called VoxeLite, recreates tactile sensations with clarity that matches the human fingertip.

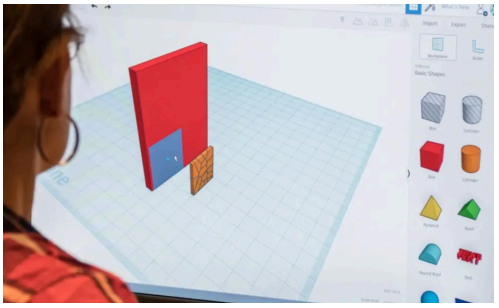
New AR system turns common surfaces into high-precision keyboards for faster input

ByAamir Khollam November 19 2025

Researchers at the University of Texas at Dallas have built a new augmented reality interface that lets users type on everyday objects. The technology, called PropType, overlays a virtual keyboard onto items such as bottles, cans, and books.

AI learns CAD just by watching designers work and starts building 3D models itself

By Aamir Khollam November 19, 2025



MIT engineers are developing an AI model that can operate CAD software the same way a human designer does. The system takes a 2D sketch and turns it into a 3D model by clicking buttons and navigating menus inside the software.

Microsoft, Nvidia invest in Anthropic in cloud services deal

By Reuters November 18, 2025

Microsoft and Nvidia plan to invest in Anthropic under a new tie-up that includes a $30bn commitment by the Claude maker to use Microsoft's cloud services, the latest high-profile deal binding together major players in the AI industry.

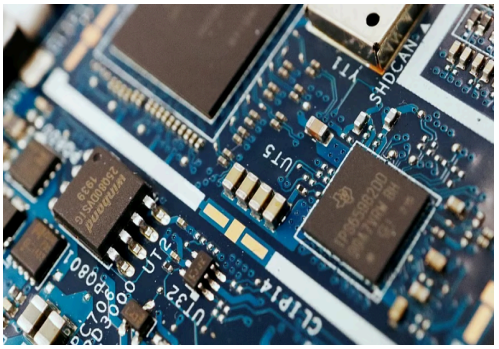
Breakthrough method creates ultra-pure LEDs from previously useless nanoparticles

By Mrigakshi Dixit, November 19, 2025

A long-standing barrier in optoelectronics has been addressed by researchers at the University of Cambridge's Cavendish Laboratory. They have invented a molecular "back door" to power materials previously considered useless for modern electronics.In particular, the development centers on a technique to electrically power previously insulating nanoparticles, namely lanthanide-doped nanoparticles (LnNPs).

'85% of India's PCB demand met by imports': Experts at Bengaluru Tech Summit urge semiconductor scale-up

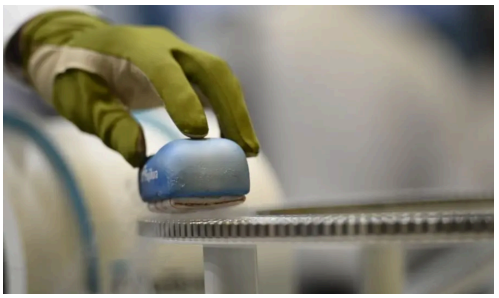
By Uma Kannan November 20, 2025



Wipro Electronics Materials Co-CEO Neeraj Pandita said less than 5% of its PCB is produced in India. The global PCB market is over $80 billion, and laminates (the foundational material for creating a PCB) market is about $20 billion, and this is expected to grow in coming years.

Scientists find new superconducting material that could power future quantum tech

By Atharva Gosavi, November 19, 2025



Researchers at IFW Dresden and the Cluster of Excellence ct.qmat announced on November 19 that they had identified a new form of superconductivity in the crystalline material $PtBi_2$. This form displayed a topological behavior and an electron-pairing pattern that had never been seen before.

News Articles

Govt hardens stance on ACC-PLI defaulters

Fresh penalty notices issued to Ola, Reliance arm, Rajesh Exports

NITIN KUMAR
New Delhi, November 19

THE MINISTRY OF heavy industries (MHI) has issued fresh notices to all three beneficiaries of the advanced chemistry cell (ACC) production-linked incentive (PLI) scheme which failed to meet mandated timelines for setting up their manufacturing plants.

The government has directed Ola Electric, Reliance New Energy and Rajesh Exports (ACC Energy Storage) to pay penalties accrued till September 30, signalling that requests for extensions and penalty waivers have not been acceded to.

This marks a clear hardening of the Centre's position on implementation of the ACC-PLI scheme, which was announced in 2021 with an outlay of ₹18,100 crore to build 50 GWh of domestic battery cell manufacturing capacity. Under the terms of the programme, companies are required to establish plants within two years of signing final agreements and meet domestic value addition and investment milestones. Delays attract penalties calculated daily and deducted from future incentive payouts.

All three companies had first sought relief in February, after the initial showcause notices were issued for failing to comply with timelines. They maintained that sourcing critical equipment and plant machinery from China had been severely affected by export restrictions and shipping delays. The upstream supply chain for advanced chemistry cell production remains heavily dependent on specialised imports, and companies claimed that bottlenecks had forced them to slow execution despite having obtained all central and state-level approvals.

However, the government now appears to have rejected that reasoning. According to officials, the penalties remain applicable from January 1, 2025, and no relaxation has been granted. Ola Electric, which received the largest allocation of 20 GWh, faces penalties of ₹12.5 lakh per day, while the two 5 GWh beneficiaries — Reliance New Energy and Rajesh Exports — have been fined ₹5 lakh a day each.

Continued on Page 7

MISSED TARGET

- The PLI scheme was announced in 2021 with an outlay of ₹18,100 cr to build 50 GWh of battery cell capacity
- Ola Electric, which received the largest allocation of 20 GWh under the scheme, faces penalties of ₹12.5 lakh per day
- Reliance New Energy and Rajesh Exports — both 5 GWh beneficiaries — have been slapped with a fine of ₹5 lakh a day each
- Ola has accumulated dues of around ₹35 crore, while the other two owe about ₹14 cr each
- All companies sought relief in February, citing restrictions on sourcing of critical equipment from China
- Officials say two of the firms have shown virtually no progress, while Ola Electric reported trial production

Source:Financial Express 20-11-2025

Page No 01

Link: https://drive.google.com/file/d/1XQzQfpQQ9hCTltQimemvWBJ3qbMpjyur/view

BENGALURU TECH SUMMIT: DAY 2

India's AI future ecosystem hinges on home-grown models

ANEES HUSSAIN
Bengaluru, November 19

INDIA'S AI ECOSYSTEM may be expanding at a reasonably fast pace, but the technology community feels that progress without inclusion could deepen inequality. At the Bengaluru Tech Summit 2025 on Wednesday, founders said the country must build domestic AI models rooted in local languages, industrial needs and affordable cloud infrastructure. They said that the question is not whether India will adopt AI, but whether every citizen and business will be able to access it.

This came most clearly from Sarvam.ai co-founder Vivek Raghavan, who stressed that capability without reach is a recipe for exclusion. "The AI divide, if we are not careful, can be much worse than the digital divide. We all know that in our lives we can have significant efficiencies and improvements in what we do. But that needs to go to everybody," he said. For him, India's next leap must ensure AI is not reserved for the top tier of society and industry.

Gnani.ai co-founder Ananth Nagaraj added that AI is quickly shifting from advantage to necessity, and that the country cannot depend on systems trained for foreign conditions. "AI for people who are less privileged than us is something we need to build. It is no longer going to be just a good-to-have tool but will increasingly become a necessity," he said. He explained that the pressures of deploying AI at India's scale make global models inadequate. Gnani.ai processes around 100,000 audio calls every second, which is nearly 10% of the country's voice traffic, while keeping response times under 150 milliseconds across speakers who switch between two or three languages, compressed audio quality on 2G and 3G, and heavy background noise. "In any other market the complexities would be far lesser," he said.

Language, unsurprisingly, emerged as one of the strongest arguments for domestic AI. BharatGPT founder Ankush Sabharwal said the platform is already supporting more Indian dialects than the world's largest tech companies. "The kind of languages we support are more than popular global tech platforms. We are ahead in terms of accuracy of different dialects, use cases and domains, although there is a lot more still left to do," he said, adding that more than 50,000 developers and researchers are currently building on its ecosystem.

The need for localisation is not limited to consumer access. Zeneteiq founder Shashikumaar Ganesan said that India's deep-tech sectors demand AI that can reason scientifically rather than predict statistically. "When it comes to scientific reasoning, existing transformer models cannot deliver physically consistent, mathematically verifiable responses. Existing probabilistic based next-token prediction is of limited use here," he said, pointing to energy, electric vehicles and manufacturing as examples where accuracy and verifiability matter more than fluency.

Infrastructure remains the final bottleneck. Karan Kirapalani, chief product officer at Neysa, said that the shift from enterprise to consumer deployment can make cloud costs prohibitive. "While Indian enterprises today function on Azure and AWS for internal applications, cloud costs go exponentially high when you look to deploy consumer-facing solutions," he said. To relieve supply pressure, Neysa is building a 400-megawatt data centre with 25,000 GPUs, which is equivalent to the government's India AI Mission Phase 1.

FUTURE PERFECT

- AI growth is fast, but inclusive access remains a major challenge
- Founders stress AI must be built for local languages
- Startups say AI is shifting from advantage to essential for businesses cut
- Deep-tech sectors require AI that is verifiable and accurate

Sarvam.ai to launch India's first LLM by early next year

ANEES HUSSAIN
Bengaluru, November 19

SARVAM.AI PLANS TO roll out India's first home-grown foundational large language model (LLM) in the next couple of months, co-founder Vivek Raghavan said.

The model, developed indigenously, will feature about 120 billion parameters and has been trained on more than 17 trillion tokens, with 15–20% of the data sourced from India.

The high concentration of Indian-origin data would be a significant leap from current open-source models where Indian data comprises less than 1%, he added.

Sarvam was the first startup selected under the India AI Mission to build a national-scale foundational model. The launch will be a key milestone in India's push to establish sovereign AI capabilities.

Raghavan, an entrepreneur and technologist who previously helped build India's digital stack including Aadhaar, alongside Infosys co-founder Nandan Nilekani at AI4Bharat, said developing foundation models domestically is strategically essential.

epaper.financialexpress.com
New Delhi

Source:Financial Express 20-11-2025

Page No 04

Link: https://drive.google.com/file/d/1XQzQfpQQ9hCTItQimemvWBJ3qbMpjyur/view

Scaling up biogas: Strengthening India's energy transition

Challenges and pathways in feedstock, logistics, infrastructure, and financing

VARUN KARAD

India's biogas sector stands at a pivotal juncture. Under the SATAT initiative, the vision of deploying 5,000 Compressed Biogas (CBG) plants has ignited strong momentum, yet the sector's full potential remains constrained by fragmented feedstock chains, inefficient logistics, limited infrastructure readiness, and financing challenges. With over 500 million tonnes of agricultural residue and organic waste generated annually, India possesses an immense resource base. Converting this into reliable, commercially viable energy demands an integrated approach that aligns technology choices, local realities, and financial frameworks.

1.Feedstock: The Foundation of Sustainability

India's diversity in agro-climatic zones demands a state and district-level understanding of feedstock ecosystems. Aggregation cycles differ widely. In northern states like Punjab, the effective collection window has shortened to as little as 15 days, often coinciding with misty weather that heightens fire risks. Central and eastern regions offer slightly longer aggregation periods but lack sufficient machinery to exploit them effectively. Smaller landholdings in states such as Uttar Pradesh further elevate aggregation costs due to higher machine density requirements. Meanwhile, in Punjab and Haryana, machinery is abundant but frequently controlled by unions that influence feedstock pricing.

Challenges: Feedstock aggregators operate without long-term contracts, resulting in speculative spot markets that undermine price stability and complicate project financing. The absence of risk-mitigation structures makes lenders wary, constraining debt availability.

Solutions: Project developers must account for state-specific dynamics rather than applying uniform pricing models. Building vendor ecosystems that can deliver long-term feedstock contracts will provide price visibility and reduce project-level volatility. These contracts should include robust force majeure and equitable pricing clauses to protect both parties. Developers can also leverage the centrally funded BAM scheme to procure their own machinery, thereby improving control and reliability of feedstock supply.

2. Logistics: Bridging the Rural-Industrial Divide

Biomass logistics form the operational backbone of any CBG facility. Transporting biomass in baled form beyond 30 kilometres sharply increases costs, often rendering the feedstock unviable. The small average field size across India compounds the challenge, as it limits the productivity of large harvesters and necessitates multiple smaller machines, raising both capital and operating costs.

Storage introduces further complexity. Feedstock must be protected from India's harsh summers and unpredictable monsoons. Without well-designed storage yardsequipped with fire-safety systems, proper drainage, and all-weather access roads, developers risk losing significant volumes to fire, moisture, and handling damage. Despite this, there is still no widely accepted benchmark for annual feedstock losses across the sector.

Solutions: Comprehensive logistical planning must begin at the project-concept stage. Developers should map potential collection zones, assess proximity to plant sites, and identify safe storage areas distanced from residential clusters. Capital investment in storage infrastructure should be treated as integral to plant viability, not an afterthought. Experience shows that haulage and storage costs can be equal to or even exceedthe base feedstock price, underscoring the importance of precision planning and fire-safety discipline.

3. Infrastructure: Translating Policy Into Execution

While policy frameworks such as SATAT and GOBARdhan have created a robust foundation, ground-level implementation often lags. Developers face delays in land acquisition, environmental clearances, grid connectivity, and pipeline tie-ins. Many state-level CBG policies are recent, and their on-ground application remains uneven.

One recurring challenge is power reliability. CBG plants, typically located in rural zones, rarely enjoy uninterrupted 24×7 electricity, and some lack access to grid injection points, an issue that can jeopardise project viability. Compounding this, the sector faces a shortage of technically trained manpower to operate and maintain plants efficiently.

Solutions: Developers should conduct comprehensive due diligence on local policy execution before finalising sites. Project locations must be evaluated for 24×7 power availability, gas grid connectivity, and infrastructure support.

Where grid reliability is weak, integrating dedicated backup systems is essential. Simultaneously, building a skilled workforce through targeted training programs can significantly enhance operational reliability.

4. Financing: De-Risking Green Investment

Access to capital remains a defining barrier to sectoral growth. CBG projects are capital-intensive, have long gestation periods, and depend on variables-feedstock availability, offtake pricing, and plant uptime, which traditional lenders find difficult to quantify.

Unlike solar or wind, biogas generation cannot be simulated with standardised models, making revenue projections inherently complex.

As a result, banks often over-collateralise or decline funding altogether. Several early projects that underperformed have further eroded confidence, creating a cycle of risk aversion. Yet large-scale collateral is impractical for most developers, stalling investment flow.

Solutions: A multi-pronged approach is needed. Developing a formal training curriculum for banking officers can equip them to evaluate biogas proposals through technical and financial lenses.

Blended-finance mechanisms, viability-gap funding, and interest-subvention schemes can substantially enhance project bankability.

Long-term feedstock supply and gas offtake contracts will further assure lenders of predictable cashflows, paving the way for sustainable project financing.

Conclusion:

Building a Scalable and Resilient Ecosystem India's biogas journey is no longer about pilot projects;it is about building an industry that underpins national energy independence and rural prosperity. Achieving this vision requires a collaborative ecosystem that integrates technological discipline, financial innovation, and policy pragmatism. By localising feedstock strategies, professionalising logistics, strengthening infrastructure readiness, and de-risking finance, India can transform its vast organic-waste reserves into a dependable energy asset. The coming decade offers an opportunity to make biogas not just a renewable alternative but a cornerstone of India's sustainable energy future.

Varun Karad is the Co-Founder and CEO of REnergy Dynamics, a renewable-energy company advancing biogas technology and sustainable energy solutions across India.

Source:Pioneer Express 20-11-2025

Page No 11

https://drive.google.com/file/d/1Jl_NhhXETaGKGzQhXxG797jJm8p4L0ss/view

ATHARVA
ROBOTICS CENTER